Volume 1:
Overview and
Recommendations

Report of the Secretary's Task Force on

Youth

Suicide

U.S. DEPARTMENT OF HEALTH & HUMAN SE 10 $ 6.00
Public Health Service
Alcohol, Drug Abuse, and Mental Health Administration

Volume 1:
Overview and
Recommendations

Report of the Secretary's Task Force on Youth Suicide

128418

(Vol. I)

January 1989

The members of the Secretary's Task Force on Youth Suicide wish to acknowledge
the extraordinary effort of the Executive Secretary,
Ms. Eugenia P. Broumas.

LETTER OF TRANSMITTAL

The Honorable Otis R. Bowen, M.D.
Secretary of Health and Human Services
Washington, D.C. 20201

Dear Mr. Secretary:

On behalf of the Task Force on Youth Suicide, I am pleased to submit our report and recommendations for your review and consideration. The deliberations of this task force have confirmed that suicide is indeed a perplexing problem which, for health professionals and laymen alike, defies ready solutions. Suicide rates among 15- to 24-year-olds have more than doubled during the past 30 years; now suicide ranks as the second leading cause of death for that age group and accounts for more than 200,000 potential years of life lost each year. These high suicide rates among the Nation's youth are unacceptable when we have been able to decrease the toll from almost every other leading cause of death.

The seriousness of the problem prompted former Secretary Margaret Heckler to convene a departmental level task force to advance our understanding of the causes of suicide and to find ways to reverse the tragically high levels. With your encouragement and support we have completed our task. In preparing our recommendations we have reviewed the available body of knowledge in youth suicide, and we have held a series of forums to solicit the best information and advice from the country's leading educators; biological, social, and behavioral scientists; other care providers; and leading international experts. We have commissioned papers to close gaps in our knowledge and to gain the insights of those dedicated workers who work with troubled youth on the community level.

Reducing youth suicide has already been given a high priority in the public health "Objectives for the Nation" to be achieved by 1990. The objective calls for a suicide rate among persons 15 to 24 years of age of less than 11 per 100,000. However, this objective stands out prominently as one we probably will not be able to reach within the next 3 years. The comprehensive nature of our recommendations indicates the scope of the effort that is needed if we wish to attain this objective.

This 4-volume report is the product of a major effort in synthesizing the present state of knowledge about youth suicide. It contains extensive background information examining current knowledge on the three major themes of our endeavor: Identifying risk factors for youth suicide, reviewing prevention and intervention activities, and defining strategies for the future.

While this report includes recommendations for a wide variety of organizations in both public and private sectors, there are four steps that are most appropriate for you and the Department of Health and Human Services to undertake immediately. First, this task force report should be quickly and widely disseminated. It is the most comprehensive review of information about youth suicide that is available; this scientific information is up to date and it will become outdated and lose some of its value if it is not distributed in a timely fashion. In this effort, you should involve those organizations that participated in the formulation of the task force recommendations, such as the American Association of Suicidology, the National Association of Social Workers, the American Psychiatric Association, the American Psychological Association, the American Medical Association, the National Education Association, the National Parent Teachers Association, and others, and at the same time, ask those organizations to integrate these recommendations into their ongoing programs. These organizations have made impor-

tant contributions to the task force's work and play a very important role in youth suicide prevention.

Second, we urge you to create a focus for youth suicide within the Department. An interagency council located at the Public Health Service or Office of the Assistant Secretary for Health level, staffed by the Alcohol, Drug Abuse, and Mental Health Administration could monitor our progress toward preventing youth suicide and ensure the coordination necessary to address this problem most efficiently. The Council on Alzheimer's Disease might serve as a model. Since the prevention of youth suicide also involves programs for criminal justice, education, and youth employment, representatives of the Departments of Justice, Education, and Labor should be invited to participate on this council. Appropriate nongovernmental agencies might also be invited to attend. The council should be asked to prepare an annual report for the Secretary on progress toward preventing youth suicide.

Third, we recommend that departmental agencies which deal with problems of youth and adolescence (such as teenage pregnancy, substance abuse, and interpersonal violence) integrate information about youth suicide into their ongoing and new programs. In addition, information about youth suicide could be disseminated through information networks and clearinghouses which already exist to address these problem areas.

Fourth, specific agencies should make youth suicide a priority concern by submitting to you in annual progress report a listing of their ongoing and new programs which might appropriately address youth suicide. Some examples of the ways agencies could address youth suicide include:

Indian Health Service. The Indian Health Service can address suicide prevention in developing clinical programs to address problems of Native American youth.

Health Resources and Services Administration. The Health Resources and Services Administration could disseminate information about youth suicide to the many "gatekeepers" involved in their programs.

Alcohol, Drug Abuse, and Mental Health Administration. Information about youth suicide could be disseminated to the States through the Alcohol and Drug Abuse and Mental Health Services Block Grant mechanism. Institutes could coordinate efforts to issue Requests for Applications and Proposals in youth suicide research and sponsor joint research projects with the Centers for Disease Control.

Centers for Disease Control. Resources should be made available for helping State and local health departments identify and respond to youth suicide clusters.

Administration for Children, Youth, and Families. The Administration for Children, Youth, and Families can continue to address youth suicide by disseminating the results of successful projects funded by the runaway and homeless youth program. The administration also could continue to work to encourage early intervention for the development of high self-esteem among Head Start students in order to prevent later dysfunction.
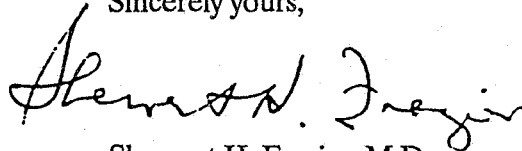
In addition to serving as a resource for a departmentwide strategy to reduce suicide, we anticipate that these volumes will act as a much-needed source of information and guidance to health, education, and social service workers at the State and community levels who wish to improve the services they provide to the youth of America. We believe that many young people who have entertained thoughts of suicide can be redirected toward alternative life-sustaining choices.

The task force recognizes that success in this effort will not depend solely on the amount

or type of Federal resources available, nor will success be achieved with short-term efforts. In large part, success will depend on the ability of government to work with key individuals and programs in the private sector and on the ability of these programs to affect the lives of individuals and families. Ultimately, suicide prevention will require ongoing, long-term approaches and will hinge on the dedication and involvement of individuals, families, social and civic organizations, and citizen volunteers in local communities.

We urge you to continue your commitment to meeting this public health goal by assigning responsibility for implementing these recommendations to the appropriate departmental agencies and by identifying an individual who will coordinate the Department's suicide programs and prepare a yearly progress report for you.

Sincerely yours,

Shervert H. Frazier, M.D.
Chairman

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EXECUTIVE SUMMARY

BACKGROUND

The suicide rate for young people between ages 15 and 24 almost tripled during the past 30 years. Suicide is now the second leading cause of death for young people in this age group. This sharp increase in suicide rates in one segment of the population, especially when rates for most other causes of death were decreasing in the United States, prompted the Secretary of Health and Human Services to organize a task force to investigate this pressing problem.

The task force was charged with investigating what could be done to prevent youth suicide. In the past, suicide had traditionally been considered a mental health problem of older adults. Its prevention was based on the detection and treatment of psychological illness in adults, most commonly depression. Beginning in 1980, however, more than half of all suicides occurred among persons under the age of 40. In addition, evidence suggested that depression was less frequently associated with suicide in young people than adults. In light of these findings, what reason was there to think that prevention based on detecting and treating depressed adults could work for nondepressed young people? Few research studies had examined suicide and suicide prevention in young people; nor was it known whether inferences drawn from research on adults could be applied to youth.

The major functions of the task force were to review, assess, and consolidate the available information about suicide; provide forums for communication among health care professionals, educators, researchers, social service workers, and families; and recommend activities to address the problem. The task force was also charged with coordinating suicide activities among Federal agencies, Congress, State and local governments, private agencies, and professional organizations.

FINDINGS

In fulfilling its charge, the task force concluded that:

- The state of knowledge about youth suicide--what causes it, who is at greatest risk, and how to prevent it--is much less developed than that of many other health problems.

- Acquiring this knowledge will require a carefully coordinated, sustained program of focused research and an organized multidisciplinary approach that integrates the diverse interests in the field.

- We need to evaluate rigorously the effectiveness of various interventions designed to prevent suicide.

- An effective approach to suicide prevention will need to involve committed individuals in health, mental health, education, and social services in both the public and private sector.

We know that certain characteristics, called risk factors, are associated with an increased likelihood of suicide in a population. Some possible risk factors include parental loss, family disruption, emotional stress, a history of abuse and neglect, homosexuality, being a friend or a family member of a suicide victim, previous suicide attempts, mental illness or drug dependency in a family member,

chronic or acute alcohol and drug abuse, and access to firearms.

While mental illness is often related to suicide, only a portion of the young people who commit suicide have been diagnosed as mentally ill. Many young suicide victims did not have a major mental illness but had a history of conduct disorders characterized by impulsive, aggressive, antisocial behavior, often complicated by substance abuse. Another large group of young suicide victims did not fit these characteristics but included socially inhibited youngsters who were perfectionists or prone to extreme anxiety in the face of social or academic challenges. The breakup of a relationship, a recent arrest, and being the victim of beating, assault, or rape are events that most commonly precipitate suicide. Reduced levels of 5-hydroxyindoleacetic acid (5-HIAA), a serotonin metabolite found in the spinal fluid, are associated with suicide and other violent acts by some young people.

Guns are the most frequently used means for suicide for both males and females, followed by hanging, poisoning by drug overdose, and jumping from high places. Five times as many males as females in the 15 to 24 age group commit suicide. An estimated 20 or more suicides are attempted for every one completed. Approximately three times as many females attempt suicide as males.

RECOMMENDATIONS

After extensively reviewing the medical and sociological literature, and obtaining the best advice from experts in a broad range of disciplines, the task force developed six recommendations that address the most urgent needs for research, education, and services to prevent youth suicide. During this process, we actively sought to involve many individuals and interest groups at the national and community level, including health and mental health care providers, representatives of suicide prevention advocacy groups and volunteers, educators, social and behavioral scientists, and members of families in which a suicide has occurred.

The Task Force on Youth Suicide believes that the Federal government should play an active role in monitoring the implementation of these recommendations and place a high priority on supporting data collection, research, services, and information dissemination.

Summary of the Recommendations

1. Develop accurate, timely, and valid data on suicide and attempted suicide.
We must develop uniform definitions for suicide and special programs (called "surveillance systems") at the State and local levels to identify and report suicides and suicide attempts more consistently, objectively, and completely. Standardized criteria for determining suicide as a cause of death should be implemented by death certifiers. These procedures may also provide the means to detect unusual patterns, or "clusters," of suicides and help to identify methods to prevent such suicides.

2. Conduct multidisciplinary research to determine and evaluate the risk factors for suicide.
It is important to identify the many psychological, sociological, and biological factors that contribute to an increased likelihood of suicide among youth. Well-planned, coordinated, and adequately funded efforts will help elucidate the causes of suicide, facilitate the identification of youth at greatest risk, and help in targeting intervention and preventive services for young people.

Because the risk factors for suicide are very diverse, we believe that suicide research can be enriched by interdisciplinary efforts that combine, for example, educators, biologists, sociologists, and psychiatrists in research projects.

3. Evaluate the effectiveness and cost of interventions to prevent suicide.
Little is known about the effectiveness of the

many suicide prevention and intervention programs that have been initiated since the 1970s. We need to know more about the kinds of interventions that work, for whom and under what circumstances they work.

We need to evaluate suicide prevention centers, telephone hotlines, school-based intervention and education programs, and peer support groups as well as programs targeted to specific groups. These include programs that enhance the ability of gatekeepers (people who are in frequent contact with youngsters) to recognize the warning signs of potentially suicidal youth and programs that improve early identification and treatment of depression by health care professionals. We also need to evaluate specific treatment modalities for suicide attempters, and programs that give emotional support to people who have survived another's suicide.

Because firearms are the most frequently used method for committing suicide, we must assess whether programs limiting access to this lethal means of suicide, especially to persons known to be at high risk, have an overall effect on suicide rates.

4. Support the delivery of suicide prevention services.

While the physical needs of young people who come to health care facilities are usually well attended to, other personal, school, or family problems that may place an adolescent at risk for suicide, are frequently not recognized by many health care providers.

Physicians, nurses, and others in health care settings, e.g., emergency rooms, general medical clinics, health maintenance organizations, prenatal clinics, should be alert about the risk factors for suicide among youth, have the ability to identify those in danger, and have the resources to refer them to appropriate mental health care. Emergency room personnel, for example, should refer adolescents for psychological evaluation when suicide attempts are suspected. In addition, more health care professionals are needed who specialize in psychological

problems of youth.

Because its roots lie in many different social, health, and educational problems experienced by youth, suicide cannot be dealt with in isolation from other self-destructive behaviors. Suicide prevention activities should be integrated into broader health promotion programs and health care delivery services directed at preventing other self-destructive behaviors, such as alcohol and substance abuse, teen pregnancy, and interpersonal violence.

These improvements in services will require cooperation among health service, social service, and juvenile justice agencies. They will also require easing the legal and financial barriers that inhibit young people from obtaining appropriate health and mental health care.

Finally, technical assistance for communities in which suicides have occurred, should be made more widely available. State and local public health departments are the most appropriate agencies for providing assistance in developing response plans that will reduce the chances of further suicides in the community.

5. Inform and educate the public and health service providers about current knowledge in the prevention, diagnosis, and treatment of suicide among youth.

We must both promote public awareness of youth suicide and provide necessary training for health care professionals in suicide prevention. Developing special programs to improve the ability of gatekeepers to recognize clues to suicide, training school system personnel to assess suicidal risk in young people, and encouraging them to refer high risk youngsters to appropriate care are important aspects of suicide education. Moreover, we must make every effort to disseminate information on youthful suicide and suicide attempts to interested individuals and organizations through resource centers or information clearinghouses.

6. Involve both public and private sectors in the prevention of youth suicide.
No simple, universally effective intervention will solve the problem of suicide. Preventing youth suicide will require the efforts of all sectors of the community--public and private--implemented at the national, State, and local levels.

Businesses should provide and encourage employees to use employee assistance programs when a family member is at risk for suicide. **Foundations and corporations** should increase their support for programs to prevent youth suicide. The **media and entertainment** industry should cooperate in efforts to investigate whether television and other media affect suicidal behavior of young people. **Youth services** should include primary prevention programs directed toward disadvantaged, socially isolated, and other underserved youth. **Religious** counselors should be aware of the indicators for suicidal risk and resources from which young people can get help. **Legal** means should be investigated for ways to limit access to means of suicide and ways to alleviate liability concerns of mental health professionals who treat suicidal youth.

The **criminal justice system** should educate personnel to recognize the high risk of suicide during periods of incarceration and provide mental health services for identifying and treating suicidal individuals. States should encourage **social services** in the public and private sector to develop comprehensive, preventive approaches for families with youth at high risk for suicide, substance abuse and interpersonal violence. Programs should be developed to strengthen **families** and enable them to support their youth through life crises.

The factors contributing to youth suicide are complex and defy simplistic solutions. These recommendations are not likely to be accomplished by short term efforts, but will require a variety of long term, ongoing, prevention activities and intervention approaches.

INTRODUCTION AND OVERVIEW

INTRODUCTION

The suicide of a young person is a personal tragedy, profoundly affecting a wide circle of family, friends, and acquaintances. The loss permeates an entire community which is often left feeling that somehow they have failed that youngster. Increasing suicide rates among our young have led to growing public concern over suicide and a pressing need to understand the kinds of problems and stresses that make young people choose suicide as a solution to their psychological pain. The nation demands to know why young people are killing themselves at unprecedented rates and what can be done to prevent these tragic events. After carefully reviewing the available information about suicide in the young, this task force concludes that:

- The state of knowledge about youth suicide is much less than that of many other health problems.

- Advancing the state of our knowledge about the causes of youth suicide and how to prevent it will require a carefully coordinated and sustained program of focused research and an organized multidisciplinary approach.

- The effectiveness of various intervention techniques designed to prevent youthful suicide need evaluation.

- An effective approach to suicide prevention will involve committed individuals in health, education, and social services within the public and private sectors.

MAGNITUDE OF THE PROBLEM

Suicide among young persons ages 15 to 24 have more than doubled between 1950 and 1980. Suicide now ranks as the second leading cause of death in this age group, accounting for 200,000 potential years of life lost each year. The fundamental change in suicide patterns since 1950 has critical implications for the public health priorities in the United States. Suicide has traditionally been considered a mental health problem of older white males. Its prevention focused on the detection and treatment of mental illness, most commonly depression. Beginning in 1980, however, more than half of all suicides occurred among persons under the age of 40.

Because of the dramatic rise in suicide rates among young persons, its increasing importance as a cause of premature death, and the changes in the patterns of suicide, suicide needs to be given high priority by the public health community in planning its future strategies. In fact, recognition of the large toll that suicide among youth exacts from our society was reflected in the objectives for the nation's health to be achieved by 1990. One of these objectives states, "By 1990, the rate of suicide among people 15-24 years of age should be below 11 per 100,000 (compared with 12.4 in 1978)." Figure 1 illustrates the trends in suicide rates since 1950.

The Secretary's Task Force on Youth Suicide was established in response to the urgent need to reexamine and advance our understanding of the causes of suicide, to

identify the people at greatest risk, to broaden research in new directions, and to implement interventions to prevent these deaths. Secretary of Health and Human Services, Dr. Otis R. Bowen, has affirmed his commitment to retaining the issue of youth suicide high on the Department's research and prevention agenda. The Task Force began its work in August 1985 and concluded in October 1987.

OVERVIEW

There is no one typical suicidal person. Each suicide is an individual act influenced by a diverse set of personal and social factors that often are not obvious. While hopelessness is a common characteristic of suicidal persons, each situation has its own history, setting and pathway. While each must be examined carefully on its own to find a possible explanation for the taking of one's own life, on deeper examination, patterns emerge which allow some generalizations to be drawn about young suicide victims.

We know that certain environmental, be-

havioral and biological characteristics, called risk factors, are associated with an increased likelihood of suicide in a population. Mental illness is often related to suicide. Only a portion of those who commit suicide, however, are known to have a diagnosable mental disorder. Other possible risk factors include the loss of a family member through suicide, broken families, emotional stress, a history of abuse and neglect, and drug and alcohol use. Many young suicide victims had a history of conduct disorders characterized by impulsive aggressive antisocial behavior often complicated by substance abuse. An estimated one third of all young people who commit suicide do not appear to fit the known picture-- suicides occur in loving and supportive families as well as in disrupted families, among high achieving as well as low achieving students.

Research into suicide has concentrated primarily on the well-established relationship between suicide and psychiatric disorders in adults. Fewer studies focus on youth. It has not yet been established whether inferences drawn from adult research can be

Trends in Suicide Rates: United States, 1950-1985

While the overall suicide rate changed little since 1950, rates for young persons 15-24 increased.

*Provisional data

+More suicides than homicides occurred in these years.

Source: National Center for Health Statistics.
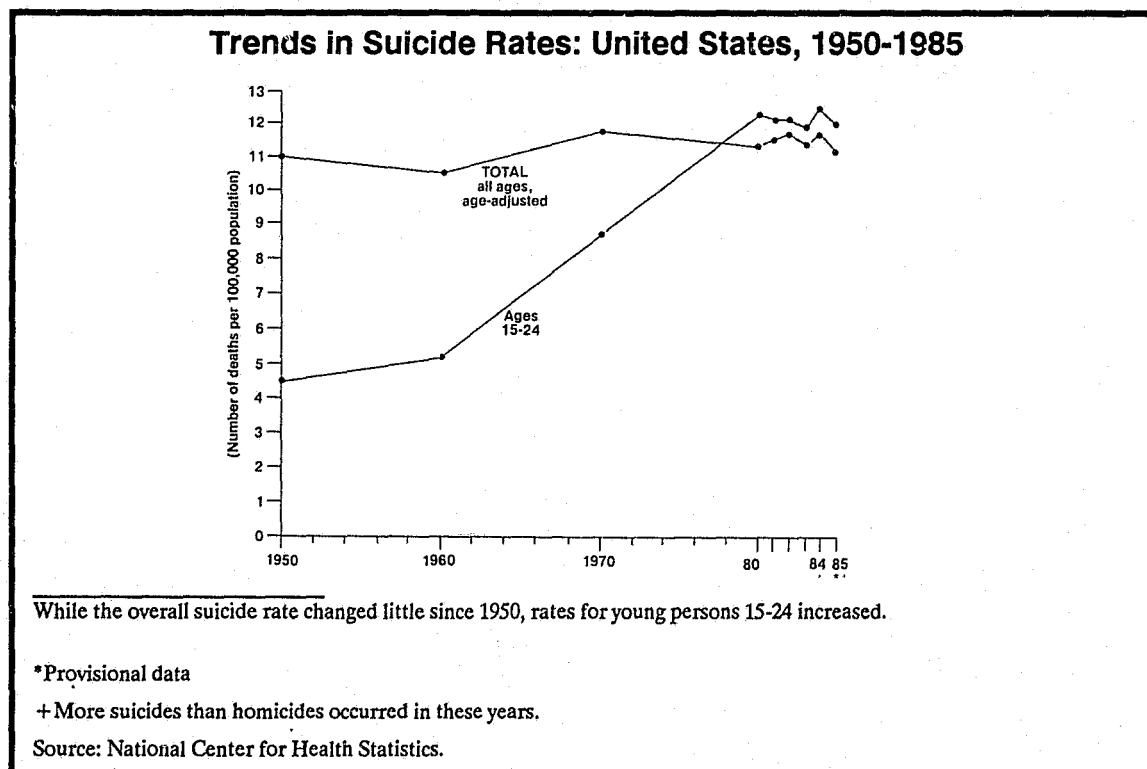
Figure 1.

applied to youth. For example, depression, a common antecedent to suicide in adults, may be less frequently associated with suicide in young people. Moreover, small sample sizes and lack of uniform research criteria for selecting subjects (e.g., age groupings) have hampered confirmatory research.

The most extensive network of prevention efforts to date are carried out by suicide prevention centers and crisis intervention units. Many of these centers, originally supported with Federal funding through the National Institute of Mental Health (NIMH), now operate with State and local support. Their services include 24-hour hotlines, counseling, referral, and group therapy for persons at risk, for their families, and for the "survivors" of the suicide. Educational programs addressing the topic of suicide have also been developed. Many programs not directly aimed at suicide prevention, such as school-based programs (designed to help children cope with stressful life events or enhance self esteem) or family counseling services for adolescents with behavioral problems, may have a potential, but yet unknown, preventive effect on suicide. The long term effectiveness, however, of most prevention services and educational efforts targeted to young people has not been fully evaluated. Despite the wide range of preventive intervention services available, suicide remains a confusing, elusive, and painful problem for professionals as well as laymen.

Supporting data

Almost 30,000 Americans take their own lives each year (28,620 in 1985). This number is greater than the annual number of homicides in the United States (19,420 in 1985). About 5,000 suicides occur among young people between the ages of 15 and 24. That means that each day, 13 Americans in this age group kill themselves. Many more young people attempt suicide and fail.

Suicide among young persons ages 15 to 24 has increased alarmingly since 1955. While suicide rates among the young are lower than those for older age groups (especially men over age 35), the rates for older persons have decreased during the past 30 years while suicide rates among young have increased. Figure 2 illustrates that while deaths from all

Trends in Death Rates from Suicide and All Other Causes Compared to 1950 for Persons Aged 15-24

While deaths from all other causes decreased in the United States since 1950, suicide rates for young people increased.
Source: National Center for Health Statistics
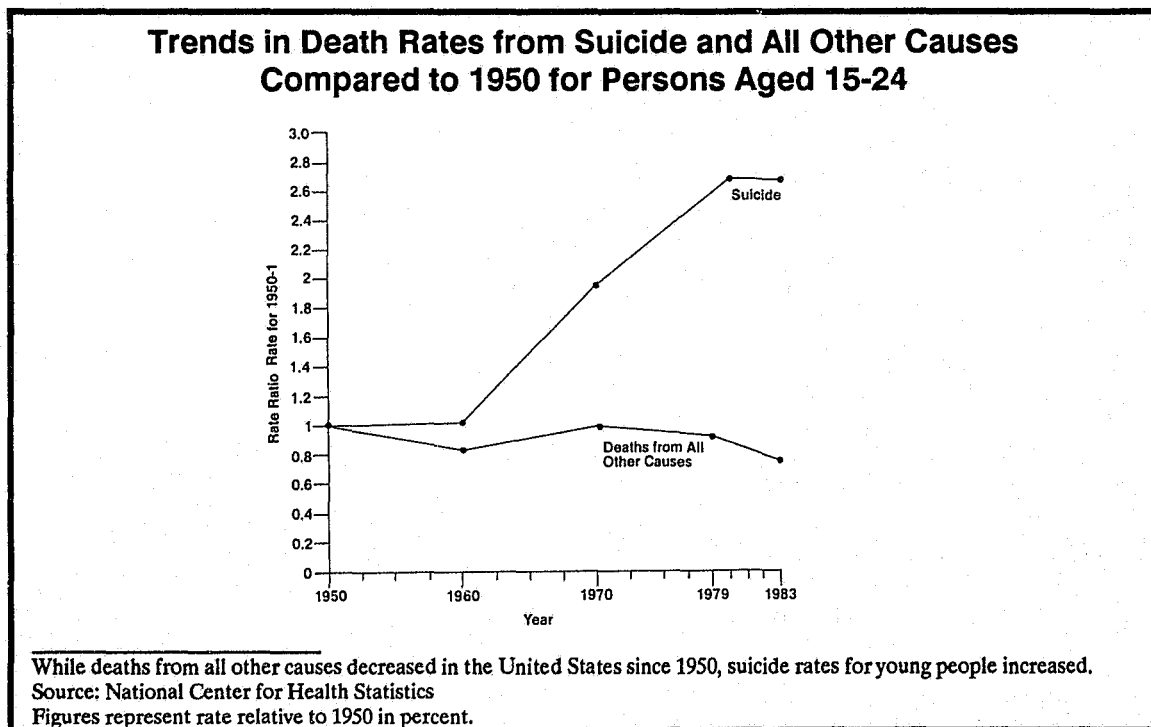Figures represent rate relative to 1950 in percent.

Figure 2.

other causes of death in the United States declined for 15 to 24 year olds, the suicide rate for this age group has steadily climbed upwards. In 1950, the suicide rate for young people 15 to 24 years old was 4.5 per 100,000 population. By 1979, the rate has risen to 12.4 (5,246 suicides), exceeding for the first time the rate for all ages combined. In 1985, the number of suicides dropped to 4,760 or a rate of 12.0 per 100,000 youngsters in this age group.

The reasons for the slow decline since 1979 are unknown, but some observers postulate that when a segment of the population increases, the incidence of adverse events within that group also increases (e.g., homicides, drug use, suicides). The proportion of adolescents in the total population peaked in the late 1970s, possibly engendering a level of stress--crowded schools, fewer job opportunities, fewer chances for success-which the population was ill prepared to handle. As the proportion of adolescents decreased, declines in homicides, adolescent drug use, and suicides were recorded. An increase in the number of adolescents is projected for the late 1990s. With better understanding of the causes and prevention of suicide, helping professionals should be well prepared to take decisive action in the ensuing years to preclude any further increase in youthful suicide.

For many years suicide had been the third leading cause of death among young Americans 15 to 24 years old. Only accidents and homicides claimed more victims. In 1984, because of the decline in the homicide rate, the number of youthful suicides exceeded the number of homicides. This represents the first time that suicide is the second leading cause of death for this age group.

Experts postulate that some additional deaths (such as some poisonings, single car crashes, or homicides) may actually be misclassified suicides. Many medical examiners and coroners (the persons who generally determine whether a death is classified a suicide) believe that the reported

number of suicides may be less than one half the true number. Another index by which to measure the impact of a particular cause of death is the number of years of potential life lost because of premature death. Violent deaths among young people, including suicides, homicides, and accidents, are the leading cause of potential years of life lost in the United States.

Suicide in the young is more common among males than females by a ratio of approximately 5:1. Seventy percent of all suicides were committed by white males in 1980. The most common methods for suicide are by firearms, hanging, and poisoning with a drug overdose. The western States have the highest adolescent suicide rates; the northeastern States have the lowest rates.

A substantial number of youngsters deliberately harm themselves in suicide attempts. Their annual number is very difficult to ascertain. Injuries or drug overdoses occurring in youngsters are frequently not reported or investigated as suicide attempts by the emergency personnel who attend them. Various studies estimate that attempts are 5 to 20 times greater than completed suicides; between 1 and 10 percent of all persons who attempt suicide go on to commit suicide. The relationship between those who attempt and complete suicide is discussed in commissioned papers included in other volumes of this report.

Minorities

Suicide rates among blacks are roughly half as great as those among whites for both men and women, although black male suicides outnumber females by about 4:1. The rate of suicide in black males ages 15 to 24 increased from 4.9/100,000 in 1950 to a peak of 12.3 in 1980; the rate stands at 11.2 in 1984.

Suicide is the second leading cause of death (following accidents) for young Native Americans. The average suicide rate reported by the Indian Health Service for 1981-1983 was 27.9 for 15 to 24 year old Native Americans compared to an average rate

of 12.2 for all Americans 15 to 24 years old during the same time period. Suicide rates vary considerably among individual tribes and one must be cautious about using aggregate data to generalize about Native American suicides. The age distribution pattern of suicides among Native Americans differs from that of the general population in that Native American suicide victims are generally younger, peaking at ages 20 to 24.

Suicide data on Hispanic youth were obtained from five southwestern States where more than 60 percent of all Hispanics in the United States reside. The suicide rate for Hispanics is lower than the rate for non-Hispanic whites but higher than rates for blacks in the same geographic area. Contrary to the patterns observed among non-Hispanic whites in which the suicide rate increases with age, the highest suicide rates for Hispanics occur in the 20 to 24 year age group.

Very few studies have concentrated on suicide among Asian American youth. Available information indicates that Chinese, Japanese, and Filipino male suicide rates are generally lower than those of American males except in the oldest age groups. Data on minority groups are presented in Volume 3 of this report.

TASK FORCE ORGANIZATION

Charge

In response to the high rates of suicide among America's young people, a departmentwide Task Force on Youth Suicide was established in May 1985 by former Secretary of Health and Human Services Margaret Heckler. Secretary Otis R. Bowen continued the Department's support of this project. The task force was charged to:

- Coordinate activities relating to suicide among the various Federal agencies, Congress, State and local governments, private agencies, and professional organizations.

- Assess and consolidate current information on suicide in the age group 15-24.

- Provide a forum for communication among health care providers, educators, social service professionals, and families.

- Recommend and initiate strategies for addressing the problem.

Shervert H. Frazier, M.D., Director of the National Institute of Mental Health, was appointed as chairman of the task force. Other members of the task force--administrators, policymakers, and scientists in DHHS--represent every arm of the Department. These individuals are not only committed to finding solutions to the problems of suicide, but have the authority within their respective agencies to implement the recommendations generated by the task force. The strategy developed by this distinguished group includes:

- Coordinating Federal activities in the area of youth suicide research, education, and service programs.

- Integrating activities with State and local jurisdictions.

- Promoting opportunities for cooperation and collaboration with other diverse interests in the area of youth suicide including community, professional, and public advocacy groups.

- Establishing a flexible framework for setting priorities in health and human services directed toward youth.

The task force acknowledges, however, that the success of any suicide prevention effort will depend on the ability of government to work with key individuals and programs in the private sector and on the ability of these programs to affect the lives of individuals and families. Ultimately, success hinges on the dedication and involvement of individuals, families, social and civic organizations, and citizen volunteers working with young people in local communities.

Work Groups

Work groups were organized around three major topics defined by the task force:

- Risk factors for youth suicide

- Prevention and interventions in youth suicide

- Strategies for the future

Each work group was composed of experts from within and outside the government and included researchers, clinicians, service providers, educators, and national and local authorities. The work groups examined the complex nature of suicide and reviewed past and current research and prevention programs.

The Work Group on Risk Factors was chaired by Dr. Lucy Davidson of the Centers for Disease Control (CDC) and Dr. Markku Linnoila of the National Institute on Alcohol Abuse and Alcoholism (NIAAA). The work group identified a comprehensive list of characteristics linked to suicide and grouped them into 14 categories. Experts in each area were commissioned to analyze and summarize the current scientific literature in their area. The resulting papers, which appear in Volume 2, reviewed the role of environmental, behavioral, sociocultural, biologic, and psychological factors that have been associated with an increased likelihood of suicide among young people. Knowledge of these characteristics (or risk factors) is important in clarifying the causes of suicide and is vital in planning and instituting early prevention measures, and in identifying high-risk groups to whom preventive or educational interventions can be targeted.

The Work Group on Prevention and Interventions was cochaired by Dr. Jack Durell of the National Institute on Drug Abuse (NIDA) and Commissioner Dodie Livingston of the Administration for Children, Youth, and Families (ACYF). On Dr. Durell's retirement, Dr. Dorynne Czechowicz of NIDA was appointed as cochairperson. The work group examined currently operating prevention programs and various intervention techniques. The work group selected experts to review the literature, describe various programs and, if possible, evaluate the effectiveness of modalities of preventive interventions. Topics included primary prevention methods, community responses to suicide, networks for suicide prevention, interventions for special populations such as minorities and drug/alcohol users, issues related to early detection and treatment, and reports from federally supported research and demonstration centers.

The Work Group on Strategies for the Future, chaired by Dr. Mark Rosenberg of CDC, channelled the findings of the work groups and conferences into a feasible, cohesive plan to address the issues defined by the work groups. They studied a wide array of recommendations submitted by the members of the three work groups, by authors of commissioned papers, and by the participants in the national conferences. The recommendations were organized into 10 categories, then reviewed and synthesized by the task force into their final format. The strategy that emerged focused on a program of targeted research, support for and evaluation of preventive services, and public information and education.

The work group's commissioned papers explored broad policy issues in suicide prevention, such as the role of the Federal government, the economic impact of suicides, estimating the effectiveness of preventive interventions, the prevalence of suicide attempts, the role of education, the impact of the media, and the roles of health services, business, and philanthropy.

Commissioned papers

The work groups commissioned approximately 50 scientific papers and studies. The authors reviewed the scientific literature and discussed the current state of knowledge in their respective topics. Each author proposed recommendations suitable to

his/her area of expertise. Many of these papers were presented at the national conferences, and most appear in subsequent volumes of this report.

National conferences

Each work group sponsored a national conference. The National Conference on Risk Factors for Youth Suicide focused on etiological factors that might lead to suicide: the psychosocial, emotional, and possible biological roots of suicide among youth. The National Conference on Prevention and Interventions in Youth Suicide addressed issues relating to primary and secondary prevention, responses to suicide prevention from the Federal to the community level, early detection and treatment programs, school-based programs, and the services of volunteer organizations. The National Conference on Strategies for the Prevention of Youth Suicide presented the preliminary recommendations of the task force. Plans for implementation of the recommendations were drafted by representatives of the organizations that ultimately will be involved in their implementation and opportunities for achieving change were discussed.

The first two conferences included review panels that critiqued each series of presentations. Frequent open discussion and comments expanded the value of the conferences.

One of the great strengths of the national conferences was that people from a broad range of disciplines were able to meet and exchange views. Conference participants included professionals in the fields of mental health, biological research, education, social and behavioral sciences as well as community leaders, theologians, State, local, and national government officials, representatives of advocacy groups, leaders of volunteer groups, and family members. Participants represented the many sectors whose involvement and commitment are necessary in the effort to reduce and prevent suicide.

Inventory

An inventory of DHHS research, service delivery, and education programs relating to suicide was compiled by the task force. It includes an index listing agencies, program titles, offices responsible for program administration, and brief descriptions of each program. NIMH, a component of the Alcohol, Drug Abuse, and Mental Health Administration, is the principal conduit for federally supported basic research in suicide, while ACYF supports seven programs for runaway youth which have specific suicide prevention components. CDC offers technical assistance to State and local health departments and communities where suicides have occurred and serves as the locus for gathering and analyzing data related to suicide. CDC also works to improve the identification and reporting of suicides and suicide attempts, and supports applied suicide research through its injury prevention grant program. Some programs listed in the inventory do not relate directly to suicide, but emphasize general health promotion issues that may be applied to suicide prevention. For example, Head Start programs for young disadvantaged children emphasize social skills that contribute to enhancing self esteem. Similarly, alcohol and drug abuse prevention programs which indirectly relate to suicide are supported by NIDA and NIAAA.

CONTEXT FOR THE TASK FORCE RECOMMENDATIONS

The task force wished to involve citizens as well as public and private organizations interested in suicide in its deliberations and obtain these groups' best thinking on the problem. Therefore, all participants attending the national conferences and all authors of commissioned papers were invited to submit recommendations relevant to their work or field of study. More than 200 persons submitted recommendations to the task force. These were reviewed by the Work Group on Strategies for the Future and integrated into the task force recommendations.

The final recommendations developed by the task force evolved from a large pool of proposed items in twelve areas: public health, health services, mental health, education, legal and political changes, criminal justice, family and social services, religion, business, philanthropy, media/entertainment, and youth activities. The recommendations, which include activities in research, education, and services, are accompanied by supporting statements underscoring their importance and suggestions of groups that can aid in their implementation. Many of these statements reflect views expressed in the commissioned papers (listed in the appendix of this volume). The recommendations are organized into six major categories:

- Data Development

- Research into Risk Factors for Youth Suicide

- Evaluation of Interventions to Prevent Youth Suicide

- Suicide Prevention Services

- Public Information and Education

- Broader Approaches to Preventing Youth Suicide

The task force acknowledges that the factors contributing to the deplorable rates of youth suicide are complex and defy simplistic answers. The development and evaluation of suicide prevention alternatives is not likely to be accomplished in a few short term efforts. The effort to reduce suicide will require an ongoing, long term strategy that supports data collection, research, education, delivery of health and social services, and encourages continuous communication with community organizations.

Furthermore, prevention and intervention in suicide cannot belong to one academic discipline or professional specialty. Interventions must integrate the diverse interests in the field, public and private, and involve a wide variety of support systems including those within the family structure, school, and religious and social environment of young people.

RECOMMENDATIONS
OF THE
TASK FORCE

Recommendation 1:

DATA DEVELOPMENT

Develop accurate, timely, and valid data on suicide and attempted suicide.

a. Uniform Criteria for Suicide

b. Community-based Surveillance Systems for Suicide Attempts

c. Unusual Suicide Patterns

INTRODUCTION

Suicide is an important public health problem in the United States today. It is the second leading cause of death among young persons 15 to 24 years of age, yet the public health data base for suicide is limited in accuracy and reliability.

Reliable data are essential for measuring progress in public health. Data are the key to pointing out needs, measuring trends, serving as a basis for appropriate clinical and community intervention, recognizing sources and solutions to problems, and determining program effectiveness. The task force believes that obtaining better statistical data on suicides and suicide attempts, especially by persons between ages 15 and 24, is an area of major importance that needs improvement.

UNIFORM CRITERIA FOR SUICIDE

RECOMMENDATION 1a.

Improve the quality of suicide data by promoting uniform criteria for the determination of suicide and a uniform approach to suicide surveillance.

Suicide is universally considered to be underreported as a cause of death in vital statistics. The reported number of suicides may represent only 50 to 85 percent of the true number. In the United States, decisions about classifying deaths as suicides on death certificates are usually made by a coroner or medical examiner. These decisions, however, are frequently marked by a lack of consistency and clarity chiefly because there are no commonly accepted, uniform criteria to guide the judgments of these officials. Laws and procedures for determining whether a death is classified a suicide vary from State to State, and even from county to county.

Many factors contribute to underreporting: officials, even in neighboring jurisdictions, often use very different criteria to determine whether a death is a suicide. For example, some coroners may require a signed suicide note from the victim; others may make this determination based on evidence from an autopsy and interviews with the decedent's family. Personal biases, practical considerations (such as the loss of insurance benefits), incomplete information, and pressure from the family and community (because of the social stigma associated with suicide) also contribute to the underreporting of suicide. Problems with determining ethnicity of a decedent may cause underreporting of

deaths in minority groups.

Criteria for reporting suicides

The unknown degree to which suicide is underreported or misclassified makes it impossible to estimate accurately the actual number of deaths by suicide, to identify risk factors, to plan or evaluate preventive interventions, or to measure progress in preventing suicide.

Developing uniform criteria for the determination of suicide would improve the validity and reliability of suicide statistics by:

* Promoting a consistent and uniform process for deciding whether suicide was the cause of death,

* Making this decision process explicit,

* Increasing the amount of information used in decision making, and

* Aiding certifiers in exercising their professional judgment.

In addition, the design and evaluation of preventive services requires valid and reliable epidemiological data collected at the community and local level. Surveillance systems--special programs to identify and report suicides more uniformly, objectively, and completely--should be developed at State and local levels. This recommendation is of high priority because accurate data are crucial to research, services, program planning and evaluation, and public education.

Action Plan

To enhance the opportunities for improved data collection relating to suicide, the following activities should be pursued. Many organizations within and outside government should participate in these efforts.

* Develop education and training programs in the determination and reporting of suicide for coroners, medical examiners, forensic pathologists, and other State public health officials. Strengthen and expand efforts to com-

plete vital statistics records accurately--particularly in regard to correct coding of causes of death.

Suitable education programs can be promoted by groups such as the Centers for Disease Control (CDC), the Indian Health Service (IHS), the National Center for Health Statistics (NCHS) which was merged with CDC in 1987, State departments of health, and the Association of State and Territorial Health Officers (ASTHO).

* Encourage the regular use of behavioral sciences consultation in the investigation of all youth deaths. Medical examiners' offices should undertake this activity with the support of AAS.

* Secure Federal endorsement and encouragement for the distribution of uniform operational criteria for the determination of suicide. Assess the validity and utility of these criteria. The Departments of Health and Human Services (DHHS), Justice, and Defense, and the IHS should work toward these goals in collaboration with the Working Group on the Determination of Suicide.*

* Develop instructional materials for communities and States to use as guidelines in setting up suicide surveillance programs.

* Develop an awareness among civic leaders, mental health professionals, educators, and the public, that public health officials can play a key part in the prevention of youth suicide, a role not traditionally considered to be in the domain of public health. CDC and ASTHO should work to attain this objective.

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* The Working Group on the Determination of Suicide is made up of individuals from the American Academy of Forensic Science, American Association of Suicidology (AAS), Association for Vital Records and Health Statistics, CDC, International Association of Coroners and Medical Examiners, the National Association of Counties, National Association of Medical Examiners, and NCHS.

Progress Indicators

The completion of the following goals will serve as a measure of progress in improving data collection:

- Adoption of uniform operational criteria for the determination of suicide by all States and local jurisdictions.

- Implementation of suicide reporting procedures that are uniform, consistent, valid, dependable, and accurate.

COMMUNITY-BASED SURVEILLANCE SYSTEMS FOR SUICIDE ATTEMPTS

RECOMMENDATION 1b.

Develop community-based surveillance systems for suicide attempts, based on consistent operational definitions of suicide attempts and suicidal behaviors.

Information about suicide attempts is very sketchy and incomplete. It is estimated that for each completed suicide, there are eight to twenty attempts at suicide. Although some suicide attempters go on to become suicide completers, there are some striking differences between the overall groups of suicide attempters and completers. For example, female suicide attempters outnumber males (by as much as three to one in some studies) while the sex ratio is reversed for those who complete suicide. Suicide attempters are somewhat younger, on the average, than those who complete suicide. Because approximately one out of ten persons who attempt suicide eventually goes on to complete suicide, suicide attempters clearly represent a high risk group to whom preventive interventions should be targeted.

A clear and consistently applied set of terms is needed to facilitate the identification and reporting of suicidal ideation and behavior and suicide attempts.

More information is needed on the charac-teristics of young people who attempt suicide. These may include underlying health problems such as child or spouse abuse, history of alcohol or drug abuse, history of mental illness, family history of mental illness or suicides, family structure, and socioeconomic status.

A community-based suicide attempt surveillance system would provide local health officials with information to:

- Determine the scope of attempted suicides in a given community.

- Characterize epidemiologically those who attempt suicide so that high risk groups can be identified and specific prevention/intervention strategies formulated.

- Identify specific individuals whose high risk for subsequent suicide should make them targets for mental health or social services. At the same time efforts need to be made to protect the confidentiality of clients for all mental health and social services.

- Characterize the resources needed to respond to this problem.

- Evaluate suicide prevention efforts.

- Identify suicide attempt clusters quickly.

- Establish whether one or more suicides in a community are preceded or followed by an increase in the number of suicide attempts.

- Describe the morbidity and social costs associated with suicide attempts.

Action Plan

The following steps are needed to achieve better definition of suicide attempts, a better system to identify and track suicide attempters, and better cooperation among community health and social service organizations in identifying youth at risk for suicide.

- Develop consensus around operational definitions of suicide attempts, and suicidal ideation and behaviors. (See action plan for Recommendation 2a.)

- Support and encourage community feasibility studies of suicide attempt surveillance systems. CDC, IHS, and ASTHO are good resources for developing these studies.

- Encourage pilot intervention programs for identified suicide attempters. State and local health organizations should collaborate in developing such programs.

- Review existing protocols and procedures for identifying, referring, and treating suicide attempters. The National Institute of Mental Health (NIMH), and CDC should be involved in this activity.

UNUSUAL SUICIDE PATTERNS

RECOMMENDATION 1C.

Conduct special investigations of suicide and attempted suicide that appear to be clustered, epidemic, or have unusual patterns of occurrence.

Suicide clusters are suicides that occur in a particular area, such as a community or a school district, within a relatively short time of each other. Suicide clusters have been known to occur for many years, and have been suspected in many areas of the United States. Unlike communicable diseases, however, apparent suicide clusters or other unusual aspects of youth suicide are not reportable to public health authorities, so we do not know how frequently they occur, what proportion of all youth suicides might occur in clusters, or whether the frequency of suicide clusters has increased in recent years.

We stand to learn a good deal from investigating unusual patterns of suicide--areas in which marked increases in the suicide rate appear to occur, when unusual methods are

employed, or when suicide clusters appear.

Developing and maintaining an early warning surveillance system to monitor outbreaks of suicidal behavior in communities is important to prevent the spread of suicides by imitation or "contagion." Recommendation 2c discusses research into suicide clusters and suicide contagion more fully.

Action Plan

The following activities will aid in developing a surveillance system to detect unusual suicide patterns.

- Encourage awareness by the mental health sector, educators, civic leaders, and the public, that public health officials are an appropriate resource for community-level investigations into youth suicides and interventions to prevent suicides. CDC, ASTHO, and school system personnel should work toward developing this awareness.

- Identify resources for State and community level interventions to prevent suicide clusters after a possible index case has been identified. NIMH, CDC, State and local health and mental health personnel, and education professionals should develop guidelines for States and communities to use in preventing youth suicide and in implementing "suicide cluster response plans" when an increase in suicides occurs.

Progress Indicators

Progress in establishing national, State, and community-level suicide surveillance systems can be measured by the increase in the number of communities which develop response plans to youth suicide, and the degree to which public health authorities become involved in community-level investigations and interventions associated with suicide clusters.

RECOMMENDATION 2: RESEARCH INTO RISK FACTORS FOR YOUTH SUICIDE

Conduct multidisciplinary research to determine and evaluate the risk factors for suicide.

a. Risk factors suggested by surveillance data and bio- behavioral factors.

b. Antecedent risk factors.

c. Suicide clusters and contagion.

INTRODUCTION

The causes of suicide, for even a single individual, are multiple and complex. One promising scientific approach to understanding and preventing suicide is through the identification of risk factors, or characteristics of individuals that are associated with an increased risk of suicide. Each suicide has its own unique set of circumstances-- history, reasons, setting, method. On careful examination of larger numbers of suicides, however, patterns emerge which allow scientists to draw some general conclusions about the conditions which place some young people at higher risk. If those young people at highest risk can be identified, preventive services can be provided to them and, it is hoped, their suicides prevented.

In addition, identifying the behavioral, sociocultural, biological, and psychological factors that contribute to an increased likelihood of suicide among young people will help to elucidate causes of suicide, help to identify subgroups at particularly high risk, and help to develop and evaluate effective intervention strategies. This research effort is most likely to be successful if it is carefully planned, well coordinated, adequately funded, and effectively administered through the Federal public health and mental health agencies already in place.

CHARACTERISTICS LINKED TO YOUTH SUICIDE

RECOMMENDATION 2a.

Refine our current knowledge about risk factors by investigating potential risk factors suggested by surveillance data and by biological and behavioral studies.

The disorders which lead to suicide are understood only in the vaguest of terms. While research reports reviewed by the task force varied in quality and methodology, sufficient data are available to establish a number of biochemical, behavioral and social characteristics linked to youth suicide. The list is long and diverse. It includes:

- Substance abuse (by the youngster or a family member).

- Mental illness: affective disorders,

schizophrenia, and borderline personality disorders.

- A history of previous suicidal behavior.

- Impulsive, aggressive, and antisocial behavior.

- Severe stress in school or social life; disciplinary crisis.

- Family influences: a history of violence in the family, familial genetic traits such as predisposition to affective illness, parental loss and family disruption, suicidal behavior among parents and relatives.

- Low concentrations of the serotonin metabolite, 5-hydroxyindoleacetic acid (5-HIAA), and homovanillic acid (HVA) in the cerebrospinal fluid.

- Homosexuality.

- Being a friend of a suicide victim.

- Rapid sociocultural change.

- Media emphasis on suicide.

- Ready access to lethal methods, such as firearms, carbon monoxide poisoning, or drugs.

    In some individuals, the simultaneous presence of more than one disorder or problem (comorbidity) may combine to increase suicidal risk. For example, antisocial behavior and depressive symptoms appear to be a particularly lethal combination.

Research Requirements

For the most part, identifying risk factors and following trends in risk patterns can be accomplished by well-designed epidemiologic studies. To determine whether a presumed risk factor for suicide is a true causal factor or only a secondary effect of another risk factor will often require population-based, longitudinal studies.

Because risk factors for suicide are numerous and interrelated, it is important to determine their relative importance and independence. It is also important to differentiate between antecedent conditions that may predict future suicidal behavior and precipitating factors. For example, breakup of a relationship is the number one traumatic event (precipitating factor) triggering suicide for both sexes, but it is usually the last straw for troubled youngsters with other antecedent conditions.

More research needs to be conducted with young people. Until the present time, most suicide research focused on adults. Attempts to extrapolate the results to youthful populations have not been demonstrated to be valid. Efforts should be made to replicate the better designed adult studies for youth to establish whether inferences drawn from adult research are applicable to youth.

Similarly, persons who attempt suicide have many traits in common with those who complete suicide, but information derived from one group may not accurately describe the other. To produce meaningful and valid conclusions, studies comparing these groups should have adequate numbers of appropriately chosen control groups, and adequate sample sizes.

Action Plan

The suggestions presented here by no means exhaust the range of activities needed for further research into the underlying reasons for suicide among young people. The papers commissioned by the workgroup on risk factors provide a more elaborate background for many of the recommended research activities.

- **Broaden the field of suicide research and encourage studies that combine biological and psychosocial approaches to identification of risk factors.**

    Too often research is divided into separate disciplines, but we know that the problems contributing to suicide are very diverse. Educators, psychiatrists, epidemiologists, sociologists, biologists, and theologians can enrich our under-

standing of youth suicide through inter-disciplinary research.

One way to bring more excellent investigators into the field of youth suicide research is to hold a workshop for scientists who either possess the necessary skills but who have no current interest in youth suicide research, or who are working in a related area, such as substance abuse, but do not include suicide as a specific outcome under study.

- **Promote uniform definitions and research methods. Develop standardized criteria and definitions for suicide research.**

To increase comparability among different studies, research scientists should use standard terminology and uniform research methods. Standardized criteria and definitions need to be developed and universally applied, especially for such terms as suicide, suicide attempts, and suicidal ideation. This practice can be encouraged by agencies that fund research and by the journals that publish research results.

A meeting of interested research groups could decide on definitions, test them in the field, and empirically determine their validity and usefulness.

Research techniques should include case-control studies, population-based studies, and surveys. Analyzing existing data sets or studies that were originally intended for other purposes, for suicide-related data ("piggy-back" studies) should be encouraged.

- **Demonstrate the impact and utility of psychological autopsies.**

Understanding the psychological state of the suicide victim is critical to understanding the reasons for the suicide, but in all cases, the key informant is no longer available for questioning. For this reason, the psychological autopsy is an important research technique. It involves interviews with persons close to the suicide victim in an attempt to reconstruct the lifestyle, symptoms, and personal behavior of the victim during the critical period before the suicide. This information can help to identify conditions or warning signs predictive of other suicides.

Because the respondents to this type of interview often express anxieties, questions on suicide have, at times, been omitted from other systematic death surveys. We need to evaluate the impact of psychological autopsies on survivors, either to reassure those who have concerns, or, if evaluation demonstrated negative effects, to modify the approach to lessen the negative effects.

- **Develop instruments for epidemiologic surveys.**

Epidemiologic studies on adolescent behavior in various geographic areas of the United States should be conducted. To do so, a questionnaire should be developed that uses a short, clear, multiple choice format that does not require a psychiatrist to administer. The questionnaire format should be widely disseminated so that similar data from different areas can be combined and compared.

An example of how such a survey instrument might be applied is to undertake a study of adolescent residents of a particular area who have never been referred for psychological consultation. Such a study is likely to clarify many uncertainties about the significance of various suicide-related behaviors.

- **Encourage government funded research into suicide risk factors.**

Through their granting mechanisms, Federal agencies are the most appropriate institutions to sponsor risk factor research. The research should focus on a carefully planned set of program components. To emphasize its requirements for a systematic, logical approach, Federal government research agencies

should provide a review of information on risk factors, methodological requirements, and a common set of terminologies and criteria to potential investigators.

The research proposals should be reviewed by a multi- disciplinary, ad hoc committee representing the method and topic areas relevant to youth suicide research. Multi-centered cooperative research programs should be encouraged to allow studies to have adequate numbers of cases and controls. CDC and NIMH are the most appropriate government agencies for sponsoring this kind of research.

- **Seek to increase privately funded research.**

The urgent need for appropriate research should be brought to the attention of private foundations by professional organizations or by those foundations . which serve important coordinating functions, such as the Carnegie Foundation. The topic areas for privately funded research should be similar to those for government-funded research.

Progress Indicators

Progress toward implementation of the recommendations for research into risk factors can be measured by improvement in the following indicators.

- The amount of resources devoted to risk factor research, not only in funds, but in manpower devoted to this end.

- The availability of large suicide data sets with detailed information about the prevalence of various risk factors in different risk groups.

- The number of studies which have a primary focus in other areas, but collect and report data related to suicide.

- The number of studies which use epidemiologic analyses to examine the relationships of biological variables with

other risk factors for suicide, including psychosocial and behavioral parameters.

- The number of secondary or "piggy-back" studies being done on data sets or samples originally studied for other purposes.

RISK FACTOR PREVENTION

RECOMMENDATION 2b.

Conduct research into interventions focused on preventing antecedent risk factors or conditions associated with suicide among the young, such as depression, substance abuse, antisocial behavior, and delinquency.

One way to prevent suicide is to prevent or ameliorate the conditions which may lead to suicide. Research into many of those psychological and behavioral conditions such as depression, drug abuse, alcoholism, aggression, and antisocial behaviors, is already underway, but much of this psychologically based research has not directly been related to suicide. Investigators in these areas should be encouraged to assess the impact of these conditions on suicide. Findings derived from these lines of research can suggest important preventive interventions for suicide.

Action Plan

These activities should be supported by governmental and private funding agencies.

- **Identify investigators who do research on conditions related to suicide (such as drug abuse, juvenile delinquency, family breakup), but are not relating their research to suicide. Circulate information to these investigators which links the conditions they are studying to suicide so that their work may contribute to the suicide prevention effort.**

There is a wealth of epidemiological, biological and psychological data from

large scale research endeavors such as the NIMH Depression Collaboration Study and the NIMH Epidemiologic Catchment Area study. Data are also available from studies on AIDS populations. If information from these studies were analyzed for their relationship to suicide, we might learn more about the etiology of suicidal behavior, about possible sequencing of events over time for individuals at risk and about comorbidity issues associated with suicidal behavior. (Comorbidity refers to two or more psychological or medical conditions whose simultaneous presence combine to exacerbate suicidal risk.)

- **Provide supplementary funding to investigators who are able to broaden their research to studying its impact on suicide.**

Progress Indicators

Anticipated indicators of progress toward implementation of these activities are: an increase in suicide prevention research projects and wider knowledge of the impact of preventive interventions on conditions associated with suicidal behaviors.

SUICIDE CLUSTERS: RESEARCH

RECOMMENDATION 2c.

Conduct research on suicide clusters and the mechanisms of imitation and contagion in suicide.

Suicide clusters, as discussed previously, are suicides that are grouped together in a particular place **and** occur within a relatively short period of time. Recommendation 1c calls for establishing a reporting system to enable public health officials to detect a cluster or other unusual aspects of suicide. Here, we wish to investigate the mechanisms by which suicide clusters occur.

One explanation for cluster suicides is the "contagion" theory: the idea that suicide spreads among young people who are "exposed" either directly or indirectly to suicide. Direct exposure occurs if a friend or a classmate commits suicide; indirect exposure to suicide occurs through news reports, books, movies, or discussions. Although our understanding of suicide contagion is incomplete, some research evidence suggests that indirect exposure to suicide through print or broadcast media might lead some **susceptible** individuals to commit suicide. (Not all youngsters, however, are equally susceptible.) Many people believe that either direct or indirect exposure may lead susceptible youths who identify with, or feel themselves to be similar to the initial suicide, to imitate the initial suicide by choosing a similar method or setting. If imitation can be shown to occur, it can be expected to have an impact on the design and implementation of a variety of suicide prevention measures. A key area for research is how best to identify the most susceptible young people.

For effective suicide prevention, we need to have a deeper understanding of the nature of suicide cluster outbreaks. More specifically, we need to:

- develop methods for identifying suicide clusters;

- know more about the characteristics of the participants and the circumstances that initiate a suicide cluster in contrast with sporadic cases of youth suicide which may not be associated with other cases; and

- identify and understand in detail the psychological mechanisms which may promote or discourage imitation.

This should be given high priority because a better understanding of the clustering phenomenon may suggest specific interventions for suicides which may turn out to be more preventable than other suicides.

Action Plan

• **Broaden the field of suicide research.**

Bring more social, psychological, and developmental scientists into the field of suicide research. One way to raise interest in this field is to hold a workshop for researchers who have the necessary skills but no current interest in imitative suicides, or who are working in a related area, such as imitation of other forms of violent behavior or media psychology and who do not include suicide as a variable under study. In addition, joint efforts by media organizations and governmental research bodies would be appropriate.

• **Fund suicide cluster research through government and private agencies.**

This research is most appropriately supported through NIMH and CDC by direct solicitation of multidisciplinary proposals. These solicitations or program announcements should be accompanied by a review of information on clustering and imitation and be reviewed by a multidisciplinary ad hoc committee representing the method and topic areas relevant to youth suicide imitation research.

Progress Indicators

Indications of progress in the achievement of these activities include:

• better data on the frequency, extent, timing, and other characteristics of suicide clusters.

• modified media handling of suicides that reflects an improved understanding of the mechanism of contagion. We do not yet know the effects of media coverage on subsequent youth suicides, nor do we know enough to establish clear-cut guidelines for media coverage of suicide. Until we do, prudence would suggest that coverage of suicides be accurate in presenting information to the public.

• reduction in the number of suicide clusters reported each year.

• reduction in the number of deaths attributable to clusters.

Recommendation 3:

EVALUATION OF INTERVENTIONS TO PREVENT YOUTH SUICIDE

Evaluate the effectiveness and cost of interventions to prevent suicide.

   a. Interventions addressed to the general population

   b. Interventions addressed to specific populations

   c. Interventions to limit access of youth to lethal means of suicide.

INTRODUCTION

One of the most troublesome aspects for planners in the area of youth suicide prevention is the lack of substantial and convincing data about the efficacy of existing programs. Unfortunately, little research has been conducted on the comparative effectiveness of different interventions to prevent youth suicide. Nonetheless, at the present time, we must rely on the subjective judgments of experts in various aspects of suicide.

Evaluation research is made difficult by many factors; for example:

- the mobility of the young population.

- the lack of accurate reporting of suicide deaths.

- the lack of comparable methodologies employed in some studies.

- the inability to measure delayed effects of a program.

- the difficulty of following up anonymous hotline callers, especially those who may be mentally disturbed.

- the difficulty of measuring suicide reduction as an outcome of programs which are not directly related to suicide prevention.

- the ethical dilemma encountered when specific intervention programs are compared to a "control" population at equal risk, which does not receive the intervention. Withholding effective interventions from groups at risk cannot be sanctioned.

- the difficulty of isolating the effects of prevention programs from other variables that may influence a potential suicide. Before proceeding with large-scale costly efforts, the potential benefits of these programs need to be tested and evaluated on a smaller demonstration level.

- the rarity of suicide, making it necessary to study huge numbers of youth.

In this section, the discussion is based on the premise that to prevent suicides among young people, three general conditions must be met: first, the youth must be identified as potentially suicidal; second, the identified youth must be offered and accept a treatment; third, the treatment must be successful.

INTERVENTIONS ADDRESSED TO THE GENERAL POPULATION

RECOMMENDATION 3a.

Evaluate the effectiveness of interventions to prevent youth suicide that are directed at the general population, including suicide prevention centers and school-based programs.

Suicide prevention centers and school-based educational programs are examples of major preventive interventions targeted to the general population. Their overall purpose is to increase the likelihood of identifying potentially suicidal youth and persuading the youth to enter a treatment program.

Suicide prevention centers

The most well-known suicide prevention efforts in the United States are suicide prevention centers, telephone hotlines, and crisis intervention units, set up to respond to people who are lonely, depressed, or suicidal. These programs differ widely in size and structure, in the services they offer, and the populations they serve. Of the approximately 1,000 programs operating in the United States today, about 200 are specifically called suicide prevention centers. Most of the program names, however,--crisis center, telephone hotline--reflect a broader, crisis intervention purpose than suicide prevention alone. Most offer crisis care for all ages but with the increasing importance of youth suicide, some programs, but not the majority, have components specifically directed at children and adolescents.

Almost all centers include telephone hotlines that take calls from people who are experiencing emotional crises. Many calls are from persons who may be in intense

psychological pain and are struggling with the idea of suicide. Hotlines are most often staffed by trained volunteers who offer a caring, compassionate ear and, if desired by the caller, provide information about types of therapy or help available. Recent studies on hotlines, however, have shown that, while callers may need help, most are not acutely suicidal. For those who may be potentially suicidal, the kind of short-term help offered by a hotline alone may be inappropriate. Moreover, people who call hotlines rarely provide enough personal information to permit followup necessary to measure hotline effectiveness.

In addition to hotlines, centers might provide counseling, short-term therapy, referral information, drop-in group counseling, day care, community outreach programs, suicide prevention training, grief counseling, and support for survivors. Some offer longer term care, continued contact, and followup; some provide intervention teams to assist school officials when suicides occur among the student body.

Centers usually have referral networks--a consulting staff of psychologists, social workers, psychiatrists, health professionals to call upon for treatment of troubled individuals, access to other community services such as law enforcement, social service or mental health agencies, and emergency medical personnel--to serve as back-up resources.

School-based interventions

School systems offer an opportunity for reaching the largest number of young people. The types of programs offered and the populations served vary greatly. Many school initiatives in suicide were instituted in response to local legislation or community pressure following a wave of suicides within a particular school or school district.

One type of school program does not deal directly with suicide, but is designed to help

youth develop skills to cope with stressful life events and feel better about themselves. Typically, these curricula may emphasize ways to cope with problems that seem unsurmountable to young people who often view things with a narrow perspective and limited experience. Enhancing young people's problem-solving, decision-making, and social skills through such educational programs and support networks might equip youngsters to function better in their environment.

Another type of school program attempts to improve the ability of the student body to recognize suicidal behavior and take steps to prevent it. Such programs alert both potential suicides and their friends to the signs and symptoms that precede a suicide. Students may be encouraged to discuss suicidal thoughts, talk about feelings for friends lost to suicide, and discuss how friends might intervene when a troubled youngster is identified. These discussions are usually led by trained school personnel or outside professionals and may take place in large assemblies, in small groups, or in the context of a regular class. Afterschool hotlines and "peer counseling" (in which troubled students discuss their problems with peers specially trained to lend emotional support) are other types of supportive school initiatives.

School-based education programs have generated controversy. Some parents fear that open discussion could introduce the idea of suicide to teenagers who had never thought of it before. School officials may believe that the many demands on the school system, limited funding for special initiatives, and liability concerns preclude suicide prevention programs.

Others, however, believe that numerous beneficial effects are possible. For example, open discussion of suicide might facilitate disclosure of some student's preoccupations with suicide, which might in turn lead to interventions to reduce the risk of suicide. Improving coping skills might aid in raising self esteem, reducing school failure, increasing the sense of control young people have over their future, and reducing depression and self-destructive behaviors, thereby generating better mental health even among persons at low risk for suicide.

Evaluating prevention programs

Despite hundreds of programs offering a wide range of services designed to help troubled individuals, little is known about their effectiveness in preventing suicide. There is very little sound evidence to suggest that any given approach works better than any other, if at all, in preventing or reducing suicide. Developing a rational strategy for preventing suicide requires that we learn more about the effectiveness and costs of many proposed interventions. We need to identify and know more about prevention programs that work, groups for whom particular interventions seem to be most effective, circumstances under which interventions work best, and the optimal timing for such interventions. This knowledge is best obtained through a program of carefully coordinated and directed intervention research. The costs of these interventions must be studied while their effectiveness is evaluated.

Because the underlying factors influencing suicide among the young are so varied and involve numerous personal, social, and biological factors, no single intervention approach will work for all young people. The task force acknowledges that the suicide problem is too urgent to wait for the results of research evaluations; a wide range of efforts to prevent suicide must continue while evaluation components are completed.

Action Plan

The following activities should be implemented to assess the potential, but as yet unknown effect, of programs designed to prevent suicide.

- Commission state-of-the-art reviews of evaluation methodologies and techniques for evaluating preventive interventions with general population samples.

Evaluation methodology is a science whose systematic application to suicide prevention can be expected to yield cost-saving benefits over the long term. Evaluations can be difficult and costly because they require collecting information about large numbers of people. Program designers and service providers frequently know little about evaluation. Instruction in the basics of evaluation will help them become aware of state-of- the-art methodology and encourage them to design and manage services that can be evaluated.

- Develop statistical packages and procedures to measure low base rate phenomena over time in general population samples. Rare events are subject to considerable statistical variability and the youth suicide rate would have to be reduced for several years before it could be meaningfully assessed and interpreted.

- Develop typologies of suicide prevention centers and hotlines. Hundreds of suicide prevention centers operate in the United States today offering many different kinds of services. A systematic classification or cataloging of these services will enable us to have a better idea of the range and variety of services offered (e.g., education, treatment, referral), of the problems they address, the populations they serve, and the costs they incur.

- Produce guidelines for evaluating existing models of suicide prevention centers and hotlines. The American Association of Suicidology has pioneered work in developing standards by which suicide prevention centers can be judged and certified. Similar guidelines should be developed for the collection of uniform data for purposes of evaluation.

- Sponsor workshops to train investigators in evaluation methods. Support evaluation research on a range of current suicide prevention programs. This research should stimulate innovative approaches to evaluate:

a. education programs. There is a need to evaluate programs which focus on improving young peoples' general coping skills and programs which specifically address suicide prevention.

b. school-based ecological/environmental interventions. Programs in this category include efforts to modify the school environment in ways which reduce stress and increase opportunities for youngsters, such as making school transitions easier, modifying the social climate, and reducing school failure and dropout rates.

c. suicide prevention centers and hotlines. It is important to know whether such programs work, for whom, and why they work, the parts of the programs offered by these centers that are most effective, and how these services could be made even more effective.

These steps should be implemented by agencies within the Public Health Service, such as the Alcohol, Drug Abuse, and Mental Health Administration, and Centers for Disease Control.

An indicator of progress in implementing these activities will be the timely completion of the recommended reports, workshops, studies, and guidelines; and the timely funding of this evaluation research.

INTERVENTIONS ADDRESSED TO SPECIFIC POPULATIONS

RECOMMENDATION 3b.

Evaluate the effectiveness of interventions focused on specific populations, including:

- **Programs to educate and train gatekeepers,**

- methods of early identification and treatment of potentially suicidal young people,

- specific treatment modalities for actual suicide attempters,

- methods to improve recognition and treatment of depression by health and mental health professionals, and

- programs for survivors.

Programs designed to deal specifically with young people at elevated risk for suicide need to be carefully evaluated for their effect on suicide prevention. The cost effectiveness and cost-benefit of these programs also need to be evaluated.

Gatekeepers

Gatekeepers are individuals most likely to come into contact with suicidal persons. They are persons in responsible positions, who deal with youngsters on a regular basis, and have the opportunity to observe their behavior over time. Gatekeepers include school personnel, counselors, coaches, parents and family members, friends, youth group or scout leaders;, personal physicians, and clergymen. Training gatekeepers to identify and refer young people at high risk of later suicide, increases the likelihood that suicidal youth will be identified and offered mental health services.

Various programs, directed at teachers and administrators, try to increase the sensitivity of responsible individuals to the characteristics of the suicide-prone child. The training programs use lectures, videotaped interviews with teenagers who have made previous suicide attempts, small discussion groups, and lists of suicide "early warning signs." Parents can also be trained to act as gatekeepers and many parents have been urged to rid the home of guns, medicines, and other potentially lethal weapons, and to seek professional help for high-risk children.

Methods of early identification of potentially suicidal young people.

A major problem in reducing youth suicide is the difficulty in identifying young people at greatest risk of suicide, assessing their degree of suicidal risk, and directing them to appropriate treatments. Almost all mental health professionals and many other service providers rely on their clinical experience and judgment for indications of suicide in their patients. A more objective method would rely on a screening procedure or "test" that could separate young persons likely to engage in self-destructive behavior from other people at normal or low risk.

Ideally, such a screening instrument should be sensitive (correctly identifying almost all the young people at high risk in the population tested), specific (accurately differentiating high risk youth from those who are at normal or low risk), inexpensive, quickly administered by a wide variety of personnel-- school counselors or nurses, emergency room staff, volunteer crisis center workers, and trained mental health professionals--and be easily scored and interpreted.

Screening could be done in stages: the initial stage might consist of a short paper and pencil questionnaire; "high scorers" would enter the second stage which might consist of a more precise assessment, perhaps an interview with the school guidance counselor. A third stage might be a longer interview with a discussion on developing suicide screening instruments for adolescents and young adults (please see paper by Yufit in volume 4).

Screening instruments would be useful to mental health clinicians and would help less experienced clinicians to identify suicidal young persons and assess their suicidal risk; it would also aid teachers, parents, and others to recognize the suicide-prone youngster, and aid health care planners who need to direct limited treatment resources to where they would do the greatest good. Research support should be provided for developing

and evaluating the validity and reliability of such a screening procedure.

Specific treatment modalities for suicide attempters.

We need to develop specific treatment strategies for adolescents who attempt suicide. Adolescent suicide attempters are a very diverse group who often present a number of problems simultaneously--mood disturbance, drug and alcohol dependency, and aggression, to name but a few. It is difficult to know which problems will improve in therapy, the order in which the problems should be addressed, and what approach would be most effective for a particular individual. At the present time, there is no evidence to demonstrate that suicide attempters who are treated with one particular treatment--psychotherapeutic, behavioral, or psycho-pharmacologic--might not have done just as well with some other treatment or with no treatment at all.

Innovative approaches to therapy for adolescent suicide attempters need to be developed, tested and evaluated. Because adolescents are not easily retained in therapy, (young people and their parents are very resistant to treatment), brief psychotherapy and quick results are desirable, especially for low income and minority patients. Cognitive- behavioral approaches, for example, might meet the need for brevity and activity. Therapies should focus quickly on specific problems. Further, good therapy for adolescents is active, teaches skills, uses outside resources, engages the patient in problem solving, and involves the family.

Methods to improve recognition and treatment of depression by health professionals.

An estimated one-third of youth suicides are persons suffering from some form of depression. Depression is a relatively common biological disorder with recognizable symptoms, but most health professionals and many mental health professionals fail to identify depression when it occurs. Physicians oftn look for depression only after physical causes of patients complaints (fatigue, lethargy, loss of appetite) have been ruled out.

In addition, even when the appropriate diagnosis of depression has been made, health professionals often fail to treat it effectively. It is widely believed that marked improvements can be made in preventing suicide by improving the recognition and treatment of depression. This can be done through public awareness campaigns and educating students in the health care professions, through lectures and supervised patient care experiences. Awareness in practicing health and mental health professionals can be increased through articles in the medical literature and continuing medical education courses. Questions on licensing and specialty examinations would reinforce the incentive to learn to recognize and properly refer or treat depression.

Programs for survivors

Family and friends who have lost a loved one by suicide often experience significant psychological pain. They feel guilty because they believe they have somehow failed the deceased. They want to know how they can cope with their loss and what they could have done to prevent the suicide. .There is evidence of increased suicidal risk among survivors.

Survivor support programs (sponsored by self-help groups, suicide centers, or other community resources) can help families cope with their loss. Systematic evaluation studies, however, are needed to show whether such programs can lessen the chances of another suicide.

Action Plan

The following activities are suggested for evaluating programs targeted to different populations:

- Commission state-of-the-art reviews of evaluation methodologies and techniques for evaluating preventive interventions with high risk populations.

- Collect and analyze all that is known about existing intervention modalities for targeted populations.

- Produce guidelines for evaluating existing training, detection, referral, and treatment interventions for identified populations.

- Support research to evaluate suicide prevention programs and stimulate innovative approaches to:

  a. evaluate existing programs.

  b. replicate and evaluate programs.

  c. develop new programs that can be evaluated.

- Support research to develop and evaluate sensitive, specific, valid and reliable screening procedures to identify young people at high risk for suicide.

- Develop and evaluate programs for training health and mental health professionals to better identify and treat depression.

- Support the NIMH project D/ART (Depression/Awareness, Recognition, Treatment). D/ART is an educational effort currently focusing on training mental health professionals and primary care practitioners on recent advances in diagnosis and treatment of depression, including adolescents. The program is launching a public education campaign to inform the general public about the symptoms of depression.

- Encourage assessment, analysis, and evaluation of intervention studies for suicide attempters. Disseminate exemplary intervention programs for suicide attempters. Most researchers think that persons who attempt suicide should be considered separately from those who complete suicide. Although related, there are important demographic, social, and clinical differences between the two groups of people which need to be studied.

These activities should be implemented by agencies within the Public Health Service, such as the Alcohol, Drug Abuse, and Mental Health Administration; the Centers for Disease Control should serve as a central resource for this activity. Mental health researchers and mental health and social service delivery components should also be involved in all activities related to helping those who attempt suicide.

Indicators c f progress in implementing these activities will be the timely completion of commissioned background materials and reports, and the timely development and release of requests for applications for research grants.

LETHAL MEANS OF SUICIDE

RECOMMENDATION 3c.

Explore and evaluate ways of limiting the access of youth at high risk of suicide to lethal means of suicide, especially firearms (which account for the preponderance of deaths by suicide).

The use of guns as the primary method for suicide is unique to the United States. The methods of committing suicide have changed dramatically in this country during the past 15 years. The proportion of suicides committed by firearms increased for both young males and females while the proportion of poisonings declined. For females the leading method of suicide changed from drugs to firearms. Firearms account for more than two-thirds of male suicides.

It is argued that because firearms account for such a high proportion of suicides, and because guns are easily available, limiting the availability of guns might curtail suicide rates. There is evidence that controlling access to

handguns may indeed reduce the overall frequency of firearm suicides. Some investigators suggest that if access to guns were restricted, the impulse to commit suicide might pass, and some suicides would be prevented. Alternatively, if guns were unavailable and potential suicides had to switch to other means, they might choose a less lethal method. One study has shown that teaching the principles of gun safety, another recommended intervention, offers little hope of reducing the death toll from firearms.

We need to know much more about how many guns are accessible to young people, where they come from, and what sort of risks they represent. We need to know how we can limit their use in youth suicides while recognizing the interests of many people in having and using firearms for recreation and protection.

Whether the increasing availability of firearms is one of the many causes of the rise in youth suicides is unknown. Nevertheless, when confronted with a suicidal young person, it would be prudent for a health professional to determine whether the family has a firearm, and if so, have the family remove the firearm, at least temporarily, from the environment of the person who is contemplating or threatening suicide.

In some institutions, such as psychiatric hospitals and prisons where suicides are known to occur, special precautions have been developed to prevent residents from taking their lives. The suicide rate for juveniles in jail, however, is still five times higher than national averages and the first few hours of confinement are the most dangerous. In jails, careful observation, separation of juveniles from adults, and removal of personal items that can be used as means for hanging might reduce the chance of suicides.

Some communities have erected barriers on bridges to preclude suicide attempts, or put signs or telephones on popular suicide bridges urging potential jumpers to call a local suicide prevention center instead of jumping.

Other efforts for which effectiveness is unproven, but nevertheless seem prudent include asking physicians to limit the amount of medications prescribed to a suicidal patient so that the person never has a lethal dose of the medicine available. Unfortunately, some potentially suicidal youths who are denied access to their chosen means of suicide will choose a different method and will still commit suicide.

Action Plan

- Enforce current laws regarding firearms sales, possession, transport, and use by minors. The Justice Department, Bureau of Alcohol, Tobacco, and Firearms, and various State and local agencies should implement this step.

- Evaluate the effectiveness of a variety of additional laws to restrict the availability of guns to minors. Evidence suggests that stricter handgun control laws may lower the incidence of suicides by firearms.

- Limit gun advertising directed to or involving minors. The Federal Communications Commission, Congress, and the public must see that gun advertising is curtailed.

- Encourage research on making guns safer; improve safety features, such as indicating clearly when guns are loaded. Congress and DHHS can mandate improved safety for guns.

- Conduct research to develop an effective gun safety education program. Health educators in cooperation with the National Rifle Association can effect this step.

- Monitor those States and communities that have altered access to lethal means of suicide.

- Evaluate programs to limit access to and modify lethal means of suicide. The

Federal research agencies should implement this step through requesting applications for research.

Recommendation 4:

SUICIDE PREVENTION SERVICES

Support the delivery of suicide prevention services by:

a. Increasing the number of health care professionals specializing in mental health problems of young people.

b. Supporting demonstration programs for suicide prevention in health care facilities and other agencies that deal with young people.

c. Integrating suicide prevention with other health promotion agendas.

d. Caring for suicidal patients in nonpsychiatric hospitals.

e. Obtaining standardized clinical histories from patients belonging to groups at risk for suicide.

f. Providing mental health information, consultation, and liaison among personnel in health service, social service, and juvenile justice agencies.

g. Decreasing financial and legal barriers to care.

h. Providing technical assistance and information to communities in which youth suicides have occurred.

INTRODUCTION

Emergency rooms, general medical clinics, family practice settings, health maintenance organizations, and special medical clinics for young people have frequent contacts with troubled children and adolescents; for some youngsters, they are the place of last resort. While the physical health of these young people may be well attended in an emergency room following a suicide attempt, the personal, school, or family problems which may have brought the youngster there, can go unnoted. Since many of these adolescents in trouble may be at risk for attempting or completing suicide, physicians, nurses, and others in these settings should be alert about suicide risk, have the training and the resources for identifying those in danger, and be knowledgeable about the appropriate disposition or referral that may help a troubled child.

HEALTH PROFESSIONALS

RECOMMENDATION 4a.

Increase the number of mental health professionals specializing in the psychological assessment and treatment of children and youth.

Children and adolescents are generally underserved by mental health professionals. Recent research suggests that most suicidal teenagers and young adults suffer from a

number of psychiatric disorders. Suicide, or an attempt at suicide, is in most instances, a symptom of underlying psychological illness--such as depression or conduct disorders characterized by impulsive, aggressive or antisocial behaviors--frequently mixed with drug abuse. While the precipitating event for the suicide often is unrelated to the psychological disorders, the suicide is an expression of hopelessness a young person feels when faced with problems with which he/she cannot cope. Although we may not yet know the best ways to treat the specifically suicidal element in their psychopathology, their other disorders and problems can usually be helped by trained mental health professionals. There are two problems however. First, not enough trained mental health professionals are qualified or certified to treat children and adolescents. Second, other health professionals who are in a position to see high-risk youth are not adequately trained in this area.

During the past ten years, health professions schools, e.g., schools of social work, nursing, psychology, and psychiatry, have expanded their training programs in suicide prevention. The scope of these instructional programs varies widely--from single lectures on the topic to curriculum segments containing many hours of didactic teaching and case experience. Courses may cover identification of populations at risk, individual case assessment techniques, techniques in crisis intervention for the suicidal person, and special care needs of particularly high-risk populations. Little attention, however, is likely to be given to adolescent suicide, partly because a well-defined body of knowledge does not exist, and partly because few individuals with specific experience or training are available for teaching.

Many observers believe that primary care physicians often fail to recognize mental disorders or other factors that may predispose young people to suicidal behavior. Even physicians trained to deal with stressful health issues such as chronic illness or unwanted pregnancy may not be aware of the suicidal risk imposed by some medical conditions, especially during puberty and adolescence. Not only are more professionals needed in fields such as adolescent medicine, child psychiatry, clinical and adolescent psychology, psychiatric social work, and adolescent counseling, but primary care physicians need training in diagnosing psychiatric syndromes and suicidal behavior, and in intervening and referring young patients to the psychiatric helping system, when appropriate.

States, counties, and communities need to develop services related to the prevention of suicide. The Omnibus Budget Reconciliation Act of 1981 authorized block grants to States for mental health, alcohol abuse, and drug abuse services. Services related to suicide should be a component of these programs.

Action Plan

- **Provide inducements for health and mental health professionals to specialize in the care of adolescents.**

  Reward special training to encourage entry into fields such as adolescent medicine and psychiatry.

  In determining reimbursement rates, governmental and third-party payors should recognize specialized adolescent certification. Reimbursement rates could also act as economic incentives if third- party payors increased the allowable medical insurance charges for treating young people with depression or acute psychological crises.

  Explore, with accreditation organizations, methods for abbreviated training (for example, shortened residency requirements) for those who have had experience in related areas.

- **Enlist support for training programs.**

  Solicit support for training adolescent health specialists from profes-

sional organizations, child advocacy groups, and parent groups organized to help teens with mental health problems.

- **Training programs for health professionals should focus on groups at high-risk for suicidal behavior.**

  Training programs for mental health professionals should address the mental health needs of specific groups of young people who are at high risk of suicide. These are thought to include: runaways and homeless teenagers, teenagers with sexual identity problems, teens with certain long-standing character abnormalities, disturbed teens whose close friends or family members have attempted suicide, pregnant and unmarried teenagers, and substance abusing teens with associated depressive symptoms.

- **Include as training components, sensitivity to various cultural groups, language differences, and sexual orientation.**

Progress in achieving this recommendation can be measured by a greater number of professionals certified to serve children and adolescents.

DEMONSTRATION PROGRAMS

RECOMMENDATION 4b.

Support and evaluate demonstration programs for suicide prevention in emergency wards, health maintenance organizations, and adolescent health care facilities. Coordinate health service demonstration programs with schools, social service agencies, and religious organizations.

The health service system is characterized by specialization and fragmentation among professionals, health care settings, and reimbursement services. In addition, the health care service system is primarily oriented toward treating acute physical problems, one at a time. As a result, while many adolescents are treated for suicide attempts or other self-destructive behaviors by primary or emergency health service providers, these treatments frequently are directed at their physical problems (such as drug overdose or wrist lacerations) without adequate attention to psychological and social problems. Little or no followup is provided. Even if a psychiatrist did see a teenager in the emergency room after a suicide attempt, if the psychiatrist is untrained in adolescent psychiatry, he may omit interviewing the parents because it is not the practice in adult psychiatry to extend the psychiatric evaluation beyond the identified patient.

Personnel in health care settings where distressed adolescents may seek care, such as substance abuse facilities for youth, runaway shelters, community and migrant health centers, and health maintenance organizations, have a unique opportunity to identify and intervene with high risk individuals. These settings provide access to a population who may be too frightened or ashamed to seek assistance from traditional social service agencies. But they must have training in identifying, assessing, and treating suicide attempters.

Demonstration programs should be designed to facilitate the evaluation of feasibility, efficacy, and cost-benefit. Because suicide is a rare event, however, a reduction in the suicide rate may not be the only indicator of the success of single program. Other appropriate indicators of diminished suicidal risk include: lifting of depression for a significant number of youngsters in therapy, cessation of suicidal thoughts for a significant number, fewer admissions for drug overdoses, fewer teenage "accidents," fewer school failures, or fewer dropouts from family-oriented treatment programs.

Action Plan

- **Survey the range of screening, assessment, and intervention measures currently used in emergency rooms and assess their efficacy for different types of settings.**

  This assessment should address costs and charges for these services as well as the efficacy of these services in terms of reduction of risk-associated behaviors.

- **Convene a task force to address guidelines for providing integrated comprehensive services.**

  a. Address guidelines for adequate screening, identification, and treatment for adolescents at risk.

  b. Develop mechanisms to protect hospitals and other health settings and health providers against financial loss or jeopardy for treating adolescents presumed to be at risk for suicide.

  c. Include as members of the task force, representatives of emergency room physicians and nurses, social workers, and members of the Joint Commission on Accreditation of Hospitals.

- **Enlist collaboration between Federal agencies when announcing requests for demonstration and research projects.**

  Relevant organizations that should cooperate in projects studying adolescents at-risk for suicide include: agencies concerned with maternal and child health, the Alcohol, Drug Abuse, and Mental Health Administration (ADAM-HA), (comprised of the National Institute of Mental Health (NIMH), National Institute on Drug Abuse (NIDA), and the National Institute on Alcohol Abuse and Alcoholism (NIAAA)), and the Centers for Disease Control (CDC). All proposals for grants or contracts should contain a mandatory evaluation component.

  Examples of the kinds of programs to be solicited include:

  a. Small grants for community-initiated programs and geographic areas.

  b. Grants to hospitals and service agencies for major demonstration programs.

  c. Grants for evaluation of more than one program with systematic comparison between programs and outcomes.

  d. Small contracts to develop research instruments and tools for screening, identification, and assessment. For example, a contract to develop computer-assisted test batteries for screening that would allow the patient to interact with the computer screen directly or with assistance from a health worker.

- **Encourage partnerships between foundations and government agencies.**

  a. Convene a conference to be attended by representatives of various foundations which have interests in adolescents, health, or suicide; and representatives of ADAMHA, CDC, and other agencies concerned with maternal and child health.

  b. Facilitate joint ventures in funding and support. For example, explore the possibility of NIMH assisting in evaluation of programs funded by private foundations.

HEALTH PROMOTION

RECOMMENDATION 4c.

Integrate suicide prevention into programs that address a wide range of self-destructive or problem behaviors such as substance abuse, interpersonal violence, and unwanted teenage pregnancies.

Many adolescents are at risk for several different self-destructive or problem behaviors which may be associated with or lead to suicide. A variety of programs already exist that are directed at helping young people with these problems, e.g., substance abuse programs, teenage pregnancy programs, runaway shelters. It would make sense to integrate elements for the detection and referral of suicidal youth into these programs. Similarly, when new services are initiated, it would be more efficient to address many different problems within one program, than to focus on suicide alone.

In addition, efforts to reduce suicide by improving the general coping skills of high risk youth--e.g., helping youth to recognize and talk about their feelings, ask for help when needed, identify how and where to get help for oneself and others--should be beneficial in preventing a wide range of problem behaviors.

Action Plan

- **Bring together representatives of agencies that currently provide youth services (in the areas of substance abuse, teenage pregnancies, interpersonal violence, runaways, and suicide) with persons experienced in developing comprehensive programs for high-risk adolescents.**

  This group should work towards developing and implementing integrated approaches to problem behaviors in young people.

- **Develop training programs for service providers and educational material for high-risk youth that address general coping skills and suicide prevention in the context of a wide rage of problem behaviors.**

CARE OF SUICIDAL PATIENTS IN GENERAL MEDICAL SETTINGS

RECOMMENDATION 4d.

Develop guidelines and provide incentives for evaluating and caring for suicidal patients in nonpsychiatric hospitals and other general medical settings.

Some young people at risk for suicide might best be treated outside of a psychiatric hospital because they:

a. have a medical problem which requires hospitalization in a medical (as opposed to a psychiatric) facility;

b. are receiving care from a physician other than a psychiatrist; or

c. do not have geographic or financial access to a psychiatric facility.

Hospitals in the United States have no uniform standards of care for suicidal or high-risk patients. Nor is there any uniformity among hospitals in suicide prevention policies. After surveying hospital practices for several years, the American Association of Suicidology is in the process of developing a set of recommendations for standards of care for suicidal patients; they are awaiting approval by the Joint Commission on Accreditation of Hospitals.

Action Plan

- **Once developed, incorporate appropriate guidelines into policy and procedure manuals of health care facilities.**

- **Review compliance with guidelines by using existing review mechanisms such as record review teams and accreditation groups.**

STANDARDIZED CLINICAL HISTORIES

RECOMMENDATION 4e.

Prepare guidelines for obtaining standardized clinical histories from suicide attempters and from patients who belong to certain high risk groups.

In general, when a patient comes into a hospital with an injury that may have been intentially self-inflicted, the medical records tend to contain only a description of the physical injury. Very little is recorded about the patient or the circumstances of the injury.

Taking a broad-ranging history with a standard set of questions in cases where suicide risk is suspected, may lead to the identification of specific problems or diagnoses which otherwise might have escaped attention. Using a standard clinical history outline for high risk young people entering a medical setting will have further educational benefits by pointing out suicidal behaviors or thought where they might not have been suspected, and in identifying other specific problems in suicidal adolescents which could be treated.

Action Plan

- Once developed, incorporate appropriate guidelines into policy and procedure manuals of health care facilities.

- Review compliance with guidelines by using existing review mechanisms such as record review teams and accreditation groups.

NETWORKING AND LIAISON

RECOMMENDATION 4f.

Provide information, consultation, and liaison among health services, social service programs, and juvenile/criminal justice personnel targeted at high-risk youth and families.

Many high risk youth do not use traditional health care or mental health services, but they are more likely to have contact with social service and juvenile justice agencies. Shared information, improved networking and cooperation among a wide range of agencies and individuals who serve youth might ensure that fewer people "fall through the cracks" and that each youngster receives appropriate and optimal care.

Action Plan

- Encourage grass-roots suicide prevention and survivor groups to link with groups involved in prevention of other risk-taking behavior, for example, the National Federation of Parents Against Drug Abuse, Al-Anon, Alateen, to share information and combine related activities.

FINANCIAL AND LEGAL BARRIERS TO CARE

RECOMMENDATION 4g.

Explore ways to decrease the financial and legal barriers that limit the access of suicidal youth to appropriate care.

Many health insurance policies contain a clause excluding coverage for "self-inflicted" injuries. If reimbursement for care is refused, this can provide an adverse incentive for doctors to misdiagnose a suicide or a suicide attempt. Increasing allowable medical insurance charges for treating depression or acute psychological crises could improve treatment for these young people.

Another treatment barrier specific to adolescents is the need to obtain parental consent for counseling. In many jurisdictions, young people cannot receive services without the signature of a parent or guardian. Parents sometimes refuse to grant permission for counseling their children or refuse to pay for treatment. The problem is compounded when young persons view their parents as primary contributing factors to their troubles. Youngsters may find it difficult to seek treatment voluntarily if they do not want their parents to know about it, or cannot pay. To increase the accessibility of services for adolescents, changes in consent laws must be addressed.

Fear of legal liability may also keep many mental health professionals from serving potentially suicidal youth. Lawsuits alleging negligence following a suicide have been brought against service providers. Insurance rates have also increased for some services such as hotlines or crisis intervention centers. A possible solution is to offer liability insurance to keep concerns about liability from inhibiting the provision of services by mental health professionals to suicidal youth.

Action Plan

- **Legislative action should be taken by State and Federal legislative and regulatory bodies to relieve restrictions on health insurance policies for both the service provider and the patient.**

  Laws requiring consent of parents for treatment to minor children should be reassessed. Progress can be measured by the introduction and passage of relevant legislation.

TECHNICAL ASSISTANCE

RECOMMENDATION 4h.

Provide information and technical assistance for communities in which youth suicides have occurred. these services should be provided through **state and local public and mental health agencies.**
(See Recommendations 1c and 5b.)

The death of a young person by suicide may place other young, susceptible persons in the community--including those who either knew the young person who committed suicide, or heard about it through news reports--at risk for suicide.

Public health authorities advocate, from experiences learned from other communities in which multiple suicides occurred, that a systematic plan for a communitywide response to a young person's suicide should be developed. The knowledge that technical assistance is available in time of crisis can be helpful to a community and relieve the sense of panic and fear that might otherwise terrify school or community officials who fear multiple suicides. If possible, the plan should be developed before one or more suicides raise the possibility of a suicide cluster (see discussion of suicide clusters, Recommendation 1c). Because there is no proven effective intervention plan, each community should prepare its own response, taking into account its own needs and resources.

Representatives of State health departments, existing community health and mental health agencies, school system leaders, and the available community leadership should work together to establish a suicide response plan. Community public health agencies can request information and technical assistance from State health departments. State public health agencies in turn, can consult CDC's Division of Injury Epidemiology and Control.

Action Plan

- **The following components are appropriate for inclusion in a community's response plan to one or more young suicides. Plans should include:**

  1. A procedure for identifying young

people considered to be at high risk for suicide. These people might be identified by teachers, guidance counselors, parents, peers, police or mental health professionals. Persons thought to be at high risk include close friends of the persons who committed suicide; young people with a history of suicide threats or attempts, or a family history of suicide attempts or suicide; young people with serious emotional problems; people who may be likely to identify with the deceased; and young people who may be socially isolated or without emotional supports. The plan should specify clear and simple procedures for referring these persons to mental health services and care providers.

2. Identification and assessment of community resources. The plan should determine who is available to work with school authorities (such as local or State mental health officials, public health authorities); who is available to counsel high-risk students (therapists, psychologists, psychiatrists, guidance counselors); and who can counsel surviving family members. It should designate persons who could serve a coordinative function if a crisis should occur (such as the mayor, superintendent of schools, mental health clinic director, citizens). Existing facilities should be identified that could provide immediate crisis counseling through a 24-hour hotline and walk-in clinics.

3. Identification of a spokesperson for the school or community. This person should be responsible for handling all interactions with the media and for providing accurate and timely information to concerned parents and community members. Accurate information is important because rumors spread quickly in a community, and because the media will want to present news about the suicide to the public.

4. Acknowledgement of the importance of not romanticizing the tragic death of the young person. Activities that romanticize the suicide might increase the likelihood of other young people committing suicide by imitation or by increasing the degree to which they identify with the deceased person. During the period of mourning, people tend to remember the good qualities of the youngster who committed suicide rather the serious problems he may have suffered. What emerges can be a romanticized portrait which is frequently carried by the media. Elaborate funerals can perpetuate this romantic view. When appropriate, it may be helpful to acknowledge that the deceased had problems that set him or her apart from most other young people, for example, mental illness or problems related to alcohol or drug abuse. In such cases, it may be important to stress that the problem set the suicidal individual apart from other youngsters and that the problem had better solutions than suicide.

Recommendation 5:

PUBLIC INFORMATION AND EDUCATION

Inform and educate the public and health service providers about current knowledge in the prevention, diagnosis, and treatment of suicide among youth. These include:

a. Programs to improve the ability of gatekeepers to recognize clues to suicide.

b. Training in suicide risk assessment and referral for health care professionals and educators.

c. Dissemination of information on youth suicide and suicide attempts.

INTRODUCTION

In terms of both human and financial costs, it is very much in the public's and family's interest, to learn ways of recognizing the warning signs of suicides and suicide attempts. If the suicide of a young person is to be prevented, that person must be identified as early as possible and brought into the helping system. It is likely that the young person is suffering from some kind of emotional or psychological disorder which might be resolved with proper treatment.

EDUCATION OF GATEKEEPERS

RECOMMENDATION 5a.

Develop special programs to reach gatekeepers to the health care system (such as teachers, parents, clergy, and counselors) and improve their ability to recognize clues to suicide.

Most potentially suicidal youngsters give clues to their suicidal intentions to a friend, a family member, or a professional person, either verbally or by their behavior--a kind of "reaching out for help." Numerous people in a youngster's environment may have the opportunity to recognize and identify some of these clues to self-destructive behavior and can refer the youngster to a helping professional. These people are called "gatekeepers"; they are persons most intimately and extensively in contact with a particular suicidal person and are probably in the best position to recognize the clues and render help. Gatekeepers include parents, relatives, teachers and other school personnel, sports coaches, neighbors, peers, clergy, and hairdressers.

Improving the gatekeepers' knowledge of the clues to suicidal behavior, making parents, more aware of the signs and symptoms of psychiatric problems, and making it clear where help is available, increases the probability that a potentially suicidal youth will be identified and brought to the attention of a treating professional.

Further, adolescents, themselves, are able to understand the importance of recognizing signs of trouble both in themselves and in their friends and they can be taught ways to seek and find help for people at risk of suicide.

Action Plan

- Prepare and disseminate teaching material. This should be undertaken by appropriate government agencies together with professional organizations including, the American Psychiatric Association, the American Psychological Association, the American Academy of Child and Adolescent Psychiatry, the American Medical Association, the American Academy of Pediatrics, the American Academy of Family Practice, and the National Association of Social Workers.

- Include teaching material in curricula. Information should be circulated to training directors and accrediting organizations for those disciplines or professions whose members are likely to be in the position of gatekeepers.

- Reach personnel in programs that deal with high-risk youth, such as criminal justice programs, programs for substance abusers, and programs for unwed, pregnant teenagers.

EDUCATIONAL PROGRAMS FOR SCHOOL SYSTEM PERSONNEL

RECOMMENDATION 5b.

Include information on suicide risk assessment and referral in the professional training and continuing education of school system personnel.

Schools provide one of the best opportunities for a wide variety of people--bus drivers, school nurses, teachers, principals-- to interact with students and parents. Children at risk for suicide often communicate that risk by behavioral indicators. School system personnel can be trained to recognize the high suicidal risk of some children, while not being responsible for diagnosis and treatment.

A few studies have demonstrated that teachers, counselors and other students were increasingly able to deal with suicidal students following crisis training for counselors, inservice training for teachers and specific instructional programs for selected students "counselors". For example, after such a program, participants were less likely to view a suicidal statement as "nothing to worry about" and were more knowledgeable about the mental health referral process. While it is not known whether these interventions decrease the actual suicide rate, these efforts can play a significant role in providing needed support to students and education about suicide.

Preparation and education should include:

- Information on acute and chronic risk factors for youth suicide.

- Information on behavioral manifestations of depression, schizophrenia, and conduct disorders in the school setting.

- Information and sources for referring students at risk.

- Training in communication skills for approaching and engaging children at risk and their families.

- Developing plans for school systems, in collaboration with community leaders and mental health professionals, to respond to a student death or suicide. The elements of a response plan, more fully discussed in Recommendation 4, are summarized here. It should include:

  - measures to identify students with increased susceptibility to suicide.

  - identification of school and community resources.

  - procedures for referring high-risk stu-

dents to appropriate services and to the school-community network for troubled students.

- establishment of procedures and identification of a school spokesperson to ensure responsible dissemination of accurate information to the media and the community.

Action Plan

Develop training and continuing education programs on suicide risk assessment for school system personnel. The following steps should be taken in establishing such programs.

a. Assign responsibility for coordination of this project to a non-governmental organization such as the American Association of Suicidology, an organization of educators, or to another organization through a competitive process.

b. The coordinating organization should apply for funding from the Department of Education.

c. Assemble a consortium of representatives from educational, mental health, and suicide prevention groups.

d. Delineate behaviors likely to indicate potential problems, through information provided by specialists.

e. The coordinating organization and the consortium should review existing school programs and guidelines for risk assessment.

f. The consortium should identify model programs that include an evaluation component and a referral network.

g. The consortium should disseminate information about model programs in various specialty areas.

h. The consortium should suggest a process by which communities can adapt a model program to fit its needs. Choices should be based on a review of the recommended model programs with input from local specialists in education, the family,

and child mental health.

Collaborating groups in the consortium might include the following: the Parent Teachers Association, the National Education Association, the American Federation of Teachers, the Association for the Advancement of Health Education, the National Indian Education Organization, National School Board Associations, National Association of Social Workers, and the National Alliance of Pupil Services Organizations.

Progress in achieving this recommendation might be measured by: a) assessing teachers on the national teacher examination for achievement of desired skills, b) by assessing utilization of services in communities to determine whether referrals of potentially suicidal youth have increased, c) changes in the number of actual suicide attempts, and d) a greater number of programs in place for school personnel.

DISSEMINATION OF INFORMATION ON SUICIDE

RECOMMENDATION 5c.

Provide for dissemination of information on youth suicide and suicide attempts.

At the present time, a number of national organizations and hundreds of independent groups are working in the area of suicide prevention. Often information is not shared by these groups, many may not even know of each other's existence. In addition, countless individuals, including educational resource personnel, health professionals, and social workers are faced with problems relating to potentially suicidal youth. They need to have more information on ways to handle individual youngsters, set up education programs, and find referrals to more specialized expertise.

The establishment of an up-to-date, centralized, comprehensive suicide information sys-

tem or clearinghouse would have many benefits. Some advantages of such a source of information include:

- facilitating development and coordination of suicide prevention activities and programs,

- assisting and supporting public awareness and education efforts,

- serving as a referral resource for concerned individuals who want information about crisis intervention and suicide prevention services,

- preventing unnecessary and costly duplication of efforts, and

- facilitating linkages and networks among users and generators of information.

It is also anticipated that the Report of the Secretary's Task Force on Youth Suicide will be circulated widely among health care providers, educators, social service workers, and others who are in contact with troubled youth. It is a major effort in summarizing the present state of knowledge about youth suicide and should serve as a source of information and guidance to those interested in suicide prevention at the State and community level.

Action Plan

- Explore methods by which dissemination of information on suicide might best be accomplished. Provide adequate funding to support the recommended method.

  Delineate the elements of a suicide information clearinghouse, such functions, range of services, site, and required resources.

  Evaluate clearinghouse models already developed in other content areas, and examine these models in terms of the cost and effectiveness with which they "translate" and disseminate content materials.

  Investigate the usefulness of a clearinghouse that provides information on a

number of problems affecting youth, such as substance abuse, interpersonal violence, and teenage pregnancy.

- Ensure that information on available suicide prevention services and programs is provided to local and State agencies.

- Identify and survey currently available resource centers and other sources of information about suicidal behaviors.

Recommendation 6:

BROADER APPROACHES TO PREVENTING YOUTH SUICIDE

Involve both public and private sectors in the prevention of youth suicide.

   a. Business

   b. Philanthropy

   c. Media and Entertainment

   d. Youth Services

   e. Religion

   f. Legal and Political Changes

   g. Criminal and Juvenile Justice Systems

   h. Social Services

   i. Families

INTRODUCTION

Suicide among youth is the ultimate form of self-destructive behavior; a tragic end result of many different biological, psychosocial, and environmental problems. Suicide and suicide attempts cannot be dealt with in isolation from other self-destructive behaviors or from the many other social, health, and educational problems facing our nation's youth.

Suicide has many different causes; it is a potential problem for people from many different backgrounds who, might, in turn be helped by many different types of individuals or agencies. There are no simple, universally effective interventions that will solve the problem. For these reasons, suicide prevention will benefit from participation by all facets of the community--individuals, families, health professionals, schools, businesses, churches, civic groups, youth service agencies, and advocacy groups. Reducing suicide among youth also will require a variety of prevention and intervention strategies combining the efforts of all sectors of society, including Federal, State, and local governments--looking broadly at the prevention of a wide range of self-destructive behaviors.

Recommendation 6 includes opportunities for activities by many sectors and organizations which should participate actively in trying to prevent suicide.

BUSINESS AND INDUSTRY

RECOMMENDATION 6a.
Educate business and industry regarding suicide prevention awareness.

Businesses should provide and encourage the use of employee assistance counseling programs and health insurance programs (including mental health assistance) for employees and their families, when a family member is at increased risk of suicide.

People spend a good deal of their time in the workplace, thus making it an appropriate setting for education and intervention. For many years, the workplace has been an important source of health promotion activities--in promoting safety and protection from hazard and injury, providing services to help workers with alcohol and drug abuse problems, and helping employees to quit smoking and manage stress. Employee assistance counselors have become the locus of activities directed toward helping employees (and their families) overcome problems so they have higher morale and are more productive in the workplace.

Employee assistance services should be readily available to employees if a family member committs suicide, attempts suicide, or is at risk for suicide. Because people still believe that mental problems in a family are a mark of disgrace that influence both social status and employment opportunities, one of the primary requirements for employee services is that they be non-stigmatizing, confidential, and affordable (or covered under health insurance). It is not infrequent that parents will deny that their child is suicidal or has psychological problems because they fear that having a mentally ill child jeopardizes their job.

Action Plan

- Educate and train employee assistance counselors to observe and identify the risk factors for suicide. Educate the counselors to make appropriate referrals confidentially and expediently. Employee assistance programs that serve clients with alcohol, drug abuse, and family violence problems should also be aware of and address the elevated risk of suicide faced by these individuals or their family members. Further, employee services should provide for confidential referrals made by friends or coworkers of the individuals at risk.

- **Disseminate** all relevant, up-to-date material on suicidal risk, intervention, prevention, and referrals to employee assistance programs in the worksite.

- **Develop national, regional, and local resources** (particularly among local civic groups, chambers of commerce, and media) to educate businesses, if employee assistance programs are not available at the worksite.

- **Local health groups and advocacy groups, already in place, should work with businesses to provide information about suicide intervention and prevention.**

- **Encourage the development of identification and referral systems** for entry-level employees of large-scale employers of young people (including fast-food chains and retail stores) to assist employees who fail at or prematurely terminate their employment.

These plans should be implemented by organizations of employee assistance programs (Association of Labor and Management, National Alliance with Business, Consultation on Alcoholism, Inc.), the National Chamber of Commerce, specific private businesses, and the National Advertising Council. The Federal government should assist with dissemination of data and other information.

PHILANTHROPY

RECOMMENDATION 6b.

Encourage foundations and corporations to increase their support of youth suicide prevention programs.

Foundations and corporate philanthropic organizations have long funded initiatives for research, education, and health services related to a number of health problems including alcohol and drug abuse, teenage pregnancy, interpersonal violence, and stress. Young people with these problems are also at high risk for suicide. It is, therefore, desirable to educate foundation officials about the importance of preventing youth suicide and to stimulate foundations to allocate additional funding to research and prevention in this area.

Suicide prevention, whether educational or service related, can be integrated into already-established foundation supported programs. Further, foundations can facilitate cooperation between academic research institutions and direct service providers.

Action Plan

- **Stimulate active interest by foundations in soliciting and funding research relating to youth suicide by educating foundation officials about youth suicide and the issues related to it.**

- **Identify and stimulate potential cooperative efforts among research institutions, direct service providers, and foundations that might support youth suicide prevention.**

- **Integrate youth suicide issues into other adolescent programs funded by foundations.**

These steps should be implemented by foundation officials, supported by the background information, findings, and recommendations furnished by the Secretary's Task Force on Youth Suicide. Progress made in this area will be measured by the number of foundations increasing the amount of funding available for suicide prevention. Foundation interest in the compelling nature of the suicide problem and in opportunities for research can be facilitated through meetings held with youth suicide experts, appropriate

task force members, and representatives of DHHS.

MEDIA AND ENTERTAINMENT

RECOMMENDATION 6c-1

Support efforts to define the harmful and beneficial effects of media coverage on suicide attempts. Pay particular attention to the way media portray suicidal behavior and contribute to imitative events, and to ways the media might prevent suicide.

Some research suggests that portrayal of suicide in the media may contribute to suicidal behaviors among young people exposed to these portrayals. At the present time, however, our knowledge about the influence of the media on suicidal and imitative behavior is not sufficient to serve as the basis for definitive guidelines.

A number of studies have presented contradictory evidence on the influence of all types of media coverage on various aspects of imitative behavior, including youth suicide. For example, some research studies reported an increase in suicides following televised news or fictional suicides, even when advance publicity was provided to raise public awareness about the fictional account. Other research claims that televised suicides might influence the method of suicide in persons already predisposed to killing themselves, but are unlikely to entice nonsuicidal young people.

Action to moderate these possible effects has been hampered by the existence of an adversarial relationship between the journalism/entertainment/media communities and mental health researchers. Collaborative research can both overcome this adversarial relationship and establish a reliable research base acceptable to both groups.

Action Plan

- Encourage collaboration between the broadcast media and researchers in projects such as content analysis of fictional suicide stories to identify their harmful and beneficial elements.

- Support an extramural program to facilitate cooperation between media representatives and established researchers.

The following steps should be included in the project.

- Identify and convene a university-based group to include at a minimum, representatives from departments of medicine, public health, journalism/communications, and entertainment media.

- Identify and survey current research efforts relating the effect of media on behavior, determine as yet unaddressed research questions, and organize a meeting of decision-making media personnel and researchers from an appropriate variety of disciplines. The goals of the meeting should include:

  a. fostering a collegial approach to the media and contagion problem.

  b. identifying potential support from the private and public sectors, including support from media organizations.

  c. developing a comprehensive research agenda with priorities.

  d. using the research findings to develop guidelines for media coverage of suicide.

The Federal government should play a role in organizing and supporting this project.

PUBLIC INFORMATION CAMPAIGNS

RECOMMENDATION 6c-2

Design and evaluate a variety of public information approaches to convey helpful information about a broad range of potentially harmful or self destructive behaviors (such as drug abuse and interpersonal violence) without emphasizing suicide.

Expertise in developing public information programs should be drawn from those who have had experience with related fields of self-destructive behavior (e.g., drug abuse, drinking and driving, smoking cessation, and seatbelt use). Those who wish to mount public information campaigns should seek guidance from leaders in marketing, advertising, and related behavioral sciences. Modules should be developed to target public information messages to specific high risk population, such as Native Americans, gay or lesbian youth, blacks, and Hispanics.

In addition, many existing public information programs and campaigns do not include adequate means to evaluate their effectiveness. The task of evaluating public information effectiveness will require identifying appropriate evaluative techniques and applying them, first, to existing programs and if necessary, to newly developed programs. Until careful evaluations have been conducted, future directions for public information campaigns cannot be rationally established.

Action Plan

- Review the information that currently exists on the public information approaches to preventing self-destructive behaviors, including evaluation measures to assess the effectiveness of these approaches.

- Evaluate existing or planned public information campaigns on youth suicide targeted to a wide variety of sectors.

- Determine if important areas are lacking public information, and if so, establish model campaigns, including evaluation components.

- Provide consultative support, where ap-

propriate, for developing competent evaluative components.

- **Encourage diverse private sector initiatives, such as public information campaigns sponsored by broadcast stations, and corporate support for paid broadcast spots and print advertising.**

Advice should be obtained from recognized experts in the fields of evaluation research, marketing, and advertising; recognized leaders in established public information campaigns related to self-destructive behaviors; and others who have developed model programs.

YOUTH SERVICES

DISADVANTAGED YOUTH

RECOMMENDATION 6d-1

Encourage a range of primary prevention programs, based on the head start model, directed at disadvantaged youth. Evaluate the effect of such programs on self-destructive behaviors, including youth suicide.

Educational and preventive programs started early in life have positive social effects. Head Start, designed to serve pre-kindergarten-age, disadvantaged children, is an example of such a program. Head Start provides stimulating educational experiences for its pupils as well as medical, dental, and psychological screening. It also involves family members in its program and provides social services, as needed, to children and their families. Unless these programs are extended to older age groups, however, the effects tend to dissipate as the children grow up.

Teachers involved in these programs are in an excellent position to identify and help young people who show signs of behavior that might affect future school performance,

for example, overly aggressive children or children who lack communication skills. While program leaders should be aware of the dangers of labelling a child too early in life, they must ensure that risk factors are recognized and handled appropriately.

Action Plan

- **Develop linkages with community resources** that can provide mental health services; train program administrators and teachers to identify youth at risk of suicide and refer those children to appropriate sources of help.

- **Extend the Head Start-type exposure to older children** to sustain the gains made in the Head Start program. Federally-funded evaluations have found this to be effective.

These steps should be implemented by educational, medical, psychological, and social services and by DHHS.

SOCIALLY ISOLATED YOUTH

RECOMMENDATION 6d-2

Encourage the development of organizations and programs that integrate youth who have multiple risk factors into a social network.

Many suicidal youth tend to be lonely, isolated, and withdrawn with few social support systems. For many, a traditional family structure no longer exists. Gay youth face rejection and abuse from family members and other youth and are often unwelcome in youth groups or recreational activities. For whatever reason, some youth avoid or are systematically excluded from group activitities. Efforts to integrate these high risk young people into the mainstream may ameliorate the risk of suicide. Examples of such organizations include: scouting and 4-H clubs, youth counseling or support services, youth hotline services, school "big brother"

programs for new students, and other social groups that can assist youngsters in meeting other young people and in developing relational skills. Specialized groups may be required to fulfill specific needs for some groups of young people.

Action Plan

- **End discrimination against youths on the basis of such characteristics as disability, sexual orientation, and financial status.**

- **Enlist adult group leaders who reflect the population of youth served.** Leaders of social support groups or recreational activities often function as role models to the young people they serve.

- **Clarify the term "peer counseling."** It is generally thought that adolescents are not equipped to be bona fide counselors; a better phrase might be "peer support." Because there is evidence that peers can influence others in preventing behaviors such as alcohol and drug use, peer influence should be studied with regard to youth suicide. Appropriate peer support should include teaching youngsters how to recognize behaviors that should be brought to the attention of adults.

- **Encourage meaningful involvement of students in planning school and community programs that are for their own benefit.**

- **Establish and/or strengthen support groups that assist young people who particularly need to acquire coping skills and develop peer supports.**

These steps should be implemented by school systems, other youth-oriented organizations (4-H clubs, Scouts) and advocacy groups.

UNDERSERVED YOUTH

RECOMMENDATION 6d-3

Develop programs specifically aimed at youth with multiple risk factors who fall outside the range of traditional programs. The programs most likely to be effective are those focused specifically on youths at highest risk.

Youths at risk for suicide are an underserved population. For the most part, existing community services directed at a range of problems (e.g., mental health, alcoholism, homelessness, crisis intervention) do not have components specifically related to the problems of young people, nor are service providers adequately prepared for dealing with suicidal adolescents. Further, many young people at highest risk for suicide-- youth who are homeless, runaways, physically or sexually abused, prostitutes, substance abusers, or incarcerated--fall outside the traditional services and supports offered to adolescents through schools, mental health systems, primary health care services, or traditional youth groups. Specialized programs are needed to reach and serve them.

Action Plan

- **Conduct a survey of youth who have multiple risk factors for suicide to help characterize this group and assess the best ways to reach them.** Survey the availability of resources and services to meet the needs of these young people.

- **Assess the effectiveness of interventions such as hot lines, suicide prevention centers, and drop-in programs in serving these youth.**

- **Expand programs for independent living for high-risk youth.**

- **Facilitate the transfer of information and knowledge by those already providing such services.** For example, several

runaway shelters have developed infor-
mation packages and protocols in youth
suicide prevention. This expertise
should be made available to other ser-
vice providers such as community and
migrant health centers or family plan-
ning centers.

These steps should be implemented by exist-
ing programs and networks, and by profes-
sionals in the fields of health, mental health,
drug and alcoholism counseling, social ser-
vices, and probation.

RELIGION

RECOMMENDATION 6e.

Educate religious counselors about
indicators of suicidal risk, prevention
techniques, and ways to facilitate
young people's access to mental health,
social, and medical services when they
are needed.

Religion, along with the family, are social
contexts in which people are emotionally and
psychologically bonded. Religious commit-
ment focuses on strong family ties and may
provide protection from suicide by promot-
ing shared values, strong social interaction,
and supportive connections with other
people. Many suicidal or distraught young
people contact religious counselors at times
of distress.

Action Plan

* Encourage all denominations to develop
guidelines to identify and respond to
youth at risk for suicide.

* Encourage all denominations to provide
training for religious counselors in iden-
tifying, counseling, and referring high
risk youth to appropriate help.

* Encourage linkage between religious
counselors and mental health resources
by supporting educational conferences,

providing consultative services, and
developing mutual guidelines for com-
munication about clients held in com-
mon.

* Explore issues of privileged com-
munication.

These steps should be implemented by pas-
toral/religious organizations in consultation
with mental health professionals. On a na-
tional level, organizations such as the Na-
tional Conference of Christians and Jews
might invite the National Organization of So-
cial Workers to make a presentation on train-
ing and guidelines. On a community level,
local pastoral organizations should col-
laborate with public health and mental health
agencies in addressing this issue.

LEGAL AND POLITICAL CHANGES

RECOMMENDATION 6f-1

Explore ways that are legal and
legislatively feasible to limit the access
of youth at high risk of suicide to the
lethal means of suicide and study the
effectiveness of these interventions.

The majority of suicides among young people
are committed with firearms. Since many
suicides are impulsive acts, it is possible that
if access to firearms were restricted, the
suicidal impulse might pass and the suicide be
prevented. Some evidence suggests that
control of a prevalent means of suicide may
influence the overall frequency of suicide.
Research has shown that in States or jurisdic-
tions where handguns are strictly controlled,
fewer adolescent suicide deaths are reported.

Action Plan

* Limit access to bridges and high build-
ings from which young people are likely
to jump to their death. (Jumping is the
leading cause of suicide in New York

City.

- **Limit access to firearms** through legislative approaches and enforcement of current laws. Concomitantly, explore educational approaches that promote safe storage of legally-owned firearms (in locked cabinets, with ammunition stored separately).

- **Limit the number of pills and dosage of potentially lethal medications that could be filled in a single visit to the pharmacy.**

LIABILITY CONCERNS

RECOMMENDATION 6f-2

Offer adequate malpractice insurance to mental health professionals to keep concerns about liability from inhibiting the provision of services to suicidal youth.

Often, the suicide of a person under treatment is followed by a lawsuit against the clinician, alleging negligence. For some clinicians, malpractice insurance against such lawsuits in appropriate amounts is almost impossible to obtain. As a result, since mental health practitioners know that suicides do occur, even with correct therapy, some service providers are reluctant to assume the risk of liability and might avoid treating suicidal youth.

Action Plan

- **Action by legislative or regulatory bodies should be taken to make adequate insurance available to mental health professionals.**

- **Require mental health professionals to study ways of identifying and treating suicidal individuals as part of a continuing professional education requirement for license renewal.**

CRIMINAL JUSTICE AND JUVENILE JUSTICE SYSTEMS

RECOMMENDATION 6g.

Survey and assess existing mental health services in jails, prisons, and correctional institutions for their ability to identify and adequately treat suicidal individuals.

A first time arrest, especially if one is intoxicated, using drugs, or mentally ill, places a young person at particularly high risk of suicide. These young persons at high risk should be evaluated by a mental health professional to determine whether the young person should be incarcerated or hospitalized. If incarceration is judged to be appropriate, they should be observed frequently in a "safe cell" without access to means of suicide.

The existing mental health services for individuals in correctional institutions need to be evaluated, including services provided by law enforcement and correctional personnel. Better data is needed to determine how well these institutions identify suicidal individuals. Model programs cannot be recommended until the efficacy of existing programs has been evaluated.

Action Plan

- **Survey correctional institutions for existing programs that identify potentially suicidal persons and evaluate the effectiveness of these programs.**

This recommendation should be carried out by researchers in the fields of public health and mental health in cooperation with criminologists.

SOCIAL SERVICES

RECOMMENDATION 6h.

Encourage states to coordinate public and private sector activities in developing comprehensive, preventive approaches for families with youth at high risk for suicide, substance abuse, and interpersonal violence.

Encourage use of social services by families and youth at high risk for suicide.

The States are the key level of government for planning and allocating resources for social services to troubled youth and their families. The focus of State social service programs should be broad, covering prevention of a range of dysfunctional and adverse behaviors and promotion of competent families.

In establishing social service programs, broad coalitions of public and private organizations and interest groups should be included. Programs should also be community-based and designed to be culturally relevant to the particular community.

Action Plan

- DHHS should encourage State officials to take up the challenge of developing a planning mechanism for prevention efforts aimed at supporting families with youth at high risk for self-destructive behaviors including suicide.

- DHHS should encourage national associations of professionals and other interest groups to advocate a broad prevention effort in each State.

- In its various funding programs to States, DHHS should offer guidance to encourage coordinated youth service planning at the State and local levels.

- Make prevention a priority of the YOUTH 2000 initiative.

- DHHS should fund, through its special service programs, demonstration projects in communities to test approaches to broad-based prevention activities.

These steps should be implemented by DHHS, the National Governor's Association, professional associations that deal with particular problems faced by youth, and organizations of State directors of child welfare, drug abuse, mental health, and other relevant programs.

FAMILIES

RECOMMENDATION 6i.

Survey and evaluate existing programs that strengthen families.

Explore and evaluate innovative interventions that strengthen the ability of families to support youth through life crises.

The family is the major institution of support for youth. While one likes to think of the family unit as a source of love, strength, and emotional support for developing adolescents, problems within the family system are all too common for suicidal adolescents. Whether problems stem from conflict between youth and parents or biological vulnerabilites,--mental illness, alcoholism, or a family history of suicide--families strongly influence suicidal behavior.

Strong families, however, may help prevent problem behaviors among children. Teaching parents skills in coping, stress management, parenting, communication, and mutual support will help strengthen family ties and prevent many problem behaviors, including the kinds of alienation that lead to self-destructive behavior. Training in coping skills may be most effective at times of life

crises such as birth, death, divorce, unemployment, or serious illness in the family.

Programs and educational materials to help parents be more effective are available from many sources and are frequently sponsored by community groups: schools, churches, local mental health organizations, advocacy groups, and other community organizations whose programs are usually publicized in local newspapers. National support and advocacy groups have been formed around problems such as mental illness and drug abuse. The National Institute of Mental Health publishes education materials for parents on various topics, including preventing problems with adolescents.

Action Plan

- **Encourage professional associations that address specific problems to develop family prevention materials and educate members about these preventive approaches.**

- **As part of local community planning processes, identify or establish appropriate community resources to develop educational materials for families.** Some areas to cover include: educating families to refrain from the use of alcohol or drugs during times of stress, anger, or mood swings; providing information for families of patients with psychiatric illness; helping families understand, accept, support, and care for homosexual young persons in the family. Because families play a significant role in preventing substance abuse and other high risk behaviors among their children, they need to be educated and understand the consequences of drug abuse.

- **Promote dissemination of existing models of family support and education programs.**

These steps should be implemented by professional associations of social workers, public health nurses, youth workers, family counselors; public interest groups that relate to local communities; and organizations that address numerous youth and family problems.

SUMMARIES
OF THE
NATIONAL CONFERENCES

NATIONAL CONFERENCE ON RISK FACTORS FOR YOUTH SUICIDE

The first goal of the Task Force on Youth Suicide as stated by the Secretary was "to take the lead in coordinating activities about suicide among various Federal agencies, Congress, State and local governments, private agencies, and professional organizations." The three work groups of the task force--risk factors, interventions and prevention, and strategies for the future--have worked toward establishing a model for the kind of coordination and sequential progress envisioned by the Secretary. The research conclusions and recommendations reached by the Risk Factors Work Group build on this foundation.

Another major charge to the task force was to "assess and consolidate current information." The work group generated a comprehensive list of potential risk factors, grouped them into specific risk factor domains, and identified experts in each area to review the scientific literature and write summary papers. In their papers, the commissioned authors were asked to catalog, analyze, and synthesize the literature on factors linked to youth suicide. These papers clarified the environmental, behavioral, socio-cultural, biological, and psychological factors which have been associated with an increased likelihood of suicide among young people. The papers were presented at the National Conference on Risk Factors for Youth Suicide in Bethesda, Maryland, May 8 and 9, 1986. They were critiqued by a review panel and opened for discussion and comment by those attending the conference. The following comments were distilled from three sources: the commissioned papers, the review panel's work, and the reflections of the conference attendees.

Although research reviewed by the authors varied in quality as well as methodology, sufficient data were available to establish many characteristics as risk factors for youth suicide. Those biochemical, psychological, and social factors most clearly linked to youth suicide were the following:

- Substance abuse, both chronic and acute, in the context of the suicidal act. Substance abuse was also tied to the exacerbation of concurrent psychiatric disorders, themselves indicators of increased risk.

- Specific psychiatric diagnostic groups-- affective disorders, schizophrenia, and borderline personality disorders.

- Parental loss and family disruption.

- Familial characteristics including genetic traits such as predisposition to affective illness and the effects of role modeling.

- Low concentrations of the serotonin metabolite, 5-hydroxyindoleacetic acid (5-HIAA), and the dopamine metabolite homovanillic acid (HVA) in the cerebrospinal fluid.

- Other risk factors include homosexuality, being a friend or family member of a suicide victim, rapid socio-cultural change, a history of previous suicidal behavior, impulsiveness and aggressiveness, media emphasis on suicide, and ready access to lethal methods, such as guns.

Cohorts born since World War II, the so called "baby boomers," have been observed

to have an earlier age of onset for depressive disorders and more frequent episodes of illness. They have shown an increase in a constellation of serious public health problems including homicide, unintentional death, alcohol abuse, substance abuse, and affective disorders. Understanding the relationship of youth suicide to this matrix would be enlightening. Also addressed was the issue of diagnostic comorbidity in individuals in whom, for example, affective disorder and conduct disorder may combine to increase risk for suicide, as one disorder complicates the other.

The diversity of risk factors points to the need for targeting intervention and prevention strategies. Our ability to address specific populations at high risk for youth suicide will help focus research and evaluation components of planned interventions as well.

While clear trends were evident, the available research made quantifiable estimates of relative risk a goal as yet unreached. Many studies, while meticulously descriptive, lacked comparison groups. Other lines of research had not been conducted for youth and results were extrapolated from adult populations.

Recommendations for future research approaches were derived from the authors' assessments of the studies that had been done in each risk factor domain. The types of research envisioned by the work group would parallel other efforts at suicide prevention and promote a more precise identification of those young people likely to benefit from a particular intervention and of the circumstances under which directed interventions are most imperative.

Efforts to study nonclinical populations were encouraged. The factors which bring a young person to treatment for substance abuse, for example, may include suicidal behavior and depression. The co-occurrence of these risk factors makes the individual more likely to be in treatment and be represented in a sample taken from a clinical population. This creates a bias that may lead to overestimat-

ing the relationship of any of these risk factors to suicide.

Epidemiologic methodologies, which have been well developed for other health problems, should be applied to youth suicide to provide a more reliable estimate of risk. There is a gap (which needs to be closed) between general epidemiology and psychiatric epidemiology and a need for better understanding of the relative magnitude of multiple risk factors for youth suicide and their interrelationships.

It is essential for suicide researchers to use control groups and specify operational definitions of populations and variables being studied. In addition, too many studies have made inferences about suicide from studies of suicide attempters or persons with suicidal ideation. While persons who complete suicide or have suicidal ideation are related and overlapping groups, information derived from one group does not necessarily represent the others.

Population based, longitudinal studies are necessary to determine whether a presumed risk factor for suicide is a true causal factor or only a secondary effect of a other risk factor. For example, physical abuse is associated with a higher incidence of suicidal behavior. The physical abuse as well as the suicide may be behavioral responses to some other risk factor, such as a chaotic family environment.

We recognize suicide has multi-determinants, yet too often our research is isolated into separate disciplines. Educators, psychiatrists, epidemiologists, sociologists, psychologists, biologists, and theologians can enrich our understanding of youth suicide through interdisciplinary research. Such a consortium of researchers fits the nature of suicide in that the crux of suicide is the intersection of many different problems and stresses which appear so hopeless to the victim.

The authors reviewing youth suicide risk factors were struck by the paucity of research focusing on this age group. Efforts should be made to replicate the better designed adult

studies for youth. Such research could establish whether some of the inferences drawn from adult research are appropriate for youth. For example, depression is a very common antecedent to suicide in adults but may be somewhat less frequently associated with youth suicide. Ongoing work with adult suicide should be extended to include children and younger adults. For instance, efforts might be directed to include younger subjects in brain and cerebrospinal fluid studies.

Translating the identified risk factors into early detection of potential youth suicides remains an enormous task. Risk assessment measures are needed that integrate and weigh the panoply of identified risk factors. These might be validated through psychological autopsy studies of youth suicides as well as through prospective studies. The goal of such risk assessment measures is to identify young people at highest risk so that intensive and specific therapeutic interventions may be offered.

From the risk factors point of view, determining the value of a proposed intervention or prevention effort involves six considerations:

1. How prevalent is the identified risk factor or constellation of factors in the population? If, for example, persons with affective disorder combined with a family history of suicide have been identified as high risk individuals, what proportion of young people fit this description? What is the magnitude of the population that might potentially benefit from an intervention directed towards an identified group?

2. How strong a risk factor or risk factor pattern does that group carry? While each suicide is a grievous loss, we end up having to make choices among interventions based on finite resources. More suicides might be prevented if interventions could be directed toward groups at especially high risk.

3. How readily can we reach the individuals with identified risk factors? Will persons with these risk factors present **themselves** for help if they know it is available? Or are they accessible only through elaborate and costly screening programs? Is the nature of the risk factor, for example, child abuse or incest, one that the family denies and conceals rather than recognizes as a reason for treatment?

4. How receptive to an intervention will the persons at risk be? How acceptable is it to them? Will they view it a too costly, too time consuming, too noxious, or too burdensome in some other way? Is it culturally acceptable and perceived as likely to be beneficial?

5. How effective is the intervention? Will the best treatment of depression be effective for at least 80 percent of those treated, or are we considering a program for some other risk factor which represents the best and most advanced approach but still is only effective for 10 percent or 15 percent of those treated?

6. How can the intervention be implemented in a timely and affordable way? How can its effects be measured in terms of reduced risk for the identified population?

We see the answers to these questions as the bridge between risk factor identification, prevention planning, and implementation. We know that youth suicide is a major public health problem and the second leading cause of death for this age group. Death itself, however, is infrequent among young people and suicide claims about 1 in 10,000 youths. Thus, we need to look at the benefits of addressing particular risk factors more broadly than suicide prevention alone. An intensive effort at detection of depression among young people and reeducation of mental health professionals to provide more effective treatment might accrue many benefits for the young people affected in addition to the possible prevention of suicide. Peer counseling programs or affective education in the schools might reduce the risk of suicide in this impulsive age group and might also en-

hance communication skills or reduce disruptive school behavior. We need to be clear about the risk factors being addressed by a particular intervention, and to evaluate the many related positive outcomes that derive from our suicide intervention efforts. We believe that understanding risk factors for youth suicide is an essential and broad foundation upon which an array of vigorous prevention activities will be built. Our task is to provide a sturdy foundation of careful research and fit the prevention and implementation structure to its base. Its design and construction will represent our most enlightened commitment to stop this tragic loss of life.

NATIONAL CONFERENCE ON PREVENTION AND INTERVENTIONS IN YOUTH SUICIDE

The National Conference on Prevention and Interventions in Youth Suicide was held on June 11 to 13, 1986 in Oakland, California. Bringing the conference to the West Coast gave many interested people in that part of the country an opportunity to participate and exchange views with the experts. Approximately 25 papers commissioned by the task force were presented during two and a half days of lively presentations, workshops, and debate.

The Prevention and Intervention Work Group was charged with investigating and presenting the current knowledge in prevention and intervention strategies that have and have not worked. The members of the task force and the participants at the Conference on Prevention and Interventions have done much to advance this goal. The conference brought together representatives of the lay and professional communities, fostered a dialogue between them, and developed recommendations for future action.

When we try to answer the questions, "What has caused the increase in suicide among youth?" and "Why do young people kill themselves?", a combination of factors appear to be contributory. Much has been learned from psychological autopsies--biographies obtained from interviewing persons close to the suicide victim that reveal information about the psychological state of the victim during the period before the suicide. Most youngsters exhibit recognizable signs that might be classified as "reaching out for help." Previous attempts at suicide are the most obvious cries for help, but only about half of the young suicide victims have been known to try

before, suggesting that other early indicators predictive of suicidal behavior must be systematically compiled. One indicator that appears consistently is drug abuse, which rose strikingly among this age group during the same decade in which suicide rose. Alcohol and drug abuse often complicates and sometimes precipitates suicidal behavior. Alcoholism and depression, not only among youth, but among their families, are also risk factors. So too, are sexual identity problems that often have serious psychosocial consequences for a young person. Few studies have focused on minority populations; data that do exist suggest that acculturation, socioeconomic status, and education may play a role in the etiology of suicide among these groups.

There is recent evidence suggesting that television may influence suicidal behavior among susceptible youth. This is clearly an area to be explored more fully since television is a ubiquitous influence on adolescents. In fact, programs and advertisements may depict suicides in simplistic and unreal terms.

Strategies for identifying risk factors and understanding the interrelationship of various risk factors are necessary for designing, implementing, and evaluating approaches for prevention, early detection, and treatment. Models of suicidal behavior among youth must recognize all theoretical and clinical viewpoints. For example, one view sees the successful suicide as the culmination of processes that begins with some problem early in life and progressing along a continuum through suicidal thoughts, attempts

at suicide, and finally, success. Another view sees those who attempt suicide and those who complete suicide as two distinct, although overlapping groups. Intervention for the first group might require broad-based primary prevention efforts at an early point in the continuum; the second group might benefit more from interventions aimed at smaller groups of young people whose characteristics place them at increased risk of completing suicide. Screening the former group for suicidal risk might require an extremely large cohort and involve great expense. Preventive efforts for the latter group may entail a more stringent identification of risk factors and might run the risk of missing a certain number of "hidden" potential suicides in the population. In reconciling the various points of view, it might be noted that applying primary preventive interventions to large populations, even including youth at low risk, can be beneficial in generating better mental health for all children.

Numerous community-based prevention and intervention programs have sprung up quickly since the 1970s. Little, however, is known about their effectiveness. We need to know more about what kinds of interventions work, for whom, and under what circumstances; and we need to know the optimal timing for an intervention within a young person's developmental stages. Psychotherapeutic and pharmacotherapeutic approaches need to be evaluated for their effectiveness in children. Studies evaluating the effectiveness and costs of interventions to prevent youth suicide are needed. We need systematically collected data on the effectiveness of telephone hotlines, school-based intervention and education programs, suicide prevention centers, peer support groups, counseling of runaways, and programs to limit access to the lethal means of suicide by high risk youth.

Although the school setting appears to be an accessible place in which to identify and refer potentially suicidal youth at an early stage, it is equally important to examine the role of schools in preventing youth suicide by providing counseling and education for the peers of a suicide victim to help them cope with the psychological aftereffects of another's untimely death.

The design and evaluation of preventive services depend, to a large degree, on valid and reliable etiologic and epidemiologic data on suicides and suicide attempts collected at the State and local level. Accurate data permit us to identify risk factors and measure trends. From there, professionals can plan appropriate interventions tailored to meet specific needs of potentially suicidal young people or the survivors of a suicide. Work is proceeding on these topics among researchers outside the Federal government and in various Federal agencies such as the Centers for Disease Control and the Alcohol, Drug Abuse, and Mental Health Administration.

Suicide prevention activities will probably work best when administered at the community level. They should be broad-based to include families, individuals, schools, communities, medical care settings, and workplaces. Activities should be integrated into existing programs that address a wide range of self-destructive or problem behaviors among youth. Similarly, public education should not focus solely on suicidal behavior, but should address related problems such as substance abuse, interpersonal violence, and unwanted teenage pregnancies. We must continue to disseminate our current knowledge in prevention, diagnosis, and treatment of suicide among the young to the public, the media, and health service providers. Removing the stigma associated with alcohol, drug abuse, and mental health treatment should be another goal of education.

Personnel in health care facilities, especially hospital emergency rooms where troubled or injured young people might go for treatment, should be trained in suicide risk assessment and be knowledgeable about appropriate diagnosis and referrals. Failure to investigate the psychological state of the patient

or the events that precipitated the injury may result in overlooking a suicide attempt.

We know without doubt that many of the precursors to suicide among youth can be treated and many suicides prevented. Suicide has many different causes and occurs among young people from many different backgrounds, who, in turn, can be helped by many different types of services. Success in suicide prevention, then, will require the combined efforts of Federal, State, and local governments working together with all sectors of society, including religious leaders, businesses, educators, health care providers, individuals, community and family volunteers looking broadly at prevention of risk-taking and self-destructive behaviors.

NATIONAL CONFERENCE ON STRATEGIES FOR THE PREVENTION OF YOUTH SUICIDE

The Work Group on Strategies For the Future had four objectives. The first objective was to review the findings of the two work groups on risk factors and prevention; use these findings to construct a variety of youth suicide prevention strategies by targeting specific interventions to subpopulations with specific risk factors; evaluate these strategies in terms of cost and effectiveness; and finally, recommend the most appropriate and cost-effective strategies.

The second objective was to present a comprehensive set of recommendations to the Secretary that would address the most urgent needs for research and prevention; reflect input from a diverse set of disciplines, interest groups, and experts in the field; be clear, practical, and few in number; address ways of including many different sectors, such as business, education, health, and mental health; and not require a large expenditure of government funds.

The third objective was to develop an implementation plan to indicate how a wide range of sectors and organizations could be active participants in implementing the recommendations. These sectors included government and nongovernment groups in public health, mental health, health services, education, business and philanthropy, media (including entertainment), criminal justice and legal systems, religion, social services, and family.

Finally, the fourth objective was to build a consensus in the suicide prevention community by using the process of developing the recommendations to bring together separate sources of support: the suicide prevention

centers and the medical community; lay persons and health professionals; practitioners and researchers; researchers with a biological perspective and researchers with a psychosocial perspective.

Commissioned Papers

The work group commissioned 11 papers to help develop strategies and recommendations. Margaret Gerteis, Ph.D., a health services historian, presented a paper entitled, "The Federal Role in Youth Suicide Research and Programs: The Legacy of Recent History." She discussed the successes and failures of past Federal approaches to youth suicide prevention, the individuals and institutions that play major roles in today's youth suicide prevention efforts, and the institutional constraints, strengths, and weaknesses that exist. She concluded that support for youth suicide research is weaker than it might be because there is no unified advocacy for it. There is a need, however, for integrated, collaborative, multidisciplinary research, and a need for reliable and sustained funding for such research.

David Eddy, M.D., Ph.D., a health policy analyst skilled in quantitative decision analysis and Robert Wolpert, Ph.D., a mathematician examined the effects of various interventions to prevent youth suicide and identified prevention efforts that might be most effective. Their paper entitled "Estimating the Effectiveness of Interventions to Prevent Youth Suicide," described a model to analyze the effectiveness of six interventions for decreasing youth suicide in the United States. They used a questionnaire to solicit the subjective estimates of ex-

perts about factors that determine the effectiveness of those interventions. The interventions they examined are (1) affective education, to help youth understand and cope with the types of problems that can lead to suicide; (2) early identification and treatment of youths at high risk of committing suicide; (3) school-based screening programs; (4) crisis centers and hotlines; (5) improved training of health care professionals in the treatment of conditions that can lead to suicide; and (6) restricting access to the lethal means of suicide--firearms, medications, and high places. The exercise indicated that a wide range of uncertainty exists about the effectiveness of each intervention, with the range of uncertainty among experts about any particular intervention exceeding the differences between the best estimates for each intervention. The exercise also indicated that no intervention, or even the combination of all six interventions, could be considered a "cure" for youth suicides. Additional empirical research is greatly needed on the factors that determine the effectiveness of youth suicide prevention programs, and for careful analysis, before large-scale programs are launched. Given the urgent need for the youth suicide program, Eddy and Wolpert recommend a strategy of (1) analyzing the available information, (2) conducting short-term research to gather empirical data for estimating both the effectiveness and costs of different intervention, (3) analyzing the results of that research to set preliminary priorities, (4) designing pilot projects to evaluate the most promising interventions, and (5) planning large-scale interventions based on the evaluation of the pilot projects.

Epidemiological studies of suicide attempts, suicide attempters, frequency of attempts, and the relationship between suicide attempts and completed suicides were reported in two papers. Eve Mościcki Sc.D., M.P.H., Patrick O'Carroll, M.D., M.P.H., Donald Rae, M.A., et al. analyzed data about the prevalence and characteristics of youth suicide attempts derived from the Epidemiologic Catchment Area Study. Lee Robins, Ph.D., examined data from a survey of adolescents attending a community health center clinic. These studies showed the prevalence of suicide attempts to be about 2.9 percent. In addition, the people at highest risk of considering or attempting suicide were females aged 25 to 44 years, separated or divorced persons, whites, and persons of lower socioeconomic status. Persons with a diagnosis of a psychiatric disorder were more likely to have either thought about suicide or attempted suicide than were persons with no psychiatric diagnosis.

The work group asked an economist and a policy analyst to see how much youth suicides and suicide attempts cost. In their paper, "Economic Impact of Youth Suicides and Suicide Attempts," Milton Weinstein, Ph.D. and Pedro Saturno, M.D., M.P.H. estimated that the annual cost is about $2.3 billion.

The work group also wanted to assess the state of the art in developing a screening instrument to identify young people at greatest risk. Robert Yufit, Ph.D. concluded that we need an instrument that is sensitive, specific, short, easy to administer, and interpretable by nonprofessionals. We do not, however, yet have it.

Finally, the authors of five separate papers examined present and needed efforts in a variety of sectors to prevent youth suicide. The sectors included health services (Barbara Starfield, M.D.), education (Edward Wynne, Ph.D.), business and philanthropy (Wendy Watson, Ph.D. and Bobbie Wunsch), social services (Jerry Silverman, Ph.D.), and media and entertainment (Alan Berman, Ph.D.).

Recommendation Development

The work group constructed preliminary recommendations by reviewing all the papers commissioned by the task force, including the papers on risk factors and prevention. In addition, recommendations were solicited from all participants at the national conferences on risk factors and prevention. More than 700 experts and participants in youth suicide

prevention attended these conferences, and more than 200 individuals submitted recommendations. From these sources, the work group compiled a set of preliminary recommendations, which were reviewed and revised by the task force. These preliminary recommendations were distributed just prior to the National Conference on Strategies for the Prevention of Youth Suicide. At a day-long invitational meeting, groups of experts in specific areas of suicide prevention worked together with representatives of more than 90 different local and national organizations that could play important roles in implementing these recommendations. Each working group was asked to rank the priority of the recommendations for their sector, list the steps essential to implementing each recommendation, identify who should do each step, and present a rough timetable and set of measurable objectives for monitoring progress on each objective. The collected set of recommendations and the implementation plan for each objective, a 120-page document, was distributed for discussion by the next day at a plenary session of the National Conference on Strategies for the Prevention of Youth Suicide. These recommendations were further refined, and the 47 recommendations discussed at the conference were combined into six final recommendations for the task force.

National Conference on Strategies for the Prevention of Youth Suicide

On November 18, 1986, in Bethesda, MD, more than 700 people attended a conference which considered the most effective strategies for preventing youth suicide and the steps necessary for implementing those strategies. The Secretary of Health and Human Services, Otis R. Bowen, M.D., emphasized the potential role of the family and community in helping to alleviate many problems of youth, including suicide. He noted that the family structure must be strengthened because it is the most important source of nurture and guidance for young people and "the single best social program we have." The task force chairman,

Shervert H. Frazier, M.D., addressed the important role of the National Institute of Mental Health (NIMH) and traced the development of NIMH from its original emphasis on service and training to its current focus on mental health research. NIMH's most appropriate and productive roles, he noted, are to support basic and clinical research, design and evaluate major demonstration programs, and collaborate with service providers and their educational institutions. The Director of the Centers for Disease Control, James O. Mason, M.D., called for strong leadership by the Federal government in the area of youth suicide. This leadership should include coordinating suicide prevention efforts among all levels of government and the private sector, mobilizing resources, translating the results of research into practical applications, collecting accurate statistical data, and establishing goals and measurable objectives to track progress in suicide prevention. Margaret Gerteis, Ph.D. and David Eddy, M.D., Ph.D. reviewed the highlights of their papers, and workshop leaders summarized their recommendations for each sector. A discussion panel examined the obstacles to more effective youth suicide prevention and the resources available to overcome these obstacles. The panelists included Charlotte Ross (Youth Suicide National Center), Alfred Del Bello (National Committee to Prevent Youth Suicide), Cynthia Pfeffer, M.D. (American Association of Suicidology), James O. Mason, M.D. (Director, Centers for Disease Control), and Shervert H. Frazier, M.D. (formerly, Director of the National Institute of Mental Health).

Summary of Recommendations and Conclusions

1. Develop accurate, timely, and valid data on suicide and attempted suicide.

2. Conduct multidisciplinary research to determine and evaluate the risk factors for suicide.

3. Evaluate the effectiveness and cost of interventions to prevent suicide.

4. Support the delivery of suicide prevention services.

5. Inform and educate the public and health service providers about current knowledge in the prevention, diagnosis, and treatment of suicide among youth.

6. Involve both public and private sectors in the prevention of youth suicide.

The final recommendations represent a comprehensive and organized approach to solving the problem of youth suicide. With these recommendations, the work groups' objectives were, by and large, accomplished. Although our knowledge of how to prevent this tragic outcome is still in its infancy, the planned, consistent approach recommended by this task force should help to move this area rapidly ahead.

INVENTORY OF
DHHS ACTIVITIES
IN SUICIDE PREVENTION

INVENTORY OF DHHS PROGRAMS RELATING TO YOUTH SUICIDE

An inventory of research, service delivery, and education programs relating to suicide was compiled by the task force in an effort to consolidate current information within the Department of Health and Human Services and to provide needed information to organizations and individuals actively involved in suicide prevention or education activities.

Each of the agencies of DHHS was asked to provide a brief summary of ongoing initiatives that relate directly or indirectly to youth suicide. Organized according to sponsoring agency, the inventory includes program titles, names of project officers responsible for program administration, office addresses and telephone numbers (as of January 1987), and brief descriptions.

Some programs listed in the inventory do not relate directly to suicide but emphasize general health promotion issues that may be applied to suicide prevention (such as drug abuse prevention programs), or provide services that address problems related to youth suicide (such as Medicaid, which provides medical and mental health services to young people threatening or attempting suicide). Some agencies, such as the National In-

stitutes of Health support many initiatives in the area of adolescent health, but exclude suicide from their research because it is under the domain of the National Institute of Mental Health (NIMH).

NIMH is the principal conduit for federally-supported basic research in suicide. Its mental health service component was discontinued in 1981 with the advent of block grants to States which support those services. The Administration for Children, Youth, and Families (ACYF) supports programs for runaway youth, some of which have specific suicide prevention components. The Centers for Disease Control (CDC) offers technical assistance to State and local health departments and communities where suicides have occurred and serves as the locus for gathering and analyzing data related to suicide. CDC also works to improve the identification and reporting of suicides and suicide attempts, and supports applied suicide research through its injury prevention grant program.

The following list serves as an index to the more complete program descriptions that follow.

ALCOHOL, DRUG ABUSE, AND MENTAL HEALTH ADMINISTRATION

National Institute on Alcohol Abuse and Alcoholism
Division of Intramural Clinical and Biological Research
Division of Extramural Research Programs
Depression, Suicide, and Aggression in Alcoholics

National Institute on Drug Abuse
Office of Science
Epidemiologic research
Prevention research
Treatment research
Health professions education
Public education

National Institute of Mental Health
Intramural Research Program
Biological Correlates
Division of Clinical Research
Epidemiologic Catchment Area
Suicide Consortium
Division of Basic Sciences
Neuroscience Research Branch
Division of Biometry and Applied Sciences
Biometric and Clinical Applications Branch
Antisocial and Violent Behavior Branch
Minority Research Resources Branch
Office of Scientific Information
Medical Education Videodisc on Teenage Suicide

CENTERS FOR DISEASE CONTROL

Division of Injury Epidemiology and Control

Technical Assistance to State and Local Health Departments
Tracking the 1990 Objectives for Youth Suicide
Study of Youth Suicides in Two Communities
Study of Time-Space Clustering of Suicides
Operational Criteria for the Determination of Suicide
Youth Suicide Surveillance Report

National Center for Health Statistics
Division of Vital Statistics
National Mortality Statistics Program
Development of Operational Criteria for the Classification of Suicide

HEALTH CARE FINANCING ADMINISTRATION

Medicaid

HEALTH RESOURCES AND SERVICES ADMINISTRATION

Division of Maternal and Child Health

Child and Adolescent Injury Prevention (intentional and unintentional)
Emergency Medical Services for Children and Youth
Adolescent Health Program
Adolescent Health Training
Maternal and Child Health Research
Office of Chief Psychologist
Sudden Infant Death Syndrome

INDIAN HEALTH SERVICE

Division of Clinical and Prevention Services
Mental Health Branch

OFFICE OF HUMAN DEVELOPMENT SERVICES

Administration for Children, Youth, and Families
Family and Youth Services Bureau
Computer Assisted Training in Teen Suicide Prevention for Runaway Center Staff
    Preventing Suicides Among Youth Using Runaway Shelters
    Suicide Prevention in Runaway Youth Centers
Runaway and Homeless Youth Suicide Prevention Training Project
    Suicide Prevention and Treatment in Runaway Shelters
    Suicide Prevention Program for Runaway Youth Shelters
    Huckleberry House

OFFICE OF INSPECTOR GENERAL

Office of Analysis and Inspections
Youth Suicide Report
Inventory of State Initiatives in Addressing Youth Suicide

ALCOHOL, DRUG ABUSE, AND MENTAL HEALTH ADMINISTRATION
National Institute on Alcohol Abuse and Alcoholism

PROGRAM: Division of Intramural Clinical and Biological Research

ADDRESS: National Institute on Alcohol Abuse and Alcoholism
Building 10, Room 3B19, 9000 Rockville Pike,
Bethesda, Maryland 20892   (301)496-9705

CONTACT: Markku Linnoila, M.D., Ph.D., Clinical Director

DESCRIPTION OF ACTIVITIES:

To develop a deeper understanding of some of the risk factors for suicide and violent behaviors, a portion of this program is devoted to conducting in-depth studies on the psychobiological correlates of suicidal and violent behaviors. A successful outcome may permit us to modify some of the identified risk factors for suicide and reduce the incidence of suicide and impulsive violent crimes.

ALCOHOL, DRUG ABUSE, AND MENTAL HEALTH ADMINISTRATION
National Institute on Alcohol Abuse and Alcoholism

PROGRAM: Division of Extramural Research Programs/Depression, Suicide, and Aggression in Alcoholics

ADDRESS: National Institute on Alcohol Abuse and Alcoholism
5600 Fishers Lane, Rockville, Maryland 20857

CONTACT: Dan Lettieri, Ph.D., (301)443-1273

DESCRIPTION OF ACTIVITIES:

This project assesses the relationships between alcohol consumption, amino acids and three types of behavior in alcoholics: aggression, depression, and suicide. Preliminary data show an association between lowered tryptophan ratios and suicide attempts, aggressive behavior, and depression. This has important therapeutic implications since tryptophan therapy may help in lessening depression, suicide attempts, and violent behavior.

ALCOHOL, DRUG ABUSE, AND MENTAL HEALTH ADMINISTRATION
National Institute on Drug Abuse

PROGRAM: Office of Science

ADDRESS: National Institute on Drug Abuse; 5600 Fishers Lane
Rockville, Maryland 20857

CONTACT: Dorynne Czechowicz, M.D., Assistant Director for Medical and
Professional Affairs, Office of Science, (301)443-0441

DESCRIPTION OF ACTIVITIES:

NIDA's programs address the broad issue of adolescent substance abuse, a problem long believed to be closely associated with suicide. NIDA's extramural research program includes epidemiology, prevention and treatment research; professional development/education, and training.

- **Epidemiologic research** includes studies on the consequences (emotional, physical, behavioral and interpersonal) of illicit drug use, drug use among American Indian youth and other minority youth, personal and social characteristics that influence drug use, national surveys to track trends and patterns in drug use among adolescents, prevalence of drug use in various age ranges, and data on drug-related morbidity and mortality in selected areas in the United States.

- **Prevention research** focuses on testing the effectiveness of a variety of methods to prevent drug use among young people, including minority populations. The studies include community action programs, health promotion curricula in schools, parenting skills training, and different therapeutic procedures for adolescents and their families in preventing drug use. Much prevention research focuses on teaching youngsters personal and social coping skills that help them resist pressures to use drugs, for example, improving self-image, decision-making, and cognitive skills building. In addition, prevention research focuses on the biopsychosocial vulnerabilities or precursors of drug abusing behavior among children and youth and the implications for preventive interventions among high risk youngsters.

- **Treatment research** includes the development of diagnostic and assessment instruments; studying comorbidities in children and youth; testing the validity of a questionnaire in predicting treatment outcome, assessing the comparative effectiveness of various types of therapy for adolescent drug users, evaluating the effectiveness of social skills training and social service aftercare for formerly jailed adolescents.

- **Health professions education** is targeted at improving medical education in substance abuse and enhancing the ability of primary care providers in early recognition and intervention in substance abuse problems and other related high risk behaviors in children and youth.

- **Public education.** NIDA has conducted several media campaigns to increase public awareness of the serious social and health consequences of drug use. These programs included cocaine public education and prevention programs, "Just Say No" to drugs campaign, and AIDS and Drug Abuse Public Education, Prevention and Outreach.

  CONTACT: Susan Lachter, Director, Office of Research Communications, NIDA, (301)443-1124.

ALCOHOL, DRUG ABUSE, AND MENTAL HEALTH ADMINISTRATION
National Institute of Mental Health

PROGRAM: Intramural Research Program

ADDRESS: National Institute of Mental Health
9000 Rockville Pike, Building 10
Rockville, Maryland 20205

CONTACT: Gerald L. Brown, M.D., Staff Psychiatrist; Biological Psychiatry Branch
Room 4C-218, (301)496-4805

DESCRIPTION OF ACTIVITIES:

The Intramural Research Program of the Institute includes studies on possible biological markers of suicide, focusing on the relationship between biochemical factors and aggression. The Intramural Research Program also studies familial factors in suicide, integrating this with research on affective disorders. Some NIMH research in these areas is closely associated with intramural research being conducted by the National Institute on Alcohol Abuse and Alcoholism.

ALCOHOL, DRUG ABUSE, AND MENTAL HEALTH ADMINISTRATION
National Institute of Mental Health

PROGRAM: Division of Clinical Research (DCR)

ADDRESS: National Institute of Mental Health
5600 Fishers Lane
Rockville, Maryland 20857

CONTACT: Eve K. Mościcki, Sc.D., M.P.H.; Assistant Chief, Epidemiology and
Psychopathology Research Branch, DCR
Room 10C-05, (301)443-3774

Irma S. Lann; Head, Affective and Anxiety Disorders Program,
Child and Adolescent Disorders Research Branch, DCR
Room 10-104, (301)443-5944

Arlene P. Hegg, M.D.; Head, Suicide and Suicidal Behavior Program,
Mood, Affective , and Personality Disorders Research Branch, DCR
Room 10C-24, (301)443-4524

DESCRIPTION OF ACTIVITIES:

- **Grants.**

  DCR currently supports several epidemiologic and clinical studies in the area of suicide.
  The grants either focus specifically on youth suicide, contain a substantial suicide com-
  ponent, or study young people under the age of 25. Other grants will collect data on young
  suicide attempters and completers, their families; and will study suicidal ideation in children.
  An Institute-wide program announcement soliciting high quality applications in suicide re-
  search has been issued to the field.

- **Epidemiologic Catchment Area (ECA).**

  The core data from the ECA contain information on suicide ideation and suicide attempts.
  These data are currently being analyzed in-house for information on suicide ideators and
  attempters, with focus on the 18-24 year olds. Results of these analyses will be disseminated
  to the field.

- **DCR Suicide Consortium.**

  This group was formed to coordinate suicide research efforts within the Division. The con-
  sortium includes members from other Divisions of NIMH.

PLANNED ACTIVITIES:

- **Grants.**

  Areas planned for investigation include psychological autopsies of young suicide com-
  pleters, followup studies of adolescents in the community who have anxiety, affective, and
  conduct disorders, studies of violence in young schizophrenic patients, studies of biochemi-
  cal aspects of suicidal behavior, prospective studies of populations that experienced dis-
  asters, followup studies of psychiatric patients, treatment studies, and refinement of
  methodologies in both clinical and epidemiologic studies of suicide.

- **Coding system for grant applications on suicide.**

  DCR is developing a coding system so that it can provide systematic information on the focus of its research, the investigators, the populations studied, and trend data for grants.

- **Suicide information and technical assistance.**

  DCR is planning to coordinate the collection of scientific literature and publications on suicide and suicidal behavior; establish a central repository for this information in DCR as a basis and permanent resource for staff consultation, technical assistance, recommendations for research, and research activities.

- **NHANES-III.**

  NIMH will participate in the NCHS-sponsored Third National Health and Nutrition Examination Survey (NHANES-III). One important objective of our participation is to obtain, for the first time, an estimate of the prevalence of suicidal ideation and attempts in a national sample of the U.S. population. The structure of the survey will permit long-term followup of suicide ideators and attempters, as well as persons with psychiatric disorders, to determine which of them die by suicide.

- **Other.**

  DCR will continue its sponsorship of workshops and symposia to discuss research issues. A workshop was held in April 1987 to address common problems and issues in research methodology with emphasis on developing a common core of assessment tools and standardizing terminology (e.g., suicide versus attempted suicide).

  Similar workshops and symposia will keep the field abreast of developments in research which can be used to develop and improve treatment and prevention programs.

ALCOHOL, DRUG ABUSE, AND MENTAL HEALTHADMINISTRATION
National Institute of Mental Health

PROGRAM: Division of Basic Sciences

ADDRESS: National Institute of Mental Health
5600 Fishers Lane
Rockville, Maryland 20857

CONTACT: Steven J. Zalcman, M.D., Neuroscience Research Branch,
Room 11-105, (301)443-3948.

DESCRIPTION OF ACTIVITIES:

The Neurosciences Research Branch supports research in the basic neurosciences (neurobiology, psychopharmacology, and biobehavior) as they relate to the etiology, pathogenesis and pathophysiology of neuropsychiatric disorders. The current grant portfolio supports investigators studying various neurochemical correlates of suicide. In addition, the branch supports two brain banks which provide post mortem tissue from suicide victims to investigators studying anatomy, pharmacology, neurochemistry and molecular biology.

ALCOHOL, DRUG ABUSE, AND MENTAL HEALTH ADMINISTRATION
National Institute of Mental Health

PROGRAM: Division of Biometry and Applied Sciences

ADDRESS: National Institute of Mental Health
5600 Fishers Lane
Rockville, Maryland 20857

DESCRIPTION OF ACTIVITIES:

The Division of Biometry and Applied Sciences supports research on service delivery within the mental health system; the provision of mental health services in other types of health care settings; economic factors influencing supply, demand, and costs of mental health services; mental health issues and problems related to antisocial and violent behavior, rape and sexual assault, and law and mental health interactions; and mental health status and mental health services for minority populations.

Three branches of the division support research grants:

- **The Biometric and Clinical Applications Branch** supports research on mental health services delivery and health economics at the clinical, institutional, and systems levels in specialty mental health and general health settings; and the evaluation of interventions to improve clinical practice. Major program emphases include economic issues in mental health services delivery, mental health services within the primary medical care sector, and the special service needs of particular population groups such as the seriously mentally ill and minorities.

  CONTACT: Services, primary care, and economics research: Kelly J. Kelleher, M.D., M.P.H., Room 18C-14, (301)443-3364.

- **The Antisocial and Violent Behavior Branch** supports research on antisocial behavior, individual violent behavior, rape and other sexual assaults, and law and mental health interactions. The scope of the branch's program encompasses biological and behavioral sciences and psychosocial and empirical legal studies.

  CONTACT: Antisocial and violent behavior research: Saleem A. Shah, Ph.D., Room 18-105, (301)443-3728.

- **The Minority Research Resources Branch** provides support through the small grant mechanism for research on mental health issues specifically related to Asian Americans and Pacific Islanders, Blacks, Hispanics, and American Indians/Alaskan Natives. Support programs of the branch are principally intended for new investigators, those at small colleges and historically black colleges and universities, and others who do not have regular research grant support available from their own institutions.

  Studies on various aspects of suicide are appropriate in several of these programs. These include relevant studies of service delivery in the specialty mental health and general health sectors, suicide in minority groups, and costs and financing of suicide services.

  CONTACT: Minority research: Freda K. Cheung, Ph.D., Room 18-101, (301)443-3724.

ALCOHOL, DRUG ABUSE, AND MENTAL HEALTH ADMINISTRATION
National Institute of Mental Health

PROGRAM: Office of Scientific Information
Medical Education Videodisc on Teenage Suicide

ADDRESS: National Institute of Mental Health
5600 Fishers Lane
Rockville, Maryland 20857

CONTACT: Carrie Lee Rothgeb, Deputy Director,
Room 15-105, (301)443-3600

DESCRIPTION OF ACTIVITIES:

NIMH, in collaboration with the National Library of Medicine, developed a curriculum presented on videodisc for use in medical schools. The curriculum entitled, "Suicide Intervention: Assessing Teenagers at Risk" teaches medical students to recognize a potentially suicidal adolescent and to know how and when to refer the youth to a mental health practitioner for treatment. Students watch cases on a video screen, refer to a written computer text, and use the computer keyboard to guide themselves through the program.

PLANNED ACTIVITIES:

Books, manuals, and other written material are being prepared from the videodisc script to enable a broader audience to use the learning curriculum.

CENTERS FOR DISEASE CONTROL

PROGRAM: Division of Injury Epidemiology and Control/Center for Environmental Health

ADDRESS: 1600 Clifton Road; Atlanta, Georgia 30333

CONTACT: James A. Mercy, Ph.D., (404)488-4646

DESCRIPTION OF ACTIVITIES:

The Division of Injury Epidemiology and Control directs its efforts to preventing deaths and nonfatal injuries due to self-directed violence by:

- Improving scientific understanding of the patterns and causes of self-directed violence through descriptive and analytic epidemiology.

- Developing and improving methods and implementing model projects for the collection of surveillance data on self-directed violence.

- Exploring and developing research methods for the epidemiologic study of self-directed violence and the evaluation of suicide prevention/intervention strategies.

- Developing and evaluating suicide prevention/intervention strategies.

- Providing expertise and disseminating information on self-directed violence to State and local health departments, schools of public health, professional audiences, and practitioners in the field.

The Division's activities directly related to youth suicide are:

- **Assistance to State and Local Health Departments**

  CDC provides epidemiologic assistance to State and local health departments in responding to, preventing, and analyzing suicide clusters and other unusual patterns in the occurrence of suicide. During the past 3 years CDC has provided direct assistance to State health departments for apparent clusters of suicide and suicide attempts.

- **Tracking the 1990 Objectives**

  CDC has been tracking progress towards the 1990 Objective to reduce the youth suicide rate to below 11 per 100,000 (In 1978, the suicide rate for this age group was 12.4 per 100,000). CDC will continue to monitor progress towards this objective and disseminate these results through the Morbidity and Mortality Weekly Report and other avenues.

- **Study of Youth Suicides in Two Communities**

  This is a case-control analysis of two suicide clusters among teenagers in 2 Southwestern communities. The objectives of the study are to characterize those teens at highest risk for suicide in a cluster and document details of the behaviors and events which led to their deaths. Under a cooperative agreement, the State department of mental health gathered the psychological autopsy data and information through interviews using a computerized questionnaire and created a data tape.

- **A Study of Time-Space Clustering of Suicides**

  This is a contract agreement with the New York State Psychiatric Institute to accomplish the following objectives:

  - review the statistical techniques for detecting time and space clustering,

  - identify the population-based mortality data sets for study,

— develop a computer program to detect suicide clusters,

— revise the statistical model using simulation and actual data,

— use the model to estimate the magnitude of suicide clustering and the characteristics of the potential clusters detected, and

— develop surveillance strategies for clusters based on the information gained from the model.

- **Operational Criteria for the Determination of Suicide (OCDS)**

  Individuals representing organizations involved in the compilation, analysis, and utilization of suicide statistics developed specific, operational criteria for the determination of deaths as suicides. The criteria will promote complete reporting and accurate determination of suicides on death certificates. The organizations involved on the working group for this project included the Academy of Forensic Sciences, American Association of Suicidology, Association for Vital Records and Health Statistics, Centers for Disease Control, International Association of Coroners and Medical Examiners, National Association of Medical Examiners, and the National Center for Health Statistics.

- **Youth Suicide Surveillance Report**

  This report entitled, "Youth Suicide in the United States, 1970-1980", partially supported by NIMH, analyzes vital statistics data on suicide deaths among youth (ages 15 to 24) in the United States for the periods 1970 to 1980. It is intended for use by clinicians, health planners and evaluators, and other public health officials interested in the number and characteristics of youth suicide.

CENTERS FOR DISEASE CONTROL

PROGRAM: National Center for Health Statistics
Division of Vital Statistics

ADDRESS: 3700 East-West Highway
Room 1-44
Hyattsville, Maryland 20782

DESCRIPTION OF ACTIVITIES:

The Division of Vital Statistics includes two activities related to youth suicide.

- **National Mortality Statistics Program** produces, and analyzes suicide data as reported on the death certificates filed in the States and in other vital registration areas, which are reported to the National Center for Health Statistics through the Vital Statistics Cooperative Program. Cause-of-death data reported on the death certificate, including suicide, are classified and tabulated in accordance with standards of the World Health Organization embodied in successive revisions of the International Classification of Diseases.

  These NCHS data are published monthly on a provisional basis in the *Monthly Vital Statistics Report*, and annually on a final basis in *Vital Statistics of the United States, Volume II, Mortality*. The data are also made available in analytical publications and in the form of public-use data tapes.

  CONTACT: Harry M. Rosenberg, Ph.D.; National Mortality Statistics Program, (301)436-8884

- **Development of Operational Criteria for the Classification of Suicide.** NCHS participates in a working group of individuals representing agencies and organizations who are interested in improving the reporting of suicides in the United States (see CDC entry). There was concern that many suicides are reported as accidents or natural causes. The working group has developed criteria to assist medical legal officers (coroners and medical examiners) in their investigation of possible suicides and in making the decision as to whether it was suicide. These criteria will be distributed through appropriate professional organizations representing coroners and medical examiners with a recommendation that the criteria be used. It is anticipated these criteria will be of assistance to medical legal investigators and should improve the completeness of reporting of suicides.

  CONTACT: George A. Gay; Registration Methods Branch; (301)436-8815

HEALTH CARE FINANCING ADMINISTRATION

PROGRAM: Medicaid (Title 19 of the Social Security Act)

ADDRESS: 6325 Security Blvd.; Room 429 East High Rise; Baltimore, Maryland 21207

CONTACT: Robert Wardwell, (301)594-9824

DESCRIPTION OF ACTIVITIES:

Although HCFA has no specific youth suicide program, the Medicaid program provides a wide range of medical services which may be relevant in the treatment of youths threatening or attempting suicide. These services include, but are not limited to, inpatient hospital services (diagnostic, screening, preventive, and rehabilitative services) and inpatient psychiatric services for individuals under age 21. HCFA also administers the home and community-based waiver program which is designed to allow States to offer a wide array of home and community-based services for individuals who would otherwise require medical care in an institutional setting. States have the flexibility to target an approved waiver program to individuals with certain medical conditions such as mental illness.

HEALTH RESOURCES AND SERVICES ADMINISTRATION

PROGRAM: Division of Child and Maternal Health

ADDRESS: 5600 Fishers Lane
Rockville, Maryland 20857

DESCRIPTION OF ACTIVITIES:

- **The Child and Adolescent Injury Prevention (intentional and unintentional)** program seeks to reduce mortality and morbidity resulting from intentional or unintentional injury and violence among children and adolescents, including Native Americans and handicapped youngsters.

  The program sponsors activities such as community education programs, school-based prevention programs, efforts to prevent drinking and driving, epidemiologic studies, household surveys, and legislative efforts to promote use of seat belts and car seats.

  Benefits of the injury prevention program include reduced mortality for young people, reduced severity of injuries, fewer school absences, shorter lengths of hospitalization, reduced pain, fear, sense of loss, and separation from family, and reduced financial costs resulting from injuries.

  CONTACT: Arthur S. Funke, Ph.D., Room 7A-13, (301)443-6600.

- **Emergency Medical Services for Children and Youth**

  In order to reduce mortality, morbidity from life threatening injury, and violence (including self-inflicted injuries), this program supports public education, training, and education of emergency medical technicians and others concerning trauma and critical illness among children and youth. It also provides timely on-site emergency care, triage services, and therapeutic transport to most appropriate facility.

  CONTACT: Arthur S. Funke, Ph.D., Room 7A-13, (301)443-6600.

- **Adolescent Health Training** provides health personnel with knowledge, skills, and experience required to improve the health of adolescent populations and reduce health problems including the risk of life threatening behaviors and suicide. The training program supports formal education and practicum in institutions of higher learning as well as offering continuing education in conferences, health departments, and other practice settings.

  CONTACT: James Papai, Room 6-17, (301)443-2340.

- The **Adolescent Health Program** develops and supports Federal, State, and private sector efforts on behalf of improved adolescent health and reduced rates of mortality, morbidity, and other health problems.

  CONTACT: Joann Gephart, R.N., M.S.N.; Room 7A-13, (301)443-4026.

- **Maternal and Child Health Research** promotes and supports research that will yield knowledge of maternal, infant, child, and adolescent health including knowledge of determinants and contributing factors associated with youth suicide and other aspects of adolescent health. This program also seeks effective methods for health promotion and maintenance that can be readily adapted and used in health training and service programs.

  CONTACT: Gontran Lamberty, Dr.P.H., Room 6-17, (301)443-2190.

- The **Office of the Chief Psychologist** supports education and training efforts to increase the competence of all health professionals. It aims to improve psychological and behavioral aspects of health and to reduce psychological/behavioral risks to health. The program wishes to increase attention among health professionals to suicide.

CONTACT: Arthur S. Funke, Ph.D., Room 7A-13, (301)443-6600.

- The **Sudden Infant Death Program** offers counseling to parents who have lost an infant suddenly and unexpectedly. It develops and promotes educational materials directed to parents, emergency personnel, clergy, health professionals, and police. It is anticipated that this program will help to reduce the severity and duration of anger and depression and other undesirable effects of infant death among adolescent and other parents as well as reduce family disruption, psychiatric problems, suicide attempts, and other health threatening behaviors.

CONTACT: Geraldine Norris-Funke, M.S., R.N., Room 7A-13, (301)443-6600.

INDIAN HEALTH SERVICE

PROGRAM: Division of Clinical and Prevention Services
Mental Health Branch

ADDRESS: 5600 Fishers Lane, Room 6A-55
Rockville, Maryland 20857
(301)443-1083

CONTACT: Scott Nelson, M.D. (301)443-3024

DESCRIPTION OF ACTIVITIES:

Within the IHS client population, 15 to 24 year olds are more likely to commit suicide than their counterparts in the general U.S. population. This condition has existed for many years and is considered to be a symptom of the many serious mental health problems prevalent in the communities served by the IHS. The IHS uses several approaches to address the problem. These efforts are managed through the IHS Mental Health Program, a community oriented clinical and consultation service, responding primarily to reservation populations.

The IHS Mental Health Program provides:

- **Clinical services** which concentrate on stress management, alcohol and drug abuse, abuse and neglect, handicapping conditions, suicide and violent behaviors per se;

- **Technical assistance** to communities and tribal councils; and

- **Special Initiative Team** (located in Albuquerque, New Mexico) has been formed to provide technical assistance to communities to help them plan organized efforts and develop techniques to implement community health programs designed specifically to combat suicide and other forms of violent behaviors.

OFFICE OF HUMAN DEVELOPMENT SERVICES

PROGRAM: Family and Youth Services Bureau/Administration for Children, Youth and Families

ADDRESS: Post Office Box 1182
Washington, D.C. 20013
(202)472-4426

CONTACT: Paget Wilson Hinch, Associate Commissioner

DESCRIPTION OF ACTIVITIES:

In fiscal year 1985, the Family and Youth Services Bureau funded seven regional research and demonstration projects.

- **Computer Assisted Training in Teen Suicide Prevention for Runaway Center Staff (The Corner Drug Store, Inc., Gainesville, Florida).** This project developed a computer assisted training system in suicide prevention for the runaway shelter staff of the Southeastern Network of Runaway, Youth, and Family Services. This network provides residential care to more than 10,000 adolescents annually in 35 centers in eight states. The interactive instructional system tailors suicide assessment and intervention skills to an audience of runaway shelter employees.

CONTACT: Sara V. Jarvis; (904)377-2976.

- **Preventing Suicides Among Youth Using Runaway Shelters (Human Services Development Institute, Portland, Maine).** This project developed materials (training manuals, films, and publications) for an intensive training program to assist runaway shelter personnel in preventing suicides among the youthful residents. The project included a population profile of suicidal runaway youth--who the teenagers were, what interventions worked for them and what early signals they displayed--and an assessment of the services most appropriate for use by runaway shelters and community mental health agencies.

CONTACT: Loren Coleman, M.S.W., A.C.S.W.; (207)780-4430

- **Suicide Prevention in Runaway Youth Centers (Washington University School of Social Work, St. Louis, Missouri).** This program is developing and comparing the effectiveness of two types of group treatment which provide continuing care after runaway youths leave emergency shelters. "Social Support" groups attempt to develop peer support for runaways that will continue after youths leave the shelters. "Competence building" groups train youths in problem-solving skills, social skills, skills to cope with feelings of depression anger, and stress. Intervention curricula, manuals, evaluation instruments, and research reports developed during the project will be disseminated.

CONTACT: Janan Hartford; (314)889-5824

- **Runaway and Homeless Youth Suicide Prevention Training Project (Mental Health Association of North Dakota, Bismark, North Dakota).** This project provides training and materials to staff in 20 shelter, group, and residential facilities who deal with runaway and homeless youth in 4 states, to North Dakota law enforcement officials, hospital personnel, and human service providers. The program wishes to increase awareness of the suicidal risk in these youth, early identification of risk, and establish formal linkages between shelter personnel and health care providers.

CONTACT: Lilian Wacker; (701)255-3692

- **Suicide Prevention and Treatment in Runaway Shelters (Research Foundation for Mental Hygiene, New York, New York).** This project's goals are to: compile data on the current practices of assessment and triage of runaways at risk for suicide; develop procedures to screen for suicidal risk, train runaway center staff to use these procedures; coordinate a service network; establish and evaluate treatment groups for runaways; develop training manuals and videotapes for runaway shelter staff and clinicians treating suicidal runaways; and disseminate materials to runaway shelters, community mental health centers, and clinical researchers nationwide.

CONTACT: Mary Jane Rotheram, Ph.D.; (212)960-2332

- **Suicide Prevention Program for Runaway Youth Shelters (Suicide Prevention and Crisis Center, Burlingame, California).** This project assists shelter personnel in acquiring the knowledge and tools necessary to identify and respond to suicidal adolescents seeking shelter services. The project includes: a survey of 48 shelters in the western region, a pilot shelter training program with an evaluation component; a workbook for youth, a training curriculum and dissemination of materials developed during the project.

CONTACT: Center business office: (415)877-5604

- **Huckleberry House (Columbus, Ohio).** This program trains staff and volunteers in specialized techniques to provide early detection, intervention, and treatment services for runaway youth with a high risk for suicide. The project also evaluates the effectiveness of its training procedures. The material developed by the project includes screening procedures and a training manual and curriculum for counselors, para-professional staff, and volunteers at the shelter. Another aspect of this project is to establish base line data regarding the relationship of suicidal youth to youth with family and abuse problems.

CONTACT: Lehni Lebert, Project coordinator; (614)294-5553

OFFICE OF INSPECTOR GENERAL (OIG)

PROGRAM: Office of Analysis and Inspections
Youth Suicide Report
Inventory of State Initiatives in Addressing Youth Suicide

ADDRESS: 2901 Third Avenue, M/S 309
Seattle, Washington 98121

CONTACT: Kaye D. Kidwell, Deputy Regional Inspector General

DESCRIPTION OF ACTIVITIES:

The Office of Analysis and Inspections conducted a qualitative national program inspection of youth suicide. The Office held more than 300 interviews, in-person and by telephone, with persons from randomly selected community service agencies, who provide services to young people, or who are involved in suicide research and prevention. The study sought to assess the extent to which HHS-funded programs are involved in efforts to prevent youth suicide, review how selected communities are responding to the problems associated with youth suicide, and identify barriers and gaps which hinder delivery of services to suicidal youth and/or their families. The report, *Youth Suicide*, presents the results of these interviews.

The report, *Inventory of State Initiatives in Addressing Youth Suicide*, reflects findings based on 283 telephone interviews with officials in 50 states from five program areas: education, mental health, maternal and child health, drug and alcohol abuse, and children's services.

APPENDIX

MEMBERS OF THE SECRETARY'S TASK FORCE ON YOUTH SUICIDE

Shervert H. Frazier, M.D.
Chairman
Formerly, Director
National Institute of Mental Health

Carolyn Doppelt Gray
Acting Deputy Assistant Secretary
Office of Human Development Services

M. Gene Handelsman
(served until June 1986)
Formerly, Deputy Assistant Secretary
Office of Human Development Services

Robert B. Helms, Ph.D.
Acting Assistant Secretary for Planning
and Evaluation
Office of the Secretary

Jerome H. Jaffe, M.D.
(served until June 1986)
Director, Addiction Research Center
National Institute on Drug Abuse

Stephanie Lee-Miller
Assistant Secretary for Public Affairs
Office of the Secretary

Markku Linnoila, M.D.
Clinical Director, Division of Intramural
Clinical and Biological Research
National Institute on Alcohol Abuse
and Alcoholism

Dodie T. Livingston
Commissioner, Administration for
Children, Youth, and Families
Office of Human Development Services

Robert G. Niven, M.D.
(served until January 1986)
Formerly, Director, National Institute on
Alcohol Abuse and Alcoholism

Everett R. Rhoades, M.D.
Director, Indian Health Service
Health Resources and Services
Administration

Mark L. Rosenberg, M.D., M.P.P.
Assistant Director for Science
Division of Injury Epidemiology and Control
Center for Environmental Health and
Injury Control
Centers for Disease Control

Charles R. Schuster, Ph.D.
Director
National Institute on Drug Abuse

Robert L. Trachtenberg
Deputy Administrator
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STAFF

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Special Assistant to the Deputy Director
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Heather A. Pack, Policy Coordinator
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Office of the Secretary

ALTERNATES

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Assistant Director for Medical and Professional Affairs
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Jack Durell, M.D. (served until July 1986)
Formerly, Associate Director for Science
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Chuck Kline
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Office of the Secretary

Arnold R. Tompkins
Deputy Assistant Secretary for Social Services Policy
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WORK GROUPS OF THE SECRETARY'S TASK FORCE ON YOUTH SUICIDE

RISK FACTORS FOR YOUTH SUICIDE

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Medical Epidemiologist, Division of Injury Epidemiology and Control
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Chief, Behavioral Medicine Program
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Alec Roy, M.B.
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National Institute on Alcohol Abuse and Alcoholism

PREVENTION AND INTERVENTIONS IN YOUTH SUICIDE

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Dodie T. Livingston, Cochairperson
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Atlanta, Georgia

Pamela C. Cantor, Ph.D.
Executive Director, National Committee on Youth Suicide Prevention
Norwood, Massachusetts

Robert E. Litman, M.D.
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Los Angeles, California

Michael L. Peck, Ph.D.
Cochair of the California State Youth School Suicide Prevention Group
Los Angeles Suicide Prevention Center
Los Angeles, California

Seymour Perlin, M.D.
Professor of Psychiatry and Behavioral Sciences
George Washington University Medical Center
Washington, D.C.

Barbara P. Wyatt
Arlington, Virginia

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   Family and Youth Services Bureau
Administration for Children, Youth, and Families
Office of Human Development Services

Paget Wilson Hinch
Associate Commissioner, Family and Youth Services Bureau
Administration for Children, Youth, and Families
Office of Human Development Services

STRATEGIES FOR THE FUTURE

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Centers for Disease Control

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New York State Psychiatric Institute
Professor of Psychiatry and Pediatrics
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New York, New York

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Alcohol, Drug Abuse, and Mental Health Administration

Jack C. Smith, M.S.
Senior Statistical Consultant
Division of Reproductive Health
Center for Health Promotion and Education
Centers for Disease Control

Jay A. Winston, Ph.D.
Director, Center for Health Communication
Harvard School of Public Health
Boston, Massachusetts

Guest Participants

Emily H. Mumford, Ph.D.
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College of Physicians and Surgeons of Columbia University
Chief, Division of Mental Health Utilization and Policy Research
New York State Psychiatric Institute
New York, New York

Jerry Silverman
Policy Analyst, Office of the Assistant Secretary for Planning and Evaluation
Office of the Secretary

PAPERS COMMISSIONED BY THE SECRETARY'S TASK FORCE ON YOUTH SUICIDE

WORK GROUP ON RISK FACTORS FOR YOUTH SUICIDE

Sociodemographic, Epidemiologic, and Individual Attributes

Paul C. Holinger, M.D., M.P.H., Associate Professor of Psychiatry, Rush-Presbyterian - St. Luke's Medical Center, Chicago, Illinois

Daniel Offer, M.D., Professor and Chairman, Department of Psychiatry, Michael Reese Hospital and Medical Center, Chicago, Illinois

Preparatory and Prior Suicidal Behavior Factors

Norman L. Farberow, Ph.D., Cofounder, The Institute for Studies of Destructive Behaviors and Suicide Prevention Center, Los Angeles, California

Social and Cultural Risk Factors for Youth Suicide

Carol A. Huffine, Ph.D., Director of Research, California School of Professional Psychology, Berkeley, California

Family Characteristics and Support Systems as Risk Factors for Youth Suicide

Cynthia R. Pfeffer, M.D., Associate Professor of Clinical Psychiatry, Cornell University Medical College, New York Hospital - Westchester Division, White Plains, New York

Contagion as a Risk Factor for Youth Suicide

Lucy Davidson, M.D., Medical Epidemiologist, Division of Injury Epidemiology and Control, Center for Environmental Health and Injury Control, Centers for Disease Control, Atlanta, Georgia

Madelyn Gould, Ph.D., Assistant Professor of Clinical Social Sciences in Psychiatry and Public Health, Adolescent Study Unit, College of Physicians and Surgeons of Columbia University, New York, New York

Stress and Life Events

Eugene S. Paykel, M.A., M.D., F.R.C.P., F.R.C.Psych., Professor of Psychiatry, University of Cambridge, Addenbrook's Hospital, Cambridge, England

Sexual Identity Issues

Joseph Harry, Ph.D., Associate Professor, Department of Sociology, Northern Illinois University, De Kalb, Illinois

"Major Psychiatric Disorders" as Risk Factors in Youth Suicide

Maria Kovacs, Ph.D., Associate Professor of Psychiatry, University of Pittsburgh School of Medicine, Western Psychiatric Institute and Clinic, Pittsburgh, Pennsylvania

Joachim Puig-Antich, M.D., Professor of Psychiatry, Chief of Child and Adolescent Psychiatry, University of Pittsburgh, School of Medicine, Western Psychiatric Institute and Clinic, Pittsburgh, Pennsylvania

Personality as a Predictor of Youthful Suicide

Allen Frances, M.D., Professor of Psychiatry, Cornell University Medical Center, New York Hospital, New York, New York

Susan J. Blumenthal, M.D., Chief, Behavioral Medicine Program, Health and Behavior Research Branch, Division of Basic Sciences, National Institute of Mental Health, Rockville, Maryland

Substance Use and Abuse: A Risk Factor in Youth Suicide

Marc A. Schuckit, M.D., Professor of Psychiatry, University of California at San Diego, School of Medicine, Director, Alcohol Research Center, San Diego Veterans Administration Medical Center, San Diego, California

Judith J. Schuckit, Ph.D., Del Mar, California

Methods as a Risk Factor in Youth Suicide

J. William Worden, Ph.D., Assistant Professor of Psychiatry, Harvard Medical School, Boston, Massachusetts

Neurotransmitter Monoamine Metabolites in the Cerebrospinal Fluid as Risk Factors for Suicidal Behavior

Marie Asberg, M.D., Professor, Department of Psychiatry and Psychology, Karolinska Hospital, Stockholm, Sweden

Post Mortem Studies of Suicide

Michael Stanley, Ph.D., Associate Professor of Clinical Psycho- pharmacology, Departments of Psychiatry and Pharmacology, College of Physicians and Surgeons of Columbia University, New York State Psychiatric Institute, New York, New York

The Neuroendocrine System and Suicide

Herbert Meltzer, M.D., Bond Professor of Psychiatry, School of Medicine, Case Western Reserve University, Cleveland, Ohio

Martin T. Lowy, Ph.D., Department of Psychiatry, Case Western Reserve University, Cleveland, Ohio

Genetic and Suicidal Behavior

Alec Roy, M.B., Visiting Associate, Division of Intramural Clinical and Biological Research, National Institute of Alcohol Abuse and Alcoholism, Bethesda, Maryland

Summary and Overview of Risk Factors in Suicide

Frederick K. Goodwin, M.D., Administrator, Alcohol, Drug Abuse, and Mental Health Administration, Rockville, Maryland

Gerald L. Brown, M.D., Senior Investigator, Biological Psychiatry Branch, Division of Intramural Research Programs, National Institute of Mental Health, Bethesda, Maryland

WORK GROUP ON PREVENTION AND INTERVENTIONS IN YOUTH SUICIDE

Primary Prevention: A Consideration of General Principles and Findings for the Prevention of Youth Suicide

Robert D. Felner, Ph.D., Professor of Psychology, University of Illinois at Champaign/Urbana, Champaign, Illinois

Morton M. Silverman, M.D., formerly Associate Administrator for Prevention; Alcohol, Drug Abuse, and Mental Health Administration, Rockville, Maryland

A Critical Review of Preventive Intervention Efforts in Suicide, with Particular Reference to Youth Suicide

David Shaffer, M.B., B.S., F.R.C.P. Psych, Director, Division of Child Psychiatry, Professor of Psychiatry and Pediatrics, Columbia University, New York, New York

K. Bacon, Ph.D., Clinical Psychologist, New York State Psychiatric Institute, New York, New York

Overview of Prevention Efforts in Adolescent Suicide

Betsy S. Comstock, M.D., Professor of Clinical Psychiatry, Baylor College of Medicine, Houston, Texas

Jane T. Simmons, Ph.D., Consultant, Texas Department of Mental Health and Mental Retardation, Houston, Texas

Jack L. Franklin, Ph.D., Project Director, Texas Teen Suicide Project, Houston, Texas

Community Response to Adolescent Suicide Clusters

Betsy S. Comstock, M.D., Professor of Clinical Psychiatry, Baylor College of Medicine, Houston, Texas

Jane T. Simmons, Ph.D., Consultant, Texas Department of Mental Health and Mental Retardation, Houston, Texas

Jack L. Franklin, Ph.D., Project Director, Texas Teen Suicide Project, Houston, Texas

Prevention/Intervention Programs for Suicidal Adolescents

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ACKNOWLEDGMENTS

Volume 2:
Risk Factors for
Youth Suicide

Report of the Secretary's Task Force on Youth Suicide

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January 1989

The members of the Secretary's Task Force on Youth Suicide wish to acknowledge
the extraordinary effort of the Executive Secretary,
Ms. Eugenia P. Broumas.

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OVERVIEW OF THE WORK GROUP ON RISK FACTORS FOR YOUTH SUICIDE

INTRODUCTION

The first goal of the Task Force on Youth Suicide as stated by the Secretary was "to take the lead in coordinating activities about suicide among various Federal agencies, Congress, State and local governments, private agencies, and professional organization." The three work groups of the task force--risk factors, interventions and prevention, and strategies for the future--have worked toward establishing a model for the kind of coordination and sequential progress envisioned by the Secretary. The research conclusions and recommendations reached by the Risk Factors Work Group build on this foundation.

Another major charge to the task force was to "assess and consolidate current information." The work group generated a comprehensive list of potential risk factors, grouped them into specific risk factor domains, and identified experts in each area to review the scientific literature and write summary papers. In their papers, the commissioned authors were asked to catalog, analyze, and synthesize the literature on factors linked to youth suicide. These papers clarified the environmental, behavioral, socio-cultural, biological, and psychological factors which have been associated with an increased likelihood of suicide among young people. The papers were presented at the National Conference on Risk Factors for Youth Suicide in Bethesda, Maryland, May 8 and 9, 1986. They were critiqued by a review panel and opened for discussion and comment by those attending the conference. The following comments were distilled from three sources: the commissioned papers, the review panel's work, and the reflections of the conference attendees.

Although research reviewed by the authors varied in quality as well as methodology, sufficient data were available to establish many characteristics as risk factors for youth suicide. Those biochemical, psychological, and social factors most clearly linked to youth suicide were the following:

- Substance abuse, both chronic and acute, in the context of the suicidal act. Substance abuse was also tied to the exacerbation of concurrent psychiatric disorders, themselves indicators of increased risk.

- Specific psychiatric diagnostic groups-- affective disorders, schizophrenia, and borderline personality disorders.

- Parental loss and family disruption.

- Familial characteristics including genetic traits such as predisposition to affective illness and the effects of role modeling.

- Low concentrations of the serotonin metabolite, 5-hydroxyindoleacetic acid (5-HIAA), and the dopamine metabolite homovanillic acid (HVA) in the cerebrospinal fluid.

- Other risk factors include homosexuality, being a friend of family member of a suicide victim, rapid socio-cultural change, a history of previous suicidal behavior, impulsiveness and aggressiveness, media emphasis on suicide, and

ready access to lethal methods, such as guns.

The diversity of risk factors points to the need for targeting intervention and prevention strategies. Our ability to address specific populations at high risk for youth suicide will help focus research and evaluation components of planned interventions as well.

While clear trends were evident, the available research made quantifiable estimates of relative risk a goal as yet unreached. Many studies, while meticulously descriptive, lacked comparison groups. Other lines of research had not been conducted for youth and results were extrapolated from adult populations.

Recommendations for future research approaches were derived from the authors' assessments of the studies that had been done in each risk factor domain. The types of research envisioned by the work group would parallel other efforts at suicide prevention and promote a more precise identification of those young people likely to benefit from a particular intervention and of the circumstances under which directed interventions are most imperative.

CONCLUDING NOTE

The Work Group on Risk Factors for Youth Suicide has examined attributes and exposures that are associated with an increased likelihood of youth suicide. The careful identification and exploration of these risk factors forms the foundation for effective intervention and prevention planning. Given the nature of the work group's task and the limitations of the data available for review, most of our recommendations focus on the research process itself. However, where data were compelling, we have made the following recommendations in specific risk factor domains:

1. **Extend and verify knowledge of youth suicide by conducting well designed research.** Elements of sound design which address current deficiencies include: (a) address current deficiencies include: (a)

specifying the theoretical models upon which a study is based, (b) stating operational definitions for all variables, (c) designing a research protocol that will allow individual exposures to be assessed, (d) fostering interdisciplinary collaboration, (e) using comparison groups, and (f) using nonclinical populations.

Much of our knowledge of risk factors for youth suicide has been extrapolated from studies of adults or studies of suicide attempters. Methodologic deficiencies of many studies further limit our ability to quantify that risk. Stronger studies of youth suicide would provide the risk factor data upon which suicide intervention and prevention efforts could be more reliably based.

2. **Encourage collaborative behavioral and biochemical research into risk factors associated with youth suicide.**

Recently, behavioral and biological investigators have advanced our knowledge of risk factors associated with youth suicide. We expect that their combined efforts would be synergistic. Their collaboration could facilitate the translation of laboratory data into clinically useful information.

3. **Conduct long term, prospective studies of completed suicides among youth.** Such studies should be multi-center efforts with compatible data collection instruments.

Statistically, youth suicides are rare events. Collecting data at multiple sites could provide a larger sample size with power to detect more subtle risk factors. Clarifying the developmental course of various risk factors through prospective studies would facilitate the timing of treatment options.

4. **Establish surveillance systems for suicide attempts and suicide clusters.**

The incidence, prevalence and characteristics of suicide attempts among youth are unknown. Surveillance would provide population-based data to understand suicide attempts as a public health

problem and to illuminate the relationship between suicide attempts and suicides.

Suicide clusters may represent an especially preventable type of youth suicide. Ongoing surveillance of clusters would allow for earlier detection and would address the following issues: the proportion of suicides occurring in clusters, their relative frequency among certain age groups, geographic differences, and changes in the pattern of suicide clusters over time.

5. **Assist death certifiers in implementing uniform operational criteria for the determination of suicide and assist States in expediting their mortality data recording and reporting.**

Nationally, death certificates comprise the primary data source for the epidemiologic analysis of suicide. However, suicide is a mode of death particularly subject to misclassification. Without explicit criteria for the determination of suicide, coroners and medical examiners do not reliably code suicide; medical examiners have estimated that half of all suicides may be inaccurately classified. Delays and errors in the vital registry system further compromise this data base.

6. **Develop valid and reliable mental health assessment instruments for youth.**

The personality variables and diagnostic groups associated with adult suicide also appear to be associated with youth suicide. However, the lack of appropriate assessment instruments for youth is an obstacle to early identification and early treatment.

7. **Conduct biochemical research to identify neuroendocrine markers for suicidal behavior which can be measured repeatedly over time, inexpensively, and at low risk and burden to the subject.**

Biochemical markers may be able to identify persons at high lifetime risk for suicide during periods of low immediate risk. Non-crisis-oriented interventions could be implemented for these potential suicides.

8. **Collaborate with the broadcast media in content analyses to identify the harmful and beneficial features of fictional suicide programs and news coverage of suicide.**

Some, but not all, fictional and nonfictional suicide programs have been associated with an increase in suicide attempts and suicides. Identifying which components of the programming were associated with an increase would allow for more responsible broadcasting.

9. **Increase gatekeepers' recognition of and ability to refer potentially suicidal youth by providing (a) information on acute and chronic risk factors for suicide, (b) information on behavioral manifestations of depression, schizophrenia, and conduct disorders, (c) information on indications and sources for referring youth at risk, and (d) training in communication skills for approaching and engaging youth at risk.**

Interested others, such as teachers, youth activity leaders, clergy, and peers have more opportunity for contact with potentially suicidal youth than clinicians. They constitute a prime source for detection and referral of troubled youth.

10. **Use risk factor information to target intervention and prevention services.**

Limits on the distribution of resources for suicide prevention compel us to direct our efforts to those persons in greatest need and those most likely to benefit. Risk factor information fosters prudent allocation of resources among those programs intended to prevent youth suicide.

11. **Avoid sensationalized or romanticized reporting in media coverage of suicides as well as attention to violence and according celebrity status to the decedents.**

Nonfictional media coverage of suicide has been associated with an increase in the number of suicides. Susceptible individuals may be affected by positively regarded qualities of the suicide reported

and by perceived rewards for the behavior.

12. **Incorporate suicide prevention strategies into treatment and outreach programs directed toward modifiable risk factors for youth suicide, such as alcohol and drug abuse.**

These youth problems are intrinsically worth treating. Adding suicide awareness to extant programs for troubled youth can increase our capacity to reach potentially suicidal youth without initiating costly new programs.

13. **Provide increased psychiatric and other youth services commensurate with predictable increases in the youth population.**

Population increases among youth, which have been associated with increasing youth services, rather than catching up after a deficit, may offset adverse effects of the population increase.

14. **Improve health professionals' treatment of depression and other psychiatric disorders associated with youth suicide.**

Depression, conduct disorders, schizophrenia, and substance abuse are strongly associated with youth suicide. The risk of suicide is increased when these disorders occur singly or concurrently. Many health professionals are not trained in the effective treatment and management of these common disorders.

SUMMARY OF THE NATIONAL CONFERENCE ON RISK FACTORS FOR YOUTH SUICIDE

David J. Kupfer, M.D.

INTRODUCTION

In the past fifteen years, suicidal behavior among young people has become an increasingly important public health problem requiring the development and implementation of detection and information strategies at the national level. In 1985, suicide was the second leading cause of death in young people and the rate of suicide among our nation's youth had tripled over the past thirty years. For example, between 1970 and 1980, 49,496 of the nation's youth fifteen to twenty-four years of age committed suicide. Within this one decade, the suicide rate for this age group increased 40 percent (from 8.8 deaths per 100,000 population in 1970 to 12.3 per 100,000 in 1980); while the rate for the remainder of the population remained stable. Young adults twenty to twenty-four years of age had approximately twice the number and rate of suicides as teenagers fifteen to nineteen years old. This increase in youth suicide is due primarily to an increasing rate of suicide among young men. Rates for males increased by 50 percent (from 13.5 to 20.2 per 100,000) compared to a 2 percent increase in females (from 4.2 to 4.3 per 100,000) between 1970 and 1980, so that by 1980 the ratio of suicides committed by males to those committed by females in this age group was almost five to one.

Based on these startling statistics and the growing awareness of youth suicide by public health specialists and other concerned individuals, the Secretary's Task Force on Youth Suicide of the Department of Health and Human Services convened three national conferences to develop a strategy to deal with this pressing public health problem. The first of these conferences on Risk Factors for Youth Suicide was held in May 1986, in Bethesda, Maryland. At this conference, a number of distinguished national and international speakers reviewed a variety of risk factors for youth suicide. After the day and a half of presentations, a group of panelists responded to individual papers and to a number of general themes. These panelists were David J. Kupfer, M.D. (chairman); Gerald L. Klerman, M.D.; George E. Murphy, M.D.; Herbert Pardes, M.D.; David B. Pillemer, Ed.D.; Judith L. Rapoport, M.D.; Lee Robins, Ph.D.; and Edwin Shneidman, Ph.D. They paid specific attention to the major themes of the conference as well as suggestions for further strategies which might begin to connect some of the risk factor areas with detection and intervention approaches.

CONFERENCE SUMMARY

The full text of the manuscripts by all the speakers is included in this volume and I will only highlight particular points that the authors made which were either not discussed completely or could benefit from further emphasis.

In their paper on sociodemographic,

epidemiologic, and individual attributes, Holinger and Offer discussed the need for increased accuracy in epidemiologic data. Both mortality data, local and national, and also the population denominators from which mortality rates are derived should be more reliable. They also argued that further long term, cross-cultural comparisons of suicide, homicide, and accident rates are necessary with a focus on period, cohort, and age effects.

In an extensive chapter on preparatory and prior suicidal behavior, Farberow concluded that prior suicidal behavior of any kind is unquestionably as strong a risk indicator for adolescents as it is for adults. On the other hand, indirect self-destructive behavior appears to play too complex a role in the personality of the individual to serve as a reliable risk indicator. Suicide attempters and completers among adolescents need to be appropriately viewed as separate but overlapping populations. While prior suicide attempts, threats, and suicidal ideation may be excellent clues for further suicidal behavior, it is also true that they are late clues in the progression towards suicide. Certain behaviors have been identified that appear consistently in the histories of adolescents who either attempted or committed suicide: school performance variables, including academic difficulties, disciplinary problems, and truancy; and antisocial behavior, especially assaultiveness. Finally, social isolation and impulsive behavior are also often noted. Such factors might be of greater value when they appear with specific evidence of active suicide potential. Other factors that may play a role in suicide are running away, suggestibility and imitation. Suicide notes may tell something about the person's style and pattern of thinking. Dichotomous thinking (cognitive thought processes) may serve as a useful clue in reflecting increasing rigidity and loss of ability to seek alternatives.

The manuscript by Huffine on social and cultural risk factors for youth suicide pointed to ways in which societies might influence the suicide rate among their members. She discussed social structures which might be supportive and protective of individuals or might produce stress. Secondly, the culture as well as social structure, influences the psychological development of its members. Finally, through such mechanisms as folklore and attitudes about suicide and death, the culture may play a role in influencing suicide risk factors and the incidence of suicide itself. The manuscript focused on social integration or the lack of it among various cultural groups including Hispanic Americans, American Indians, Blacks and Asians. Dr. Huffine also emphasized that cultural attitudes and socialization may contribute to increased suicide rates in populations by romanticizing suicide, presenting death as a positive state, or influencing the psychological development of individuals in such a way that they are susceptible to suicide.

In her chapter on family characteristics and support systems, Pfeffer concluded that family factors associated with a high risk of youth suicide are related to experiences characterized by the presence of intense levels of stress. Such stress appears to be chronic and seems to occur at an early phase of the individual's life. One implication of this position is that family risk factor research on youth suicidal behavior needs to adhere to a developmental perspective. Such an orientation could facilitate the examination of continuities and discontinuities in family variables that may be precursors to youth suicide. In identifying a number of stressors, Pfeffer pointed to the loss of social supports, variability and parental functioning which also includes a violation of personal boundaries. She concluded that perspective longitudinal research designs of high-risk populations were indicated. Such studies may evaluate the long term outcome of children who previously had suicidal tendencies. These studies may also evaluate children who are the offspring of parents prone to abuse or affective disorders, or parents who have separated, divorced, or died. Finally, factors such as family disorganization, parental psychopathology and

family violence were vectors that could enhance suicidal behavior. Efficient screening techniques for identifying high-risk families as well as screening devices for identifying high-risk children and adolescents in such situations are implied needs for youth suicide prevention. Another approach is to plan interventions that focus on ameliorating family disorganization and parental psychopathology so that stress may decrease and stability may be enhanced.

In their chapter on contagion as a risk factor, Davidson and Gould argued convincingly for further investigation of suicide clusters. After reviewing various epidemic suicide reports in the literature and investing medial influence on suicide, they concluded that time-space clusters of suicide do occur and are not a new phenomena of the 1980's. Nonfictional media coverage of suicides is associated with an increase in the observed number of suicides over those expected, and susceptible individuals may be affected by direct or indirect exposures to suicide. Obviously, a number of questions were raised, such as, what proportion of suicides may occur in clusters and in what ways youth may be differentially exposed and susceptible to suicide contagion. Since youth suicide clusters are of particular concern and may be potentially more preventable, the sorts of prevention and intervention efforts for averting cluster suicides are extremely important. Therefore, recommendations concerning media coverage, further research investigations, and the establishment of a surveillance system for potential suicide clusters seemed valuable.

In his review of stress and life events, Paykel concluded that there still is a dearth of studies of recent life events in the role of youth suicidal behavior. Relatively few studies of♦ early parental loss or studies examining completed suicide have been published. Studies of older suicides and suicide attempters examining early loss due to breakup of parental marriage consistently show suicide and attempt rates higher than in normal control groups or psychiatrically disordered controls.

Since the interpretations of these associations are not fully clear-cut, the implications for prevention are also not easy to summarize. Most of the recent events may serve as signals for high-risk periods when crisis interventions might be attempted.

In reviewing sexual identity issues, Harry argued that suicide attempts among homosexuals of both sexes are two to six times more likely than in heterosexuals. This conclusion, however, is somewhat unclear due to a lack of control groups, especially nonclinical control groups. Harry argues that it would be desirable to obtain both experimental and control groups for nonclinical populations through population-based surveys.

In assessing major psychiatric disorders, Kovacs and Puig-Antich concluded that the "condition" of psychiatric patienthood in adolescents and young adults is associated with an alarmingly high mortality risk from suicide. These psychiatric disorders include psychosis and manic-depressive illness. They also suggested a need to focus on prepubertal children; since their suicidal intent may be profound, while their physical and cognitive limitations may render them less lethal. Although suicidal ideation occurs frequently among prepubertal children their rate of suicide remains quite low. This is probably due to prepubertal child's lack of cognitive maturity and skills necessary to complete suicide. Therefore, this age group provides an opportunity to study suicidality untruncated by suicide completion. Suicidality of very early onset may enable attempters to be selected for future studies who are at most risk and most closely approximate completed suicides. These children, therefore, are a very interesting model for intervention. Finally, Kovacs and Puig-Antich concluded that more efficacious treatment and care of psychiatrically ill youths may be the most feasible way to alter their risk of suicide.

In their assessment of the role of personality disorders and characteristics, Frances and Blumenthal strongly suggested that even though conduct disorders and borderline

personality disorders are highly associated with adolescent suicide, assessment of personality factors has been impeded by lack of standardized measures for these characteristics in young people. In addition, assessment of underlying personality at the time of a suicide attempt is confounded by the distress experienced by the individual around the time of the event. However, from personality studies that have been done, a continuum of the traits and disorders associated with suicidal behavior in adolescence appears to be associated with such behavior in adulthood. Therefore, stability in personality characteristics, such as impulsiveness and aggressiveness, appears to be present over the life cycle. It is proposed that certain diagnostic categories from the DSM-III Infancy, Childhood, and Adolescence section correspond to, and may in some individuals eventually develop into particular personality disorders in adulthood. For example, schizoid disorder of childhood and adolescence may become schizoid personality disorder; avoidant disorder of childhood and adolescence may become avoidant personality disorder; conduct disorder may become antisocial personality disorder; oppositional disorder may become passive aggressive personality disorder; and identity disorder may become borderline personality disorder. The presumption is that the childhood or adolescent condition is diagnosed if the individual is under age eighteen, and the adult personality diagnosis is used after age eighteen whenever the personality psychopathology has persisted at an intensity sufficient to meet disorder criteria. In addition, these personality variables may also have biological correlates, i.e., serotonin deficiency related to increased impulsiveness and aggressiveness, and may interact with environmental factors.

The authors noted that the coexistence of depression and conduct disorder or borderline personality disorder may represent an extremely risky combination of factors. The implications of these findings suggest careful clinical assessment and further development of "kiddy" personality measures and better

definitions. They also lead to the notion that various prevention studies for conduct disorders should be attempted more vigorously. In essence, it appears that the same disorders are predicting suicidal behavior in adults and in children.

In reviewing methods, Worden argued that although the numbers may be few, suicide statistics should be diligently collected for children under the age of 10. Methods of suicide should also be studied in context. Therefore, those who are collecting data on suicide methods should use one of the existing scales that account for the context of the event. If that were to take place, we would have a better grasp of the relative lethality of various age, sex, and ethnic groups as well as important distinctions between methods chosen by youth versus adults.

In his examination of substance use and abuse, Schuckit suggested that controlled substances and/or alcohol are frequently used as the means of attempting self-harm, especially among younger women. Alcohol is often taken as a prelude to the suicidal act. Adolescents, alcoholics, and drug abusers have an elevated risk for suicide attempts and completions. Children of alcoholics and of patients with depressive or schizophrenic disorders may themselves be a elevated risk for suicide attempts and completions. Almost all substances of abuse are likely to exacerbate the preexisting emotional or psychiatric disturbances. Efforts aimed at minimizing the risk for suicide should include educating young people and their families about the need to refrain from all recreational psychotropic substances during times of mood swings or anger. Finally, the children of alcoholics may themselves have inherited problems of impulsiveness or hyperactivity or a propensity to misuse substances with subsequent mood swings, anger, and frustration in their own lives.

In reviewing various biological factors, Asberg argued that a low output serotonin system or perhaps even more likely a "low stability system" might render an individual more vulnerable to self-destructive or impul-

sive action in time of crisis. Asberg also pointed out that although relatively little is known about the biochemical linkages between the serotonergic system and suicidal behavior, the evidence that personality features (impulsiveness and aggressiveness) may represent intervening variables is highly suggestive. At the present time, it might be recommended that cerebrospinal fluid (CSF) measures could be used as an aid to suicide risk prediction in highly specialized clinical settings, but not on a larger scale.

The next presentation reviewed receptor studies and the ways in which postmortem research might contribute to our understanding of the biological aspects of suicidal behavior. Stanley argued that postmortem research would necessitate interviewing next of kin to obtain the needed personality descriptives and diagnostic information. He also suggested that in an effort to maintain a link between postmortem findings and the clinical application of such findings, investigators should obtain samples of postmortem CSF wherever possible.

In a third presentation on biological factors with an emphasis on neuroendocrine aspects, Meltzer suggested that the thyroid stimulating hormone (TSH) response may be blunted in persons who commit violent suicide. Methodologically, he examined differences between violent versus nonviolent attempts and also persons who attempted suicide versus those individuals with suicidal ideation. He found a significant relationship between serum cortisol and hopelessness. His review, therefore, suggested that there may be relationships between cortisol and suicidal behavior.

Finally, in reviewing genetic factors, Roy suggested that the Copenhagen adoption studies strongly suggest a genetic factor for suicide independent of or added to genetic transmission of psychiatric disorders. Interestingly, support for this possibility comes from the recent Amish studies which show that suicide was much more likely to occur when an individual had genetic vulnerabilities to both suicide and to affective illness. Roy also pointed out that Kety's recent data pointed to a genetic factor which represents the inability to control impulsive behavior triggered by depression, stress, or other stimuli. Therefore, he concluded that important goals were first the identification of genetic factor, next the examination of genetic transmission of psychiatric disorders per se, and then the examination of an additive genetic factor relating to impulsive behavior.

In summarizing the biological factors, Goodwin discussed a cluster of biological findings emphasizing again the difference between persons with suicidal ideation versus those who are suicide attempters and completers. He argued that the presence of a psychiatric illness was the single most predictive factor for a serious suicide attempt. In pointing to specific psychiatric illnesses, he felt that the key psychiatric diseases were affective disorders with an emphasis on hopelessness, alcoholism with an emphasis on loss of impulse control, and schizophrenia with an emphasis on psychosis.

At the end of these presentations, the discussants each presented brief overview of their thoughts as well as specific points on various chapters.

Klerman stated that the conference contained a number of omissions such as discussion of some high-risk populations including the American Indians. He also pointed out that relatively little of the existing epidemiological methodology for assessing risk has been applied to youth suicide. Techniques such as attributable relative risk and logistic regression, which are the standbys of epidemiology, have not been applied by and large to most of these studies. Murphy reinforced the notion of expanding Shafii's recent study (Louisville, Kentucky) to other places. He also stressed Frances' argument about comorbidity, such as, the combination of personality disorder and substance abuse. Pardes discussed the need to find ways of fostering interactions among various disciplines working on this topic. Pillemer argued that one way to try to firm up

conclusions from correlational studies involves improving the database through more careful matching of controls with suicide groups. Another strategy would involve applying survey methods to nonclinical populations. He also stated that intoxication with alcohol or drugs often precedes suicidal behavior and that the suicide rate among substance abusers is much higher than in the general population. It, therefore, might be possible to partially disentangle this risk factor from associated factors by conducting planned intervention studies.

Rapoport reemphasized the role of psychiatric disorders, especially impulsive conduct disorders, in relation to suicidal behavior. Robins suggested that we should try to study the whole spectrum of suicidal ideation through attempts to successful suicide rather than keeping them as separate enterprises. Many factors are highly correlated with suicide attempts and suicide completions but we do not yet know to what extent these are separate populations and to what extent they are overlapping populations. The only way we can find out is by studying multiple variables simultaneously. The intersection of two areas traditionally separated in psychiatric diagnosis--the internalizing disorders of depression and the externalizing disorders of conduct and drug abuse--predicts an explosive situation. This is an opportunity, therefore, to integrate genetic and stress research. Another notion is to examine children who have had antisocial fathers and depressive mothers who would then be very likely to have a double genetic dose which might be the critical thing in the research reported. Shneidman stressed other points in the conference preceedings which have already been described. In particular, Schneidman argued for "individual case autopsies."

Kupfer suggested that several workshops be held to examine the gaps in methodology. For example, there may be several areas where we already have multiple assessment instruments and we need to decide which is the most appropriate. The notion of launching several prospective studies with an intervention component might be the most economical way to go in the long run. Which risk factors do we know enough about to design such trials and which risk factors are modifiable? These are crucial questions since part of the strategy of public health intervention is to identify risk factors which are modifiable.

In conclusion, considerable attention should be paid to the differences between vulnerability factors and protective factors, the need for longitudinal prospective studies, comorbidity, and interdisciplinary research. In understanding the application of risk factors we must plan for the education of primary care practitioners and pay attention to teachers in dealing with early detection and recognition of children in trouble. Other goals are planned interventions where the disentanglement of risk factors is very appropriate and the development of a child brain bank. Along these lines would be setting up criteria as well as the actual completion of a national registry for suicide completers. With respect to some of the methodology gaps, the notion of developing child personality measures would be important.

Davidson pointed out that we need to understand much more about the circumstances of directed interventions, we need to study nonclinical populations, and we need to replicate studies in children similar to what we have carried out with adults. An important point to be emphasized in this report is the issue of weighting the various risk assessment factors and developing a bridge between risk factor identification and intervention planning. (In a later presentation, Davidson pointed to five criteria for developing this bridge: the prevalence of the risk factor in the population, the strength of the risk factor (relative risk), how the population at risk might be reached (identification), the acceptability of the proposed intervention, and the effectiveness of the intervention (the percent of those treated who will benefit). Shaffer has previously pointed out that the implications for

prevention rest very much on which model for suicidal behavior is accepted, whether there is an overlap model or a continuous model.

In assessing the various risk factor domains that were covered in this conference, it becomes clear that the 14 or 15 risk factor domains can be reduced in number. For example, those relating to CSF determinations, neurochemical receptors, and neuroendocrine studies can be grouped together as biological risk factors. Also substance use and abuse can be included under the major psychiatric disease segment. Some of the first several risk factor domains can also go under a larger category concerning psychosocial factors and social supports. In short, although these risk factor domains can be teased out separately, one might argue that a smaller set of risk factor domains might be more useful for ascribing weights and attempting to deal with prediction and the establishment of various detection and intervention strategies.

Although one can provide different models, it has been previously suggested that five domains organized as a matrix or multi-axial set of domains may provide a simple model for looking at most of these risk factors. Whether a model of risk should be a series of interlocking Venn diagrams or some other additive model, it does appear that a major clinical research strategy will be the need to develop weights for each of its major components. For example, in applying this model, the breakup of a relationship might be a final humiliating experience that triggers a depressive episode in a young person with a family history of affective disorder. Such an individual may also have poor social supports, which interact with the other identified risk factors to increase the individual's vulnerability to suicide.

The question is, at what level and in what degree do each of these factors contribute to suicide potential? Or is the degree of overlap of all factors the most significant criterion? Or we may wish to pose such questions as: What makes 15 percent of the

people who suffer from an affective disorder end their lives by suicide while the other 85 percent do not? Using this overlapping model, we may learn that the subgroup of affective disorder patients who commit suicide have a greater overlap of other risk domains such as increased hopelessness, impulsiveness, decreased social supports, a recent humiliating life experience, and/or an increased family history of affective disorder or suicidal behavior.

From this example, it is clear that psychiatric diagnoses are key risk factors. Current research shows that affective disorders, conduct disorder, and substance abuse are the psychiatric diagnoses most highly associated with suicide in young people. In the adult literature over 90 percent of persons who end their lives by suicide have an associated psychiatric illness. The few studies on adolescent suicide suggest high percentages as well.

Secondly, personality traits relating to suicide, such as aggression, impulsiveness, and hopelessness are intrinsically important in characterizing suicide since they may represent personality styles that cut across diagnostic groupings. In addition, this domain includes certain personality disorders, such as borderline personality disorder and antisocial personality disorder, which are more highly correlated with suicidal behavior and represent risk factors. The comorbidity (or co-occurrence) of antisocial and depressive symptoms appears to be a particularly lethal combination in adults and young people. The third risk factor domain is concerned with psychosocial factors, social supports, life events, and chronic medical illness. For example, early loss, increased negative life events, the presence of a chronic medical illness, and decreased social supports increase the risk for suicide.

In addition to these three risk factor domains, two others stand out. One is the identification of both genetic and family factors that predispose an individual to suicide. Previous investigators have suggested that the genetics of suicide may be independent of the

genetics in a family history relating to specific psychiatric disorders, such as affective disorder or alcoholism. The final factor may be the neurochemical and biochemical variables currently under active investigation in an attempt to identify either a biologic abnormality or a vulnerable state for suicide. I would advocate that intervention strategies incorporate these factors into the research design (if only to track them) as an essential feature. This material may represent a somewhat personal view of the proceedings of the risk meeting and may need to be more "objectively" reviewed to achieve a consensus of the scope of the problem, the risk factor characteristics, what kinds of detection and interventions can be carried out now, and what we can do to improve our detection and intervention strategies.

On a broader note, it would appear that politically the time is ripe to advocate partnerships between various agencies and funding sources, e.g., Federal-State-local; foundation-Federal; university-community. Aside from the obvious problems of partnership, there is a tendency in the suicide area to promise too much too quickly. Perhaps if one does not only advocate research or education or intervention, one might have a better balanced shot at achieving the sustained longitudinal push one will need to redevelop this area of public health concern.

Our own recent experience in the Commonwealth of Pennsylvania last winter was proposing a model center to capture all three components. We will establish at Western Psychiatric Institute and Clinic (WPIC), in conjunction with our ongoing program for adolescents and young adults, a Center for Teenagers at Risk to serve the western Pennsylvania region. This center will have three major components: (1) outreach, education and prevention; (2) demonstration intervention and treatment programs; and (3) research on adolescent suicide. The goal of the mobile outreach component will be to teach targeted school and agency personnel to identify the signs and symptoms of depression and potential suicide. The intervention

component will involve the development of therapeutic strategies based on the known risk factors for suicide in this age group. The research component will work toward the goal of more accurate identification of teenagers at risk of suicide.

COMMISSIONED
PAPERS

SOCIODEMOGRAPHIC, EPIDEMIOLOGIC, AND INDIVIDUAL ATTRIBUTES

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INTRODUCTION

From an individual, clinical point of view, it is difficult to overestimate the distressing, disastrous impact of the suicide of a young person. The impact on parents, siblings, friends, and the community seems almost inexpressible. However, the extent to which one views self-destructiveness among the young as an issue in the public health and epidemiologic realms seems dependent on the context and perspective. On the one hand, suicide is the second leading cause of death among 15 to 24 year olds in the United States (following only accidents) (National Center for Health Statistics, 1985) and, primarily because of the number of suicides, homicides, and accidents among young people, violent deaths* are the **leading** cause of number of years of life lost in this country (Holinger, 1980). On the other hand, young people have the **lowest** suicide rates of any age group and are at **least** risk of dying by suicide (Holinger, Holinger, and Sandlow, 1985).

The purpose of this paper is twofold. First, we will present and evaluate the epidemiologic data related to suicide among adolescents. Second, we will discuss the potential for the prediction of youth suicide

*Violent deaths refer to suicide, homicide, and accidental deaths (Weiss, 1976).

on an epidemiologic level. The focus will be on completed suicides, and we will utilize a developmental model emphasizing early (10-14 years old), middle (15-19 years old), and late (20-24 years old) adolescence, with an emphasis on the 15 to 19 and 20 to 24 year olds. The paper is divided into six sections; sections on literature, methodology, data, discussion, and future research will follow this brief introduction.

LITERATURE

This section on literature will focus on the epidemiology and potential prediction of adolescent suicide.

Of the many tasks of science, perhaps one of the most important is that of prediction, especially if such prediction can lead to effective intervention. Two types of studies over the past five years have begun to suggest that prediction of certain violent deaths may be possible for some age groups. One type of study involved the use of a population model (Holinger and Offer, 1983; Holinger and Offer, 1984; Holinger and Offer, 1986; Holinger, Offer, Ostrov, et al., unpublished data), and the second type of study utilizes cohort analysis (Solomon and Hellon, 1980; Hellon and Solomon, 1980; Murphy and

Wetzel, 1980; Klerman, Lavori, Rice, et al., unpublished data).

In our 1981 examination of the increase in suicide rates among 15 to 19 year olds during the past two decades (Holinger and Offer, 1981), we reported that simultaneous with an increase in suicide rates was a steady increase in the population of 15 to 19 year olds from just over 11 million in 1956 to nearly 21 million in 1975. A subsequent study then related the changes in the adolescent population and changes in the proportion of adolescents in the total U.S. population to the adolescent suicide rates during the twentieth century in the United States (Holinger and Offer, 1982). Significant positive correlations were found between adolescent suicide rates, changes in the adolescent population, and changes in the proportion of adolescents in the population of the United States, i.e., as the numbers and proportion of adolescents increased or decreased, the adolescent suicide rates increased and decreased, respectively. It should be recalled that while one might assume that the number of deaths from a particular cause will increase with increases in the population, the mortality rates do not necessarily increase with an increase in population because the denominator is constant (i.e., deaths/100,000 population).

Cohort analyses have also provided data to demonstrate the increase in suicide rates among the young (Solomon and Hellon, 1980; Hellon and Solomon, 1980; Murphy and Wetzel, 1980; Klerman, et al., unpublished data). Solomon and Hellon (1980), studying Alberta, Canada, during the years 1951 to 1977, identified five-year age cohorts, and followed the suicide rates as the cohorts aged. Suicide rates increased directly with age, regardless of gender. Once a cohort entered the 15 to 19 year old age range with a high rate of suicide, the rate for that cohort remained consistently high as it aged. Murphy and Wetzel (1980) found the same phenomenon, in reduced magnitude, in larger birth cohorts in the United States. Not only does each successive birth cohort start with a higher suicide rate, but at each succes-

sive five-year interval it has a higher rate than the preceding cohort had at that age. Klerman, et al. (unpublished data), noted a similar cohort effect in their study of depressed patients.

There are both similarities and differences between the population-model and the cohort-effect studies. The similarities lie in the emphasis on recent increases in suicide rates among the younger age groups. The differences are in the predictive aspects. The cohort studies suggest that the suicide rates for the age groups under study would continue to increase as they are followed over time. Implicitly, the cohort studies also seem to suggest that the suicide rates for younger age groups will continue to increase as each new five-year adolescent age group comes into being. The predictions by the population model are different. The population model suggests that suicide rates for younger age groups will begin leveling off and decreasing, inasmuch as the population of younger people has started to decrease. In addition, the population model suggests that as the current group of youngsters gets older, suicide rates will increase less than the cohort studies would predict. It is well known that male suicide rates increase with age in the United States while female rates increase with age until about 65 and then decrease slightly (Kramer, et al., 1972; Holinger and Klemen, 1982). Therefore, one would expect an increase in suicide rates age consistent with this long-established pattern. However, the current group of adolescents and young adults make up an unusually large proportion of the U.S. population. The population model suggests that the larger the proportion of adults in the population, the lower will be their suicide rates. Thus, the population model would suggest that the suicide rates for the adult populations would decrease over the next several decades compared with adult rates in the past, consistent with the movement of the "baby boom" population increase through those adult age groups. This is not to say that the rates for the older groups of the future might be expected to have smaller suicide rates than the

older groups of the past.

Other literature is also relevant to the issue of violent deaths, population shifts, and potential prediction. Positive relationships between population increases and upsurges in the rates of various forms of violent death are described by Wechsler (1961), Gordon and Gordon (1960), and Klebba (1975). These findings were not supported by the work of Levy and Herzog (1974, 1978), Herzog, et al. (1977), and Seiden (1984) in their reports of negative or insignificant correlations between both population density and crowding and suicide rates.

The work of Easterlin (1980) and Brenner (1971, 1979), with extensive research of population and economic variables, respectively, and other related studies (Seiden and Freitas, 1980; Peck and Litman, 1973; Klebba, 1975; Hendin, 1982) began to suggest the potential for prediction of suicide and other violent deaths. Turner, et al. (1981), showed that the birth rate increased with good economic conditions, and decreased with poor conditions. Previous studies specifically examined the potential of a population model to predict the patterns of violent deaths (Holinger and Offer, 1984). This model was also related to economic changes, with a suggested interaction of economic and population variables (e.g., good economic conditions leading to an increased birth rate with subsequent population changes) that helped explain violent death rates from an epidemiologic perspective.

Other Factors. Summaries of other risk factors for suicide among children and adolescents have been presented elsewhere (Holinger and Offer, 1981; Seiden, 1969), but brief mention should be made here of three other variables: geographics, divorce rate, and teenage pregnancy. With respect to geographics, the western States have the highest suicide rates among adolescents, and the eastern States tend to have lower rates (Seiden, 1984; Vital Statistics of the United States, 1979). The birth rates for teenagers and the divorce rate for all ages have increased recently, paralleling the recent in-creases in suicide rates among the young, but these parallels were not consistent early in the century (Vital Statistics of the United States, 1979; Shapiro and Wynne, 1982).

METHODOLOGIC ISSUES

Methodologic Problems. Although we present elsewhere detailed discussions of the methodologic problems in using epidemiologic data to analyze violent deaths (Holinger and Offer, 1984; Holinger, in press, 1987), we will note the more important issues here.

Two major types of methodologic problems occur when using national mortality data to study violent death patterns: (1) under- and overreporting; and (2) data misclassification. Underreporting may result in reported suicide data being at least two or three times less than the real figures (Hendin, 1982; Seiden, 1969; Toolan, 1962, 1975; Kramer, et al., 1972). The underreporting may be intentional or unintentional. In intentional underreporting, the doctors, family, and friends may contribute to covering up a suicide for various reasons: guilt, social stigma, potential loss of insurance or pension benefits, fears of malpractice, and so on. Unintentional underreporting refers to deaths labeled "accidents," e.g., single car crashes or some poisonings, which were actually suicides but were unverifiable as such because of the absence of a note or other evidence. Studies of violent deaths among youth involve additional methodologic problems. There may be greater social stigma and guilt surrounding suicide in childhood and adolescence because of the intense involvement of the parents at that age and the parents feeling that they have failed and will be labeled "bad parents." In addition, it may be much easier to cover up suicide in the younger age groups. Poisonings and other methods of suicide are more easily perceived as accidents in those age groups than in older age groups.

Two types of data classification problems exist. One involves classification at the national level and the changes in this classifica-

tion over time. The changes in Federal classification over time have been outlined in various government reports (Dunn and Shackley, 1944; Faust and Dolman, 1963a, 1963b, 1965; Klebba and Dolman, 1975; National Center for Health Statistics, 1980; Vital Statistics - Special Reports, 1941, 1956). There has been little change over the century in Federal classification for suicide. The second type of data classification problem concerns classification at the local level, e.g., the legal issue involving the requirement of some localities for a suicide note as evidence of suicide; this practice both decreases numbers and biases results because only the literate can be listed as having committed suicide.

Sources of Data. Sources of population and mortality data are noted in the respective tables and figures of this report. The data used from 1933 to the present are for the complete population, not samples: they in-

clude all U.S. suicides among the age groups indicated. With the exception of Figure 1, data prior to 1932 are not utilized in the present report as they are sample data and include only death registration States and areas utilized by the Federal government during any specific year. It was only after 1933 that all States were incorporated into the national mortality statistics (with Alaska added in 1959 and Hawaii in 1960).

Other Forms of Violent Death. Suicide, homicide (homicide mortality rates refer to those killed, not the killers), and accidents have been studied in aggregate (Weiss, 1976; Holinger and Klemen, 1982), and have been related in that all may represent some expression of self-inflicted mortality (Wolfgang, 1959; Menninger, 1938; Freud, 1901; Farberow, 1979). Homicide and accidents may be self-inflicted in that some victims may provoke his or her own death by "being in the wrong place at the wrong time" (Tsuang,

Age Patterns of Violent Deaths by Type of Mortality in the United States from 1900 to 1980.

Sources of data: Same as for Table 1.

For each type of violent death, the data have been averaged over the years 1900-1980.

MVA = Motor-vehicle accident

NMVA = non-motor-vehicle accident
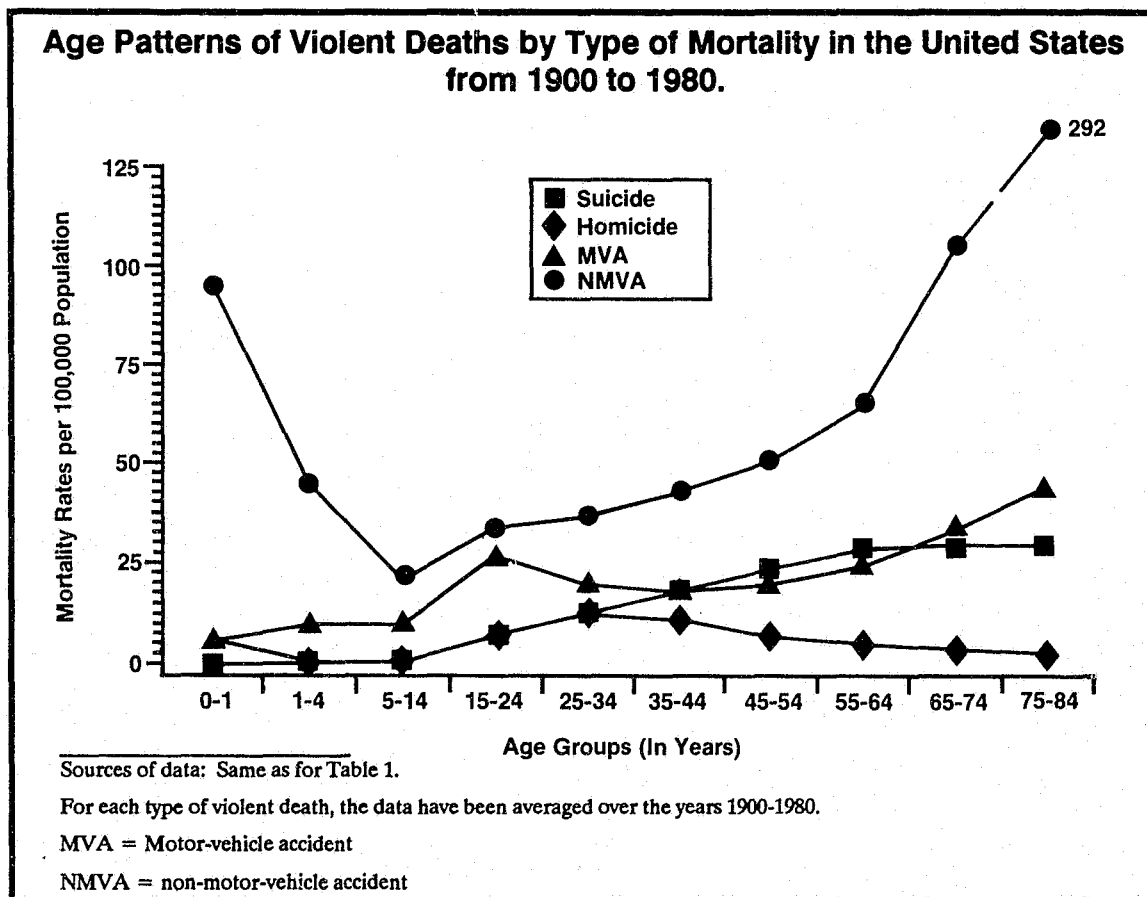
Figure 1.

Boor, and Fleming, 1985; Wolfgang, 1959, 1968; Doege, 1978). Although suicide is the most overt form of self-inflicted violence, homicide and accidents can be more subtle manifestations of self-destructive tendencies and risk-taking (Holinger and Klemen, 1982). However, this paper focuses primarily on that most overt form of self-destructiveness: suicide.

Methodologic Issues in Studying Adolescent Suicide and Population Shifts. The general methodologic considerations were discussed above. The sources of population, suicide, and homicide data are noted in the respective tables and figures of this section. With respect to population data, both the figures and the correlations utilize the proportion of the population of a given age in the entire U.S. population (e.g., the proportion of 15 to 24 year olds in the entire U.S. population). Homicide data as well as suicide data will be noted, and the focus will be on 15 to 24 year olds. The correlations were derived as described previously (Holinger and Offer, 1984).

In addition to the possibility discussed below that there is a meaningful relationship between violent death rates and population shifts, one must also consider the possibility that either artifact or other variables are responsible for correlation. The possibility that the correlations are artifact because of change in Federal classifying of suicide and homicide is unlikely: as described above, the comparability ratios for suicide and homicide have been rather consistent over the decades. However, the possibility that another variable is involved, specifically period effects due to economic trends, needs to be addressed. In the early 1930's (the starting point of these data, when the entire U.S. population was included in the mortality figures), the mortality rates were at their peaks, probably because of the economic depression. The violent death rates decreased for several years following, reaching low points during the early 1940's (World War II).

During the time of this decrease in rates,

however, the population of the adults (35 to 64 years) in the United States increased steadily. These economic shifts could then be seen to contribute to the inverse correlations, with the population variable having a coincidental, rather than etiologic, relationship with the violent death rates. The time trends of violent deaths in the United States (e.g., the tendency of violent death rates to increase in times of economic depression such as the early 1930's and decrease during war as in the early 1940's with World War II) have been presented in detail elsewhere (Holinger and Klemen, 1982).

DATA

Epidemiologic Data. Figure 1 presents age patterns of violent deaths by type of mortality in the United States, averaged over the years 1900- 1980. Non-motor-vehicle accidents tend to have the highest rates, followed by motor-vehicle accidents, suicide, and homicide, respectively. Of particular importance to this paper are the age effects* seen in suicide. When male and female rates are combined, suicide rates can be seen to increase steadily as age increases. Separating male and female rates indicates that male rates increase steadily as age increases, whereas female rates tend to increase to peaks during the 35 to 64 age range, with a subsequent decrease. Perhaps the most salient finding in Figure 1 is that children and adolescents, despite the recent attention on the increases in their rates, have the **lowest** suicide rates of any age group in the United States (National Center for Health Statistics, 1984). That is, children and adolescents are at lower risk of dying by suicide than any other age group in this country. This finding allows one to address the question of adolescent suicide from a different and perhaps more fruitful perspective: What factors protect adolescents from suicide? And what intrapsychic and external factors break down to create a suicidal outcome in an adolescent?

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*Age effects involve changes in specific rates of mortality or illness over the life span of the individual (Holford, 1983).

Although the national mortality age groupings somewhat awkwardly separate various psychological developmental stages, the age groups roughly correspond to late childhood and early adolescence (10 to 14 years), middle adolescence (15 to 19 years), and late adolescence and young adulthood (20 to 24 years). Suicides are not recorded in national mortality figures for the 0-4 year age group, and recorded suicides for 5 to 9 year olds are very rare, usually less than 10 per year. Among the age groups under study here, 20 to 24 year olds have the highest rates, followed by 15 to 19 year olds and 10 to 14 year olds, respectively.

For 10 to 14 year olds, of interest are the low rates (less than 2 per 100,000 population), the recent increases in rates, and the fact that boys tend to have higher rates than girls. White boys have the highest rates.

Figure 2 shows the suicide rates for 15 to 19 year olds, and here the trends are clearer. The rates are higher (currently about 8 per 100,000 population), young men tend to have higher rates than young women, and whites higher than nonwhites. White men are at highest risk. In addition, the time trends, or period effects*, are more apparent, with increased rates during the 1930's, decreases

during the 1940's and 1950's, increases from the mid-1950's through the 1970's, and the very recent tendency toward a leveling off of this increase.

Figure 3 presents suicide data for 20 to 24 year olds. Rates for 20 to 24 year olds are higher than the younger age groups (currently about 15 per 100,000 population), men have rates higher than women, whites have higher rates than nonwhites, and white men tend to have the highest rates. Trends over time show the familiar period effects: increased rates during the 1930's, decreased rates during the 1940's to about the mid-1950's, increases through the late 1970's-- when suicide rates for adolescents were higher than ever recorded in this country-- and a recent leveling off and decrease in rates.

Data on Youth Suicide and Population Shifts. The data indicate that significant positive correlations exist between adolescent and young adult suicide rates and the proportion of that age group in the United States (Figures 4, 6, and Table 1). That is, increases (and decreases) in the proportion of 15 to 24 year olds are accompanied by in-

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*Period effects involve changes in rates of mortality or illness during a particular historical period (Holford, 1983).

Correlation Coefficients Between Suicide and Homicide Rates and Population Ratios for 15 to 24 and 34 to 44 Year Olds, United States, 1933-1983.

	Suicide Rate	Homicide Rate
Proportion of 15 to 24 Year Olds in Total U.S. Population	+.34**	+.41*
Proportion of 35 to 44 Year Olds in Total U.S. Population	-.52*	-.68*

* p < .001

** p < .01

Sources of suicide and homicide data:

Vital Statistics - Special Reports Vol. 43 (for 1933-1953); Grove RD, Hetzel AM: Vital Statistics Rates in the United States: 1940-1960, U.S. Government Printing Office, 1968 (for 1954-1960); Vital Statistics in the United States, Mortality 1961-1979 (for 1961-1979); and National Center for Health Statistics, unpublished data (for 1980-1983).

Sources of population data:

Grove Rd, Hetzel AM: Vital Statistics Rates in the United States: 1940-1960, U.S. Government Printing Office, 1968 (for 1933-1960); Vital Statistics in the United States, Mortality 1961-1979 (for 1961-1979); and National Center for Health Statistics, unpublished data (for 1980-1983).

Table 1.

SUICIDE RATES
15-19 YEAR OLDS, UNITED STATES
1933-1983

Sources of data: Number of deaths: Unpublished data, National Center for Health Statistics (for 1933-1983).

Population, for rate derivation: Unpublished data, National Center for Health Statistics (for 1933-1983).

Figure 2.

SUICIDE RATES
20-24 YEAR OLDS, UNITED STATES
1933-1983

Sources of data: Number of deaths: Unpublished data, National Center for Health Statistics (for 1933-1983).

Population, for rate derivation: Unpublished data, National Center for Health Statistics (for 1933-1983).

Figure 3.

Sources of data: Same as in Table 1.

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Figure 4.

Sources of data: Same as Table 1.

Reprinted by permission: Am J Psychiatry 144:215-219, 1987.

Figure 5.

SUICIDE RATES
(ACTUAL AND PREDICTED) AND POPULATION CHANGES,
15-24 YEAR OLDS, UNITED STATES
1933-2000

Sources of data: Same as in Table 1.

Figure 6.

creases and decreases, respectively) in their suicide rates. Opposite trends are seen for adult and older age groups, i.e., as the proportion of adults increase, their suicide rates decrease. Homicide data follow the patterns of suicide data for both younger and older age groups. These findings and resulting hypotheses regarding prediction should be viewed with caution, because of the methodologic problems inherent in utilizing national mortality data, as well as the number of years required to adequately test such epidemiologic propositions over time.

Figures 4 and 5 focus on suicide and homicide rates, and these figures present examples from 2 age groups to depict the differences between the younger and adult age groups. Figure 4 shows the changes over time in mortality rates for suicide and homicide rates for 15 to 24 year olds, and the proportion of 15 to 24 year olds from 1933 to 1982 in the United States. The mortality rates and proportion of 15 to 24 year olds in the population can be seen to be rather parallel: increases (and decreases) in the proportion

of 15 to 24 year olds are accompanied by increases (and decreases) in their suicide and homicide rates. Figure 5 shows the relationship between suicide and homicide rates and population changes among 35 to 44 year olds, an age group whose trends are similar to the adult groups in general (35 to 64 year olds) (Holinger and Offer, unpublished data). For the 35 to 44 age group, rates can be seen to have time trends somewhat opposite to the population changes: decreases in the proportion of 35 to 44 year olds are accompanied by increases in their suicide and homicide rates. For 35 to 44 year olds, suicide and homicide rates were high during the early 1930's to the mid-1970's, and leveled off recently. In contrast, the proportion of 35 to 44 year olds in the population reached high levels during the 1940's, decreased throughout the 1950's and 1960's into the mid-1970's, and recently increased.

Prediction of Adolescent Suicide Rates to the Year 2000. Inasmuch as the population shifts among adolescents over the next 15 years can be approximated, based on the cur-

rent number of children and adolescents in the United States (Current Population Reports, 1984), we can use the population model to try to predict the suicide rates for 15 to 24 year olds from the present time to the year 2000. Figure 6 presents the actual suicide rates for 15 to 24 year olds (1933 to 1982), their predicted rates (1933 to 2000), and the proportion of 15 to 24 year olds can be seen to be rather parallel, as noted previously: somewhat high levels in the 1930's, decreases during the 1940's and 1950's, and increases throughout the 1960's and into the late 1970's. The actual suicide rates show a peak in the later 1970's with a recent leveling off and slight decrease. The recent rates correspond to the recent peak (nearly 19%) in the proportion of 15 to 24 year olds in the United States. As noted earlier, this relationship between suicide rates for 15 to 24 year olds and their population shifts is statistically significant.

The proportion of adolescents is expected to decrease throughout the 1980's to the mid-1990's with a subsequent increase. These data for the proportion of adolescents in the United States (Current Population Reports, 1984). The predicted suicide rates for 15 to 24 year olds show a decrease throughout the 1980's and into the 1990's, corresponding to the decrease in the proportion of adolescents.

While at least decades will be needed to evaluate the population model, recent data lend some support to the hypothesis. The actual suicide rates for 15 to 24 year olds, 1977 to 1983, were reported as follows:

1977:	13.6
1978:	12.4
1979:	12.4
1980:	12.3
1981:	12.3
1982:	12.1
1983:	11.9
1984:	12.5
1985:	12.2 (10% sample)*

The 1977 rate of 13.6 is the highest suicide rate recorded in this country for 15 to 24 year

olds, and it corresponds to the peak in the proportion of 15 to 24 year olds in the population.

Understanding the recent leveling off and decrease in suicide rates among adolescents is aided by Figures 2 and 3, which provide a race and sex breakdown of rates for 15 to 19 and 20 to 24 year olds. For all race and sex groups among 20 to 24 year olds, the recent leveling off and decrease in rates can be seen in Figure 3. Similarly, in Figure 2, 15 to 19 year old nonwhite men and nonwhite women also show recent decreases in rates. However, for 15 to 19 year old white men and white women, the rates do not appear to have leveled off recently. To examine the recent trends among white 15 to 19 year olds, we examined in detail the rate of rise in suicide for these two groups. We found that the rates of increase show a statistically significant decrease over the past several years for white men and white women in the 15 to 19 year age group (Holinger, Offer, and Zola, unpublished data).

DISCUSSION

Self-destructiveness among the young presents us with something of a paradox. On the one hand, young people are at lowest risk of suicide, and their suicide rates are lower than for any other age group. Each year, only about one adolescent per 10,000 commits suicide, whereas the rates for older ages may be ten times that figure. In addition, even among those adolescents identified as needing treatment (Offer, Ostrov, and Howard, 1985), i.e., a high risk group, there is only about one suicide per 1,000 disturbed adolescents. This forces us to ask a number of questions: Why are adolescents at such low risk of suicide? What intrapsychic and sociologic factors protect adolescents from suicide?

*Sources of data: Vital Statistics of the United States, 1977-1979 (for 1977 to 1979 data); National Center for Health Statistics: Advance report, final mortality statistics, 1981. Monthly Vital Statistics Report, Vol. 33, No. 3 Supp. (for 1980 and 1981 data); National Center for Health Statistics: Advance report, final mortality statistics, 1982. Monthly Vital Statistics Report, Vol. 33, No. 9 Supp. (for 1982 data); and National Center for Health Statistics, unpublished data, for 1983 to 1985.

Why does suicide among youth seem to attract so much more research and media attention than does suicide among age groups with much higher rates? Given the relatively low rates of adolescent suicide, can the issue of youth suicide be conceived of as a major public health problem?

On the other hand, suicide is the second leading cause of death among adolescents. Suicide, homicide, and accidents, all of which may reflect self-destructive tendencies, are, in the aggregate, the leading cause of death for persons aged 1 to 39 years in the United States. Such deaths account for more years of life lost in this country than any other cause. In addition, suicide in particular appears to create a ripple effect; it seems to have a life-long traumatic impact on the survivors.

Throughout the 1970's, during studies of the descriptive epidemiology of adolescent suicide, we began focusing on the population shifts among various age groups over time. Specifically, we began examining the relationship between population changes among the young and their violent death rates. We found that increases and decreases, respectively, in the proportion of adolescents in the U.S. population were accompanied by increases and decreases, respectively, in their suicide and homicide rates, and we began publishing these findings (Holinger and Offer, 1982, 1984). The opposite trend was found for older people, i.e., as their proportion in the general population increased, their suicide and homicide rates decreased. The works of Brenner (1971, 1979) on the economy and Easterlin (1980) on population variables were particularly useful in rounding out the sociologic-epidemiologic perspective by which to understand these findings. As the data emerged on population changes and violent deaths, the predictive aspects of the population model assumed particular importance. Inasmuch as we knew the numbers of children and preadolescents in the population, it was possible to approximate the numbers of teenagers over the next two decades.

We projected the proportion of teenagers over the next 20 years and then made predictions of the trends in suicide rates based on those population changes. We began constructing the prediction model up to the year 2000 as described earlier. With the proportion of adolescents peaking in the late 1970's and then beginning to decrease, we suggested that the suicide rates among youth would peak then as well and then begin to level off and decrease. This prediction contrasted with predictions based on cohort studies which implied continued increases. The importance of the attempt at prediction of suicide rates using the population model lies in the possibility of intervention and prevention on a large-scale, epidemiologic level.

It is our task to examine risk factors in youth suicide from primarily one perspective, the epidemiologic. There are other, obviously important risk factors, such as familial, biologic, and affective disorders. The epidemiologic perspective may, however, provide a somewhat different view of the concept of risk factors in general. While white male adolescents are still at greatest risk of suicide among the young, the youthful population as a whole may be at less risk of suicide over the next decade if the hypothesis regarding the population model continues to be supported. However, with the next increase in the proportion of adolescents in the total United States population (probably beginning in the mid-1990's), the youthful population as a whole once again may be at greater risk, as was the case during the 1970's. Various preventive interventions are implied by the population model when the suicide risk increases for the youthful population. For example, as detailed below, high schools, colleges, mental health services, governmental agencies, and businesses will all have a role in addressing this increased risk.

Adolescent Suicide and Population Shifts. One seems obliged to attempt preliminary explanations of the findings at this point. At least three levels of interpretation seem necessary and need to be subjected to further

hypothesis-testing: an epidemiologic-sociological level, a psychodynamic-clinical level, and a nosological level.

On the epidemiologic-sociological level, suicide and homicide rates may increase with increases in the proportion of 15 to 24 year olds for a variety of reasons; for example, increased competition for jobs, college positions, academic and athletic honors results in an increased number of adolescents who fail to get such places (Holinger and Offer, 1982, 1984; Holinger and Offer, 1986). Such reasoning is consistent with Barker's (1964, 1968) extensive data on large and small schools. In addition, the younger members of the 15 to 24 year olds may be the least powerful and attractive force in society with respect to political pressure, jobs, and so on. On the other hand, the adults in the 35 to 64 year old groups are much more powerful politically and, with the exception of the older adults, attractive with respect to employment (experience, schooling completed, etc.). Thus, the population increases in the adult age group may lead not so much to increased competition and failure but rather to more economic benefits (greater and more successful pressure on government and union leaders to enlarge the job market, obtain more health services, etc.). Therefore, suicide and homicide rates would decrease with the increased population ratio in the adult age groups.

Briefly, explanations for the two other levels follow somewhat similar reasoning. For example, on the psychodynamic-clinical level, depressed adolescents with marginal ego capabilities and an inadequately internationalized sense of self-esteem may be at increased risk of suicide during times when the increased number of adolescents lead to heightened competition for much-needed external sources of self-esteem (e.g., academic honors, places on athletic teams, etc.). On the nosological level, when the proportion of young people is high, adolescents with thought disorders or major affective disorders may be at greater risk of suicide not only for the above reasons, but also because of a relative decrease in psychiatric services, and counseling that is available for diagnosis and treatment.

Potential Prediction: Psychiatric and Public Health Implications. One of the main features of published reports utilizing a population model has been the potential for prediction of suicide, specifically among the young (Hendin, 1982; Holinger and Offer, 1982, 1985): it was suggested that as the absolute numbers and proportion of adolescents and young adults began to decrease in the late 1970's and 1980's, the suicide rates for those ages (which had been increasing over the previous 20 years with the increase in the youthful population) would begin to level off and decrease as well. This hypothesis has some support from the recent data noted earlier, showing a peak in adolescent suicide rates in 1977 with a subsequent decrease in the proportion of adolescents in the population. Therefore, several researchers (Maris, 1985; Holinger and Offer, 1982, 1984; Hendin, 1982) have explicitly or implicitly predicted that with the leveling off and decreasing of the population of 15 to 24 year olds would come a corresponding leveling off and decrease in the suicide rates of that age group during the late 1970's and 1980's.

There are important psychiatric and public health implications in this model. Based on current population projections, the decrease in the numbers and proportion of 15 to 24 year olds will be ending in the mid-1990's, with another increase in 15 to 24 year olds beginning at that time (Current Population Reports, 1984). Thus, the population model would suggest that the government, schools, employers, health services, etc., should be ready to respond to that increase in terms of increased psychiatric services, counselors, jobs, high school and college expansion, and so on. A preventive response would thus be created, rather than "after-the-fact" reactive model.

The psychiatric implications of the population model are particularly important when one considers epidemiologic data on the number of adolescents who need help but do

not get it. Offer, Ostrov, and Howard (1985) found that 20 percent of adolescents in their sample needed psychiatric help but that only 4 percent received help. Thus, 16 percent of adolescents in their sample were in need of treatment but did not get it. With an increased number of adolescents in the population will come even higher numbers of adolescents who do not receive treatment, for whatever reason, and it would be especially critical that this issue of treatment availability and utilization be addressed before periods of increase in the adolescent population.

IMPLICATIONS FOR FUTURE RESEARCH

Four areas of future research appear particularly important with respect to violent deaths, their potential for prediction, and population changes. First, it is critical that the epidemiologic data be increasingly accurate, both in terms of mortality data (local and national) as well as the population bases from which mortality rates are derived. Epidemiology that utilizes national mortality data is a relatively young field in the United States; only since 1933 have complete population data, not just samples, been available for all States in the United States. Therefore, many more decades of data and study will be needed to test various hypotheses involved in these epidemiologic trends.

Second, prospective studies are needed to test specifically the hypotheses on the potential for predicting violent deaths, using a model of population shifts. To this end, mathematical models should be developed to predict violent death rates based on projections of the future population. These predictions of rates then could be measured against the actual findings over the next several years. Such models are currently being developed.

Third, at least two types of cross-cultural studies of violent mortality would help enhance understanding of this leading cause of

death: (1) Further long-term, cross-cultural comparisons of suicide, homicide, and accident rates with a focus on period, cohort, and age effects, and (2) cross-cultural studies that examined violent deaths and population changes to evaluate the predictive and preventive aspects of the population model.

Fourth, and finally, we have attempted in this paper and others (Holinger and Offer, 1982, 1984) to examine violent death mortality rates primarily from the perspective of the single variable of population changes. We have focused on this variable because of its potential for prediction, with changes in population for the various age groups being known years in advance. Yet, it is apparent that understanding something as complex as violent deaths (whether from an intrapsychic or epidemiologic perspective) requires a concept of a general systems approach. From an epidemiologic perspective, the work of Easterlin (1980) on population changes and Brenner (1971, 1979) and others (Wasserman, 1984; MacMahon, Johnson, and Pugh, 1963; Colledge, 1982; Courmier and Klerman, unpublished manuscript) on economic variables have been particularly important. The relationship between economy and mortality rates is well documented, with poor economic conditions (as indicated by high unemployment rates) being related to higher mortality rates (Brenner, 1971, 1979; Wasserman, 1984; MacMahon, Johnson, and Pugh, 1963; Colledge, 1982; Courmier and Klerman, unpublished manuscript). In addition, the birth rate in the United States (which, with immigration and increased life expectancy, will be responsible for most of the relevant population changes) tends to be inversely related to economic changes in the United States: bad economic conditions correspond to low birth rates and vice-versa (Turner, et al., 1981). Thus, an interacting system emerges, within which violent death mortality may be understood from an epidemiologic perspective; this system includes such variables as economic conditions, birth rates, and population shifts. However, despite the well documented relationship between the economy and mortality rates, one

cannot predict future violent death rates from this relationship because of the difficulty in predicting future economic conditions. Thus, another important area of future research emerges: further work is needed to determine if the population model discussed in this paper will make possible predictions not only for violent death rates but also for economic conditions for specific age groups (as per Easterlin's work (1980)), inasmuch as the population shifts for certain age groups are known years ahead.

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PREPARATORY AND PRIOR SUICIDAL BEHAVIOR FACTORS

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INTRODUCTION

Suicide does not just occur. Experience has shown that it is more often the end result of a process that has developed over a period of time and within which have been many fluctuations in the course of reaching the decision to act against oneself. Fortunately, experience has also shown that during that period, the individual engages in a number of behaviors that have become available as signs and portents. There are, of course, many kinds of signs such as epidemiological, demographic, family characteristics, personality disorders, cultural factors, and others. Although inevitably there will be some overlap with other areas, this paper will focus on behavioral factors only; that is, acts and actions engaged in by the person that indicate the potential for a self-destructive act to occur in the future.

Because of the large amount of pertinent research in the area of behavioral factors, this review, necessarily, is arbitrary and selective. For example, no effort has been made to examine all the so-called suicide potential scales containing predictive items. First, there are no scales specifically constructed to evaluate suicide potential in adolescents; second, the behavioral items on the scales are almost all considered individually in this paper anyhow; and third, many of the scales depend on clinically reported items rather then on research-substantiated factors. Finally, it must be remembered that, while considering each factor separately, the factors almost always will appear in a context that will contain other clues, some of which may affect considerably the significance of the factor discussed.

PRIOR SELF-DESTRUCTIVE BEHAVIOR

Prior self-destructive behavior, whether in the form of suicide attempts, threats, ideation, or gestures, has been identified by many investigators as a powerful indicator of completed suicide risk (1,2,3,4,5). However, the research was conducted primarily on adults in psychiatric settings, general hospitals, and in the community. This paper will focus on children, adolescents, and youth. For the most part, studies reviewed are limited to those whose subjects are aged 20 or below, but occasional research that includes older ages are included. The format will look at studies of completed suicides, then attempted suicides within each risk variable. The research on children or young adolescents are presented first. In addition, the studies are further divided on the basis of the presence or absence of control or comparison groups.

PRIOR SUICIDAL BEHAVIOR

Completed Suicides - Control Groups

The risk factors of previous self-injuries, suicide attempts, threats, ideation, and gestures have been grouped under the general heading of prior suicidal behavior. Most of the time, the prior suicidal behavior refers to suicide attempts. However, many researchers have not differentiated between suicide attempts and gestures, or between suicidal ideation and threats, and often, not between suicide attempts and threats. When such distinctions appear it is uncertain how much overlap has occurred, for suicide attempts are almost always preceded by threats and ideation. The best approach was deemed the conservative one of assuming that all the forms of suicidal activity, verbal and behavioral, are equivalent for the purposes of risk evaluation and prediction. As seen later in this paper, this view is substantiated by other investigators. Dorpat and Ripley's (5) review of studies of committed suicides from the United States and England led them to the conclusion that between 20 percent and 65 percent of individuals who commit suicide have made prior suicide attempts. In an additional 15 studies (5) that determined the incidence of completed suicides in groups of attempted suicides by followup, the authors found that the percentages ranged from 0.03 percent in one short followup study to 22.05 percent in the longest followup study. The researchers estimate the incidence of committed suicide among the suicide attempts to be between 10 percent and 20 percent, but add their belief that the actual number of attempted suicides who go on to commit suicide is greater than the percentage given.

Relatively few investigators over the past 10 to 15 years have used control groups in their studies of completed adolescent suicides, a fact that does not surprise too much in terms of the problems involved in obtaining appropriate groups for comparison. One approach has been through the use of matched peers. Shafii, Carrigan, Whittinghill and Derrick (6) at the University of Louisville conducted psychological autopsies on 20 adolescents, ages 12-19, who committed suicide in Jefferson County, Kentucky. Their highly relevant control group was made up of 17 matched-pair living peer friends, the same age and sex as the adolescent suicide, from whom the same extensive set of data were gathered. The researchers found that the suicides were significantly more often likely to have a history of suicide threats ($p <.02$) and suicidal ideation with expressions of the wish to die ($p <.02$) than did the controls.

Rich, Young, and Fowler (7) also conducted psychological autopsies. The subjects were all 283 completed suicides in San Diego County over a period of 20 months. The investigators compared the 133 suicides under the age 30 with the 150 suicides age 30 and over and found that prior suicide threats and attempts were high in all ages of completed suicides. Prior "suicide talk," 71 percent, and suicide attempts, 42 percent, were noted in the under 30 age group, but were not significantly different from the frequencies of 63 percent suicide talk and 35 percent attempts found in the over 30 age group. The comprehensive psychological autopsy study of Maris (8) compared completed suicides (from Cook County, Illinois) with attempted suicides and natural deaths (from Baltimore, Maryland). The study covered all ages, including 36 young adults, adolescents and children ages 10 to 29, among his study population of 414 subjects. In analyzing his data on all subjects with highly sophisticated statistical methods, Maris found that the single factor with the greatest discriminatory power (beta .64) was the number of prior suicide attempts; however, that factor separated the two suicidal groups from the natural deaths, but not from each other. The interesting factor that distinguished the completed suicides was that they had one relatively serious prior attempt, while the attempters had several low-lethality prior suicide attempts. When Maris (9) later compared his group of 36 young completed

suicides with the remainder of his completed suicide group, using the same statistical procedures, he found that the factor most significant in differentiating the young suicides from the older suicides continued to be the greater number of prior suicide attempts in their histories.

Seidin's (10) study compared a group of 25 students at the University of California at Berkeley who committed suicide over a 10-year period, with the entire UCB student body population during the same period. Information from newspaper clippings, police files, university records and reports of friends and acquaintances indicated there were "numerous warnings" in almost every case of suicide, and 22 percent had made prior suicide attempts. They had also given subtle warnings, such as making wry jokes about killing themselves, or crossing out the word emergency in the question "Whom shall we notify in case of emergency?" on the medical history form, and substituting the word, death.

PRIOR SUICIDAL BEHAVIOR

Completed Suicide - No Control Group

Control groups for completed suicide are often neither available nor feasible. Noncontrolled studies are nevertheless valuable in providing information and generating direction and hypotheses for further study. Some of the following suicide studies of children and adolescents are marked by extensive exploration into background, personality, behavioral, physical, and communication factors. As in the case of controlled studies, prior suicidal behavior is referred to often as a significant risk-indicator in the histories of the completed suicides the investigators studied.

Shaffer's (11) study is well-known and often referred to because of its study population completeness--all the children and younger adolescent suicides under age 14 occurring in England and Wales over a 7-year period, 1962 to 1968--and its exhaustive search for

information from a wide variety of sources-- government, school, medical, social service, and family. The histories of his 30 cases disclosed that 46 percent, almost half, had previously attempted or threatened suicide, or revealed their suicidal thoughts before their death, with 27 percent having done so in the 24-hour period before their death.

Three studies, in widely separated parts of the world, using coroner's office reports and hospital records, where available, of completed suicides, found that prior suicide attempts were significant. Cosand, Bourque, and Kraus (12), gathered data on 315 suicides between ages 10 and 24 that occurred in Sacramento County, California, between the years 1925 and 1979. They compared the older youth with the adolescents aged 15 to 19 and found that the older age group had made significantly more suicide attempts than the younger age suicides and that the females in both age groups had significantly more prior suicide attempts than the males. In another long term study, Marek, Widacki, and Zwarysiewicz (13) compared 76 cases of committed suicides among "juveniles" occurring between the years 1881 to 1960, with 76 similar cases occurring over 15 years, 1960 to 1974, in Cracow, Poland. Data were obtained from hospital records and coroners' offices. In the more recent 76 cases, they found prior suicidal attempts in 17 percent of the cases and suicide threats and ideation in an additional 13 percent. In a large-scale study of Ontario, Canada, Garfinkel, Chamberlin, and Golombek (14) examined all the data available in the coroner's office records for the 1,554 suicides aged 10 to 24 that occurred between January 1971 and August 1978. They found that a history of threats, note-leaving, general manifestations of depression, and other suicidal behavior "accounted for the majority of prior symptoms" in the cases for which information on prior conditions was available.

In summary, studies of the histories of completed suicides, whether control or comparison groups are used or not, indicate that prior suicidal behavior in the form of at-

tempts, threats, or ideation, or combination of these, is one of the strongest indicators of high risk in adolescents as well as in adults. Percentages of frequency of this factor, supported by good methodology and statistical evaluation, vary from 22 percent to 71 percent in study populations from university, government, and city hospital settings; in psychiatric and general populations; and from coroner's office records.

PRIOR SUICIDAL BEHAVIOR

Suicide Attempts, Threats, Ideation — Control Groups

The presence or absence of prior suicidal behavior has been explored in controlled studies even more frequently among suicide attempters than among completed suicides. Some studies have been retrospective, others prospective.

Two studies serve as landmarks in this area. Jacobs' (15) and Teicher's (16) carefully designed research compared 50 adolescent suicide attempters treated at Los Angeles County General Hospital with a matched control group of 31 adolescents at a suburban high school. They reported 44 percent of the attempters had one or more previous suicide attempts, while there were no attempts among the controls. The other landmark early study was a total population study in Sweden carried out by Otto (17) on all the children and adolescents under age 21 who made a suicide attempt and came to the attention of health authorities. A control group consisted of adolescents from the general population matched for age, sex, and geographical region. Otto found that 16 percent of his study population of the 1,727 young suicide attempters had made previous suicide attempts. Prior attempts were more common among boys (21%) than girls (14%).

In three studies of overdosers, prior suicide attempts were frequent in the experimental groups and absent in the controls. McIntire and Angle (18) found that 26 percent of 50 poison center patients ages 6 to 18, had made similar suicide gestures in the past, whereas

no such gesture was reported by any of the controls. McKenry, Tishler, and Kelley (19) noted that prior suicide attempts were marked in their study population of 46 adolescent attempters admitted to a university hospital primarily for overdoses. The nonsuicidal comparison group from the same hospital had no prior suicide attempts in their history. In a study from England, Hawton, Osborn, O'Grady, and Cole (20) followed up 50 adolescents who were treated for suicide overdoses at the Oxford General Hospital Psychiatric Service in England. The investigators found that 40 percent of the attempters--versus none of the controls from a sample of the general population--had either taken an overdose or injured themselves prior to the attempt that brought them into the study.

Clarkin, Friedman, Hurt, Corn, and Aronoff (21) studied two different age groups of adolescents with suicidal behavior in a New York Hospital; the first group had a mean age of 16 and the second a mean age of 25.5. The researchers noted that 58 percent of the adolescents and 75 percent of the young adults had made at least one prior attempt. Apparently, prior suicide attempts appear in significant numbers in the younger, as well as the older, adolescents and youth.

PRIOR SUICIDAL BEHAVIOR

Attempts, Threats, Ideation — No Control Groups

Selected studies of young suicide attempters seen in psychiatric hospitals and in private practice note the presence of prior suicide attempts in the history. Shafii and Shafii (22) reviewed 340 cases of children and younger adolescents mostly aged 13 to 15, for suicidal or severe self-destructive behaviors seen on an emergency basis at the Child Psychiatric Services at the University of Louisville Hospital; Diekstra (23) reviewed 158 admissions of adolescent suicide attempters to a hospital in Holland. Both studies noted that the risk of suicide is significantly increased when a previous suicide attempt has been

made. Diekstra found that previous suicide attempts and suicide threats or ideation ranked first and second in significance among the indicators.

Schneer, Perlstein, and Brozovsky's (24) interesting study reported that the admissions during one year for a hospital in Brooklyn at two different times, 11 years apart, indicated that the number of suicidal adolescents had almost doubled, from 13.6 percent to 26.7 percent, although the census of admissions had remained practically the same. Concomitantly, the percentage of admissions with repeated episodes of suicidal behavior had increased five-fold, from 4 percent to 20 percent. Gabrielson et al. (25) studied a special risk group, 14 pregnant females, aged 13 to 17, who had made suicide attempts and were admitted to the Yale-New Haven Hospital, and found that 21 percent had histories of prior suicide attempts. Crumley (26) reviewed the histories from his own private practice of 40 adolescents, aged 12 to 19, in treatment following a suicidal attempt. He found a history of numerous prior attempts was common in 17, or 40 percent.

In summary, retrospective studies of histories of adolescent suicide attempters, all except one from hospital populations where they were treated, indicated substantial levels of prior suicidal behavior, ranging from 16 percent to 38 percent. At least half the studies were controlled.

SUBSEQUENT SUICIDAL BEHAVIOR

Followup Studies — Control Groups

The preceding studies were retrospective; they started with groups of completed suicides or attempted suicide and then sought information in the young people's histories that indicated identifying or predictive behavior, especially prior suicidal behavior. The following group of studies use a prospective approach, taking groups from their index suicidal behavior and following them for various periods of time, noting the kinds and

frequencies of suicidal behaviors that subsequently appeared.

As in the previous studies of attempted suicides, the presence of a prior suicidal behavior is a good predictor of the index suicidal behavior, which in turn, becomes a valuable clue to predict suicidal behavior in the followup period. Barter, Swaback, and Todd (27) and Stanley and Barter (28) provide two reports on a followup study of a group of adolescents, under the age of 21, hospitalized for suicide attempts in the Colorado Psychiatric Hospital over a 3-year period. A followup interview on 45 patients indicated continued suicidal behavior by 42 percent of the youngsters. Stanley and Barter (28) extended the study to include psychiatrically ill adolescents hospitalized at the same time but with with no history of suicidal behavior. The followup data indicated that suicide attempts occurred in 50 percent of the experimental subjects and in only 16 percent of the controls, a highly significant difference.

Otto's (17) study, referred to earlier, was actually a 10-year followup of 1,727 child and adolescent suicide attempters in Sweden. They were compared with nonsuicidal children equivalent demographically. A huge undertaking, it was possible only in a country where data are routinely kept on its citizens from the time they are born until they die. Otto found that mortality was significantly higher in the suicidal group than in the controls, with 5.4 percent deceased in the experimental group and 1.8 percent deceased among the controls. Of the attempters who died, 80 percent committed suicide. Repeated attempts were more common among boys than girls, 21 percent versus 14 percent.

Four additional controlled studies reported on the occurrence of suicidal events following treatment for suicide attempts. Cohen-Sandler and Berman's (29) well-designed investigation conducted with young suicidal children, ages 6 to 16, followed for 3 years 20 suicidal children, 21 depressed but not suicidal children, and 35 psychiatric controls,

nonsuicidal and nondepressed. Five percent of the children had engaged in multiple suicide attempts before the index hospitalization. Twenty percent of the suicidal children were suicidal again after discharge. No further suicidal behavior was reported in the other two groups.

Rauenhorst (31) followed a group of 50 Caucasian female attempters, ages 16 to 30, and compared them with matched controls, who had been treated for minor or accidental trauma. Followup continued for 14 to 21 months after discharge. Among the 38 experimentals and 44 controls located and interviewed, 5 of the experimentals, 38 percent, and none of the controls had made a subsequent suicide attempt. One person made several subsequent attempts.

As part of his larger study, Motto (32) followed for 10 years male adolescents who had been admitted and treated in psychiatric inpatient hospitals in San Francisco because of a suicidal state or depressive mood. He focused on the 122 boys in this population who were ages 10 to 19 and found that 11 suicides, 9 percent, occurred within a mean of 38 months after discharge. Motto further reports that 43 percent of the 119 subjects had a history of one or more attempts before the index hospitalization, and that 9 percent of those who reported no prior suicide attempts went on to commit suicide, whereas 10 percent of those with a history of prior attempts did so.

In a study in Oxford, England, Hawton, et al. (20) did two followups of 50 adolescent overdosers aged 18 and under, at 1 month and 12 months after discharge. He compared his group, divided into two sub-groups, one 15 and below and the second 16 to 18, with a general population sample previously collected. In the year following the overdose, 14 percent of the patients made further suicide attempts, all but one of them in the 16 to 18 year age group.

SUBSEQUENT SUICIDAL BEHAVIOR

Followup Studies — Not Control Groups

Two researchers report followup studies but do not use control groups. White (33) surveyed 50 consecutive patients aged 14 to 19 admitted to a general hospital in Birmingham, England, following suicidal overdoses. Information on 40 of the cases in 1 year of followup indicated that 10 percent of the patients had further self-poisoning episodes. Crumley's (26) group of 40 adolescents in his private practice who had entered treatment following a suicide attempt yielded one patient, 3 percent, who committed suicide within 2 years following his treatment.

In summary, the followup studies of suicidal behavior support further the usefulness of prior suicidal behavior as an indicator of suicide risk. Further suicide attempts ranged from 10 percent to 50 percent, and completed suicides occurred in from 3 percent to 10 percent subsequently. As one would expect, most of the study populations were hospital patients. The followup times varied considerably, ranging from several months to 10 years.

In general, from the studies of completed suicides, attempts, threats, and ideation suicidal behavior--with and without control groups and retrospectively in case histories or prospectively through followups--prior suicidal behavior is a significant and valuable clue for further self-destructive behavior. The risk factor seems valid both for children and adolescents and for boys and girls and also seems to increase in significance with increasing age among adolescents.

RELATIONSHIP BETWEEN COMPLETED SUICIDE, SUICIDE ATTEMPTS AND SUICIDE THREATS

Most efforts to explore the relationship between the various kinds of suicide have approached the problem from two directions--similarities and differences between demographic characteristics, suicide methods and motivations, and/or the extent to which all the suicide behaviors occur in the same persons. Stengel and Cook (38) were the first to demonstrate the demographic and personality differences between completed and attempted suicides in their London study. Those differences, that is, that attempters are younger, use less lethal methods, have more women than men, more often occur where others can rescue, have been substantiated regularly. The role of intention to die has been found to be critical, with the attempters more often motivated to influence others than to die. The concept of attempted suicide has been incorporated in Kreitman's term, parasuicide, in which he emphasized the nonfatal aspect of the act when an "individual deliberately causes self-injury or ingests a substance in excess of any prescribed or generally recognized therapeutic dosage" (63, page 3). Kreitman and his colleagues (39) find their studies have confirmed the traditional view that parasuicides and suicides are epidemiologically distinct. Sex and age patterns are different, rates are very different and motivations may be different. At the same time they note the close relationship between the two, with one percent of parasuicides going on to commit suicide within one year and 41 percent of the completed suicides having a history of parasuicide. Although Kreitman's populations refer to the general population, their studies included ages down through 15.

Marks' and Haller's (40) large scale study on the relationship between attempts and threats compared adolescents who had made suicide attempts with adolescents referred for both suicide attempts and for suicidal thoughts and threats, and with adolescents referred for suicidal thoughts and/or threats but with no suicide attempts. The comparison group was the rest of their large sample of disturbed adolescents not referred for suicidal behavior. The groups were compared on family, school, friends, leisure time interests, emotions, etc. using psychological tests, interviews and therapists ratings. Marks and Haller concluded that there was little evidence to support the assertion that those teenagers that threatened suicide were markedly different from those who attempted it. The results also indicated the same distinctions in personality and demographic characteristics between commits and threats as had been found between commits and attempts. For suicide attempts, the 3:1 ratio of females to males was confirmed; for suicidal thoughts, the ratio was more 2:1 female to male. There were apparently enough sex differences to emphasize the need to study the sexes separately.

Goldberg's (41) study aimed at identifying characteristics that may be the same for people with suicide ideation, those who attempted suicide and those who completed suicide. A variety of schedules were administered to 489 persons and the presence or absence of thoughts of suicide during the previous month were related to the various factors as the outcome variables. Goldberg concluded from the similarities reported by the subjects, that suicide ideation, attempts, and completions, if not on a continuum, are at least overlapping phenomena. Persons with these different kinds of suicidal manifestations, she felt might be essentially equivalent.

In summary, the overlap to which all the suicide behaviors, commits, attempts, threats, and education occur in the same population has been noted at length in the studies surveyed in the preceding sections of this paper. While it is possible, as Kreitman (39) has done, to focus on the differences between the populations, it is the similarities

and overlap that seem more impressive. It is also unlikely that an "overlap" group exists as a separate group, as has been suggested. In general, it seems justifiable to conclude that the presence of any of the overt forms of suicidal behavior, such as attempts, threats and/or ideation in the prior history of any individual can be considered valuable indicators of high risk for further self-destructive acts. The usefulness of the presence of high levels of indirect self-destructive behaviors as predictive clues is much more uncertain.

PREPARATORY BEHAVIORS

While the risk factors reviewed above, prior and subsequent attempts, threats and ideation, rate as excellent indicators of suicide risk, they have the disadvantage of occurring late in the process of identification, and mark the fact that a suicidal state has already existed. The obvious aim is to identify factors that occur earlier, before any overt suicidal behavior has appeared, so that intervention to prevent possible injury or death can take place. The following section reviews studies that note activities aptly termed "preparatory behaviors" that may be considered as risk factors for potential suicide.

INDIRECT SELF-DESTRUCTIVE BEHAVIOR

Indirect self-destructive behavior (ISDB) has long been recognized as an important aspect of self-destructive behavior (34) but it has not been systematically investigated until relatively recently. Menninger (35) developed the concept psychodynamically as "focal or partial suicide" while Farberow (36) has conducted research on a number of the behaviors felt to be indirectly self-destructive, or suicidal equivalents. Whereas a number of behaviors have been identified as indirect self-destructive behavior (36), only the research by Farberow will be discussed in this paper.

No studies, except those of Farberow and his colleagues, have specifically explored the parameters of these behaviors from the point of view of determining the personality characteristics, attitudes, prevalence and demographic features of persons who consistently engage in this kind of behavior. Farberow (36) selected various groups of persons engaging in indirect self-destructive behavior (ISDB) and conducted controlled studies of their characteristics. One specifically involved young people, juvenile delinquents. Studies were conducted of groups of patients who were diabetic, had thromboangiitis obliterans or Buerger's Disease, were elderly and chronically ill, hyperobese, or on renal hemodialysis. Control groups were made up of cooperative patients in each disease group. In addition, a file survey determined the presence and kind of ISDB in five treatment groups: two drug rehabilitation programs, a youth delinquency program and two hospital populations, one of completed and one of attempted suicide. Briefly summarized, the major results obtained from these studies characterized the patients with levels of ISDB as: high impulsivity, low frustration tolerance, present orientation, minimal tolerance for frustration or delay, and little future orientation or concern. These characteristics were frequently accompanied by strong drives toward risk taking, pleasure seeking, and a need for excitement. In the case file study, the methadone maintenance group had the highest ISDB scores, especially on noncompliance with medical regimen, not making recommended changes in life activities, and disregarding treatment requirements. Alcohol abuse was one of the most frequent forms of ISDB, appearing in from one-half to one-third of the drug abusers. In the youth diversion group, where the ages were 18 and under, 5 percent were noted to be problem drinkers and 20 percent to be drug abusers. Overt suicidal behavior in any of the groups was absent or minimal, except among the elderly chronically ill. There was a high inverse correlation between suicide potential and life satisfaction, leading to the con-

clusion that ISDB among the elderly, chronically ill was generated by feelings of isolation and loss, variables also known to arouse direct suicidal behavior. It may be that the elderly, chronically ill person uses ISDB as a way of avoiding the stigma and taboos characterizing overt suicide. The extent to which the ISDB frustrates the hospital staff may also bring some feeling of power into an environment in which the patients have, for the most part, lost control of their lives.

In general, indirect self-destructive behavior as an indicator of suicide risk is behavior about which there is still far too little understood to function as a reliable clue. The difficulty seems to lie in its complexity in that different degrees of certain kinds of ISDB may serve different purposes in the same individual, protecting the individual in some instances (as substitute behavior) or putting him at greater risk (by becoming part of the problem and making it even larger). Substance abuse seems to be at least a low level indicator of risk but will be useful only if accompanied by other, more reliable indicators.

SCHOOL PROBLEMS

School plays an important role in the life of the young person, eventually occupying at least a third of the individual's day. As the second major social system in which children and adolescents are involved, it adds its own pressures and stresses to the traditional ones of family and home. A number of investigators of suicide have found school behaviors such as failures, discipline, and truancy significant as risk factors for potential suicidal behavior.

Academic Performance

A number of investigators noted school failures and falling behind the appropriate grade among both completed and attempted adolescent suicides. Seiden (10) found that although undergraduate suicides did much better than their fellow classmates in terms of grade point average, 3.18 versus 2.50,

there was a continuous deterioration of their performance as they progressed through school. The students were filled with doubts of adequacy and were despondent over their general academic aptitude. Iga (42) describes the pervasive concern about gaining entrance into school and performing in school well enough to stay in it as primary contributing factor in suicides of Japanese youth. Education is virtually the only means for achieving security in a society that is highly status conscious. Preparation for the examination begins in early childhood for many Japanese. At least 80 percent of the children attend a neighborhood cram school for further preparation after school hours.

Shafii, et al. (6) report conflicting data about school performance from their studies of committed suicides versus attempted suicides. They found that poor academic performance or being a school drop-out did not differentiate their suicide subjects from their control subjects. However, acting-out behavior resulting in disciplinary problems and suspension from school did significantly differentiate the suicides from the controls. In contrast, Shafii and Shafii (22) found that failure in academic performance was a marked characteristic of young suicide attempters, 15 and younger, when compared with nonsuicidal psychiatric patients.

Pfeffer, et al. (43,44) found differences in suicidal behavior between inpatients and outpatients of latency age. As a result of a higher incidence of multiple deficits in ego functioning in both the suicidal and nonsuicidal inpatients groups, at least three-fourths of each group tested below grade level. However, the suicidal children were much more worried about doing poorly in school than the nonsuicidal controls, 48 percent versus 19 percent. In contrast, among the outpatients, both suicidals and controls worried about doing poorly in school, but showed no significant difference in the percentage functioning at the appropriate school grade level.

The percentage performing poorly in school was noted as high (78%) in the study by

Barter, Swaback, and Todd (27); 58 percent by Hawton, et al. (20); and 35 to 38 percent by Garfinkel and Golombek (37). Garfinkel and Golombek (37) found that more than half were experiencing failure in school or were drop-outs, but closer inspection indicated that the severity of the attempt made a difference. Those attempts rated most severe were correlated most highly with success at school while minor or moderate ratings of severity of suicide attempts was more significantly associated with failure at school. They felt this corroborated results in a previous study of completed suicides in which the suicides had been associated with industrious and productive performances.

Stanley and Barter (28) found that disturbance in school adjustment was an early and frequent indicator of emotional disturbance in adolescence. However, they were not able to demonstrate a significant difference in adequate school adjustment between their experimental and control groups. In their followup, they did find a difference with patients who repeated suicide attempts after discharge having significantly poorer school records than the control groups.

Otto (17) noted school problems also in his extensive followup of suicide attempters. However, the levels of school problems he found for his experimental group, 7 percent, was considerably lower than those reported in the preceding studies. The nature of the school problems were primarily unsatisfactory school results, desire to quit school, problems relating to teachers and school friends, and severe fear of examinations. Otto said that it is unusual for the school to be the direct cause of a suicide attempt. When an attempt does occur it is more likely to be in the higher grades where the demands may be too much for some children. Marek, et al. (13) found school failures to be the primary motive for suicide deaths in their study of juvenile suicides in Poland.

Among uncontrolled studies, Rohn, et al. (45) found that 75 percent of the teenagers hospitalized for a suicide attempt at the University of Maryland Hospital had excep-tionally poor school records. Tishler, McKenry and Christman-Morgan (46) felt that deteriorating school marks and worry about failing school were typical of their adolescent suicide attempters seen at a children's hospital in Columbus, Ohio.

Strong contradictory evidence is reported by Cohen-Sandler, Berman, and King (30) in their well controlled study that divided subjects into four developmental stages from birth to 15 years. Their control groups were depressed and nonsuicidal psychiatric children. They found, in contrast to the high frequency of school adjustment problems reported by other investigators, that school refusal, poor concentration and poor school work failed to discriminate among the children. Indeed, school problems were reported generally for only 20 percent or fewer children in the entire sample.

Disciplinary Problems

Shaffer (11) found that it was primarily in this school behavioral area that children and adolescents who committed suicide were expressing their emotional problems. The most frequent precipitant was a disciplinary crisis, occurring in 31 percent of his cases. Five of his subjects had learned that a letter describing their anti-social behavior in school and their truancy was about to be sent to their parents. For had been in a fight with another child and two had been dropped from a school sporting team. Three had presented school problems because of a dispute with one or the other parent.

Rohn, et al. (45) found 35 percent of his suicide attempters were having behavior or discipline problems. White (33) found adverse school reports more likely to occur in the younger adolescents than in the older. He reported 67 percent were labeled as idle trouble-makers or a bad influence. When the subjects were in secondary schools there were only 14 percent with similar adverse reports. Barter, Swaback, and Todd (27) noted disciplinary actions in 78 percent of their suicide attempters.

Truancy or Drop-outs

Shaffer (11) noted truancy in 7 boys and 2 girls, and that 12 of the 21 boys had not been in school the day before their death. Three of these had been chronic school refusers while 5 had been absent for less than a week. Two had been away from home and school during the 24 hours preceding their deaths. Truancy was also noted as a problem by Barter, Swaback, and Todd (27), Otto (17), and Garfinkel and Golombek (37).

Isolation and Withdrawal

Otto (17) noted a desire to quit school in 12 percent of his subjects. Nilson (47) found a number of school problems in her study of runaways. However, she felt that school problems and the process of running away are interactive so it was useless to decide which was primary or to determine the relationship of school problems to suicidal behavior in her runaway group.

Wenz (48) conducted an interesting sociological study related to this problem by looking for sociological correlates of alienation among 200 adolescents, aged 12 through 18, who were telephone callers to a crisis intervention center or suicide attempters treated in emergency medical facilities. He found significant negative correlations of school performance with alienation in 20 percent of the above-average students, 25 percent of the average students, and 56 percent of the below-average students. Like Nilson, he assumes that school difficulties themselves are not a primary factor in the suicide attempt but rather problems that have been present for a long time and are the result of alienation.

In summary, almost all the researchers confirm the use of school problems and poor school performance as significant risk factors. However, the evidence produced in the well-controlled studies of Pfeffer, et al. (43,44) and Cohen-Sandler, Berman, and King (30) indicates that caution needs to be used in evaluating the presence or absence of this factor, for school problems may be more generally predictive of emotional disturbance (which would include suicide) than primarily of suicide alone. However, school problems may be highly age-related, and so less differentiating in the younger ages than in the older ages. While still an important clue, school problems rank more as moderately predictive, but clues that provide considerable additional supporting weight when other factors are present.

ANTI-SOCIAL BEHAVIOR

Anti-social behaviors appear in many forms. We have included in this category such behaviors as aggression, rage, hostility, violence, delinquency, homicidal impulses, fire-setting, stealing, and disobedience. References are primarily to behavior indices although at least one investigator, Mc-Anarney (49) relates the tendency to national attitudes. She sees Denmark, Sweden, and Japan as suppressing aggression and notes the higher rates of suicides occurring in their countries, and contrasts them with the Norwegians who enjoy more freedom in expressing anger and have a markedly lower rate of suicide.

Some of the most intensive work in evaluating the role of aggression in suicidal behavior has come from two sources, Pfeffer and her colleagues (43,44,50,51) in New York, and Cohen-Sandler, Berman, and King (30) in Washington, D.C. Earlier studies from Pfeffer, et al. (43,44) on inpatient and outpatient children of latency age compared four groups: children who were suicidal recently, suicidal in the past, nonsuicidal recently, and nonsuicidal in the past. They found aggression high in all groups, 90 percent for the suicidal groups and 80 percent for the nonsuicidal groups, a nonsignificant difference. All the children displayed severe aggression that included fights, temper tantrums, a tendency to hurt and tease others, a destructiveness toward objects, defiance, and restlessness. Fire-setting and stealing were prevalent among both suicidal and nonsuicidal children. When their desires were not fulfilled, they displayed intense rage.

Often both suicidal and homicidal impulses were present, and to defend against the rage, the children denied, projected and displaced hostile feelings onto others. A similar research design applied to a group of outpatient children who were latency-aged yielded exactly the same results (44). The sole specific indicator of potential suicidal behavior was an increase in hypermotor behavior both within the inpatients and the outpatients.

Pfeffer and her colleagues (50,51) then conducted two studies of children aged 6 to 12, with one group predominantly from a low social status and the second from a middle social status. The subjects were divided into four groups: those with suicidal tendencies alone, those who showed assaultive tendency alone, those with both suicidal and assaultive tendencies, and those with neither suicidal nor assaultive tendencies. The results showed that the degree of expression of aggressive tendencies was a significant predictor of group membership for each of the four groups of children. Aggression was greatest in the group classified as both assaultive and suicidal; lying, stealing, and truancy were present among both children who were suicidal only and assaultive only. One important contribution to this study was the delineation of two types of children: the first, an assaultive and suicidal group who had distinct ego deficits and exhibited rage episodes and serious assaultive tendencies; the second, a group with relatively stable ego functioning who decompensated and were more likely to become overtly depressed under extreme environmental stress. The authors pointed out that from a theoretical point of view, the results did not deal directly with the question whether suicidal behavior is an expression of inhibited aggression or aggression turned inward. Rather, different groups of variables were producing different patterns of behavior expressed as assaultiveness and suicidal behavior. These different sets can occur in isolation, producing groups of children who are assaultive alone or suicidal alone. However, they can also occur together, in which case they produce highly intense aggression.

In Washington, Cohen-Sandler, Berman, and King (30) noted especially the appearance of aggression in their four progressive developmental life stages from infancy to 15 years of age. They concluded that, as a result of experiencing a disproportionate number of losses of all kinds, suicidal children, in contrast to the experiences of depressed and psychiatric controls, developed a greater loss of self-esteem and an increase in aggrieved rage. A review of their life events showed that suicidal children remained more intensely involved with family members and peers during childhood than the children in the control groups who were more often separated from their families. The frustrated investment of the suicidal children in these relationships was expressed as rage. Nearly two-thirds of the suicidal children made homicidal threats, gestures and, even attempts.

The presence of aggressive, violent feelings in the young suicidal child was reported by Paulson, et al. (52) who found violence, internalized hate and anger, marked preoccupation with fire-setting, and homicidal behavior toward family members and peers in 20 percent of suicidal children hospitalized for suicidal behavior.

Aggressive, violent and anti-social behaviors have been noted in varying proportions by a number of investigators of older adolescents. Among those with control subjects, Jacobs (15) and Teicher (16) hypothesized that rebelliousness of suicidal adolescents is one phase they go through until they reach the final suicidal stage. McIntire and Angle (18) found a mean score for hostility significantly higher for their experimental group of self-poisoners than for control subjects. Tishler and McKenry (46) found suicide attempters between ages 12 and 18 had a significantly higher score on the hostility scale of the Brief Symptom Index when compared with a group of nonattempters, and Otto (17) reported that one group of youngsters in his extensive followup of suicide attempters in Sweden

could be characterized as showing increased irritability, aggressiveness, instability, and peevishness. Otto hypothesized that it was depression that was hidden behind the anti-social activities such as vagrancy, theft, and truancy. Smith (53), comparing highly suicidal teens with highly suicidal adults, found that the high-risk teens were much more overtly angry, explosive, and less well behaved than the adults.

Two of the three psychological autopsy studies using controls, Shafii, et al. (6) and Rich, Young, and Fowler (7) found that anger, irritability, and outbursts characterized the subjects who committed suicide. Rich, Young, and Fowler classified 9 percent of their under-30 cases as anti-social personality compared with only 1 percent of the group aged 30 and over. The under-30 aged group also experienced legal trouble more significantly, p<.001. Shafii, et al.(6) reported anti-social behavior including involvement with legal authorities, shoplifting, fire-setting, fighting, school disciplinary problems, drug selling, and prostitution significantly more often in the suicidal group than in the control group, p<.003. Maris (9) reported that younger subjects who completed suicide were significantly more often motivated by revenge and likely to commit suicide based in anger and irritability than were older suicides.

In studies of committed suicide with no control groups, Shaffer (11) reported anti-social symptoms in 73 percent of 30 children he studied. Crumley (26) found anti-social and violent behavior a prominent feature in two studies of suicide attempters from his private practice, with intense rage appearing when the teenager was disappointed when the person on whom he was leaning was unavailable. Hendin (54) related the increase in the suicide rate of young blacks in the United States to their struggle to deal with conscious rage and murderous impulses.

Among studies of attempted suicides with no controls, Goldberg's (41) extensive epidemiological investigation of suicidal ideation found that persons who denied

overt aggression had the highest percentage of suicidal thoughts, 16.5 percent. Rosenberg and Latimer (55) found evidence, in the records of 77 suicidal adolescents at a State hospital, of patterns of sexual delinquency, running away, truancy, and destructive behaviors for the girls, and considerable acting-out, running away, destructiveness, stealing, and defying authority for the boys. Alessi, et at. (56) found that 63 percent of juvenile delinquents considered seriously suicidal were committed for one or more violent felonies and 31 percent had a history of assaultive in-program behavior.

Summarizing, anti-social behavior, especially assaultiveness, when expressed along with suicidal behavior, seems to be an excellent risk factor for suicidal potential. All of the researchers quoted noted its significance in contrast to control groups. It seems likely that anti-social behavior is more important as a clue in the younger ages, so long as it is accompanied by suicidal expressions. It does not appear to be as significant in adult suicides, as indicated by Rich, Young, and Fowler (7) and Maris (9).

POOR IMPULSE CONTROL AND ACTING-OUT

Impulsive and acting-out behavior are closely related to the anti-social behaviors just discussed and are frequently included among the list of various behaviors when anti-social behaviors are identified by researchers. For example, Maris (9) found that younger children who completed suicide had more intense deep feelings, more aggressive feelings, and higher levels of impulsivity and dissatisfaction with their life accomplishments than older completed suicides. Shafii and Shafii (22) found the risk of suicide was significantly increased when there was impulsivity and lack of regard for danger in the histories of suicidal children and adolescents.

Impulse and acting-out behavior were both noted by Crumley (26) in his review of his private practice patients and by McIntire and Angle (18) in their study of self-poisoners in

children and adolescents. The researchers in both studies considered the impulsivity and the activity as part of the anti-social, hostile, and aggressive behavior that characterized their populations.

Among suicidal children of latency age, Pfeffer, et al. (43,44) found an inability to tolerate frustration, delay actions, tolerate deprivation, or plan for the future. However, this poor impulse control was present for both suicidal and nonsuicidal children. The researchers found an increase in hypermotor behavior, possibly providing an increased potential for dangerous acting-out behaviors. Finally, Pfeffer (57) noted in an earlier study that an unrealistic, repetitive acting-out of life-endangering and omnipotent fantasies, such as being a superhero, was another important clue of high risk. The confusion and loss of reality from acting out such fantasies were thought to arise from feelings of intense vulnerability and helplessness.

In summary, poor impulse control and acting-out behavior are often seen as part of the pattern of behaviors included as anti-social. Impulsivity appears to characterize suicidal persons in the studies reviewed, although Pfeffer, et al. (43,44) found it did not differentiate suicidal children from the non-suicidal children. In general, impulsivity and acting-out serve as good clues especially when found in the context of anti-social behavior. It may be that, because of the lack of preparation and planning, impulsivity will produce more suicidal events, but that they are less likely to be lethal.

SUGGESTIBILITY

Involvement in Fantasy Games and Imitation

In recent years increasing attention has been focused on the growing degree of violence appearing in television programs, many of them screening at times when they can be watched by adolescents and children. Sometimes the violence has involved suicidal behavior, as in the Russian roulette scene of the

Academy Award-winning film, *The Deer Hunter.* Concomitantly, there has been widespread popularity of various fantasy games involving an array of violent activities, including instructions to the youngsters that they should try to become in real life the characters that they are fulfilling in the game. Now in its seventh year, the National Coalition on Television Violence (NCTV) has been conducting lobbying and educational campaigns both among the public and the government in an effort to control the violence shown on television and the continuing development of violent fantasy games. They point out that prime time violence has increased over the recent years. For the fall-winter season shows on the major television networks, ABC, NBC, and CBS in 1980 to 1981 the average number of acts of violence per hour was 5.6. By the winter of 1985, the average had increased to 13.9 acts of violence per viewing hour.

To illustrate the process of imitation and the way in which violence on TV can stimulate similar acts of violence in young viewers, NCTV gathered information on verified imitations of the Russian roulette suicide that was featured in *The Deer Hunter.* The Coalition was able to find 41 shootings with 37 deaths. Most of the time the information about the event was attributed to newspaper reports; in other instances it was attributed to notification by a friend or the family. In each instance, the act was reported to have occurred within a short time of having seen the movie, or with specific identification of the action as an imitation of the movie scene by friends or family. Of the 41 shootings, approximately half, or 20 of the victims were below the age of 19.

NCTV has also been concerned with toys requiring violence in fantasy, such as war games and fantasy games. A survey of 50 different fantasy role-playing games found that all had a basic violent theme, such as medieval sorcery and combat, wild west battles, outer space combat, post-nuclear holocaust violence, urban thievery, espionage, assassinations, samurai brutality, war violence,

and others. Frequently the violence is intense and gruesome.

One of the most popular and widely played games is the adolescent fantasy role-playing game Dungeons and Dragons (D&D). The game has been claimed to be a major factor in causing at least 50 suicides and murders, according to the evidence accumulated by the NCTV and by a group calling itself Bothered About D&D (BADD), founded by the mother of one of its victims. The game requires attacks, assassinations, spying, theft, and poisonings. The players arm their characters with any of 62 different types of weapons. An extreme number of monsters from horror and demonology are involved including 22 types of satanic demons and devils. Players can be cursed with 20 different types of insanity. D&D is played in groups under the direction of a Dungeon Master, primarily by males, age 12 to 20, and there are an estimated 3 to 4 million players in the United States. The game can last for months and even years with the goal being not to get killed and to accumulate as much power as possible. Power is earned by the murder of opponents. Players can be good or evil and are encouraged to identify with their own character in the game. In the group of related deaths, 22 or 44 percent of the suicides or murders involved youngsters aged 19 and under.

All the evidence about the game is primarily anecdotal. The publishers of NCTV quote, without sources, various authorities on whose work they rely for their evidence of the harm from violent, fantasy role-playing games, violent toys and play, and the desensitization effect of continued exposure to role-playing violence.

Although specific research is lacking on the relationship between magical thinking/fantasy and suicide, a hypothesis might be drawn from the results of the study by Gould (58). Magical thinking implies a loss of ability to recognize the boundary between fantasy and reality. Thus, for young people or children who have either lost or not developed the ability to maintain the boundary, fantasy games, such as war games and Dungeons and Dragons, become more and more engrossing and all-encompassing.

The games themselves become the reality. Pfeffer (60) calls attention to this in her comments on ego functioning often seen in suicidal children "As the pace, pitch, and content of the child's play intensify, suicidal children may lose the ability to discriminate between themselves and play objects. . . Another aspect of ego boundary diffusion of suicidal children is manifest when play ceases and becomes a form of personal acting out (p. 201)."

SOCIAL ISOLATION

Social isolation appears in many forms including withdrawal, alienation, asocial behavior, poor or inadequate peer relationships, and similar behaviors. It is usually considered fairly often to be the hallmark of a depressive syndrome. However, social isolation may appear in suicidal persons even when depression is not evident.

In their comprehensive description of the development of the suicidal state, Jacobs (15) and Teicher (16) identify one stage as a process of progressive social isolation from meaningful social relationships. The first stage of exacerbated problems is followed by a period of dissolution and disappearance of meaningful social relations. The feelings of isolation that follow then become both the problem and the barrier that prevents resolution of it. Withdrawal into self appears as gloominess, silence, and social alienation and the physical withdrawal frequently takes the form of running away from home. Sometimes the adolescent will try to reestablish a relationship with a significant other in a romance. About 36 percent of the suicide attempters were found to be engaged in a serious romance that was failing or terminating.

Both Seiden (10) and Hendin (61) found in their studies of suicidal college students that they were often asocial, withdrawn, shy,

friendless, and alienated from all but the most minimal social interactions. Often, they almost totally absorbed themselves in their school work, which may then have served as a protective device. Hendin hypothesized the psychodynamics as one in which the students saw their relationship with their parents as dependent on their emotional, if not physical, death. The depression and isolation that developed was actually a form of protection that sometimes shielded the individual and even made suicide unnecessary.

The adolescent suicide attempters treated by Shafii and Shafii (22) and Rohn, et al. (45) at their university hospitals and the self-poisoners seen by McIntire and Angle (18) at their poison control center were characterized as loners, preoccupied with self, involved in failed romantic relationships, withdrawn, and isolated. Rohn, et al. (45) found the social aspects were characteristic of the boys in his study. However, Marks and Haller (40), found that their suicidal girls were more likely to have few or no friends during their childhood, to be socially isolated, and to be unable to talk about their personal problems with anyone.

In two followup controlled studies, Stanley and Barter (28) in Colorado found that young people who went on to make further attempts after their hospital discharge were much less likely to have adequate peer relationships, less likely to be living with their parents, and to have more social agency contact than those who did not make further suicide attempts. Otto (17) found social isolation much more prominent in his suicide attempters than in his nonsuicidal controls. He hypothesized that behind much of the anti-social behavior may be found loneliness and isolation, listlessness, contact difficulties, feelings of guilt, emptiness, and apathy.

Wenz's (48) interesting sociological approach hypothesized alienation as a highly significant factor among adolescent suicide attempters. Applying Dean's Measure of Alienation to adolescents who called a suicide prevention center and adolescent attempters treated at emergency rooms, he found the variable with the strongest negative association was social contact with peers, indicating the less the relational involvement with peers, the greater the feelings of social isolation. Wenz concludes that alienation sets in motion a train of events that leads to attempted suicide. As a result of alienation there is an atrophy of interpersonal relations. The greater the communication blockage, the greater the adolescent's sense of isolation and the more the person withdraws from further contact with others. The process is circular and leads to ever-greater degrees of isolation and withdrawal. His reasoning is strikingly similar to that of Jacobs (15).

Summarizing, controlled studies indicate that social isolation consistently identifies the suicidal person when comparisons with nonsuicidal persons are available. It thus appears to be a good clue, but not in and of itself; social isolation appears in depressed persons who are not suicidal and in nondepressed nonsuicidal persons. However, when social isolation appears with suicidal expression, it emerges as a significant high risk predictor.

RUNNING AWAY

Runaways are inherently a suicide risk group inasmuch as the behavior is associated with emotional disturbance, family conflicts and strife, school and learning problems, social alienation, and other negative conditions, all of which are associated with suicidal risk. Nilson's (47) study of 18 runaways compared them with other court referrals who were not runaways. Half the runaway group, 14, made suicide attempts or gestures and 12 showed suicidal ideation only. In the nonrunaway control group, only 2 of the 18 made an attempt or gesture, while 11 showed signs or ideations. The difference between the two groups is significant, $p < .02$.

The presence of a history of having been a runaway is noted by Rosenberg and Latimer (55) and White (33) in their research on attempted suicides among adolescents, and Shaffer (11) also notes the presence of

runaways in the histories of younger adolescents who completed suicides.

Four well controlled studies sharply diverged on the usefulness of a history of running away. Jacobs (15) considers it the third stage in his theory of the development of the suicidal state, following the second stage of withdrawal. Marks and Haller (40) find the presence of running away a significant differentiator between suicidal boys and emotionally disturbed nonsuicidal boys, but not a differentiating factor between the girls. The strongest evidence against running away as a distinguishing feature comes from the studies by Pfeffer, et al. (43,44) and Cohen-Sandler, Berman, and King (30). Their carefully designed studies find that running away is more a symptom of emotional disturbance than necessarily of suicidal risk.

In summary, the usefulness of running away as a significant risk factor, while seemingly positive, has been thrown into doubt by the results of Pfeffer's and Cohen-Sandler, et al.'s studies. It is true, however, that the population of their studies are young, ranging in age from 5 to 14 at the most. It may be that the usefulness of this factor changes with older adolescents. At this point, the value of a history of running away as a suicide risk indicator is useful, but not necessarily predictive unless accompanied by other self-destructive clues.

THINKING PATTERNS AND STYLES

Shneidman (62) has pioneered in the study of suicidal thinking. His approach has been an analysis of the logical substructures of syntax in the writings of suicidal people, primarily through the comparison of genuine suicide notes with simulated suicide notes. Shneidman stimulated a number of other researchers. Using the matched pairs of real and simulated suicide notes, Tripodes (63) applied 24 aspects of reasoning patterns, including the cognitive maneuvers, and the idio-, contra-, and psycho-logic categories of analysis to the thinking of suicidal people.

The picture of the suicide note-writer obtained was impressively similar to that described in clinical face-to-face contact, but with the added special features of the suicide logic and style of thinking.

Tripodes used a comprehensive approach, covering all aspects of style of thinking. Neuringer and his colleagues (64) focused on dichotomous thinking or the tendency to polarize thought in an extreme manner. Using the semantic differential with groups of suicide attempters, psychosomatic patients and normal patients, Neuringer (65) found in two separate studies that suicide attempters were overwhelmingly more dichotomous in their thinking on the activity and potency factor scales than were the other two groups of subjects. While polarization of values was apparently a common characteristic of individuals in psychological stress, the dichotomization of the activity and potency factors seemed to be an exclusive hallmark of suicidal thinking. The results were even more extreme when only highly serious suicide attempters were compared with the psychosomatic and normal patients. Neuringer and Lettieri (66) extended the earlier studies by taking daily measures of dichotomous thinking from high-risk, medium-risk, and zero-risk individuals over a three-week period following a suicidal crisis. The results were the same but the investigators were even more alarmed that the extreme dichotomous thinking did not seem to diminish over time. They raised the concern that the process of dichotomous thinking associated with suicidal action might always be present, ready continuously to distort the world in such a way that suicide is an ever-present possibility.

Levenson and Neuringer (67,68) conducted a number of studies on rigidity and constriction of thinking in the suicidal individual and found that person to be more socially rigid and inflexible, to show an inability to shift in problemsolving strategies (as did Lineham, et al. 69), to be consistently high in field dependency, and to have difficulty solving arithmetic problems.

Summarizing, Neuringer (64) stated that suicidal individuals seemed to have difficulty in utilizing and relying on internal, imaginative resources; to polarize their value systems; and to tend to be rigid and constricted in their thinking. The process was the result of emotional stress affecting the cognitive structures, and decreasing cognitive capacity.

Kaplan and Pokorny (70) tested the hypothesis that the level of self-derogation in the thinking of individuals might predict subsequent suicidal behavior. In a longitudinal study of junior high school students in Houston, they administered a questionnaire three times at annual intervals, and obtained measures of self-derogation over periods of time. By correlating them with the number of self-destructive behaviors appearing between the measures, the investigators confirmed their hypothesis that high level of self-derogation were positively associated with suicidal thoughts, threats, and suicide attempts.

In summary, style of thinking, while apparently useful and intriguing, is limited in its predictive value for suicide because few professionals have the specialized knowledge of logic and language to apply the suggested analysis. Dichotomous and self-derogatory thinking seem like positive risk factors, especially after suicidal behavior appears. Such modes of thinking serve as evidence of increasing constriction and rigidity, boding ill for an individual's ability to see alternative possible courses of action.

SUICIDE NOTES

Shneidman (71) is also the person who discovered and initiated the use of suicide notes and personal documents as a source of valuable insights, not only into the thinking and reasoning styles of suicidal persons, but also as a means of determining his personality and emotional state immediately preceding the suicide.

Researchers in this area have indicated that suicide notes do not appear until about age 15. Shneidman and Farberow (72) collected notes in Los Angeles County from people ranging in ages from 13 through 90, with the median age in the 50s. Suicide notes come primarily from completed suicides; they are rarely obtained from attempted suicides. In a statistical comparison of attempted and committed suicides, Shneidman and Farberow (73) found suicide notes in 36 percent of the committed suicides and only 1 percent of the attempted suicides.

Shneidman (71) has held three different positions on the relationship of suicide notes to suicidal phenomena since he began their study. At first, the notes would offer special opportunities for observing the thinking and feeling that went into the act; second, that it is understandable that the views into the thinking and feeling were so limited considering the stress under which the notes were written; and third, that the notes' value was increased measurably when seen in the context of the history of the suicidal person. In such instances the note then "illuminates many aspects of the life history."

Shneidman (74) reviewed all the studies that have been conducted on suicide notes up to 1976 and reported that research has been carried out on the logic of suicide, changes in suicidal dynamics over age, the socioeconomic and psychological variables of suicide, suicidal life space, the emotional content, the effects of motivational level on language, comparisons with ordinary letters to friends and relatives, language characteristics, relations to persons and computer count of key tag words.

Shneidman summarized by saying that, as a whole, the studies have indicated that it was possible to distinguish between genuine and simulated suicide notes, and that the genuine suicide notes were primarily characterized by dichotomous logic, and greater degree of hostility and self-blame, more use of specific instructions to the survivors, less evidence of thinking about how one is thinking, and much evidence of the variety of meanings attributed to the word love. The content of the notes frequently reflect unrequited love, intellectual self-assertion, shame and guilt re-

lated to disgrace, the wish to escape from the pain of insanity, the wish to spare loved ones from further anguish, and a sense of inner pride and autonomy connected to one's own fate in the manner of one's own death. Often the writing is directed to his survivors-to-be as though he were going to be alive to supervise his wishes.

Peck (75) conducted a content analysis of suicide notes of suicide victims below the age of 35 (15.3% below age 25) in a large Midwest city. He found that elements of fatalism were most prevalent in victims under the age of 20, that they decreased for each of the subsequent older age groups, and that they were more frequent among single persons. The author concludes that the young fit a fatalistic model of suicide, which is described as a condition of excessive constraint or regulation that may trigger a reaction when the individual moves from excessive regulation to a state of alienation and a break in social ties. This almost seems a definition of adolescence.

Edland and Duncan (76) categorized the notes written by about 23 percent of the committed suicides in Monroe County, New York, into a system that focused on the psychodynamics and attitudes toward death. The authors felt that indications of such thoughts and concerns in individuals, while they were alive, should serve as significant predictive clues for high-risk potential suicide.

In summary, suicide notes have yielded much information about suicidal persons, information that has been useful in identifying risk factors, such as dichotomous thinking, constriction, ambivalence, and age-related dynamics. Further exploration will undoubtedly yield more. As predictive clues, however, the usefulness of suicide notes seems limited, for they are rarely discovered until after the fact of a suicide and so serve more to indicate what did happen rather then what might.

CONCLUSIONS AND SUMMARY

A number of summary conclusions can be made about behavioral clues as risk factors.

1. Prior suicidal behavior of any kind is unquestionably as strong a risk factor indicator for adolescents as it is for adults. It is consistently substantiated in both retrospective and prospective studies, in both well-controlled and no-control studies, and identifies from 22 percent to 71 percent of completed suicides and from 16 percent to 38 percent of attempted suicides retrospectively, and from 3 percent to 10 percent of completed suicides and 10 percent to 50 percent of attempted suicides prospectively.

2. Indirect self-destructive behaviors seem to play too complex a role in the personality of the individual to serve as reliable risk indicators. For some individuals, such behavior may play a protective role against suicidal behavior, whereas for other persons, the same behavior can become a significant self-destructive behavior on its own. Much more needs to be learned of the role of indirect self-destructive behaviors in the personality of the individual before they can achieve a consistent value as a risk factor.

3. Suicide attempters and committers among adolescents still seem most appropriately viewed as separate but overlapping populations.

4. While prior suicide attempts, threats, and ideations may be excellent clues for further suicidal behavior, it is also true that they are late clues in the progression toward suicide, indicating that a suicidal state has already occurred. Primary prevention objectives encourage the identification of preparatory suicidal risk behaviors at earlier states that may prevent the development of an overt suicidal state.

5. School problems have been identified consistently in histories of children and adolescents who have either committed or

attempted suicide. These problems include deteriorating academic accomplishments, disciplinary problems, and truancy. However, they also identify general emotional disturbance and need other suicidal clues to be most useful as risk factors.

6. Anti-social behavior, especially assaultiveness and threatening people, and including rage and hostility, are highly useful clues of suicide potential, especially among children and younger adolescents.

7. Social isolation and impulsivity are also often noted. However, these behaviors are found to characterize the general psychiatric population just as frequently as they do the suicidal group. These factors appear to be of greater value when they occur with other evidence of suicide potential and help to substantiate the evaluation.

8. Suggestibility and imitation probably play a role in suicide. However, this has been shown primarily in large-scale group and social reactions. The role suggestibility and imitation play, especially in violent role-fantasy games and television violence, in stimulating suicidal behavior in the individual is unclear.

9. Suicide notes can be highly useful in delineating the suicidal person's style and pattern of thinking. Dichotomous thinking, especially, may serve as a useful clue in reflecting increasing rigidity and loss of ability to seek alternatives as the person becomes more and more suicidal.

10. Running away might also be considered another kind of indirect self-destructive behavior, possibly substitutive or protective, possibly overtly self-harmful, probably both. Because running away and suicidal behavior are both highly associated with family conflict, it is highly likely they will be found together.

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SOCIAL AND CULTURAL RISK FACTORS FOR YOUTH SUICIDE

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INTRODUCTION

Our attention to suicide among young people has been drawn by the extraordinary number of adolescents and young adults who killed themselves during the decade of the 1970s. Although there is evidence that the rate of suicide among youth is declining, it is still very high, and, more importantly, we are left feeling powerless to explain the unanticipated increase or to prevent such a social tragedy from recurring. In the following pages, I will briefly review the pattern of youth suicide in the United States over the past 25 years and, where possible, compare United States rates and patterns with those of other countries. Following that, I will summarize Emile Durkheim's explanation of suicide, which I will then use to organize the literature on social and cultural risk factors and to assess the usefulness of explanatory models.

From 1960, the rate of suicide among 15 to 19 year olds and 20 to 24 year olds increased steadily until the late 1970s, when some decrease could be seen in the older group. This pattern is most apparent among men, but is also evident among women (1,2). The United States tends to be about mid-way among the countries from whom data are available with regard to suicide rates (3), and it appears that only Canada (4) and Australia (5) have experienced a pattern of increase similar to that of the United States.

Although the suicide rate among young Japanese dropped between the 1960s and 1970s, it has been rising again (2,6). In other Near Eastern and Asian countries, suicide rates generally have been low but increasing slowly and steadily over time (7). Exceptions are Hong Kong, where there is considerable variation year by year (8), and Taiwan, where the suicide rate has dropped, from its mid-1960s high, to the low point in about 30 years (9). With the exception of countries such as Japan, Thailand, and Sri Lanka, which have U-shaped curves, suicide rates in Asian countries tend to be high among adolescents and young adults, and to decrease with age.

Age-related patterns of suicide tend to be the same for both sexes in those Asian countries from which data are available. Differences in rates **between** the sexes tend to be much smaller than in the United States. There is, in fact, almost parity in a number of countries, and in Taiwan, Singapore, and Thailand, rates of suicide among female adolescents exceed those of male adolescents.

We have come to recognize the United States and Canada suicide rate increases as, at least in part, cohort phenomena. That is, the suicide rates for successive birth cohorts are higher, at each age, than the rates for preceding cohorts (4,5,10,11). This means that the jump in rates among adolescents and young adults in the 1970s should be "echoed" in future suicide rate increases among the

middle aged and then among the elderly. Recognizing the phenomenon as a cohort effect is important because of the predictability it provides, but also because it refocuses our search for explanation. Rather than look only at what was, or is, going on at the time of the observation (i.e., in the era of the 1970s), we seek a more pervasive factor that can affect the risk for suicide of successive waves of babies. And if, as seems to be the case here, there is an extraordinary jump, what might we say about the life experiences of this particular birth cohort that can help us explain their amplification of the general trend?

The suicide rates that have captured our attention are those of the "baby boomers," persons born during the 1950s. This group of individuals stands out, not only because of its absolute number, but also because it was preceded and followed by exceptionally small birth cohorts, the depression and the "baby bust" cohorts. In Europe, fertility increased for a few years following World War II, but only Canada, Australia, and New Zealand experienced fertility trends similar to that of the United States (12).

My search for risk factors was guided initially by the findings described above: that in the United States, successive birth cohorts have had higher suicide rates than antecedent ones, that the increase in rate of suicide at ages 15 to 19 and 20 to 24 among persons born in the 1950s was especially sharp, and that the only countries with similar patterns of youth suicide over time are also among the few countries demonstrating a post World-War II fertility pattern similar to that of the United States. Subsequently, the search widened in response to (1) the discovery of other phenomena calling for discussion, and (2) the wish to use a theoretical frame for the analysis that would give it coherence.

Sociocultural theorists do not presume to explain individual instances of suicide. Rather, they focus on rates and patterns of rates as phenomena in and of themselves. We tend to see the social group as the context within which an individual acts, and to see contexts

as varying in the degree to which they increase or decrease the probability of group members killing themselves. I will touch upon three general ways in which societies might influence the suicide rate among their members; these might be considered sets of risk factors.

1. Social structures might support and protect individuals, or they might produce stress.

2. The culture, as well as social structure, of a social group influences the psychological development of its members.

3. The culture produces, through such mechanisms as folklore, attitudes about suicide and death.

Most of the work in suicide has focused on the first set of influences, and the review that follows reflects this emphasis.

BACKGROUND

In looking at the literature produced in the past fifteen years or so, I have been impressed with the continuing importance of the work Emile Durkheim (13) did so many years ago, and I have been reimpressed with the genius of that work. Much of what is said by contemporary writers about today's youth and their suicide rates is a restatement, generally in more specific terms, of some part or another of the model developed by Durkheim. Durkheim described four basic "types" of suicide (anomic, egoistic, fatalistic, and altruistic), which represent extremes of two processes he considered essential to a healthy social order-- integration and regulation of its members.

Social integration refers to the degree to which members identify with the group. It is a structural condition that binds persons together as members of a collective body with which they identify and that provides part of their identity. Too little or too much integration, according to Durkheim, constitutes a suicide risk. Too little integration results in individuals feeling isolated, set apart from, or

different from, their fellows. This state is referred to as "egoistic" and is characterized by excessive individuation. In some form or another, this part of Durkheim's model has been the most widely used by contemporary analysts of suicide rates. Its relative popularity may be attributable to the relative ease with which the concept can be operationalized and linked to psychological concepts.

A social group may be too integrated, as well as not sufficiently so, in which case its members are at risk of altruistic suicide. Here the problem is one of insufficient individuation; the person may be said to have no identity other than the social group or that which is conferred by his/her social status. In such instances, individuals may be called upon to sacrifice themselves in the name of the group or to preserve it. Although some writers have dismissed altruistic suicide as irrelevant for modern analyses (14,15,16), it is important, I suggest, for reasons I shall develop later.

The other dimension of importance to Durkheim's theory is that of regulation, the social condition that "restrains the passions" of the individual. Current theorists have tended to interpret social regulation in terms of norms. The idea is that individual aspirations, and the methods by which those aspirations may be achieved, are defined by social norms. A state of anomie is said to exist when individuals do not have a set of clearly defined goals, or when there is a disparity between goals and the possibility of their being achieved because the social structure fails to provide access to the means for goal achievement. Anomic conditions are generally seen as resulting from rapid social change, but it is theoretically possible for them to be chronic for some segments of a society. At the other end of the regulation continuum is fatalism, a condition created by excessive regulation. Here individuals' futures are foreclosed, and lives are oppressively dictated. As with altruistic suicide, fatalistic suicide as a theoretical "type" has not been much used, and has been viewed as not particularly useful. I turn now to a review of social and cul-

tural risk factors for youth suicide using Durkheim's model as a general frame for the discussion.

REVIEW

Egoism/Social Integration

Without even looking at data, one might expect relatively high rates of suicide among adolescents and young adults in contemporary societies because they are in stages of life characterized by identity change and consolidation. Konopka (17) argues that adolescence is a period of high risk because the individual undertakes a series of "firsts," including questioning childhood precepts that were provided by parents and which guided his/her life for so many years, reassessing old values, and evaluating potential new ones. The adolescent needs to move beyond a very small interpersonal circle to find warm supportive relationships, and to cope with the yearning for the warmth and support of family ties. Maris makes the point that adolescence is a "time marked by marginality, confusion, and ambiguity" (18, page 100). In suggesting that the greatest problem young people have today is their uselessness, he reminds us of Sabbath's (19) definition of suicidal adolescents as expendable children. In short, adolescence and young adulthood are, in Western civilization, characterized by loose and uncertain social integration and identity.

Social integration and rates of youth suicide. Some authors have attributed the steady increase in suicide rates over time to concomitant changes in social integration. Sudak, Ford, and Rushford (20), for instance, suggest that increasing divorce rates and diminishing importance of religious and moral values have contributed to increased personal alienation (egoism, in our terms,) and, thereby, to increased suicide. Hawton (2) also discusses the loosening of family ties over time as a causal agent in suicide among the young, while Holinger and Offer (21) note the increase in broken families, and the implications of this increase for social integra-

tion of the young. They suggest further that the large impersonal high schools of today make it difficult for adolescents to find a sense of self-worth and to establish friendships.

A final bit of evidence that social integration is a useful explanatory concept for adolescent suicide rates is the regularity with which minority group suicide rates are especially high in adolescence. It is only in adolescence and young adulthood that suicide rates of blacks approximate those of whites, and at times they have exceeded them (20,22,23,24). Similar patterns are found among American Indians (25,26,27) and Hispanic-American residents of the southwestern United States (28). This relative parity with white Anglo men in suicide rates of young men of ethnic minority status suggests that the effects of uncertain social integration on all adolescents and young adults are compounded for minority groups. Investigators of Indian suicide have been the most likely to discuss this possibility, describing the young American Indian as caught between two cultures. The profoundness of the identity problems the Indian might experience is poignantly reflected in Tonkin's observation that, in British Columbia, native Americans may "lose their Indian status when they live off the reserve" (27, page 175). Resnick and Dizmang similarly describe the young American Indian as caught between two cultures: "he is unprepared for the one and feels the other, toward which he is ambivalent, has failed him" (29, page 886).

Social Integration and Rates of Suicide Among Youth. Social isolation is sometimes used, explicitly or implicitly, in discussing differences among subsets of young people in terms of their potential for suicide. For instance, social integration has been used to explain racial differences in suicide rates (20). Bush (30) posits the existence of a "black perspective" that can protect individuals from the pain caused by racism. He suggests that, to the extent that individuals differ from, or move away from, the intragroup perspective, they are vulnerable to the ef-

fects of racism, among them, suicide. Seiden takes a somewhat different approach but with the same concepts. He suggests that changing racial attitudes in this country have led to increased individual freedom and, ironically, to decreased social integration for black people. Specifically, he argues that "as racial discrimination decreases, the stability of shared social relationships, the sense of community based upon discrimination by a common enemy, is likewise decreased" (24 page 5).

Data are available from two studies undertaken to test hypotheses about social integration and suicide among blacks. To test their hypothesis that black adolescents living in a black subculture would have lower suicide rates than black adolescents living in "nontraditional" areas, Shaffer and Fisher (31) compared rates in two Southern and two Northern regions. The specific regions were selected because blacks accounted for more than 95 percent of their nonwhite population, and the investigators could then safely assume that "suicide among nonwhites" meant "suicide among blacks." The results of the comparison confirmed the hypothesis. That is, blacks were underrepresented in the suicides in the Southern areas, but they accounted for almost the same proportion of suicide as of the population in the Northern areas. This finding helps put into perspective the extraordinarily high rates of suicide among young blacks that Morris et al. (23) found in Philadelphia.

In the other test of the hypothesized relation between social integration and black suicide, Davis (22) compared suicide rates and racial composition of the 18 States with the largest black populations. He does not interpret his finding of a negative correlation between the percentage of blacks in the population and the nonwhite suicide rate, but one might well make an argument that blacks living in states where there are a large number of blacks are more socially integrated than blacks living where there are few other blacks. However, it should also be noted that among the ten States where the proportion of blacks in the

population decreased between 1970 and 1975, the nonwhite suicide rate was as likely to go down as to go up over the same period of time. Among the eight States in which the proportion of blacks increased or remained stable, the suicide rate went up in seven and down in only one.

It may be, as Shaffer and Fisher acknowledge, that their and Davis' findings reflect the disintegrative effects of migration, or the vulnerability to suicide of persons who migrate, rather than the protective effects of social integration. Direct evidence of migration as a suicide risk is sparse and not very compelling. In Israel, suicidal behavior is high among young immigrants, especially those from Asia or Africa (32). It should be noted, however, that Amir's data include attempted, as well as completed, suicide and that the rate of suicide for Israelis under the age of 19 years is extremely low. We should also remember that Sainsbury and Barraclough (33) found suicide rates of first-generation immigrants to be more similar to the rates of their countries of origin than to those of the host countries.

One final point about racial differences in suicide rates and social integration: In Durban, South Africa, the rate of suicide among colored persons, those of mixed black and white heritage, is considerably higher than among the other major racial groups, Africans, whites, and Indians. The differences are, however, greater among the middle aged than among the youth or the elderly (34).

Holinger and Offer (21) point out that, among teens, those who are or have been married have much higher rates of suicide than those who have not been married. Although marriage is a primary form of social integration and, therefore, protection against suicide for adults, Holinger and Offer's data suggest it is a suicide risk factor for teenagers. This apparently anomalous finding would have been predicted by Gibbs and Martin's extension of Durkheim's theory (35). They operationalize social integration as "status integration," which means, essentially, the extent to which one's status configuration is a configuration common within the population. Few teenage persons in this society are married, so those who are have low status integration and, therefore, low social integration, and are at high risk for suicide. We should note that Durkheim also would have expected high suicide rates among married teens, especially men, because early marriage forecloses options. In this respect, it would lead to fatalistic suicide.

There is evidence that, among students, those who commit suicide are less well integrated into their social groups than are the others. Petzel and Riddle (36) observed that school nonattendance and multiple school changes may be associated with suicidal behavior. There is no consistent evidence that college students are more likely than their nonstudent age peers to commit suicide, but there is some evidence suggesting that students of elite universities are at relatively high risk (2,37,38). While one might suggest that these institutions are characterized by their emphasis on individualism and lack of integrative mechanisms, Peck and Schrut (37) point out that the populations at elite universities are likely to be more disproportionately male than are populations of other postsecondary institutions, and they are likely to be older.

In the descriptive material provided by Peck and Schrut from their study of suicide among college students in Los Angeles county, one can discern a pattern of behavior that suggests failure to conform to the norms or expectations of the college student of the 1960s. For instance, compared with other students, those who committed suicide were more likely to spend a lot of time in solitary activities, and to attend religious services and express belief in an afterlife. They were less likely to use drugs and they were less experienced sexually. Although we typically think of religiosity as inversely related to suicide (see below) and drug abuse as associated with it, we should consider that failure to use drugs at all and attendance at religious services were not normative behaviors for college stu-

dents in the 1960s, at least not in California. These behaviors might, then, be seen as evidence of failure to fit into the social group.

Peck and Schrut, as well as Sanborn, Sanborn, and Cimbolic (39) who studied adolescent suicide in New Hampshire, found that, compared with other students, those who committed suicide were doing poorly academically. Shaffer (40) did not report on the academic standing of the adolescent suicides occurring in England and Wales in the 1960s, but he did describe them as tending to be above average in intelligence as well as height. Nonstatistical analysis of the data he had amassed on 31 cases of suicide led Shaffer to suggest that they clustered into two personality types, the solitary isolate and the impetuous individual prone to aggressive outbursts.

As noted earlier, religion was seen by Durkheim as a key mechanism for social integration, and his findings of strong associations between suicide and religion have been replicated many times. These are findings of higher rates of suicide among Protestants than among Jews who, in turn, have higher rates than Catholics. The interpretive principle of interest here is orthodoxy. In more recent work the connection between religion and suicide is less consistently located, and is less clear than in early studies. For instance, when level of religious commitment or involvement is controlled, investigators tend no longer to find differences in rate of suicide across religious denominations. Stack, for instance, found no correlation between the percentage of Catholics in the population and the suicide rate when he controlled for the divorce rate. The divorce rate was seen as a proxy for Catholic orthodoxy and Stack interpreted his findings as follows: "We hold that the convergence of Catholic and Protestant normative structures is responsible for the lack of a relationship between Catholicism and suicide" (41, page 69). Minear and Brush (42) attributed the lack of difference in attitude toward suicide between Jews and agnostics in their sample of college students to the absence of religious Jews in the sample. Smith and Hackathorn (43) failed to find a relationship between religious integration and suicide across 69 primitive societies, although they found strong correlations between suicide and family integration and economic integration. It may be, however, that their measure of religious integration was not as valid as were the measures of family and economic integration.

There is no good evidence of a direct association between level of religiosity and risk of suicide among individuals, because valid data on the religious views of the deceased are scarce. However, there is evidence from a number of studies that religious involvement is associated with low rates of **acceptance** of suicide (42,44,45). The studies cited all compared religiosity and attitudes toward suicide in samples of young persons, a category much more "liberal" toward suicide than older persons (46).

We need to be very careful in interpreting findings about "attitudes" toward suicide. Respondents, especially the young, clearly differentiate between "right" as a moral concept and right as a perquisite. Eighty-eight percent of Boldt's adolescent respondents said suicide is wrong (46). Yet, 35 percent of them said it is a basic human right, and 47 percent said people should not be restrained from killing themselves, or should be restrained only under certain circumstances. Minear and Brush warn that the liberal attitudes of their sample of students toward the right to kill oneself "does not imply that a majority of college students could personally accept the idea of their own suicide. Most, in fact, could not imagine committing suicide" (42, page 321).

Anomic Suicide

As noted earlier, anomic conditions are generally associated, in the mind of the social theorist, with rapid social change. The change needs to be of the type that leaves the social group, or some subset of it, without a set of "rules" by which members can regulate their lives. Without a set of expectations

about what they should aspire to and how to achieve the valued goals, the affected individuals are at increased risk for suicide. The clearest example of this process I encountered is that presented in the very nicely written article by Rubinstein (47) about an epidemic of suicide among Micronesian adolescents. Rubinstein describes the transformation of Micronesian communities from subsistence fishing and agriculture groupings to reliance on a cash economy and government employment. Among the changes in life this transformation has wrought is the extinction of the traditional men's clubhouses and community-level men's organizations. These clubhouses and organizations had socialized young males into their adult roles, providing them a sense of social identity and self-esteem, and compensating for the structural tensions and distance they encountered in family relations. It was among young men, of course, that the rate of suicide increased dramatically and, as Rubinstein was able to demonstrate, among the young male residents of the district centers, which were the foci of social change.

Goldney and Katsikitis (5) suggest that the surge in adolescent suicide among mid-century Australian birth cohorts is related to the social and economic changes in Australia over the past 50 years. Rin and Chen (9) suggest that the first of two surges in the Taiwanese rate of suicide is related to the migration to Taiwan of 2 million mainland Chinese within a ten-year period. They see the second surge as related to a period of modernization, industrialization, and changing value orientations. Socioeconomic changes resulting from political independence are designated as likely causal factors in the marked jump after 1969 in the suicide rate in Sri Lanka (48). None of these investigators provides an analysis of how socioeconomic or political changes affected the lives of the population stratum in which the suicide rates have increased.

The widely-recognized high rate of suicide among American Indians is often characterized as a manifestation of anomie. For instance, Resnick and Dizmang (29) point out that the dominant culture in this country has vacillated widely in its judgment of what Indians should be, and Indians themselves have been unable to make their own adjustments to the cultural changes they have experienced. Reznick and Dizmang point especially to the problems of once-valued behaviors being no longer possible because of the restrictions and limitations of reservation life, and to the loss of role models to young men. The arguments they make in this work are, in large measure, illustrated in Dizmang's earlier description of changes in the lives of the Shoshone-Bannock Indians (49) and the apparent suicidogenic effects of these changes on young men. In 1974, Dizmang, Watson, May, and Bopp (25) presented the results of a case-controlled analysis of suicide on the Fort Hall reservation. Their goal was identification of personal factors associated with suicide. The childhood experiences of the suicide group were much more chaotic than were those of the controls, and they were much more likely to have attended boarding school and to have done so at young ages. One could argue that the experience of attending the off-reservation boarding school, unless it is a step in the process of assimilation into the dominant culture, is likely to accentuate the cultural confusion experienced by the young American Indian.

Resnick and Dizmang (29) point out that suicide rates vary tremendously across Indian groups, a point taken up in greater detail by Shore (50), who presents data revealing variation across tribes from 8 to 120 per 100,000. The figures he presents suggest that suicide rates generally are low among southwestern United States tribes (Navaho and Papago) relative to northwestern tribes. Extrapolating from homicide rates, Shore suggests that suicide rates are high among traditionally nomadic tribes and lower among agricultural village tribes. Although he does not offer interpretation or analysis, it is evident that the controls of the Federal government, including movement of Indians to reservations, was more disruptive of the cul-

tural patterns of nomadic, than of the village-based, groups.

Some writers have suggested that social change during the 1960s resulted in anomie among black Americans and may account for increased suicide rates among blacks. Hendin, for instance, suggests that changes in what are considered acceptable forms of response to racial oppression can create anomic situations for older blacks. "They become suicidal only when an adaptation that has been distinctly Negro in our culture fails them" (51 page 419). Seiden (24), although focusing on theories of social integration, points out that, during times of marked social change such as we experienced in the 1960s, there is confusion about customs and moral codes. One may infer that this resultant anomie put young blacks at higher-than-usual risk for suicide.

Another recent social change that might be expected to have disproportionately influenced the birth cohort known as the "baby boomers" is the women's movement. With the emphasis during the 1960s and 1970s on acquiring and using access to educational and professional opportunities, changing sexual mores, and altering the nature of intimate as well as formal relations between the sexes, expectations about the American woman's role, goals, and behavior were seriously challenged. The female members of the 1950s birth cohort grew up without the certainty about their roles that had characterized their mothers' lives. One might expect, then, that they would demonstrate increased rates of suicide as adolescents and young women. Although rates of suicide among young white women have increased, the change has not been nearly as great as for young men. The rate among 20 to 24 year old nonwhite women has increased tremendously, so that it is now almost equal to that of their white age and sex peers. This is an interesting and potentially important phenomenon, but it probably cannot be taken as an effect of sex-role changes in the past 20 years. We should not forget, however, that changes in women's roles and expectations have profound changes on the world in which **men** live. Thus, it is feasible that the effects of the women's movement, insofar as they produce change in the suicide rate, are more evident among men than women.

There is, as noted at the beginning of the paper, a condition other than rapid social change that has become identified as anomic. That is the social condition in which structural mechanisms fail to provide opportunities for individuals to achieve culturally valued goals. A number of authors assert that this condition has been produced by the high rate of fertility in the 1950s. Borrowing from Easterlin (52), they suggest that this large cohort of young people has been confronted with increased competition for rewards and reduced opportunity to acquire them (20,52).

The concept of anomie has, then, been used less often, and with less attention to the theory of which it is a part, than has egoism (isolation) in analyses of changes in suicide rate among American subpopulations. In fact, one sees the concept of anomie employed primarily in anthropological studies of traditional societies. It may be that contemporary societies are not as vulnerable to rapid social change as are those like postwar Micronesia, and/or that the effects of change are buffered by countervailing forces. Except for the case of the nomadic American Indian, the only United States group to which we can point as having demonstrated anomic suicide in recent history is businessmen who responded to the crash of the stock market in the late 1920s by killing themselves.

Altruistic Suicide

As noted earlier, there has been a tendency among modern theorists to dismiss the concept of altruistic suicide from serious consideration because of its lack of relevance to modern society. I consider this tendency unwise for a variety of reasons. First, of course, we saw altruistic suicide re-emerge in Jonestown with tragic results of astounding magnitude. Second, it appears to be very much a part of what drives suicide rates up in some

societies. Third, where some form of altruistic suicide is part of the cultural tradition, it is likely to influence a society's suicide rate as an "enabling factor," a factor that makes suicide acceptable, if not prescribed or expected.

It may be that part of the impetus to dismiss altruism as an important factor in suicide, is the word itself. We tend to emphasize the connotation of benevolence in thinking of this term. Yet, "altruism" also refers, perhaps even more strongly, to selflessness. The word was formed by Comte from an Italian term meaning "of, or to, others." It was translated into English as "devotion to the welfare of others" and as an antonym to "egoism." In 1876, Marlborough described the law and duty of life in altruism as living for others (54). My point is that the aspect of altruism that constitutes a suicidal risk is the abnegation of the self, the giving up of one's own identity, or the dominance of the identity by a single social role or social tie. If we focus on this aspect of altruism, we can understand the acquiescence of hundreds of persons to the call from their leader that they murder their children and commit suicide.

In societies such as the modern United States, in which there is such strong emphasis on autonomy and the development of individual identities, we seldom see cases of suicide we might identify as altruistic. However, in other societies, group loyalties and family ties are such that the individual might be said not to exist and, in those societies, some suicides appear very much to be sacrifices of the self for the group. For instance, Amir (32) says that suicide rates were very high among the Israeli pioneers, and he attributes this phenomenon to a very intense social solidarity and the attribution of failure to individual shortcomings.

One can see traces of altruism in the very high rates of suicide among the youth of Japan. It is widely accepted that the tortuous process of gaining access to higher education in Japan precipitates a good many suicides among those who fail. Whereas it appears that this is an instance of a highly valued goal

to which there is very limited access and, thus, potentially an anomic situation, it also seems that the young Japanese man's suicide is motivated less by disappointment in his failure to achieve his goals than by his failure to fulfill his responsibility to his family. Fuse (55) describes the tendency of many Japanese to become overinvolved with their social role as "role narcissism." He means by this that the social role becomes cathected by the individual as the ultimate meaning for life. Threat of loss of that social role creates such shame and chagrin that the individual may well choose to end his life rather than continue it in an altered or degraded social role. Iga (56) describes Japanese culture similarly, as one in which the basic social structure is a small group and in which the supremacy of the group goal is stressed. Emphasis on education and the entrance examination, which is the student's single opportunity to enter a university, have become Japanese tradition. Iga vividly describes the pressures brought to bear by his parents, especially his mother, on the Japanese adolescent to achieve a university education. The family may pay enormous costs, financial and emotional, to prepare him for the examination. The student who fails does not just fail to realize a personal goal; he fails his family and he fails, on behalf of his family, to achieve a group goal. My interpretation is supported by Hirsch (57), who describes the Japanese culture as consistently emphasizing an intense, life-long, parent-child relationship. He identifies cultural values stressing self-discipline and subservience of the self to a whole system of hierarchies leading to shame and guilt when role expectations are not met. Hirsch cites DeVos in describing the need for children to achieve and bring honor to the household in order to fulfill their duty to their parents, and to repay them for their sacrifices. Although there is no evidence that suicide is expected of a young Japanese man who fails to gain access to a university, the guilt he feels for failing his family, combined with the failure to achieve the goal that has, for many years, been his single focus, and cultural enabling

factors I will refer to later, constitutes a serious risk factor for suicide.

Hoskin, Friedman, and Carote (58) investigated an area of New Britain which had a high incidence of suicide. In describing the social structure of the communal groups, they speak of the extreme importance to the individual of personal ties and affiliations, and they discuss some historical rationale for the critical importance of the individual's affiliative tie to a small group of others. In their investigation of suicide among the population, they learned of the primacy of the loss of personal ties among the deceased. While the authors seems to lean toward anomie as an explanation for the high incidence of suicide, the social fragmentation they speak of has, in fact, a very long history and could be seen as the reason why the individual Kandrian is so dependent upon relations with a very small group of others for his/her continued well-being. In effect, I am suggesting that the role relation is one in which the individual is as role-cathected as are the Japanese described by Fuse and Hirsch. The individual's identity is extraordinarily dependent on the role relationship.

In sum, I would argue that we not dismiss the concept of the altruistic suicide but, in fact, be wary of its potential for young people. Blos (59), among others, describes adolescence as an individuation process and, thereby, an opportunity for the young person to confront and resolve conflicts associated with dependency. There are a variety of ways, such as use of drugs, that the adolescent might avoid managing those development tasks. An alternative available in the past 20 years or so is the cult. The cult provides alternatives to the threatening and difficult experiences of young adulthood, and it involves relinquishing one's own sense of self which, for the troubled or fearful young person, can be experienced as a relief (60). In so doing, however, the young individual is trading off the risk of egoistic suicide, which is likely to exist for a short period and for which there are social buffers, for the risk of altruistic suicide which is present as long as cult membership is maintained and against which there is likely to be precious little protection.

Fatalistic Suicide

Fatalistic suicide is relatively infrequent and there is little evidence of high rates where one would expect them, e.g. among prisoners serving life sentences, victims of incurable debilitating disease. The one report of what I might call fatalistic suicide describes situations in which other risk factors are also present. Gehlot and Nathawat (61) describe suicide in India where the overall rate is quite low but where, relative to other segments of the Indian population, the rate among young people is quite high. The authors label a large proportion of young Indian suicides as "performance" suicides, but it is not clear just what that term means and what its theoretical background and implications are. However, in their case studies, I find evidence of fatalistic suicide. They describe the deaths of two young women, well-educated professionals, who had been forced, by the absence of their husbands, to live with, and under the control of, strict and traditional in-laws. These women were unable to pursue their professional activities, they were unable to escape the situations they were in, and they were unable, by virtue of their education and/or personal characteristics, to fulfill traditional roles as subservient and dutiful daughters-in-law. In this sense, their suicides take on a fatalistic quality. Headley (7) similarly suggests that self-inflicted death among Asian women and young people tends to be fatalistic suicide. She focuses on the very limited opportunities these categories of persons have. "The options for women to refuse marriages they do not want, for support should they be divorced, and for status in society other than as wife and mother are limited" (7, page 355). Thus, although fatalistic suicide has long been discounted as a virtually empty cell in Durkheim's paradigm, excessive regulation may, in fact, be an important cultural risk factor in some parts of the world.

Cultural Attitudes and Socialization

Cultures do not contribute to suicide rates of populations only through the kinds of structural variables described in the preceding pages. They may also facilitate suicide in such ways as romanticizing suicide, presenting death as a positive state, or influencing the psychological development of individuals in such a way that they are susceptible to suicide.

In the traditions of India and Japan, suicide has been an acceptable, even prescribed, practice. Suttee, the form of suicide among Indian widows with which we are familiar, was practiced by women who simply had no other choices, or by those for whom the sacrificial pyre was a way to achieve social admiration. Another form of self-immolation, Johar, was practiced by Indian women whose husbands had been killed in battle. Here, the suicide was to avoid being raped by the conquerors (61). Thus, in India, suicide has traditionally been a way for women to resolve dilemmas created by their social role and the dependence on their husbands that role imposed on them. **Acceptable** forms of suicide in India were those associated with religious motives and committed by ascetics, and those committed by the very old, the very feeble, or the incurably ill (62).

Japanese culture also prescribed suicide under some circumstances, but it was men who were to kill themselves, and their doing so was valued as demonstrating the highest of virtues. Suicide is, of course, proscribed in Japan today, but the influence of the past is clear in the conflicting and confusing reactions to the suicide in 1970 of Mishima Yukio. Proclaiming the values of the samurai, he invaded the headquarters of the Japanese Self-Defense Force and, in front of the commanding general of that force, Mishima committed seppuku, the time-honored ritualistic suicide by disembowelment. The initial reaction to this event was to declare Mishima insane and fanatical. However, the day after Mishima's suicide, the Japanese people were asked to respect his motives, and various spokespersons described themselves as empathic with Mishima, who came to be described as a martyr, an exemplar of what it means to be Japanese, and as dying splendidly (63).

The goal of Fuse's paper was to explore the "deep relationship between suicide and culture in Japan," and he demonstrates quite eloquently how "ritualized suicide such as seppuku was a culturally approved and reinforced means of safe-guarding self-esteem and honor" (55, page 63). Given that, he pleads for restraint in what he sees as an increasing tendency to define suicide in terms of psychopathology. Hirsch sums up his discussion of the cultural determinants of suicide by stating that Japan historically sanctioned ritualistic suicide and "condoned other forms of suicide as acceptable means of dealing with life's problems" (57, page 339). Prominent among the cultural factors cited by Tatai as underlying Japanese suicides are "an historical tradition of suicide as an honorable solution to harsh and difficult personal solutions" and "a romanticizing of suicide as an escape from the stresses of life under a mantle of acceptability" (6, page 19).

In two studies of suicide in nonindustrialized societies, there is evidence that suicide is, in some form, ritualized or accepted. The primary method of killing oneself among the Kandrian is hanging, and there appears to be a ritualistic procedure known to members of the society. Kandrian children represent it in their drawings (58). Rubinstein describes the development of what he terms a "suicide subculture" among Micronesian youth. It is "a set of coherent meanings which organize, provide significance for, and contribute to the frequency of adolescent suicides in Micronesia" (47, page 664).

Cultural views of death that might facilitate or enable suicide are illustrated by writers about Japan more than others. Iga for instance, talks about how there is little separation between this world and the afterworld in Japanese culture, and how the Japanese romanticize impermanence (e.g., treasuring most highly the most fragile of flowers, the cherry blossom) (56). Tatai (6) describes

Shintoists as viewing death as an opportunity to become a kami, or spirit, and Buddhism as presenting the idea of reincarnation and survival after death.

The only study I found that tested a hypothesized relationship between personality and suicide across cultures is Smith and Hackathorn's (43) comparison of 69 "primitive and peasant" societies in terms of suicide rates and a number of potential correlates, including expression of affect, and the importance of pride and shame. The potential predictor variables were selected on the basis of review of existing literature and availability of measures in the data files they used. The personality characteristics are two of the three variables accounting for 69 percent of the variance in a 7-point suicide rating scale. The data revealed that suicide rates are high where societies expect very restrained, or very open, expression of emotion, and where they place a great deal of importance on individual pride and shame. Certainly we see the emphasis on these characteristics (emotional restraint and shame) in the description of socialization of Japanese children. It would be very informative to assess child-rearing practices in other industrialized societies, and to test the hypothesis that cultures encouraging these characteristics in their populations have high suicide rates when compared with societies where moderation in expression of affect is endorsed and individual pride and shame are not emphasized.

SUMMARY

During the decade of the 1970s, the United States witnessed a startling increase in suicide rates among adolescents and young adults. The increase has been described as part of a cohort effect, an increase in suicide rates in each successive birth cohort. It has also been attributed to the coming of age-at-risk of the baby boom generation, and the only countries showing similar patterns of change in youth suicide are those with similar post World War II fertility patterns.

The risk factors found to be most closely and consistently associated with youth suicide in this country are those that, in some way, operationalize Durkheim's concept of egoism. These risk factors reflect weak social integration and the concomitant isolation that individuals experience. Weak social integration may be endemic to adolescence and young adulthood in countries such as the United States. The ubiquitous isolation felt by adolescents and young adults might be amplified in minority groups, whose adolescent members experience the combination of age-related problems of egoism, and problems created by the prejudice of the majority group, preventing integration of minorities into the social mainstream.

Whether or not adolescence is a period in which social ties are vulnerable and tenuous, many social critics feel that ours is an increasingly egoistic society, and they cite as evidence such social changes as increasing divorce rates and decreasing importance in people's lives of religion. Risk factors reflective of weak social integration have been used to "explain" differential suicide rates among subgroups of youth, as well as the increase over time of youth suicide in general. The integrative function of identification with the minority group and its "perspective" has been identified as protecting young blacks from suicide. Students who kill themselves tend to have histories of behavior that is not normative; that is, they tend to look like social isolates.

Religion was seen by Durkheim as a major form of social integration, and social theorists have tended to continue to see social integration as a critical function of religion. It appears that the degree to which individuals are committed to orthodox religious beliefs continues to predict levels of suicide fairly consistently. However, religious affiliation is no longer a dependable index of orthodoxy and is, therefore, not useful as a predictor of suicide.

Risk factors that can be clustered because they reflect Durkheim's second major "type" of suicide, anomic, are less useful in analyz-

ing suicide in the United States than are those discussed under the label "egoistic." However, anomie continues to be a productive concept when suicide rate changes in traditional societies are under consideration. The societies in which anomie is readily available as an explanatory principle are those in which major and rapid social change can and does occur. The relative unavailability of the concept for analysis of suicide in the United States may be a function of the resistance of western social structures to rapid major change. That is, these societies may be relatively invulnerable to anomie.

The problem in using the concept of anomie in reference to suicide in our society may stem from the concept's resistance to operationalization rather than, or as well as, society's resistance to rapid change. For instance, although writers may speculate on the suicidogenic effects of changes (such as those in the status of blacks and women), we have seen no specification of measures that would reflect anomie, which then may be used in comparative analyses of group suicide rates or rates across time.

Altruism as a suicide risk factor has tended to be dismissed by social scientists. I have argued that this tendency is unwise, and that we need to think once more about the risks posed when persons abdicate their egos for a group identity and subordinate individual goals and desires to group needs and dictates.

A second reason for not dismissing the altruistic suicide as relevant in the world of today is that it may be a powerful enabling factor. There is evidence that where altruistic suicide is part of a society's cultural tradition, suicide continues, even in the face of official proscriptions, to be seen as an acceptable, even honorable, way to deal with shame. The attractiveness of altruistic suicide is likely to be especially strong for persons at an age when they are confronted with the painful hard work of individuation.

Evidence for the presence of risk factors that might predict fatalistic suicide is sparse and tenuous. However, interpretation of suicide among some Asiatic subgroups has been facilitated by Durkheim's predictions about the effects of excessive social regulation. We might be well advised to re-explore this part of the theory.

In sum, cultures contribute to high suicide rates by failure to provide supportive structures such as those that integrate individuals into the social group, by creating stress for members of the social group (e.g., rapid social change leaving individuals without a set of norms to follow), by influencing the personalities of individuals through socialization practices (e.g., promoting repression of affect), and by promoting positive or accepting attitudes toward suicide (e.g., ennobling certain forms of suicide or making the suicides of certain persons heroic).

CONCLUSIONS

The major conclusion I drew from this analysis is that we need more theory-driven research. It is important that more and better work be done in the following:

- Specification of theories, models, and concepts related to suicide

- Operationalization of relevant concepts into measures

- Derivation of hypotheses from theories and models of suicidal behavior

- Testing hypotheses using valid and reliable data and appropriate analytic techniques

We need, for instance, to think about Easterlin's assertions that the fertility rates of one period determine the opportunity structure 20 years later, and that the opportunity structure influences the probability of suicide among young adults. What hypotheses can be derived from his model and how might they be tested empirically? What opportunities does his model provide us for being more effectively proactive in preventing, or at least tempering, increases in rates of suicide among specified groups in the population?

The second conclusion from this work is that there is continued need for clarification and assessment of theoretical issues and questions. What, for instance, is the relation between integration and anomie? I speculated earlier that contemporary societies might be relatively invulnerable to anomie because of their resistance to rapid social change. We have seen that contemporary societies tend to be characterized as relatively egoistic. This suggests that the more integrated a society is, the more vulnerable it is to anomie. Might this conclusion be derived from Durkheim's work or from that of the social theorists who have followed in his footsteps? I am not the first to suggest that social integration and social regulation are related processes. I do not believe, however, that they are the same, and I feel we can profit from trying to describe, not only how they influence one another, but also how they are independent.

We know that social systems are not static but are dynamic. Might use of some of the basic principles of systems theory help us understand variations in suicide rate across societies and time? For instance, might the recent emergence and proliferation of cults and fundamentalist groups in the United States be understood as reaction to a social system that has become excessively egoistic? What I am proposing here is that societies might be thought of as oscillating between the extremes of the integration and the regulation continua. This way of looking at societies and social change might constitute a more productive framework for assessing and interpreting change in rates of suicide over time than any of the models currently in use.

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FAMILY CHARACTERISTICS AND SUPPORT SYSTEMS AS RISK FACTORS FOR YOUTH SUICIDAL BEHAVIOR

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The search for etiological, correlational, and early warning signs of child and adolescent suicidal behavior has intensified, especially because of the heightened awareness that the incidence of suicide and nonfatal suicidal behaviors have been increasing in the last three decades. Current evidence suggests that suicidal behavior is a complex, multi-determined symptom. An implication of this concept of youth suicidal behavior is that investigations aimed toward elucidating the most important determinants of suicidal behavior--including diagnosis, personality traits, family and environmental factors, and biological variables--require an integrated approach that gives credence to the role of interactive effects of a number of variables.

Research Design Limitations

A variety of approaches have been used to evaluate family factors associated with suicidal behavior. Nevertheless, knowledge gained about family risk factors for youth suicidal behavior has been limited by the designs of previous investigations. There is minimal information about family characteristics of youngsters who commit suicide and a paucity of prospective studies of child and adolescent suicide victims. Almost all the existing studies describing family features are of individuals who exhibit nonfatal suicidal behavior. Furthermore, of these studies, a large number have not focused primarily on family factors but describe them as aspects of the more extensive investigation of multiple factors associated with youth suicidal behavior. Since these studies evaluated factors after suicidal tendencies were expressed, they do not provide information about family factors that are precursors for youth suicidal behavior. This issue can be studied in prospective longitudinal investigations which, currently, are absent in this field of investigation.

Other important limitations exist in previous studies of family risk factors for youth suicidal behavior. Whereas most studies provide a definition of suicidal tendency, the methods to evaluate the suicidal tendencies are often not described and certainly not systematic or uniform. The studies vary in the type of suicidal tendency being investigated. Some studies assess subjects with only suicidal ideation, others evaluate suicide attempters, and still others investigate subjects with a range of suicidal tendencies that include suicidal ideation, threats, and attempts.

Biases in selection of subjects may exist. Most studies use patients who were admitted to medical or psychiatric emergency, inpatient or outpatient facilities. There are limited data on subjects in other settings such as schools and correctional facilities or for

those who drop out of treatment. There are almost no studies of nonpatient populations.

The methods of collecting data predominantly have used chart reviews or clinical interviews. These chart reviews are limited by informant, interviewer, and recording variability. The clinical interview techniques varied. Most studies did not use systematic interview approaches. In some studies, the procedures for interviewing were not stated. Only a few studies used standardized interview instruments or self-report ratings.

Finally, the statistics are reported in inconsistent ways. For example, the greatest limitation is that most research papers do not include complete statistical data needed to compare the findings from different investigations. As a result, it is difficult to meaningfully compare the effect sizes of results.

Nevertheless, although the studies of family factors were limited by a number of methodological features, the information acquired in these studies have a number of consistent trends that lend support to the importance of family risk factors for youth suicidal behavior. These findings will be described in the next sections.

Studies of Adult Suicidal Individuals

Before there was an extensive interest in studying youth suicidal behavior, the role of early childhood experiences on suicidal behavior was investigated in retrospective studies of adults. These studies indicate that family instability due to early parental loss and deprivation is related to adult suicide and nonfatal behavior (1-9). In fact, studies of adult suicidal individuals suggest that the critical time period for sensitization to the effects of parental loss is during the preadolescent and early adolescent years (10-12).

These retrospective studies are important not only in suggesting ways in which early life events may be associated with long term outcome of suicidal symptom expression but also in pointing out the need for cross-sectional

prospective studies of high risk child populations. For example, children who suffered parental loss, family breakup, and environmental instability are appropriate subjects for investigations of high risk populations to examine the precursor factors of suicidal behavior. Another issue to be evaluated is whether there is a proximal association between stressful live events and suicidal behavior among children and adolescents. The next sections will discuss research on this issue.

Studies of Multiple Factors Associated with Youth Suicidal Behavior

Table 1 outlines family factors in the cross-sectional studies of children and adolescents that evaluated multiple psychosocial variables associated with suicidal behavior. (Tables appear at the end of this chapter.) Definitions for suicidal behavior were clearly presented in most of these studies, but varied. All youngsters were studied after they expressed suicidal tendencies. In most studies, data were collected during interviews of the youngsters and their parents. Most of these studies were of youngsters admitted to psychiatric or medical emergency facilities. In this way, generalization of the findings to the general population, medically ill, or untreated youngsters was limited. The sample sizes ranged widely from 37 to 1010 youngsters. The comparison groups consisted predominantly of youngsters evaluated in the same setting as the index sample, so there was control over demographic and other variables that were not the specific focus of study.

There was only one study of suicide victims (27). This pilot study utilized the psychological autopsy method of interviewing relatives and friends of 20 children and adolescents who committed suicide. There were 17 nonsuicidal controls who were matched by age, sex, race and social status to the suicide victims. Significantly higher prevalences of family breakup, violence, emotional problems, and suicidal tendencies were

found in families of the suicide victims than the controls. Although the number of suicide victims was small in this study, the types of family turmoil reported have also been found in many investigations of nonfatal suicidal behavior of children and adolescents (see Table 1).

Among the studies of nonfatal suicidal behavior, three types of family factors have been consistently associated with suicidal behavior. First, there were family stresses involving changes in the composition of the families because of losses, deaths, and parental separation/divorce (13,17,21,23,24,26).

Second, family violence especially involving physical and sexual abuse was highly represented in these studies (21,22,24,26,28). Third, symptoms of family depression and/or suicidal behavior were found to be associated with suicidal behavior of the children and adolescents (13-15,17,22,23,26). The findings of these studies, therefore, suggest that more indepth assessment of these three types of family factor correlates of youth suicidal behavior is warranted.

Life Stress and Social Supports

Most of the previously described studies indicate an association between a variety of family problems and suicidal behavior in children and adolescents but they do not indicate whether the occurrence of these problems during specific periods of the youngster's life is an important element associated with suicidal behavior. Of note is the study by Rosenthal and Rosenthal (24), which indicated that severe stresses of abuse and parental rejection were common in the histories of preschool children who expressed suicidal ideas and/or attempts.

Only a few studies evaluate the relation between developmental periods, social support stresses, and child and adolescent suicidal behavior. Table 2 indicates some of the recent studies that address this issue.

Stanley and Barter (29), in a chart review, compared 38 adolescent psychiatric in-

patients who attempted suicide with 38 psychiatric inpatient controls matched by age and sex. The authors determined that, although there were no differences in incidence of parental loss in the two groups of adolescents, the suicide attempters had a greater incidence of parental loss before they were 12 years old than the nonsuicidal inpatients. Furthermore, parental discord expressed as threats of parental separation and/or divorce were significantly more common for the suicidal adolescents.

A further indication of the relation between lack of social supports and suicide attempts was found when Stanley and Barter followed up on the outcome of these hospitalized adolescents. The previously suicidal adolescents were significantly more likely to express future suicidal behavior ($X^2 = 7.87$, df = 1, p<.01). For example, approximately 50 percent of the previously suicidal adolescents continued to exhibit suicidal behavior after hospital discharge in contrast to four adolescents in the comparison group who showed postdischarge suicidal behavior.

Stanley and Barter compared adolescents who made a suicide attempt after discharge (N=15) with adolescents who were previously suicidal but made no suicide attempts after discharge (N=21) and with initially nonsuicidal adolescents who did not make a suicide attempt after discharge (N=24). The adolescents who made a postdischarge suicide attempt had less adequate peer relations than the other previously suicidal adolescents ($X^2 = 6.61$, df = 1, p<.05) and the nonsuicidal controls ($X^2 = 5.02$, df = 1, p<.05). In addition. the repeat suicide attempters were less likely to be living with their parents after discharge than the other previously suicidal adolescents ($X^2 = 4.007$, df = 1, p<.05) and the nonsuicidal adolescents ($X^2 = 4.7$, df = 1, p<.05). These findings support the notion that early and continued lack of social supports are important factors related to suicidal behavior in adolescents.

Cohen-Sandler, Berman and King (31) provided a longitudinal perspective on the

types and degree of stress in social supports associated with youth suicidal behavior. In this retrospective chart review study, 20 suicidal psychiatric inpatients, 5 to 14 years old, were compared with 21 depressed non-suicidal child inpatients and 35 psychiatric inpatient controls. The two comparison groups, who were hospitalized in the same inpatient unit, provide good controls for the effects of depression and other factors associated with psychiatric inpatients. Only 38 percent of the depressed inpatients engaged in suicidal behavior but 65 percent of the suicidal children were depressed. Thus, depressed children were not necessarily suicidal, and not all of the suicidal children were diagnosed as depressed.

The results revealed that the suicidal children had higher lifetime stress scores than the other children and that by the age of 4-1/2 years, the suicidal children began to experience more family stresses. Furthermore, in the year prior to hospitalization, the suicidal children had significantly higher degrees of stress than the other inpatients. This study suggests that measures of life stress can distinguish suicidal from non-suicidal children and that particular types of stresses were important. Loss of adult support was an important factor and was a consequence of hospitalization of a parent, death of a grandparent, and birth of a sibling. Furthermore, problematic parenting could be inferred from the finding that the suicidal children were more likely to have parents who abused drugs and/or alcohol.

Adam and associates (30) used a high risk population to determine the relation between early losses and suicidal ideation. They interviewed 41 students, referred to a university mental health service, who reported the death of at least one parent before age 16 years, and compared these students to age-, sex-, and religion-matched students at the same clinic; the control group included 35 students with a history of parental separation and/or divorce before 16 years of age and 61 students from intact homes.

The main findings revealed that 50 percent of the subjects with a history of early parental loss were preoccupied with suicide and 18 percent made one or more suicide attempts. There was more suicidal ideation among those subjects who experienced both an early loss and greater family instability after the losses. When there was greater family instability before, during, or after the parental loss, suicidal ideation was more frequent than in those subjects who experienced a restoration of family stability after the loss.

Among the rare studies of adolescent suicide, an innovative approach was taken by Salk and colleagues (32) in their study of prenatal, birth, and neonatal distress factors and their relation to adolescent suicide. The birth records of 52 adolescents who committed suicide before age 20 were compared with the records of 52 adolescents whose births preceded and 52 adolescents whose births followed those of the index subjects. The results indicated that the suicide victims had more prenatal and postnatal problems than the two control groups. The three most common problems found among the suicide victims were respiratory distress for more than one hour after birth, no antenatal care before 20 weeks, and chronic disease of the mother during the pregnancy. The types of chronic diseases for the mothers of the suicide group included chronic persistent anemia, rheumatic fever at age 12, residual heart murmur and arthritis, chronic anxiety with treatment, kidney infection, polio, chronic hypertension, asthma, high blood pressure, repeated gonococcal infection, muscular dystrophy with incapacitation, multiple surgery, extreme obesity, infectious hepatitis, and fibroid uterus. While it was noted that socioeconomic factors or family conflicts did not distinguish the groups, no specific information was provided about specific psychosocial variables before or at the time of birth or during the lifetime of the adolescents. This limitation makes it difficult to evaluate the results with respect to whether the reported features of infant pre- and postnatal distress were indicators of more fundamental features of psychosocial

stresses associated with adolescent suicide. Nevertheless, this study reinforces others that indicate the important relation between early childhood stress and risk for adolescent suicide.

Child and Adolescent Abuse

Although violent deaths attributed to accidents and homicide are the leading causes of death in adolescents (33), the relation between family violence and youth suicidal behavior has been relatively neglected as a topic for investigation. Two studies, described in Table 3, provide information about this issue.

Deykin, Albert, and McNamarra (35) surveyed the Massachusetts Department of Social Services records for evidence of contact with this agency for abuse and/or neglect for 159 adolescents admitted to an emergency service after a suicide attempt. For each of these adolescents, two age- and sex-matched comparison subjects treated for other medical conditions in the same emergency service were studied. The suicide attempters were approximately 5 times more likely to have contact with the Massachusetts Department of Social Service. The strength of this study is that the data from the social service department were unbiased because the contacts were recorded before the subject's emergency room visit and by personnel who had no awareness of the future psychological status of the subjects. The study provides strong evidence for an association between child abuse and/or neglect and adolescent suicide attempts. However, it could not discern whether there were differential effects of abuse or neglect with regard to adolescent suicidal behavior.

An earlier study (34) used a high risk population to evaluate self-destructive behavior in 60 physically abused children, 30 neglected children, and 30 normal children. In this study, Green noted that there was a higher incidence of self-destructive behavior in abused children than in the two comparison groups. Five of the abused children at-

tempted suicide, two made suicide gestures, and eleven exhibited suicidal ideation.

These two studies support the need for further research into the association between family violence and youth suicidal behavior.

Parental Psychiatric Symptoms and Disorders

A number of studies evaluating multifactoral elements associated with childhood and adolescent suicidal behavior have suggested that the parents of suicidal youngsters exhibit a variety of symptoms that include depression, violence, alcohol and drug abuse, and suicidal tendencies (14-17,22-24,26-28). These findings are in keeping with a number of studies of adult suicidal individuals that indicate a consistent relation between family suicidal behavior, family affective disorders, and an individual's suicidal behavior (36-38). Surprisingly, even in view of the important implications of these findings, there has been a relatively minimal number of investigations of the family pedigees for psychiatric problems among suicidal children and adolescents.

Table 4 highlights two recent investigations of types of parental psychopathologies found among suicidal youngsters. These two studies (39,40) suggest that parental symptoms of depression, alcohol abuse, suicidal impulses, and chronic psychiatric illness are important features associated with the histories of adolescents who attempt suicide. These studies suggest that further investigation of the psychiatric problems of parents of suicidal youngsters is warranted.

Another approach of study is to use a high risk population involving the offspring of parents with psychiatric problems. Most of the current research employing this methodology involves children of parents with affective disorders. These studies vary with respect to the types of comparison groups, methods for assessment of the youngsters, ages of the youngsters who were evaluated, time of parental assessment in relation to the parents' degree of illness,

criteria for diagnosing the youngster, and degree of blindness of raters. Nevertheless, consistent trends in the results of these studies have emerged.

Children with an affectively disordered parent are likely to exhibit behavior problems and psychopathology (41-49) and have a distinct risk of developing an affective disorder (47,50-52). Child-rearing patterns of affectively disordered parents include disturbances in mother-child attachment (53), lack of parental encouragement of the child's ability to regulate affects (48,53,54) and unstable caretaking characterized by parental hostility, abuse, rejection, and separations (41,48,49,54,55).

In spite of these findings, the relation between youth suicidal behavior and parental affective disorders and/or suicidal behavior has been a relatively unexplored issue. Table 5 highlights the results of the existing studies. Only two studies of affectively disordered parents (44,47) mention that there is a higher association of suicidal tendencies in children of depressed parents than nondepressed control parents. For example, rates of suicidal ideation of 6.5 percent to 9 percent and lower rates of 0.9 percent to 3 percent for suicide attempts were noted for children of depressed parents. These studies did not evaluate whether there were certain parental characteristics, such as the presence of suicidal tendencies, that distinguished the depressed parents with suicidal youngsters from those depressed parents without suicidal children.

The relation between parental suicidal behavior and quality of child care has been minimally studied. However, some preliminary data exists on the relation between parental suicide attempt and child abuse (see Table 5). Hawton, Roberts, and Goodwin (56) looked in the child abuse bureau records for reports on mothers who attempted suicide, mothers at risk for depression, and control mothers who were not depressed or suicidal. There was significantly more child abuse reported for the suicide attempter mothers than either of the comparison mothers. In the majority of cases, child care problems were identified before the suicide attempt. However, there were no differences among the mothers for other clinical chracteristics such as history of psychiatric treatment, previous suicide attempts, alcoholism, and drug addiction. The main findings suggest that mothers who attempt suicide may be more at risk for serious child care problems involving child abuse than mothers in the general population or for mothers who are at risk for depression. An implication of this study is that there may be a relation between parental violence and parental suicidal behavior. Furthermore, since the children were all 5 years of age or younger, no information was provided about the children's potential for suicidal behavior, a behavior that other studies have associated with child abuse.

There is only one study of the effects of parental suicide on children (57), and it has a number of limitations. The main methodological shortcoming is that data about the children were obtained from the surviving parents rather than by direct assessment of the children. The results indicate a higher frequency of psychiatric referrals for the children of the suicide victims than for comparison children whose parents were recruited from general medical practice and matched to the suicidal parents for age, sex, and marital status. No children of the suicide victims, however, exhibited suicide attempts. Family life was more unstable before the parental suicide than among the comparison families. This feature suggested that the effects on the children may be related not to the parental suicide as a sudden isolated disaster but rather to a chronically stressful environment in which the suicide was a major event. Since this study had serious methodological problems, the results must be considered to be quite tentative.

DISCUSSION

This review of research on family variables and social supports as risk factors for suicidal behavior in children and adolescents indicates that there is much variation in the re-

search methods, populations studied, types of suicidal behavior investigated and manner in which statistical results are reported. In fact, most studies are of nonfatal suicidal behavior and, therefore, most of the findings must be considered to be about putative risk factors. However, a number of consistent trends have emerged when the issues are appraised from the multiple perspectives of investigations of suicidal youngsters, offspring of parents with psychopathology, and retrospective accounts of adults.

The studies reviewed in this report support the notion that the nature of family characteristics and social supports are important factors associated with youth suicidal behavior. Family factors associated with high risk are related to experiences characterized by the presence of intense levels of stress. Such stress, suggested by the investigations of children, adolescents, and adults, appears to be chronic and/or occurs at an early phase in the life of the individual. An important implication of these findings is that future research on family risk factors for youth suicidal behavior should adhere to a developmental perspective. Such an orientation can facilitate the examination of continuities and discontinuities in family variables that may be precursors to youth suicidal behavior.

Studies suggest that a variety of stresses exist. One type is related to loss of social supports through death, parental separation and/or divorce, mobility involving school changes, and problems with peer relationships. A second type of stress is associated with variability in parental functioning that is liked to parental psychopathology. This affects the quality of the parent-child interactions and/or may necessitate the temporary absence of the parent who requires intervention that removes him or her from the home. It also involves violation of personal boundaries best characterized when a youngster is witness to, or the victim of, sexual or violent abuse.

Important shortcomings of the studies described in this report are that they do not address hypotheses about the mechanisms

underlying the relation of these family characteristics and social supports to youth suicidal behavior. For example, early loss of social supports may be an important stress that affects the development of personality characteristics and/or biological systems and thereby enhances chronic vulnerability to suicidal behavior. On the other hand, an acute loss of social supports may alter existing psychological and/or biological functioning. This may create a temporary and an acute crisis in ego functioning that affects the quality of a youngster's affect regulation, impulse control, judgment, cognition, and fantasies.

Another mechanism may involve genetic vulnerability. In this case, stress involving features of parent-child discord may be of secondary importance. For example, the mechanism involving the relation between parental violent abuse and youth suicidal behavior may be determined by some factor, such as a biological correlate, and the stressful parent-child experiences may be of secondary value. In connection with genetic vulnerability, there must be an interaction with levels of experiential stress to promote risk for suicidal behavior.

Evaluation of these mechanisms requires different research strategies than those used in the investigations reviewed in this report. Prospective longitudinal research designs of high risk populations are indicated. Such studies may evaluate the long-term outcome of children who previously had suicidal tendencies, as well as evaluate children who are the offspring of parents prone to abuse, affective disorders, separation/divorce, or death. The time required and cost involved in these investigations can be manageable, and the yield of potentially valuable information may be great.

From a more theoretical perspective, youth suicidal behavior is a multidetermined symptom with many associated factors. The studies described in this review focus mainly on risk factors and do not address issues involving protective variables against suicidal behavior. Factors associated with invul-

nerability of an individual, such as ways in which adaptive skills can be enhanced, must be documented. Such an approach may be consistent with a theoretical framework for youth suicidal behavior that suggests opposing vectorial components related to the expression of the suicidal symptom. For example, qualities of a supportive individual such as an ability to provide empathy, consistent availability, capacity to set limits and offer structure, and ability to gratify individual needs to enhance self-esteem may be important social support vectors that prevent suicidal behavior. The factors described in this review such as family disorganization, parental psychopathology, and family violence are vectors that enhance suicidal behavior. This model of opposing vectors, illustrated below, may elucidate approaches to assessment and interventions for suicidal risk.

Finally, important implications for prevention of suicidal behavior among children and adolescents can be derived from these studies. There is a need for efficient screening techniques to identify high risk families. Also of value would be screening devices for identifying high risk children and adolescents in such situations. Another approach is to plan interventions that focus on ameliorating family disorganization and parental psychopathologies so that stress may decrease and stability may be enhanced.

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Risk Factors for Increased and Protective Factors for Decreased Youth Suicidal Risk

Increased Suicidal Risk	← Risk Factors For: ←	Youth Suicidal Risk	→ Protective Factors For: →	Decreased Suicidal Risk

1. Loss of Social Support
   a. Death
   b. Parental Separation/Divorce
   c. School Changes
   d. Peer Problems

2. Variability in Parental Functioning:
   a. Affective Disorders
   b. Suicidal Tendencies
   c. Alcohol Abuse

3. Violence
   a. Sexual Abuse
   b. Physical Abuse

1. Presence of Social Support
   a. Empathy
   b. Constant Availability
   c. Limit Setting
   d. Environmental Structure

2. Individual Adaptive Skills
   a. Appraisal of Stress
   b. Seek Alternative Solutions
   c. High Frustration Tolerance
   d. Self-esteem
   e. Good Impulse Control

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Studies of Multiple Factors Associated with Youth Suicidal Behavior

Citation	Definition of Suicidal Behavior	Population Studied	Sample Size	Comparison Group	Time of Study	Data Source	Test Results	Statistics
(13) Teicher, J. D. and Jacobs, J. Adolescents who attempt suicide: preliminary findings. Am. J. Psychia. 1966; 122:1248-1257.	None given	20 adolescent inpatients with suicide attempts.	70	50 non-suicidal adolescent inpatients matched for age, race, sex, SES	1964	Interviews of adolescents and parents.	44% of suicide attempts had a relative or friend who attempted or committed suicide and in 25% there was a suicide attempt by a parent. Progressive social isolation over time.	No comparison between samples described.
(14) Pfeffer, C.R., Conte, H.R., Plutchik, R., and Jerrett, I. Suicidal behavior in latency-age children: an empirical study. J. Amer. Acad. Child Psychia. 1979;18:679-692.	Thoughts or acts which may lead to death or serious injury. A spectrum of suicidal behavior was defined that included non-suicidal,suicidal ideas, threats, mild and serious attempts.	42 suicidal children.	58 children 6-12 years old; psychiatric inpatients.	16 nonsuicidal children	1976-1978	Interviews of children and parents.	No difference in parental separations of suicidal (94%) and nonsuicidal (75%) children. Mothers of suicidal children more depressed. An association between severity of child suicidal behavior and parental depression and suicidal tendencies. 48% suicidal children and 19% non-suicidal children worried about poor school performance.	t=2.11, p<.05 t=2.61, p<.01 t=2.01, p<.01
(15) Pfeffer, C.R., Conte, H.R., Plutchik, R., Jerrett, I. Suicidal behavior in latency-age children: an outpatient population. J. Amer. Acad. Child Psychia. 1980; 19:703-710.	Suicidal behavior included thoughts and/or acts which may lead to death or self-injury. A spectrum of suicidal behavior was defined.	13 suicidal outpatients.	39 child psychiatric outpatients, age 6-12 years in municipal hospital center.	26 non-suicidal outpatients.	1977-1979	Interview of parents and children.	No difference in parental depression, psychiatric hospitalization, alcohol/drug abuse, marital separations, parental violence, and child abuse in suicidal children. Suicidal children had more parental suicidal ideation than nonsuicidal children.	p<.05
(16) Carlson, G.A. and Cantwell, D.P. Suicidal behavior and depression in children and adolescents. J. Amer. Acad. Child Psychia. 1982; 21:361-368.	Suicide attempt was an act leading to self-injury.	22 youngsters attempted suicide.	102 children and adolescents in psychiatric inpatient and outpatient care.	80 nonsuicidal attempters.	1977-1978	Interview of children and parents.	59% suicide attempts had families with depression and alcoholism compared to 50% in non-attempter group - no difference between groups.	Not given.
(17) Garfinkel, B.D., Froese, A. and Hood, J. Suicide attempts in children and adolescents. Amer. J. Psychia. 1982; 139:1257-1261.	Deliberate self-inflicted injury with conscious decision to die.	505 children and adolescents in emergency service for suicide attempts (mean age 15.3 years - range = 6-21 years).	1010 children and adolescents.	505 non-suicidal youngsters matched for age, sex, and time of evaluation.	1970-1977	Hospital chart review.	Suicide attempters had more family history of mental illness (51.6%, N=442) than non-attempters (16.4%, N=452). Suicide attempters had more family history of medical illness (51.5%, N=445) than non-attempters (44.5%, N=468). Suicide attempters had more family history of suicidal behavior (8.3%, N=443) than non-attempters (1.1%, N=442). Suicide attempters had more paternal unemployment (14.1%, N=242) than non-attempters (6.7%, N=193). Suicide attempters had more parental absence (n=442) than non-attempters (N=437).	x^2=122.3, df=1, p<.01 x^2=3.96, df=1, p<.05 x^2=23.95, df=2, p<.01 x^2=6.89, df=1, p<.01 x^2=129.3, df=3, p<.001

Table 1.

Studies of Multiple Factors Associated with Youth Suicidal Behavior

Citation	Definition of Suicidal Behavior	Population Studied	Sample Size	Comparison Group	Time of Study	Data Source	Test Results	Statistics
(18) Miller, M.L., Chiles, J.A., and Barnes, V.E. Suicide attempts within a delinquent population. J. Consulting and Clinical Psychol. 1982: 4:491-498.	A nonfatal act in which the individual deliberately causes self-injury.	50 adolescents admitted to correctional facility for delinquent behavior and who made suicide attempts (ages 13-15 years).	170	120 nonsuicidal delinquents in same facility matched for age, sex, race, SES.	1980	Interviews of adolescents.	Suicide attempters (mean = 4.8) had greater parental conflict than non-attempters (mean 2.5). No difference in parental absence for attempters (63.3%) or non-attempters (72.2%).	p<.01
(20) Pfeffer, C.R., Solomon, G., Plutchik, R., Mizruchi, M., and Weiner, A. Suicidal behavior in latency-age psychiatric inpatients: a replication and cross validation. J. Amer. Acad. Child. Psychia. 1982;21:564-569.	Thoughts or acts which may lead to death or self-injury. A spectrum of suicidal behavior defined.	51 suicidal children.	65 child psychiatric inpatients, 6-12 years old.	14 nonsuicidal children.	1979-1981	Interviews with children and parents.	No association between spectrum of suicidal behavior and number of children in family, parental violence, medical illness, psychiatric hospitalization, alcoholism, suicidal behavior, history of prenatal and neonatal problems.	
(21) Kosky, R. Childhood suicidal behavior. J. Child Psychol. and Psychia. 1983; 24:457-468.	Self-injurious behavior with intent to die.	20 suicidal attempter inpatients psychiatric inpatients (age range 5.2-14 years, mean age 11 years).	70 children	50 psychia-inpatients who were not suicidal.	1975-1978	Clinical psychiatric evaluations.	Family losses were greater for suicidal (70%) than non-suicidal (20%) children. 60% suicidal children living with one parent but 82% non-suicidal living with both parents. Suicidal children from lower income families. No difference in number or ordinal position of children in families. 15% suicidal children's parents and 6% nonsuicidal children's parents attempted suicide. Psychiatric or physical illness high in both groups. Intrafamilial aggression higher for suicidal (60%) than non-suicidal children (4%). High rate of pre and perinatal problems in both groups.	$x^2=29.2$, df=2, p<.01 $x^2=12.6$, df=2, p<.01 $x^2=10.4$, df=3, p<.05 No significant difference p<.01

Table 1 continued.

Studies of Multiple Factors Associated with Youth Suicidal Behavior

Citation	Definition of Suicidal Behavior	Population Studied	Sample Size	Comparison Group	Time of Study	Data Source	Test Results	Statistics
(22) Pfeffer, C.R., Plutchik, R., and Miz-ruchi, M.S. Suicidal and assaultive behavior in children: Classification, measurement and interrelations. Am. J. Psychia. 1983; 140:154-157.	Thoughts or acts which may lead to death or self-injury.	11 suicidal only children and 48 assaultive suicidal children.	102 children, 6-12 years old, in psychiatric in-patient and out-patient treatment, mean age 9 years.	26 assaultive only children and 17 non-assaultive, nonsuicidal children.	1976-1979	Clinical inter-view of children and parents.	Assaultive-only (3.0) and assaultive-suicidal (3.8) children experienced more parental assaultive behavior than nonas-saultive-non-suicidal (1.8) and suicidal only (2.0) children. Assaultive-suicidal (0.9) and suicidal only (0.5) children ex-perienced more parental suicidal be-havior than nonassaultive-nonsuicidal (0) and assaultive only (0.1) children.	F=5.7, df=3, 101, p<.001 F=4.3, df=3, 101 p<.01
(23) Pfeffer, C.R., Zuck-erman, S., Plutchik, R., and Mizruchi, M.S. Suicidal behavior in normal school children: a comparison with child psychiatric in-patients. J. Amer. Acad. Child Psychia. 1984; 23:416-423.	Thoughts or acts which may lead to death or self-injury.	12 suicidal school children and 51 suicidal inpatients.	101 school children and 65 psychiatric in-patients matched for age, sex, race. Mean age of school children 9.7 years and inpatients 10.1 years.	89 nonsuicidal school children and 14 non-suicidal inpatients.	1979-1982	Interview of children and parents.	Spectrum of suicidal behavior scores for mothers were lower for nonsuicidal school children than suicidal school children. 26% of school children's mothers reported suicidal ideas. 0% school children's mothers attempted suicide. 15.6% inpatients' mothers had suicidal acts. When hospitalization status was matched, children with suicidal ideas compared to nonsuicidal children had more: parental separation parental depression parental psychiatric hospitalization maternal suicidal ideas	t=2.42 p<.02 F ratio = 4.56 p<.05 F ratio = 8.38 p<.01 F ratio = 6.86 p<.01 F ratio = 13.37 p<.001
(24) Rosenthal, P.A., and Rosenthal, S. Suicidal behavior in pre-school children. Am. J. Psychia. 1984; 141:520-525.	Serious injury or at-tempt to injure self.	16 suicidal children in psychiatric out-patient clinic.	32 children age range 2.5-5 years, mean 3.5 years.	16 nonsuicidal children in psychiatric out-patient clinic. Matched for age, sex, race, SES.	1981-1982	Interview of parents and child.	More child abuse or neglect in suicidal (81%) than non-suicidal (38%) children. Suicidal children were more rejected (81%) than nonsuicidal (25%) children.	X^2=4.86 df=1, p<.05 X^2=8.03, df=1, p<.005
(25) Taylor, E.A., Stansfeld, S.A. Children who poison themselves. I. A clini-cal comparison with psychiatric controls. Brit. J. Psychia. 1984; 145:127-135.	Deliberate self-poisoning.	50 children ad-mitted as medi-cal emergency for self-poison-ing (age 8-17 years).	100	50 nonsuicidal ad-mitted to psychiatric clinic. Matched for age and sex.	Not given.	Records.	Greater disturbed mother-child relations for suicidal (57.4%) than nonsuicidal children (34.0%). Greater disturbed father-child relation for suicidal (60.4%) than nonsuicidal (24.5%) of children. More lack of family warmth in suicidal (60%) than nonsuicidal (8%) children. No family differences between suicidal and nonsuicidal for family mental distur-bance, inadequate living conditions, in-adequate communication or control, stresses.	p<.05 <.002 p<.004

Table 1 continued.

Studies of Multiple Factors Associated with Youth Suicidal Behavior

Citation	Definition of Suicidal Behavior	Population Studied	Sample Size	Comparison Group	Time of Study	Data Source	Test Results	Statistics
(26) Myers, K.M., Burke, P. and Mc-Cauley, E. Suicidal behavior by hospitalized preadolescent children or a psychiatric unit. J. Amer. Acad. Child Psychia. 1985; 24:474-480.	Same as in studies by Pfeffer, et al.	61 suicidal children admitted to psychiatric in-patient unit.	348 child in-patients.	287 nonsuicidal inpatients.	1979-1982	Chart review.	Suicidal children had more family history of suicidal behavior (25%) than non-suicidal children (6%). Suicidal children had more father abuse (36%) than nonsuicidal children (16%). Suicidal children experienced more recent stressful life events than non-suicidal children.	$X^2=4.50$, df=1, p<.04 $X^2=5.02$, df=1, p<.03 $X^2=6.32$, df=1, p<.02
(27) Shafii, M., Carrigan, S., Whittinghall, J.R., Derrick, A. Psychological autopsy of completed suicide in children and adolescents. Am. J. Psychia. 1985; 142:1061-1064.	Suicide was self-inflicted death.	20 children and adolescents, age 12-19 years committed suicide.	37	Non-patients. 17 control matched for age, sex, race, SES.	1980-1983	Interview families of suicide victims and controls.	Suicide victims had more exposure to family or peer suicidal behavior (65%) than controls (18%) Suicide victims had more family emotional problems (80%) than controls (24%). Suicide victims had more parental absence and abuse (55%) than controls (29%).	$X^2=6.12$, df=1, p<.008 $X^2=5.14$, df=1, p<.02 $X^2=3.20$, df=1, p<.04
(28) Pfeffer, C.R., Newcorn, J., Kaplan, G., Mizruchi, M.S., and Plutchik, R. Suicidal behavior in adolescent psychiatric inpatients. Presented at 1986 Annual Meeting of the American Psychiatric Association, Washington, D.C.	Thoughts and/or acts which may lead to death or injury of self. A spectrum of suicidal behavior was defined.	117 suicidal adolescent inpatients.	200 adolescent inpatients, age range = 13-19 years.	83 nonsuicidal adolescent inpatients.		Chart review.	History of suicidal behavior in families and peers noted for entire group. Severity of suicidal behavior associated with: conflicts with boy/girlfriend friend sexual abuse recent school change family assaultive behavior recent parental arguments recent physical abuse	r=.249, p<.001 r=.213, p<.005 r=.188, p<.01 r=.180, p<.005 r=.176, p<.02 r=.162, p<.05

Table 1 concluded.

Studies of Life Stress and Social Supports and Youth Suicidal Behavior

Citation	Definition of Suicidal Behavior	Population Studied	Sample Size	Comparison Group	Time of Study	Data Source	Test Results	Statistics
(29) Stanley, E.J., and Barter, J.T. Adolescent suicidal behavior. Amer. J. Orthopsychia. 1970; 40:87-96.	Not given.	38 Adolescent psychiatric in-patients with suicide attempts.	76	38 Adolescent psychiatric in-patients without suicide attempts, age and sex matched.	1962-1965	Chart review.	No difference in incidence of parent loss. Greater percentage of parent loss before age 12 years for suicide attempters (16 out of 17) than controls (9 out of 16). More threats of parental separation or divorce in suicide attempters. No difference in peer relations, school performance, delinquency, sexual adjustment.	$p < .026$ $X^2 = 4.548$, $df = 1, p < .05$
(30) Adam, K.S., Loh-renz, J.G., and Harper, D. and Streiner, D. Early parental loss and suicidal ideation in university students. Can. J. of Psychia. 1982; 27:275-281.	Suicidal ideation included moderate to high levels of frequency, intensity and/or duration of wishes to kill oneself.	41 Students referred to university mental health service reporting the death of one or both parents before age 16 years. AGes of students were 17-27 years (mean age 20.9 years).	137	35 Students in same mental health service with history of parental divorce or permanent separation prior to age 16 years and 61 students in mental health service from intact homes. These controls matched for age, sex, religion.	1967-1971	Semi-structured clinical interview.	Significantly more suicidal ideation in 76 subjects with early loss than controls. Suicidal ideation not related to any particular age of time of loss. Death of father and death of both parents greater in subject with suicidal ideation than those without suicidal ideation. Greater family instability after death for those with suicidal ideation than those without. Greater family instability after separation/divorce for those with suicidal ideation than without.	$X^2 = 18.81$, $df = 2, p < .001$ $X^2 = 8.15$, $df = 2, p < .025$ $X^2 = 16.64$, $df = 2, p < .001$ $X^2 = 9.52$, $df = 2, p < .01$
(31) Cohen-Sandler, R., Berman, A.L., and King, R.A. Life stress and symptomatology: determinants of suicidal behavior in children. J. Amer. Acad. Child Psychia. 1982; 2:178-186.	Engaged in overt, potentially self-destructive behavior and verbalized either intent to inflict lethal self-harm or a wish to kill self.	20 suicidal psychiatric in-patients ages 5-14 years.	76	21 depressed, nonsuicidal in-patients and 35 psychiatric in-patient controls who were neither depressed or suicidal, all matched for age, sex, race.	1977-1979	Chart review.	No difference in family size in the groups. Suicidal more likely to be first born. Suicidal children more likely to have parents who abused alcohol and/or drugs. Suicidal children had higher life stress score (mean = 486.6) than depressed children (mean = 329.0) or controls (mean = 360.2). Suicidal children experienced more stress (mean 162.7) than depressed (mean 74.2) and controls (mean 84.4) in the year prior to admission. By age 4-1/2 years, suicidal children experienced more sibling births and parental divorce. In lifetime suicidal children experienced greater number of marital separations, divorce, remarriages (mean 2.35) than depressed (mean 0.86), or control (mean 1.57).	$X^2 = 4.52$, $df = 1, p < .02$ $X2 = 4.86$, $df = 1, p < .02$ $F = 6.80$, $p < .005$ $F = 9.00$, $p < .0005$ $X^2 = 8.00$, $df = 1, p < .005$, and $X^2 = 3.78$, $df = 1. p < .05$ $F = 4.01$, $df = 2.73$, $p < .025$

Table 2.

Studies of Life Stress and Social Supports and Youth Suicidal Behavior

Citation	Definition of Suicidal Behavior	Population Studied	Sample Size	Comparison Group	Time of Study	Data Source	Test Results	Statistics
(32) Salk, L., Lipsett, L., Sturner, W.Q., Reilly, B.M., Levat, R.H. Relationship of maternal and perinatal conditions to eventual adolescent suicide. The Lancet 1985: March 16.	Medical examiner classification of suicide as cause of death.	52 adolescents who committed suicide before age 20 years.	156	Control 1, 52 closest birth preceding subject matched for sex, race, hospital of birth, and Control 2 52 closest birth following subject matched for sex, race, and hospital of birth. No difference in SES.	1975-1983	Hospital and medical examiner records.	Greater number of risk factors of subjects (mean = 4.62, S.D. = 4.96), then Control 1 (mean 3.52, S.D. = 3.72) or Control 2 (mean = 3.67, S.D. = 3.71).	Cases vs. Control 1, p<.01 Cases vs. Control 2, p<.05 Cases vs. Control 1 and 2, p<.01

Table 2 concluded.

Studies of Abuse and Youth Suicidal Behavior

Citation	Definition of Suicidal Behavior	Population Studied	Sample Size	Comparison Group	Time of Study	Data Source	Test Results	Statistics
(34) Green, A.H. Self-destructive behavior in battered children. Am. J. Psychia. 1978; 135:579-582.	Self-destructive behavior included self-cutting, self-burning, hair pulling, head banging, suicide attempt.	60 physically abused children; 5-13 years, Black, Hispanic, low SES.	120 children	30 neglected children from family court, 30 "normal" Children from pediatric outpatient volunteers, age, sex, SES matched.	1976	Interview of mother or guardian.	Higher incidence of self-destructive behavior in abused children (40.8%) compared to in neglected children (17.2%) or normal children (6.7%). The difference in self-destructive behavior between abused and neglected children was significant.	x^2 = 13.52, df=2, p<.01 p<.05
(35) Deykin, E.Y., Albert, J.J., and McNamarra, J.J. A pilot study of the effect of exposure to child abuse or neglect on adolescent suicidal behavior. Am. J. Psychia. 1985; 142:1299-1303.	Suicide attempt was any intentional, self-inflicted injury accompanied by a statement of suicidal intent.	159 adolescents admitted to an emergency service for a suicide attempt, ages 13-17 years.	477	2 age and sex matched comparison subjects in the same week's emergency room and treated for other medical conditions.	1979-1982	Emergency room records and records of the Massachusetts Department of Social Services.	Suicide attempters were 3-6 times more likely to have social service contact. The suicide attempters had a significantly higher relative risk of having a previous social service department contact. The estimated proportion of suicide attempts explained by events requiring social service department assistance.	Odds ratio=4.2, 95% confidence level=2.2-8.1, p<.001 12% for both sexes

Table 3.

Parents of Suicidal Youth

Citation	Definition of Suicidal Behavior	Population Studied	Sample Size	Comparison Group	Time of Study	Data Source	Test Results	Statistics
(39) Tishler, C.L., and McKenry, P.C. Parental negative self and adolescent suicide attempts. J. Amer. Acad. of Child Psychia. 1982; 21:404-408.	Suicide attempt included situations in which a person performs a life-threatening behavior with the intent of jeopardizing life.	42 adolescents, ages 12-18, who were seen in a hospital emergency service for attempted suicide. Mean age 15.6 years. Their parents also evaluated.	88	46 nonsuicidal adolescents admitted for minor injuries to the same emergency service. Their parents also evaluated.	1979-1980	Questionnaires administered to the adolescents and their parents.	Fathers of suicide attempters had: Lower self-esteem scores (1.26) than nonattempters (0.84); Were more depressed (0.47) than nonattempters (0.20). Abused alcohol more (3.08) than nonattempters (2.00). No difference for attempter and nonattempter fathers for suicidal ideation or anxiety. Mothers of attempters: Were more anxious (0.90) than nonattempters (0.62). Abused alcohol (2.26) more than nonattempters (1.74). Had more suicidal ideation (34%) than nonattempters (9%). No difference for attempter and nonattempter mothers for depression or self-esteem.	$p<.05$ $p<.05$ $p<.05$ $p<.01$ $p<.05$ $p<.05$
(40) Friedman, R.C., Corn, R., Hurt, S.W., Fibel, B. Schalich, J., and Swirsky, S. Family history of illness in the seriously suicidal adolescent: a life-cycle approach. Amer. J. Orthopsychia. 1984; 53:390-397.	No definition given.	16 adolescent inpatients with serious suicide attempt and depression.	34	18 Non-suicidal adolescent inpatients with depression.	1982-1983	Parental interview SADS and family history using Family History-RDC.	No difference in family histories for affective disorders or suicide attempts or suicide for attempters and nonattempters. Suicide attempters had family with a chronic psychiatric illness before patient was 14 years (63%) more than non-attempters (22%).	$p<.02$

Table 4.

Suicidal Behavior of Children with Depressed and/or Suicidal Parents

Citation	Definition of Suicidal Behavior	Population Studied	Sample Size	Comparison Group	Time of Study	Data Source	Test Results	Statistics
(44) Welner, Z., Welner, A., McCrary, D. and Leonard, M.A. Psychopathology in children of inpatients with depression: a controlled study. J. of Nervous and Mental Disease 1977; 164:408-413.	No definition given.	75 white children of 29 parents hospitalized for depression.	227	152 normal children of 41 parents who were not hospitalized or depressed.	1975	Interviews of parents.	7% of children of depressed parents met diagnostic criteria for depression. Suicidal ideas more common in probands (9%) than control children (1%). No difference in suicide attempts among probands (3% or control children (1%).	p<.02
(47) Weissman, M.M., Pursoff, B.A., Gammon, G.D., Merikangas, K.R., Leckman, J.F., and Kidd, K.K. Psychopathology in the children (ages 6-18) of depressed and normal parents. J. Am. Acad. Child Psychia. 1984; 23:78-84.	No definition given.	107 children 60 depressed parents (ages of children 6-18 years).	194 children	87 children of 40 normal parents (ages of children 6-18 years).		Questionnaire administered to parent about child.	Children of depressed parents had more symptoms (33.6) than children of normal parents (16.1) and DSM III diagnoses (24.2 and 8.1 respectively). Common DSM III diagnoses of children of depressed parents were: major depression (13.1%), attention deficit disorder (10.3%), and separation anxiety (10.3%). Suicidal behavior was reported in children of depressives but not of normals. 6.5% of children of depressives reported suicidal ideas. 0.9% of children of depressives threatened suicide. 0.9% of children of depressives attempted suicide.	p<.01 p<.01
(56) Hawton, K., Roberts, J. and Goodwin, G. The risk of child abuse among mothers who attempt suicide. Brit. J. of Psychia. 1985; 146:486-489.	No definition given.	114 mothers with at least one child age 5 or under, in emergency service for suicide attempt.	223	45 control mothers who gave birth in same place and times as proband mothers, and 64 mothers, with a child age 5 or under who were at for depression.	1981-1982	Local child abuse index records and records of local children's hospital.	Abuse documented in 20% of attempter mothers and 0% of controls. Abuse greater before attempts in attempt mothers than the mothers at risk for depression.	$x^2=6.40$ df=1, p<.01 $x^2=3.69$ df=1, p<.05
(57) Shepherd, D.M. and Barraclough, B.M. The aftermath of parental suicide for children Brit. J. Psychia. 1976; 129:267-276.	Documented suicide.	36 children whose parent committed suicide when child was 2-17 years old.	186	150 children whose parents were matched with the suicidal parent for age, sex, marital status and drawn from general practice registers.	1970	2 interviews with surviving parents, one interview a few weeks after death, second interview was 5-7 years after death.	No child of suicide victim attempted suicide, one child made threats. Higher frequency of psychiatric referrals for children of suicide victims than controls. Marital separation and disharmony greater before suicide (55%) than in controls.	$x^2=6.32$ df=1, p<.02 $x^2=8.96$ df=1, p<.01

Table 5.

CONTAGION AS A RISK FACTOR FOR YOUTH SUICIDE

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INTRODUCTION

"The sole approach to the youth suicide problem lies in recognizing beforehand the susceptible individuals and in their proper management." Harry Bakwin reached this conclusion in his seminal article entitled, "Suicide in Children and Adolescents" in 1957 (1). In 1987, we are still struggling with these tasks and, during the intervening three decades, our task has expanded enormously. Suicide has become the third leading cause of death for persons in this country aged 15 to 24 (2) and reducing youth suicide is a priority objective for the Department of Health and Human Services (3). We are still working to clarify risk factors for youth suicide in order to identify "susceptible individuals" and develop effective suicide prevention programs. In this paper we focus on the processes by which one suicide becomes a compelling model for successive suicides or facilitates other suicides. We review two bodies of literature: (1) reports of suicide epidemics or clusters for evidence of contagion and possible mechanisms and (2) research on the effects of suicide stories in the mass media. The term "suicide contagion" has been used to describe this pattern.

Until recently, contagion as a risk factor for youth suicide had not stimulated much public awareness or research interest. However, widely publicized clusters of youth suicides in places such as Plano, Texas; Westchester County, New York; and Omaha, Nebraska, have focused attention on the possible role of contagion in suicides that occur close together in time and space.

Suicide contagion is a hybrid term that appends to suicide the medical meaning of contagion as the transmission of a disease through direct or indirect contact. Although suicide is not a disease, per se, applying the infectious disease model to suicide contagion can clarify for whom and through what sorts of contact the likelihood of suicide is increased. Components of the infectious disease model that illustrate analogous factors in suicide contagion are host susceptibility, modes of transmission, degree of virulence, and dose dependency.

Host susceptibility measures an individual's intrinsic ability to ward off or resist an illness. For example, an immunized child would not be very susceptible to measles, even if exposed to an outbreak of measles at school.

For adolescents, host susceptibility to suicide is multidetermined. Genetics play a part--we know that depression is a common antecedent to suicide and that some forms of depression have a strong genetic component. Good baseline emotional health might be like an effective immune system in being highly capable of warding off challenges. Finally, the cognitive and affective ability to identify and speak about feelings may make an individual less susceptible to suicide.

Infectious agents have different modes of transmission. We can classify routes as direct (person-to-person) or indirect. Person-to-person spread may be implicated in subsequent teen deaths following the suicide of another member of the same social network. The suicide of someone famous, such as Marilyn Monroe, may be an indirect exposure to suicide for millions of people. Thus, various suicide contagion pathways may exist: direct contact or friendship with a victim, word-of-mouth knowledge, and indirect propagation through the media.

Infective agents differ in their degree of virulence. Beta-hemolytic streptococci are more virulent than other types of streptococci. Similarly, for youth suicide, the virulence of the agent may be greater when the first death in a potential cluster is that of a highly esteemed role model, such as the class president, rather than a loner who was always perceived as odd or disturbed.

The likelihood of an infection is dose dependent. Not all persons who consume salad contaminated with staphlococci will get food poisoning, but those who had two helpings are much more likely to become ill than the ones who only tasted the salad. The risk to an individual youth for suicide may increase as the number of suicides increases in his or her peer group or in the community. The seventh youth suicide in a widely publicized series of seven is likely to have been more exposed to suicide than his predecessors and, in effect, to have received a higher dose.

Infectious processes, though, can result in a wide variety of clinical effects ranging from inapparent infection to severe clinical illness or death (4). Persons susceptible to suicide contagion may have an "inapparent infection" and not be registered among suicides or suicide attempters. The consequences of suicide contagion may be inapparent, either because the illness was arrested before the appearance of effects (suicides or suicide attempts) or because the apparent effect was unobserved, ignored, misclassified or unreported (an actual suicide recorded on the death certificate as an accident). Inapparent infections are not available for study and their absence may result in an understatement of the significance of contagion as a risk factor for youth suicide.

Evidence of Suicide Epidemics or Clusters

If contagion does play a role in suicidal behavior, one might expect clusters of suicides to occur. That is, an excessive number of suicides would occur in close temporal and geographic proximity. Evidence for suicide contagion has been reported in accounts of epidemic suicides from ancient times through the 20th century. In England in 665, distraught persons crowded to the seaside cliffs and threw themselves over. They preferred a speedy death to the lingering torture from the plague which was rampant at that time. In 1190 in York, over 500 Jews committed suicide to avoid religious persecution. In 1928, an epidemic of 150 suicidal drownings in the Danube occurred during 2 months. The epidemic was finally controlled by establishing a "suicidal flotilla," a boat squadron to patrol the river (1). Youth have not been immune to epidemic suicide. Between May 1908 and October 1910, 70 children in one school district in Moscow killed themselves (5).

More detailed accounts of epidemic or cluster suicides can be examined for characteristics that suggest that suicide contagion may be part of the etiology. Table 1 summarizes the reports that we have compiled from the literature, newspaper accounts, and our personal knowledge. There is no sys-

tematic surveillance or reporting system for suicide clusters. These accounts have selection biases that affect their representativeness. They are merely descriptive studies. No comparison groups or statistical analyses are included. Furthermore, most of these studies describe suicides among adults. Youth may be differentially exposed and susceptible to the characteristics of suicide contagion presented in these reports.

A number of studies highlight the choice of identical methods among suicides in a cluster (6-12). Most striking is Walton's report of an unintentional death by antifreeze poisoning, which was headlined in the evening paper. Five suicides from antifreeze poisoning ensued. One decedent was found on the bed next to the newspaper featuring the article; another told her husband before here death that she drank the antifreeze because she read about it in the paper (6). Seiden described five cases of suicide by jumping that occurred within a month on a college campus. Each successive case was given extensive news coverage (7). In these two series, as in a report of suicides in Great Britain by burning (9), decedents were not acquaintances, and the route of contagion was presumed to be indirect via the mass media or word-of-mouth.

Subsequent suicides in clusters in which the victims use flamboyant methods automatically access a degree of celebrity. This notoriety may convey the illusion of immortality in a way that counteracts the potential suicide's more realistic appreciation of the finality of death. Nalin has described the "aura" that a particular method of suicide may assume. In Guyana, suicide by malathion insecticide poisoning became associated, through press reports, with unrequited love. Suicides, in this case, were making a publicly recognizable statement through their choice of method. The potential suicide attempter also may have imagined that attendant newspaper publicity would manipulate others (12).

In reviewing epidemic suicide, Forbes Winslow observed that "all human actions

are under the influence and power of example more than precept." He attributed the outbreak of suicides to "the force of imitation being so great and acting prejudicially on weak-minded persons or on those predisposed to mental disorders" (13). Another 19th century writer who considered the role of the potential suicide's intrinsic vulnerability and the impact of outside events said that "...it is difficult to determine how much was due to the psychopathic tendencies of the actors ... and how much to the external circumstances which probably served only as the spark applied to the inflammable material" (11). Contemporary researchers have also considered the impact of poor baseline emotional functioning on susceptibility suicide in a cluster (6,9,14-16). Emotional well-being, then, could lessen and emotional disability increase host susceptibility. However, the proportion of non-cluster suicides with psychiatric problems (17) may not differ from proportions reported in case series of cluster suicides.

The mechanisms most often associated with epidemic suicides among those who are susceptible are imitation and identification (15, 18-22). Imitation represents the action derived from an identification with another person's needs, the identification being conscious or unconscious (23). Ward and Fox studied a suicide epidemic on an Indian reserve, during which 8 adolescents and young adults died from among the 37 families in that community. The researchers examined the way that one suicidal youth can serve as a role model to be imitated: "The stimulus of one suicide could suggest to others a similar mode of escaping an intolerable life situation" (14). The role model also may be an unintentional death, as in the series of antifreeze suicides reported by Walton (6). Sacks and Eth explored the idea of pathological identification in a cluster of suicides among hospitalized patients. They held that these pathological identifications were "fostered by the individual's past history that may contain many points of common experience" (19).

Although imitation and identification may be powerful mechanisms, emphasizing these components exclusively, as in the term "copycat suicides," trivializes the many other factors contributing to suicide. The simplistic notion that one person merely copied another's suicide does not explain why the suicide was copied by that particular individual and not be hundreds of others who were similarly exposed. Suicides remain multidetermined events even when they occur in clusters. Explaining cluster suicides by imitation alone does not take each decedent's susceptibility and stresses into account.

Some researchers have considered the social environment and the ways in which disruptions in that environment or negative social expectations within the milieu may foster cluster suicides. Rubenstein looks at rapid sociocultural change as an environmental setting that fostered clusters of youth suicides (20). Cluster suicides in hospital settings have been attributed to social disruption creating anomie or a sense of hopelessness (24-26). Hankoff felt that the prospect of secondary gain (i.e., reassignment or relocation) was the major environmental influence for a cluster of suicide attempts among Marines. The environmental response to the first attempt provided significant secondary gain; this became the harbinger of other attempts, which were finally averted by minimizing the secondary gains (8).

These accounts of epidemic suicides indicate that temporal and geographic clustering of suicide does occur. Cluster suicides appear to be multidetermined, as are noncluster suicides, but imitation and identification are factors hypothesized to increase the likelihood of cluster suicides. Among those susceptible, the route of exposure to the model may be direct or indirect. The nature of existing research, however, limits conclusions that might be drawn, and also suggests areas for further clarification.

The absence of a standard operational definition for the time and space parameters of a suicide cluster limits our ability to compare results. Without a clear and replicable definition for suicide clusters, we cannot undertake surveillance. Surveillance could determine what proportion of youth suicides appear to occur in clusters and how representative these case-series findings may be. Suicide clusters are more commonly reported now, but without comprehensive surveillance, we cannot be certain that these episodes occur any more frequently than would be expected by chance variation. Without reference to a comparison group, descriptions of the demographic and psychological characteristics of suicides that occur within the context of a cluster are speculative. What may appear to be a ubiquitous characteristic of cluster suicides may not differentiate them from noncluster suicides or nonsuicides and, therefore, may be of limited value in preventing this particular type of death.

Studies in Progress

Researchers are currently attempting to address the problems identified in the previous section. Field studies are using a psychological autopsy protocol with several cluster outbreaks and including comparison groups and detailed analyses of the relationships between the suicides in an attempt to identify possible mechanisms of contagion. The Centers for Disease Control (CDC) and the New York Psychiatric Institute are conducting two such studies using the psychological autopsy--a procedure that involves reconstruction of the life style and circumstances of the victim, together with details of behaviors and events that led to the death of that individual" (27). Data collection and analysis are still in progress for these studies. Additional suicide clusters have been reported to the CDC. Some recent known clusters are highlighted in Table 2.

These recent clusters indicate that it is not necessary for the decedents to have had direct contact with each other. In the Westchester County outbreak, indirect knowledge of the suicides appears to have been obtained through the news media.

Other clusters had a mixture of members from one social network and individuals who were unknown to each other directly. Among those who knew another decedent, the degree of acquaintance varied--from closest friends to those in the same school or church who knew of each other but had little direct personal contact.

Methods may be similar for most deaths within a cluster, indicating a possible underlying imitative mechanism. The clearest imitation of method is seen in a cluster of suicides by jumping from an expressway overpass in Seattle. Jumping from overpasses had previously been extremely rare in that community. Identical methods, however, may not always reflect direct imitation of another decedent in the cluster. Although all of the Wind River suicides were by hanging, cultural factors may have predominated in that choice of method. Hanging has been the method favored by most native American suicides in that community.

Time-space cluster analysis is another type of ongoing study in which epidemiological techniques are used to detect and statistically assess temporal and geographic clustering of suicides (Gould MS, Shaffer D: A study of time-space clustering of suicide. RFP #200-85-0834 (P), Centers for Disease Control, 10-85-4/87). Several epidemiologic techniques had been developed to examine the occurrence and significance of time-space clusters of diseases (28-30). These methods are being adapted to establish clustering. They can demonstrate an excess frequency of suicide in certain times and places or show a significant relationship between the time and space distances between pairs of suicides. These techniques are being applied to U.S. mortality data on suicides occurring during the two 5-year periods 1978 to 1982 and 1955 to 1959, and also to data from a consecutive series of adolescent suicides in the Greater New York Metropolitan area in 1984. The principal aims of the study are to determine whether outbreaks of suicide are real; that is, (1) whether clusters are occurring more frequently than by chance alone; (2) what

proportion of suicides occur in clusters; (3) whether clustering of suicides is predominantly a phenomenon of youth; and (4) whether the proportion of cluster outbreaks is increasing. The analyses will also provide guidelines on the time and space parameters that should define a suicide cluster.

A limitation of statistical time-space cluster analyses is that they cannot indicate whether clusters are due to the influence of a model suicide, or whether the model merely happened to be the first individual who committed suicide in response to conditions that then led others to die. Field studies are better suited to identifying the mechanisms of the clusters. A goal of the time-space cluster analytic study is to identify a representative sample of clusters for future complementary field investigations.

Media Influence

Most of the research on imitative suicide has focused on the impact of suicide reporting in the mass media. This research strategy examines the possibility of contagion being transmitted indirectly through the media, in contrast to direct, person-to-person propagation. Phelps conducted a prototypic ecological study of media influences on suicide in 1911 and concluded:

> The practically universal increase in the mortality of suicides of late years, however, can be demonstrated by official figures of at least comparative accuracy; and as this increase historically parallels that in the number and percentage of sensational, crime-inciting books and newspapers, at least a semblance of positive evidence of the relations of the two is thereby afforded--though not for a moment, of course, can the open-minded student of the painfully complex problem of the increase in suicide forget the fact that the suggestion of printers' ink is but one of the many factors involved (32).

More current studies of the impact of nonfictional suicide reporting will be reviewed

(Table 3A) as well as the impact of fictional suicide stories (Table 3B).

Nonfictional Suicide Stories

Phillips and his colleagues have provided increasing evidence suggesting that imitative behavior follows media coverage of nonfictional suicides (33-37). They reported that prominent newspaper coverage of a suicide has the effect of increasing suicidal behavior within the readership area of the newspaper. The magnitude of the increase is related to the "attractiveness" of the individual whose death is being reported and the amount of publicity given to the story. This finding has been replicated with data from the United States (38) and from The Netherlands (39). In addition, Wasserman found that a significant rise in the national suicide rate occurred only after celebrity suicides were covered on the front page of the New York Times (40).

Sex- and age-specific imitative effects have been noted by Barraclough, Shepherd, and Jennings (41), who found an association between reports of suicide inquests in a local paper and the subsequent suicide of men under 45 years of age. Further support for a sex- and age-specific effect was reported by Motto (42), who found a reduction in suicides among women younger than 35 years of age during a newspaper strike in Detroit. This specific reduction was replicated in another city (43).

Although these investigations support the role of imitative behavior in suicides following nonfictional suicide stories, results of a number of studies have demonstrated no effect (44-47). Baron and Reiss reported that the findings of Bollen and Phillips indicating a significant imitative effect of nonfictional television news stories, were due to statistical artifact and the timing of media events (44). Upon reanalyzing Phillips' data, they reported that the media events had their effects only during periods when suicides were already high; the variables measuring the purported effects of the media events were actually capturing regularities in the distribution of suicides. Bollen and Phillips did report, however, an excess in suicides that could not be predicted by any day-of-the-week, month, year, or holiday effect and confirmed the excess with two analytic strategies (38).

Stack found no relationship between the monthly national suicide rate and the amount of television coverage per month on suicide stories (46). This lack of a relationship, however, may have been an artifact of the methodology used in the study. Monthly rates of suicide may not be sensitive enough to detect imitative influences, since a contagion effect of the media has been reported not to extend beyond 10 days (35,38). Methodological artifacts may also account for Littmann's not finding a relationship between suicide-related newspaper reports and the occurrence of subway suicides in Toronto. Littman reported that there was no significant excess of newspaper reports before subway suicides in both epidemic and non-epidemic years (47). There were overlaps, however, in the "before" time periods for one suicide with the "after" time periods for another suicide, making independent examination of the "before" period impossible. The examination was limited to subway suicides. An examination of all suicides might have yielded a different result.

The core independent variable in Stack's study was the number of seconds of television coverage of suicide stories included in the 6 o'clock news. There is evidence that it is not only the amount of coverage, but also the type of story that has an impact on subsequent suicides (37,40,45). Articles, reports, features, and editorials are likely to have differential effects. In another study, Stack commented on the tenor of news reporting that may offset imitative effects (45). He found no increase in U.S. suicide rates after widespread coverage of the Jonestown mass suicides. He attributed the lack of imitation to the labeling of decedents as cultists, the presentation of many deaths there as involuntary, and the horror conveyed by postmortem photos.

Differential susceptibility to the imitative effects of the media may also reflect selective coverage in even routine reports. Shepherd and Barraclough analyzed reports of suicides appearing in the Portsmouth News between 1970 and 1972. They found that longer reports were written on violent suicides than on less violent suicides and that violent suicides were more likely to stimulate multiple reports (p<.001). Suicides of the very young or very old were more often reported than suicides of other-aged persons. They regarded this distortion of the news as a publishing commitment to entertainment and to the belief that violence is intrinsically newsworthy (48).

Fictional Suicide Stories

Very little research has been carried out on the impact of fictional representations of suicide. In the context of an epidemiological study of childhood suicide, Shaffer implicated this mechanism as a precipitant in one of the 30 consecutive suicidal deaths he studied (49). A teenage victim was found dead with copy of Graham Greene's novel *Brighton Rock*, in which the young, central character commits suicide. There have been anecdotal reports of suicide rates increasing in response to the publication and popularity of other novels and poems. Publication of Goethe's *The Sorrows of Young Werther* in 1774 launched a fad among young men of wearing blue tailcoats and yellow waistcoats like Werther and, in many cases, imitating his suicide (50,51).

Results of recent studies that focus on the effects of media coverage of fictional suicide stories are controversial. Kessler and Stripp (52) failed to replicate Phillips' (37) finding that fictional television suicide stories on daytime television serials--or "soap operas"-- triggered imitative deaths. They attributed the discrepancy to Phillips' misspecification of the dates of 8 of the 13 television suicide stories, invalidating Phillips' one attempt to examine the impact of fictional suicide stories.

Holding (53,54) examined the impact of an 11-episode weekly series that was presented by the BBC in Edinburgh to dramatize the suicide prevention work of the Samaritans. The series resulted in a significant increase in new client referrals to the Samaritans in the 4 weeks following the programs. If the series had produced a preventive effect, the rise in referrals should have been associated with a fall in completed suicides. To the contrary, suicides did not decrease during the 10-week period following the series. Moreover, this period did not show the decline that was evidenced in corresponding weeks in comparison years. These results suggest a deleterious effect of fictional suicide stories in the media.

Gould and Shaffer (55) examined the variation in youth suicide and attempted suicide before and after four fictional television films that were broadcast in the fall and winter of 1984/1985. They reported that the observed number of attempted suicides after the broadcasts was significantly greater than expected and that there was significant excess of completed suicides after three broadcasts. Their findings are consistent with an imitation mechanism.

Critique of Methods

The major limitation of the studies in which investigators examined the impact of media coverage of suicides is that all have employed aggregate data (see Tables 3A and 3B). A major constraint of such a design is that it cannot demonstrate whether the suicide victims were actually exposed to the media events. There is always the danger of an ecological fallacy, therefore, which involves making spurious individual-level inferences from aggregate relationships.

As early as 1911, Hemenway outlined a study to determine the effects of newspapers on suicides. He proposed using coroners to collect data in such a way as to avoid making conclusions from aggregate relationships. Coroners would obtain the following information:

1) Dates of prominent publication of

details of suicides, with the method selected by the unfortunates. 2) Dates of subsequent suicides with special references to the grouping of cases according to methods. 3) Direct evidence, by asking at inquests for information as to the possible relationship of the suicide being investigated as to previous cases either read about or known of (56).

As Table 3 indicates, Hemenway's proposals have not been acted upon.

Despite the limitation imposed by the use of aggregate data, the investigators in the studies taken as a whole, have employed rigorous statistics, comparison periods, and control variables. Their findings meet a number of criteria that assist judgments about the causal significance of associations. Five criteria for judging causal relationships are time sequence of variables, consistency of associations on replication, strength of association, specificity of association, and coherent explanation (57).

Results of several studies (33,34,36,39,40) established the time sequence of the variables, for instance, that the increase in mortality occurred only after the media events. The suicide stories, it was shown, did not occur during a "suicide wave," but before it.

Consistent findings in support of an imitation hypothesis were reported by the most investigators, despite their differences in method, location, and types of variables. A number of investigators examined an excess of deaths following the appearance of suicide stories (33,34,36,38,40,41,55). Others examined the decrease in deaths during the cessation of newspaper stories (42,43). Different types of control periods were employed, varying from control periods immediately before the suicide story (36), to control periods in different years (34,42), and indirect control periods used in time-series analyses (40). Both quasi-experimental designs (33) and regression analytic strategies (36) were employed. Despite the consistency in the findings, however, the possibility of confounding variables cannot be entirely ruled out.

The strength of the association is indicated by the reports that suicide stories had larger effects on suicide rates than did day of the week, month, or holidays, which are variables known to affect the suicide rate (38). Furthermore, reports of suicides by celebrities resulted in a large increase in suicides (40).

The final criterion suggested for judging a causal association is whether it is coherent or consistent with existing knowledge. Media coverage of suicides is associated with an increase in subsequent suicides. This increase in suicides relates to the amount of publicity and is restricted to the area in which the stories are publicized. This is consistent with the consensus of laboratory findings that mass media violence can elicit aggression (58). The association is also consistent with a number of mechanisms of contagion, such as imitation and familiarity with the idea of suicide. These mechanisms will be discussed in a subsequent section.

In summary, growing evidence forcefully supports the contention that imitative suicides follow media coverage of nonfictional suicides. The effect extends to both newspaper and television coverage. Some of the inconsistencies that exist among studies could have arisen as a result of significant methodological differences among them. Although there is some evidence that fictional suicide stories have an impact, little information is available and the results of available studies are contradictory.

Mechanisms of Suicide Contagion

Mechanisms underlying the phenomenon of contagion have not been studied in the context of cluster suicides. In social-learning theory, however, behavioral scientists have constructed a foundation on which many aspects of suicide contagion may build. According to this theory, most human behavior is learned through observation and modeling (59). People learn from example. Imitative learning is influenced by a number of factors, including the characteristics of the model and

the consequences or rewards associated with the observed behavior (59). Models who possess engaging qualities or who have high status are more likely to be imitated. Behaviors depicted as resulting in gains, including notoriety, are more effective in prompting imitation.

Consistent with these principles, Phillips and his colleagues have reported that the magnitude of the increase in suicide behavior after prominent newspaper coverage is related to two factors: (1) the "attractiveness" of the individual whose death is being reported, and (2) the amount of publicity given to the story. Likewise, Wasserman found that the national suicide rate rose significantly after suicides of celebrities were reported on the front page of the New York *Times* but not after less prominent suicides (40).

People cannot learn much by observation unless they attend to the modeled behavior (59). A number of factors, some involving the observers' characteristics, regulate the amount of attention to witnessed or reported behavior. Research thus far has only roughly sketched the host characteristics that may yield a greater susceptibility to imitating suicide. Sacks and Eth proposed as one such characteristic a history of similar past experiences that lead to "pathological identification" with the victim (19).

In addition to imitative effects, the occurrence of suicides in the community or in the media may produce a familiarity with, and acceptance of, the idea of suicide. Rubinstein postulated this mechanism in his study of a suicide epidemic among Micronesian adolescents. Familiarity with suicide may eliminate the "taboo" of suicide. It may also lower the threshold point at which the behavior is manifested and may introduce suicide as an acceptable alternative response or option to life stresses (20).

CONCLUSIONS

A review of (1) reports of suicide epidemics, of ongoing studies of suicide clusters, and of investigations of the news media and their relationship to suicide and (2) work in the behavioral sciences indicates four conclusions:

- Time-space clusters of suicide occur, have been reported among various age groups, and are not a new phenomenon.

- Nonfictional media coverage of suicides is associated with an increase in the observed number of suicides over the number expected. The increase may not be uniform for all age-sex groups.

- Susceptible individuals may be affected by direct or indirect exposures to suicide.

- Imitative learning is fostered if the model is held in high regard and if rewards are expected for the behavior.

Remaining questions are legion. Only substantial research will resolve them. Some of the questions for future research follow:

- What proportion of suicides occur in clusters? Are clusters more common in certain age groups, geographic locations, or times? Is the proportion of cluster outbreaks increasing?

- In comparison with other age groups, in what ways are young people exposed to and susceptible to suicide contagion?

- Which characteristics of model suicides are most likely to cause an increase in suicides?

- Which combination of host susceptibility and contagion factors are most lethal?

- What sorts of prevention and intervention efforts could most effectively avert cluster suicides?

- Does media coverage create new suicides or accelerate suicides that would have occurred anyway?

Youth suicide clusters are a particularly grievous loss of life and are potentially more preventable than single suicides. Interim recommendations are needed even though our knowledge base has sobering gaps. Five basic recommendations follow:

- News media representatives should be encouraged to avoid romanticizing suicide, emphasizing violent aspects, and making celebrities of persons who die by suicide.

- News media representatives should be invited to collaborate in studies to identify the destructive and constructive components of fictional accounts of suicide. Before a decision is made to broadcast such a story, these components should be identified and assessed, and a warning that the program might adversely affect some persons should precede any such broadcast.

- In research studies, variables should be operationally defined, comparison groups used, and individual rather than aggregate- only exposures assessed.

- Surveillance for potential suicide clusters should be established so that potential clusters could be averted and existing clusters kept from spreading. Surveillance would alert researchers to suicide clusters which might be more thoroughly investigated.

- Intervention efforts should be directed toward those who are most exposed (either directly or indirectly) to the "model" suicide and toward those who are most susceptible, for example, those whose emotional health is poor and those who strongly identify with the person who has taken his or her life.

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Descriptive Studies of Epidemic or Cluster Suicide

Reference	Data Source	Population Studied	Description/Findings	Proposed Mechanism
Anonymous, 1977 (25)	Case histories	Psychiatric inpatient suicides	—3 suicides on 1 ward occurred within 6 months and no others in 10 years in that psychiatric hospital.	—"fragmented leadership, faulty supervision, and staff demoralization and anomie may contribute to poor psychiatric care and to epidemics of suicide in psychiatric hospitals."
Ashton and Donnan, 1981 (9)	Coroner's reports and death certificates	82 suicides by self-immolation, 1978-79 in England and Wales	—Between 10/78 and 9/79, there were 82 suicides by burning compared with a yearly average of 23 between 1963 and 1978. —Most of the suicides were known to be psychiatrically ill and were predominately young men or older married women.	—Imitation, "mediated by news coverage."
Crawford and Willis, 1966 (10)	Psychiatric hospital records	24 inpatient suicides at Stone House Hospital, England, between 1876 and 1965 from which "similar" suicides occurring within 12 months were identified	—3 pairs of similar suicides were identified plus 1 suicide that imitated that of a patient from another psychiatric hospital whose body was found on the hospital grounds. —Each of the 4 pairs used the same method: cut throat, hanging (2 pairs), jumping. —1 pair were close friends. —2 pairs used identical locations.	—The second patients were "infected" by the success of the first. —Suicide as an effort to join a deceased friend. —Imitation.
Hankoff, 1961 (8)	Case histories	12,000 U.S. Marine Corps troops stationed in a remote, isolated place	—16 suicide attempts and 1 suicide occurred in 12 months. —7 of the attempts occurred in July and August and were knife wounds. The suicide occurred during this span.	—The suicide attempts represented infectious acting-out, the epidemic being "an emergent event of a shared group process..." —Choice of method seemed "more a matter of suggestion or conformity than of specific motivational significance." —July-August attempts were "inaugurated by an attempt which attained 'maximum' secondary gains (no hospitalization)."
Kahne, 1968 (24)	Questionnaires and interviews	Psychiatric inpatients	—An "epidemic" of 8 suicides occurred.	—"all eight suicide cases occurred ruing a period of marked social disorganization within the hospital, a period which is most appropriately described as anomic."
Kobler and Stotland, 1964 (26)	Hospital records, interviews	Psychiatric inpatients, average census = 26	—1 patient attempted suicide 12/23/59 and 3 others committed suicide between 1/1 and 1/19/60. Another suicide occurred 6/60.	—Social expectations among hospital staff of helplessness and hopelessness were communicated to patients as an implicit or explicit expectation of suicide.
Nalin, 1973 (12)	Hospital records, and case reports	Suicides and suicide attempts by malathion poisoning in Guyana	—Malathion was introduced to Guyana between 1960-62, and malathion poisoning cases increased from 16 in 1962 to 100 in 1964. —From hospital records the malathion suicide attempt rate was 31 per 100,000 and increasing.	—"Retroflexed rage, impulsively expressed and without obvious depression" —Uncontrolled availability of malathion. —"Widespread press publicity exploiting the dramatic aspects of cases in which rejected love is the motivation for poisoning has helped to give malathion an aura of lethality." —Attempters may expect newspaper publicity of their act to affect their families.
Niemi, 1978 (15)	Questionnaires sent to police districts	Suicides in jail in Finland, 1963-1967. N = 28	—"the number of suicides committed in the lock-up within 24 and 48 hours counted from the previous suicide in the lock-up was significantly greater than expected"	—Identification and a "mental state of readiness"

Table 1.

Descriptive Studies of Epidemic or Cluster Suicide

Reference	Data Source	Population Studied	Description/Findings	Proposed Mechanism
Robbins and Conroy, 1983 (16)	Case reports of patients seen at a psychiatric hospital	Chappaqua high-school students, New York, who presented with suicide attempt or ideation	—After 2 suicides in a high school population, 5 students attempted and 1 was admitted with severe suicidal ideation within 7 weeks. The first attempter was visited ruing his hospitalization by the other 5. They comprised a peer group at school.	—"suicide attempts may cluster among groups of young people with risk factors for self-destructive behavior."
Rovinski, 1898 (11)	Interviews	"Epidemic" suicides near Odessa, Russia	—Members of a religious sect committed suicide by being buried alive. —Deaths occurred in groups on 4 occasions during a 3-month period. —N=9, 5, unknown, 5.	—The sect leader convinced followers that death from the Anti-Christians was imminent and unavoidable and that it was preferable to "die for Christ" volitionally by suicide. —Influence of the charismatic leader on "psychopathic tendencies" of the members–"the spark applied to the inflammable material."
Rubinstein, 1983 (20)	Hospital and medical records, all death certificates, police records, church records; and 250 semi-structured interviews with suicide attempters and friends and relatives of suicide victims	Micronesia (the U.S. Trust Territory of the Pacific Islands)	—Over 12 years, 25 suicides occurred in clusters of 3 or 4 in several months, then none for a year or so. —8-fold increase in suicide rates since 1960 among 15- to 24- year-old males.	—"as suicide grows more frequent in these communities, the idea itself acquires a certain familiarity if not fascination to young men, and the lethality of the act seems to be trivialized." —Prominence of role model a factor. —"suicides have acquired subcultural significance among male youth, giving use to fad-like and imitative acts." —"the significance of the act acquires an aspect of collective identification and familiarity, making it less aversive to troubled youth."
Sacks and Eth, 1981 (19)	Case histories	Psychiatric inpatients	—1 patient's suicide precipitated another's suicide attempt and suicidal preoccupation in another. —The suicide attempter used the same method as the suicide (jumping). Patient with suicidal preoccupation had made a previous attempt by this method and had visited the attempter in ICU after his fall.	—Risk is high in "those who have formed pathological identifications with the victim as the result of a history of similar past experience, especially that of a suicidal or abandoning parent." —The schizophrenic's impaired object relations and reality testing may increase "vulnerability to the partial and bizarre identifications that might have contributed to their suicidal preoccupation and behavior."
Seiden, 1967 (7)	Hospital records, police reports, coroner's reports, newspapers, interviews	Suicides on a college campus	—5 male suicides by jumping occurred on the University of California, Berkeley campus during 1 month in 1967. —Subjects had histories of chronic and severe mental disorders.	—Hypothesis of symbolic location rather than behavioral contagion. —"particular locations maybe be highly valued and perhaps even necessary for the commission of suicide."
Walton, 1978 (6)	Case reports	Accidental poisonings, suicides and suicide attempts by antifreeze in England	—After a widely publicized unintentional death from antifreeze, 5 suicides and 6 attempts occurred by that method. —All of the suicides had preexisting psychiatric illness.	—"There is little doubt that the publicity attached to the first unfortunate accident resulted in five imitative suicidal deaths."
Ward and Fox, 1977 (14)	Interviews with family, neighbors, police & coroner's reports, hospital records	Native Americans in Ontario	—Eight suicides occurred within 12 months in a small rural community of 3,000.	—"The stimulus of one suicide could suggest to others a similar mode of escaping an intolerable life situation." —Contagion among vulnerable persons.

Table 1 concluded.

CHARACTERISTICS OF RECENT SUICIDE CLUSTERS

Location	Number of Suicides	Sex	Age Range	First Date of Death	Last Date of Death	Methods	Social Relation to Another in Cluster
Plano, Texas	8	7M 1F	14-18	2/23/83	5/8/84	4 Gunshot 4 Carbon monoxide	Some
Westchester and Putnam Counties, New York	5*	5M	13-19	2/4/84	3/13/84	3 Hanging 1 Gunshot 1 Carbon monoxide	None
Clear Lake, Texas	6	5M 1F	14-19	8/9/84	10/11/84	3 Gunshot 2 Hanging 1 Carbon monoxide	Some
Seattle, Washington	3	3M	20's-42	7/9/85	7/14/85	3 Jumping from expressway overpass	Unknown
Wind River, Wyoming	9†	9M	14-25	8/10/85	10/1/85	9 Hanging	Some
Omaha, Nebraska	3	2M 1F	15-18	2/3/86	2/7/86	1 Gunshot 2 Overdose	Some

* An unintentional hanging also occurred
† 4 other suicides of tribal members ages 17-34 occurred between 1/2/85 and 10/18/85. All were by hanging.

Table 2.

STUDIES EXAMINING MEDIA INFLUENCES ON SUBSEQUENT IMITATIVE SUICIDES*

A. Nonfictional Suicide Stories

Citation	Period and Population Studied	Methodology	Comparison Group/Period	Findings	Statistics	Support of Imitation
Baron, and Reiss, 1984 (44)	Daily U.S. suicides for 1972-1976 (also examined homicides for 1973-1978--only the portion pertaining to the suicides is presented here).	Employed a list of publicized suicide stories carried on network news programs, a list originally used by Bollen & Phillips (1982). A different set of publicized stories was used also (details of added stories not given). The study was designed to extend the earlier study by Bollen & Phillips. Regression analytic design. Ecological design.	Indirect control periods through the use of regression analysis.	Suicide stories only had their effects during periods when suicides were already high. Explained the discrepancy between this finding and Bollen & Phillips' earlier finding by the fact that the earlier regression model did not include a term to represent an interaction between the day of the week and holidays and suicide story. However, Bollen & Phillips did control for main effects of day, week and holidays in their regression model.	Time series regression analysis. Most coefficients of story by day variable were not significant.	No
Barraclough, Shepherd, and Jennings, 1977 (41)	Suicides and undetermined deaths in Portsmouth, England, between 3-year period-- 1/1/70 to 12/31/72. There were 76 deaths (54 suicides and 22 undetermined).	Newspaper reports about suicide inquests were identified in the local daily newspaper in the area (128 reports were identified). They determined the number of days that had been preceded within 2, 4, and 7 days by one or more reports to derive an "expected" distribution. They compared this to the "observed" distribution of the number of days on which a suicide occurred that had been preceded by a report. Four age/sex groups (aged 44 and younger; 45 and older) were independently tested. Ecological study--cannot determine whether suicides need the newspaper.	Observed-to-expected distribution of days preceded by a newspaper report.	Association between newspaper reports of suicide inquests and men under 45, but not for other age and sex groups. Characteristics of the suicides did not correspond to the reports.	Chi-square goodness of fit test (or binomial test, if the expected frequency was <5). 2 days before: binomial p<.03. 4 days before: $X^2 = 7.30$ p<.01. 7 days before: $x^2 = 5.03$ p<.05.	Yes. Sex- and age-specific
Blumenthal and Beroner, 1973 (43)	Period of major newspaper strike in NYC: 4/26/66 to 9/1/66 (140 days) 3/6 newspapers on strike.	The age, sex and method of each suicide during the strike period was determined and suicide rates per 100,000 were calculated. The same data were obtained for each of the preceding 3 years. Designed as replication of Motto (1970) study. Ecological study.	Period of strike was compared with identical periods in preceding 3 years. 2 later years also examined.	The overall rate during the period was significantly lower than the mean rate for the preceding 3 years. However, for women aged 15-24 and 25-34 the suicide rates during the blackout were the lowest in the 6 years studied.	Wilcoxon matched pairs signed rank test. Male and females considered separately and each age group was used to form matching pairs (3-year mean rate vs. rate during strike). Actual statistics not given.	Yes. Age- and sex-specific

Table 3.

STUDIES EXAMINING MEDIA INFLUENCES ON SUBSEQUENT IMITATIVE SUICIDES*
A. Nonfictional Suicide Stories

Citation	Period and Population Studied	Methodology	Comparison Group/Period	Findings	Statistics	Support of Imitation
Bollen and Phillips, 1981 (36)	Daily Detroit mortality statistics for 1973-1976 Motor vehicle fatalities considered covert suicides.	Compiled a list of all suicide stories appearing on the front pages of the 2 largest daily newspapers in Detroit (9 suicide stories identified). Examined relationship between publicized suicides and motor vehicle fatalities (MVF). Designed as replication of Phillips (1979) study. Quasi-experimental analysis similar to Phillips' study and regression analysis. Ecological study.	In quasi-experimental analysis the experimental period was the third day after the publicized suicide. The control period was 1 week before.	Motor vehicle fatalities increased significantly on the third day after a suicide was publicized in the newspaper. Third day corresponds to peak found in Phillips' (1979) study.	T-test for matched pairs: t=2.77, 8df, p=.012. In regression analysis, variables representing the day of week, month, year, and national holidays were included as explanatory variables. Lagged variables form 0 to 6 days were included to estimate duration of the effect. Controlling for daily, monthly, and yearly effects, increase of 1.83 (regression coefficient, t=2.26) in MVF 3 days after story.	Yes
Bollen and Phillips, 1983 (38)	U.S. daily mortality statistics (suicides), 1972-1976.	The Vanderbilt Television News Index was searched for all stories about specific individual suicides carried on 2 or more network news programs (presented by ABC, CBS, and NBC). Several publicized suicides identified. Examined the relationship between publicized TV suicides and subsequent suicides. Quasi-experimental design as well as regression analysis. Ecological study.	In quasi-experimental analysis the experimental period was the entire week after the publicized suicide. The control period was the week before the experimental period.	Suicides generally increased in the week after publicized suicide story. The effect did not extend beyond 10 days.	T-test for matched pairs: t=1.725, 6df, tailed, p=.068' In regression analysis controlled for day of week, month, year, holidays. Regression coefficients representing effect on the same day and 1, 6, and 7 days after were statistically significant. The suicide stories had larger effects than the other variables considered. There was no statistically significantly increment in explained variance beyond a lag of 10 days. To test for spuriousness of results, examined effects before story--no significant increase before story.	Yes

Table 3 continued.

STUDIES EXAMINING MEDIA INFLUENCES ON SUBSEQUENT IMITATIVE SUICIDES*

A. Nonfictional Suicide Stories

Citation	Period and Population Studied	Methodology	Comparison Group/Period	Findings	Statistics	Support of Imitation
Littmann, 1985 (47)	Toronto subway suicides, 1968-1977. Epidemic of subway suicides in 1971 (N=96 subway suicides).	Examined the temporal relationship between subway suicides and all suicide-related reports (reports, articles, features and editorials) in Toronto Star newspaper. Ecological study.	Before and after periods (ranging from 1 to 21 days) for each subway suicide. An annual before and after average was calculated for each interval.	No significant difference between the number of suicide-related newspaper reports before and after subway suicides. However, as author reports, there were overlaps of before periods of some suicides with the after periods of other suicides.	No specifics given	No
Motto, 1967 (58)	Suicide rates in 7 cities that had complete cessation of newspaper publication during strikes (Baltimore: 48 days in 1965; New York: 109 days in 1963; Detroit: 135 days in 1963; Portland: 25 days in 1949; Seattle: 56 days in 1945; Honolulu: 63 days in 1963). Ecological study.	Compared incidence of suicide during newspaper blackout to incidence during the same months of the 5 years before the newspaper blackout. An imitation hypothesis would predict the reduction of suicides during a newspaper blackout.	Blackout period compared with same months in 5 prior years (Use of prior 5 years as comparison period introduces possible confounding of secular trends.)	No significant difference between the incidence during the blackout and the mean of the prior 5 years. However, there was a trend for the incidence to be lower during the blackout in 5 cities. In Detroit, the previous rising trend of suicide attempts appeared to be interrupted by the blackout. Attempts were examined only in this city.	Wilcoxon matched pairs signed ranks test not significant.	No (although trends in data give some support)
Motto, 1970 (42)	Period of newspaper blackout in Detroit, 11/17/67 through 8/10/68 (268 days).	The age, sex, and method of suicides during the newspaper blackout were determined and the suicide rates of age and sex specific groups were calculated. The same data were obtained for the same period of the preceding 4 years, and the year after the blackout year. Ecological study.	Blackout period compared with women's prior mean period in 4 prior years and 1 subsequent year.	60% drop in incidence during blackout from women's prior mean. Specific age groups showed consistent decline in incidence during blackout with exception of 55 to 64 year group. Women aged 15 to 24 and 25 to 35 showed the most marked decline.	Wilcoxon matched pairs signed ranks test performed separately for men and women (4-yr. mean compared with blackout mean)--significant difference for women at .01 level.	Yes age- and sex-specific
Phillips, 1974 (33)	Monthly U.S. suicide statistics for 1947 to 1967.	Compiled a list of suicide stories appearing on the front page of the New York Times. The New York Daily News, Chicago Tribune, and London Daily Mirror were used to examine the effect of the amount of publicity. 35 front page suicide stories were identified; 3 pairs shared same dates. Quasi-experimental design. Ecological study.	In quasi-experimental analysis the experimental period was the month of the suicide story. The control period was the average of the same months in the prior and subsequent years. For suicide stories late in a month (after the 23rd), the experimental period was the month after the story. The 23rd was an arbitrary cutoff; however, results were consistent when other cutoffs were used.	Suicides increased after 25 front-page stories. Excess suicides occurred only after stories, not before stories. The more publicity, the large the rise in subsequent suicides. The rise is restricted to the area of publication. Bereavement, effect of prior conditions, and misclassification were ruled out as explanations.	Probability of increase after 26 of 33 front page stories is .00066 (binomial test, p=.5, n=33); rank order or suicide stories according to amount of publicity (0 to 4 days) in precise predicted order (p=.0083 [1/120]); Wilcoxon matched pairs signed rank test on rise in publicized area vs. other area significant (.005).	Yes

Table 3 continued.

STUDIES EXAMINING MEDIA INFLUENCES ON SUBSEQUENT IMITATIVE SUICIDES*

A. Nonfictional Suicide Stories

Citation	Period and Population Studied	Methodology	Comparison Group/Period	Findings	Statistics	Support of Imitation
Phillips, 1979 (34)	Daily motor vehicle fatalities in California 1966-73.	Compiled list of front-page suicide stories from the Los Angeles Times and San Francisco Chronicle. 23 front page suicides identified; 2 and 2 suicides occurred within 1 week of each other and therefore each group treated as 1 story. To examine the effect of publicity, the 5 largest papers in California were examined. Ecological study.	The experimental period was the week after the story. The control period was the same period in remaining (prior and subsequent) years of study. A regression line was fitted to the number of MVF in the control periods to estimate the expected number of deaths in the period. For the analysis of the duration of the effect, the periods varied from 2 days before to 11 days after the story.	The number of MVF increased an average of 9% in the week after each suicide story. The greatest increase occurred 3 days after story (31%). The more publicity, the greater increase in MVF. The age of the drivers was correlated to the age of the person described in the story. Single car accidents increased more than other types. Fatalities more frequent in area where story was publicized. Last, crashes after suicide stories were more lethal than crashes at other times, as indicated by time between crash and death.	Walsh test, p = .010 1 tailed (used for examination of increase). Pearson correlation between amount of publicity and change in MVF = .59, p < .005. Ratio of death from single vehicle accidents to other types of death is .88 for experimental period and .43 for control period. The difference between the 2 ratios is significant at .0213 (hypergeometric, 1 tail). Correlation between age of publicized suicide and age of drives is .46 (p = .02, t-test, 1 tailed, 16df).	Yes
Stack, 1983 (45)	Monthly U.S. suicide rates for Jan. 1977-June 1980 and unemployment rates.	Two months of media coverage were set at a score of 1 to be a dummy variable.	Pre- and post-exposure time periods were compared.	There was no relationship between reporting of the Jonestown suicides and U.S. suicide rates. The greater the unemployment rate, though, the greater the suicide rate.	Cochrane-Orcutt time series techniques: beta = -.179, F = 1.45, p > .05 for Jonestown event, and beta = .327, F = 4.83, p < .05 for unemployment rate.	No
Stack, 1984 (46)	Monthly U.S. suicide statistics for 1972 through 1980.	Two indices of television of suicide events were developed. The first index represented the number of events per month on the evening news (ABC, NEC, CBS). The second index was the seconds of coverage per month. The data were taken from the Vanderbilt Television News Archives. Time series analysis to examine the relationship between TV coverage and monthly suicide rate. Additional variables in multi-variate model were monthly divorce rate, unemployment rate, and duration of employment. Ecological study.	Indirect control periods through the use of regression analysis.	Amount of television coverage was unrelated to monthly suicide rate. Duration of unemployment and springtime were related to increase in suicide rate.	Cochrane-Orcutt procedure, a form of generalized least-squares estimation (multivariate time series analysis). Standardized coefficient for index representing number of seconds of TV news coverage was -.01.	No.

Table 3 continued.

STUDIES EXAMINING MEDIA INFLUENCES ON SUBSEQUENT IMITATIVE SUICIDES*

A. Nonfictional Suicide Stories

Citation	Period and Population Studied	Methodology	Comparison Group/Period	Findings	Statistics	Support of Imitation
Wasserman, 1984 (40)	Monthly U.S. suicide rates for 1947 through 1977.	Extended Phillips' (1974) list of front page suicides in the New York Times (N = 48 cases). Also indicated whether the suicides were rational celebrities. Quasi-experimental design as well as multivariate time series analysis. Used months as the unit of analysis. Included duration of unemployment as another explanatory variable, controlling for seasonal effects and wars. Ecological study.	For quasi-experimental analysis the experimental period was the month after the suicide story; the control period was the same month in prior and subsequent years. Indirect control periods time-series analysis.	There was a rise in suicides after 34 of the 48 cases. The increase was due to the celebrity suicides. There was a mean rise of 133.8 suicides after the suicides of entertainment celebrities, a rise of 98 for rational political celebrities, and a rise of 35.8 after the suicide of an international celebrity.	Probability of increase after 34 of 48 cases is .00027 (binomial test). In time series analysis, the slope coefficient representing the celebrity story was .47 (t = 3.88, p < .01).	Yes

*A few studies on "covert suicides" are included (Bollen & Phillips, 1981; Phillips, 1979). A study that examined the impact of murder-suicide stories on subsequent airplane crashes (Phillips, 1980) was not included. The findings from the 1980 study do support a theory of imitation and suggestion.

Table 3 continued.

STUDIES EXAMINING MEDIA INFLUENCES ON SUBSEQUENT IMITATIVE SUICIDES

B. Fictional Suicide Stories

Citation	Period and Population Studied	Methodology	Comparison Group/Period	Findings	Statistics	Support of Imitation
Gould and Shaffer, 1986 (53)	Adolescent suicides and attempted suicides aged 19 years and younger during the period 9/16/84 through 3/9/85 in the Greater New York Metropolitan Area.	The variation in suicide and attempted suicide before and after 4 made-for-television movies broadcast in the fall of 1984 and winter of 1985 was examined. Ecological study.	2-week periods before and after each movie were compared. In addition, observed numbers of suicides and attempts during the 'after' periods were compared with expected numbers derived from the average of all weeks.	The observed number of attempted suicides following the television movies was significantly greater than expected, and a significant excess of completed suicides was found after 3 broadcasts. Referral bias, sensitization of medical examiners, or hospital personnel were unlikely to account for the increase in attempted and completed suicides.	The mean number of attempts after the broadcasts (22, sd=4.2) was significantly greater than the mean before the broadcasts (14, sd=3.6) (t=2.61, df=5, p.05). The observed proportion of attempted suicides to occur during the 4 2-week periods after the movies, 40% (n=88) was significantly greater than expected (32%, n=70) (p=.007, based on the binomial distribution). The mean number of completed suicides after 3 broadcasts (4.33, sd=.58) was significantly greater than the mean before the 3 broadcasts (1, sd=1) (t=4.99, df=4, p.01). The observed number of completed suicides (13) after the 3 broadcasts was significantly greater than the expected number (7.44) (p=.02, based on the binomial distribution).	Yes
Holding, 1974, 1975 (59,60)	Completed suicides and undetermined deaths in Edinburgh during the same 30-week period in 1969-1973.	The variation in deaths before, during, and after "The Befrienders," an 11-episode weekly series on BBC in 1972 was examined. As described in Holding (1974), the series dramatized the suicide prevention work of the Samaritans. Corresponding weeks in comparison years (1969-1971, and 1973) were examined. Ecological study.	The 4 weeks before the series broadcast date each year were used as the baselines. Numbers of referrals and suicide attempts during and after the series dates were compared with baseline numbers for each year.	Average weekly suicide attempt admissions increased by 13% during the 'Befrienders' series and by 22% during the following 4 weeks. Samaritan new client referrals increased by 112% during the series and 140% in the next 4 weeks.	None	Yes

Table 3 continued.

STUDIES EXAMINING MEDIA INFLUENCES ON SUBSEQUENT IMITATIVE SUICIDES
B. Fictional Suicide Stories

Citation	Period and Population Studied	Methodology	Comparison Group/Period	Findings	Statistics	Support of Imitation
Kessler and Stripp, 1984 (52)	Same as Phillips (1982).	Designed as a replication and extension of Phillips' (1982) work. Used additional sources of soap opera summaries and found 3 additional suicide stories overlooked by Phillips. A story used in Phillips's work was deleted here because it involved only a discussion of a past suicide attempt. Most noteworthy was the use of the exact date of the story. Phillips' earlier study, by employing weekly summaries, inadvertently misspecified the dates of 8 of the 13 stories. In the present study, the corrected data were reanalyzed with a quasi-experimental analysis and a time-series regression analysis.	In quasi-experimental design, the experimental period was the 4 days including and after the story. The control period was the closest time interval preceding the story that contained the same days of the week as the experimental period and did not contain any holidays, real-life celebrity suicides, or soap-opera suicide stories. In the regression analysis, the control variables were days of the week, months of the year, and 2 celebrity deaths.	Soap-opera suicides had no significant effect on real suicides.	The mean difference (3.55) between the experimental and control periods was not significant (t = .4, 10df). None of the story coefficients in the time-series equations were significant. Separate time-series equations estimated for subgroups defined by sex and urban-rural location yielded no significant story effects.	No

Table 3 continued.

STUDIES EXAMINING MEDIA INFLUENCES ON SUBSEQUENT IMITATIVE SUICIDES

B. Fictional Suicide Stories

Citation	Period and Population Studied	Methodology	Comparison Group/Period	Findings	Statistics	Support of Imitation
Phillips, 1982 (37)	U.S. suicides and motor-vehicle deaths for 1977. Restricted to persons described as "white" on their death certificates.	Compiled a list of television soap-opera episodes in which a suicide or suicide attempt occurred. The list was derived from a newspaper column, "The Soaps," published in the Los Angeles Times. The plot summaries identified the week in which a soap-opera suicide occurred, but not the specific day. Examined whether suicide and motor vehicle deaths increased after these episodes. 13 soap opera suicide stories were identified. Quasi-experimental design. Ecological study.	A 1-week experimental period was used; this was defined as the week, Monday-Sunday, in which the TV soap opera suicide episode occurred. The control period was 1 week before the experimental period. If an experimental period of a particular episode overlapped with a major holiday, it was deleted from the sample. If the control period overlapped with a major holiday, it was replaced by the nearest available control period that occurred before the holiday. To compensate for a possible linear trend in deaths, the control periods, which by design always preceded the experimental periods, were given an adjustment to reflect the slope of the regression line . . . fit the . . .	White suicides increased significantly on and just after the dates of soap-opera suicide stories. Single-vehicle crash deaths also increased after the suicide stories, whereas multiple-vehicle deaths did not increase. This provides additional support for the belief that single-vehicle crash deaths may be "covert" suicides.	T-test for matched pairs = 2.449, 8df, 1 tailed test, p < .02. Same results for analysis that did not correct for linear trends.	Inconclusive because an inaccurate and nonexhaustive index of TV suicide stories was used. See Kessler and Stripp (1984).

Table 3 concluded.

STRESS AND LIFE EVENTS

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RECENT LIFE EVENTS AND SUICIDAL BEHAVIOR

Methodology

This paper reviews studies of suicidal behavior in youth in relation to recent and early stressful life events. By a "recent life event" we mean a change in the external social environment that can be dated approximately. A life event represents a change, in contrast to a chronic difficulty or problem, such as a bad marriage or chronic poverty. The change is external and not just one of perception: increased worry over work is not a life event unless it reflects some actual change in circumstances. One "internal event" is physical illness, which is externally verifiable and carries major implications for change of life pattern.

Adequate study of recent life events has entailed solving a number of methodological problems (1), the most prominent of which is retrospective reporting of events. The ordinary inaccuracies of recall may be magnified in suicidal patients by the effort to give meaning, in terms of life experience, to such a major occurrence as suicide, and by pessimism, quilt, and other misperceptions due to psychiatric disorder.

The technique for data collection is probably crucial. The complexities involved in eliciting information, accurately dating occurrences to the relevant period, and deciding whether the threshold and definition for a specific life event have been met, are of such magnitude as to require a systematic and probing interview, rather than a self-report checklist. Review of reliability studies (1) shows that self-report methods such as the questionnaire used by Holmes and Rahe (2) tend to give low reliabilities; interview methods, usually employing semi-structured format with considerable probing, give moderately high reliabilities. Interview methods also produce better patient-informant concordances of the order of 0.8, and relatively little retrospective fall-off of event recall as time periods extend back.

Psychiatric disorders may produce new events, such as loss of job, which are consequences rather than causes of illness. To eliminate these from study, two approaches have been adopted. One is to confine attention to time periods preceding symptomatic onset. The second is to concentrate on "independent" events (3)--those which, evaluated in terms of their specific circumstances, appear highly unlikely to have been brought about by the patient.

Alternative methods of quantifying the stress in events have included consensus scaling and a summation to total-stress scores (2), individual judgments of contextual threat (3), and categorization of events into groups depending on their qualities (1). The different methods, in practice, produce rather similar findings.

The methodology of chronic stress is less well worked out. Brown and Harris (3) have studies "difficulties"--long-standing rather than recent stresses--and have successfully used methodology parallel to that of life events. There are, however, fewer studies of reliability and validity in this area, or in the closely related area of social support as a protective factor (4). It can be particularly difficult here to be sure that the stress is external: to separate perception and reality. It can also be difficult to make sure that the stress is truly independent of the person. Personal resources influence the creation of social networks and close relationships and the finding of solutions to long term problems, so that social isolating and chronic problems may reflect personal qualities as well as external circumstances.

Additional Problems in Relation to Youth Suicidal Behavior

Some additional problems arise in studies of suicidal behavior in youth. First, the methodology of life events in children has not been as well worked out. Adult life event lists are not appropriate. Some adaptations of scaling to children's life event lists have been described (5,6,7) although they have received only limited application in studies of suicidal behavior (8,9).

Second, the retrospective detailed interviewing method that is usually employed and validated in life stress studies can only be applied to suicide attempts. For completed suicide, the principal witness is no longer available. Other sources of information may be used--interview with relatives or access to various kinds of records--but these are likely only to be reliable in relation to the most major events, namely, bereavement.

Studies are therefore predominately of attempted rather than completed suicide. The differences between these two groups are well known and it cannot be assumed that findings valid for one are valid for the other. Also, most studies are of adults over the age of 25, do not analyze by age group, and when they extend to younger ages, still tend to omit

children and adolescents. The studies that do exist of the young often only look in passing at stress, and with deficient methodology.

An issue that arises in young adults is the extent to which increased numbers of life events may reflect a more generally unstable lifestyle prone to self-induced life change, and itself rooted in personality. A number of papers have hinted at this, and detailed acquaintance with some young suicide attempters does suggest a generally chaotic and impulsive life. The same issues can arise in relation to life events and other disorders. One way to tackle them is by followup studies using recovered patients as their own controls (10) to rule out the possibility that as many events might occur at any other period, irrespective of onset of disorder. Brown's methodology of independence of events (3) should control for this element but it is hard to make the judgment of independence from personality. Interpersonal arguments and separations, which are common in young suicide attempters, often reflect contributions from both sides of the relationship.

Studies of Suicide Attempts and Recent Life Events

The literature on recent life events mainly involves suicide attempts, in samples unselected by age, but usually with large representation of young adults. Studies are summarized in Table 1. (Tables appear at the end of this chapter.) Four studies have made comparisons with general population controls. In one study of adolescents aged 14 to 18, Jacobs (11) compared suicide attempters and normal controls for events over lifetime. The time periods nearer the attempt showed an excess of events, particularly in the weeks or months before the attempt, when there were more break-ups of relationship, illnesses or injuries, and pregnancies.

Among studies of adults, Paykel et al. (12) interviewed suicide attempters for life events in the six months before the attempt. Comparisons were made with matched general population controls and with matched depressives who were interviewed for the six

months prior to onset. Suicide attempters reported four times as many events as in the general population and one and a half times as many events as did depressives in the period prior to onset. There was a marked peak of events in the month before the attempt, and often in the week before. The excess over general population controls involved most types of life events.

Cochrane and Robertson (13) used a less satisfactory method, a self-report checklist, and studied only male subjects. This study did undertake separate analysis of subjects under 25. Total stress scores for the year before the attempt and the number of life events were much higher in depressives than matched general population controls, and the excess was equally apparent in the two samples: under 25 and over 40 years of age. It particularly involved unpleasant events and disrupted interpersonal relationships.

Isherwood et al. (14) also used a modified Holmes-Rahe methodology. Suicide attempters showed much higher stress scores than general population controls or a second control group of drivers involved in automobile crashes.

Several studies have made comparisons with patient control groups. Only one study examined life stress and suicidal behavior in children, and life event methodology was limited. Cohen-Sandler et al. (8) compared 20 children admitted to an inpatient psychiatric unit because of suicide attempts and threats with depressed, nonsuicidal children and with nondepressed children admitted to the same unit. Life events over the whole of the life span were ascertained from the case history charts, a method that might be vulnerable to unreliability in the original recording. Mean stress scores increased over developmental periods, particularly in the suicidal sample. In the twelve months prior to admission, the suicidal sample had experienced higher stress scores than either control group. The suicidal group had experienced more death of a grandparent, separation, divorce, remarriage and hospitalization of a parent, psychological

trauma, broken homes, and peer acceptance change.

Among studies of adult suicide attempters not restricted in age, Paykel et al. (12) found that suicide attempters had experienced more events than depressive controls, particularly in the month before the attempt. This excess was confined to threatening event categories: Undesirable events, events scoring as more stressful in a scaling study, or events outside the control of the patient. Slater & Depue (15) compared depressives who made moderately serious suicide attempts with other depressives. In the year preceding the attempt, particularly between onset of depression and the attempt, there were higher rates of independent events and of exit events involving departure of someone from the immediate social field of the subject. Luscomb et al. (16) used a self-report inventory to study male suicide attempters admitted to Veterans Administration hospitals and patients with no history of suicide attempts. Using a number of events and scores for perceived stress, frequency-of-events rated high in stress, exit events, desirable events, and undesirable events, the researchers found some differences, with a particularly high rate of exit events. However, differences were confined to subjects over 35 and, most markedly, those over 50; the differences were not present in those 19 to 34 year olds.

O'Brien & Farmer (17) compared life events in the six weeks before interview of suicide attempters who had taken overdoes of medication, compared with young people visiting general practitioners for various complaints. Most life events were much more frequent in the suicide attempters. Patients were followed up at three months and a year. At three months, there was no decrease in life event rates, but at twelve months there was a decrease. This was in the only study in which subjects served as their own controls, confirming that not all the life event elevation before the attempt was due to unchanging life style.

Three studies have been limited to separa-

tions, both recent and early. Levi et al. (18) examined actual threatened disruptions of interpersonal relationships in the preceding year among suicide attempters, patients with suicidal thoughts, and nonsuicidal patients. Suicide attempters experienced more separations than the nonsuicidal group, whereas those the patients with suicidal thoughts were intermediate. In a replication study of working class subjects, Stein et al. (10) found more recent separations among suicide attempters than psychiatric controls. Greer et al. (10) found that disrupted interpersonal relationships in the last six months were more common in suicide attempters than in psychiatric or medical controls.

One study (21) using a multiple regression analysis found that life stress on the Holmes-Rahe scale related significantly to suicide intent, but a study in adolescents (22) failed to find this.

In some other relevant, uncontrolled studies, Power et al. (23) found that severe events, as-certained over a six month period, peaked in the month before a suicidal attempt, but non-severe events did not. Suicidal intent, as-sessed subjectively and objectively, correlated with total life event stress, but lethality of attempt did not. Katschnig (24) found a peak of threatening events in the three weeks before the attempt.

In controlled study, but of a less recent event, Birtchnell (25) found that more psychiatric patients with a recent suicide attempt had ex-perienced death of a parent in the preceding one to five years, than in nonsuicidal psychiatric controls.

In a controlled comparison, Paykel et al. (26) studies suicidal feelings in the general population. Subjects reporting suicidal feel-ings in the last year experienced more life events, particularly undesirable events.

Studies of Completed Suicide and Recent Life Events

A small number of studies have examined completed suicide, depending usually on in-terview of relatives. Studies are summarized in Table 2. None of the studies have specifi-cally addressed youth suicide, and most samples have been over 24 years. Bereave-ment, of a parent or spouse, is an event which can usually be ascertained accurately. Bunch (27) interviewed informants concerning bereavement in the previous five years in suicides and general population controls. There was a significant excess among suicides in the last two years. The difference par-ticularly involved deaths of mothers and spouses. Men appeared more vulnerable to loss of a mother (especially if unmarried). MacMahon and Pugh (28) used death certifi-cates to compare timing of deaths from suicides and other causes in widows and widowers. Suicides showed a clustering in the few years following death of spouse, and particularly in the first year.

In a third study in general population, Hag-nell and Rorsman (29) compared recent events among suicides from the prospective Lundby cohort study, matched nonviolent deaths, and general population controls. Seven of 20 suicides experienced stressful life events in the two weeks before death, com-pared with none of the people who had natural deaths. Viewed over the year before death, the suicides showed more changes of living conditions, work problems, and object losses than the normal controls, and more ob-ject losses than the people with natural deaths, for whom work was not relevant be-cause of the nature of their terminal illness. Some of the events in the suicides appear to have been consequences of psychiatric ill-ness, rather than independent events.

Other studies have used psychiatric patient controls. Humphrey (30) studied male suicides, homicidal offenders, and patients hospitalized with neurotic disorders but with no suicidal or homicidal histories. The study examined losses over a lifetime rather than purely recent ones. Excluding early losses, the suicides had significantly more evidence of student, occupational, marital, and paren-tal loss than did the neurotic patients; homicides tended to be intermediate. Infor-mation on neurotic patients was obtained

from hospital charts, which might not be comparable with the psychological autopsies on the suicides.

Pokorny & Kaplan (31) interviewed relatives of psychiatric inpatients at a Veterans' Administration hospital, patients who subsequently committed suicide. Suicides were more likely to have had adverse life event between discharge and suicide than patients who, over a comparable time period, did not commit suicide particularly when scores during the hospitalization had been high on a measure of defenselessness, mainly reflecting depressive content.

Borg and Stahl (32) also compared psychiatric patients who committed suicide (in varying time periods up to two years following presentation) with matched psychiatric controls. There were no significant differences for the individual life events analyzed from case notes, and overall, the controls had experienced more events, although the suicide victims had reported more deaths.

Fernando and Storm (33) undertook a similar comparison. They found a significantly greater frequency of losses in the last year; these included divorce, separation, illness or death of a first degree relative or friend, and loss of job.

Murphy et al. (34) in an uncontrolled study also found that alcoholics who committed suicide tended to have recent loss of close interpersonal relationships. Humphrey et al. (35), examining the sequence of events in case histories of former psychiatric patients who committed suicide, identified a characteristic sequence starting with drinking problems, followed by difficulties with family, sex, friends, and work. This sequence was regarded as reflecting the lifestyle of the suicide, suggesting alcohol problems leading to gradual social deterioration.

Magnitude of Effect

It has often been pointed out that the recent life events implicated in psychiatric disorder, although stressful, usually fall short of major catastrophes. Separation, divorce, and death are no uncommon in the general population; together, they form the end of all marriages. Case control studies ignore base rates. In circumstances where the causative event is common and the disorder uncommon it is obvious that most event occurrences are not followed by disorder. Suicide attempts and suicide are rare occurrences in the general population; in children, they are even rarer. Their predictability from any kind of single causative factor is recognized to be low (36).

In studies of life events, conventional estimates of magnitude of effect depend on the time period used, since there is a consistent tendency for differences between subjects and controls to diminish as time periods are extended retrospectively further back. The effects of life events are most marked soon after the event and decay with time. This fact renders difficult comparisons with long-acting factors such as demographic risk factors or early loss. Further problems are the tendency of different studies to use different time periods, different ways of assessing event stress, and analyses that are sometimes categorical and sometimes quantitative. Findings also vary with the type of event analyzed, precluding a single summary index.

One useful epidemiological measure of magnitude (37) is the relative risk of disorder in those exposed to a causative factor and those not exposed. An approximation, the relative odds, can be used in case control studies. Applying this measure to studies of psychiatric disorder (37) suggests values of around 6.0 for the risk of depression in the six months following the more stressful classes of life event, with considerably lower values of 2.0-3.0 for schizophrenia. Values fall off considerably with extension back of the time periods.

Table 3 gives relative odds for suicidal acts, from studies using general population controls which report data in a suitable form for computation. For suicide, values range from 4.6 to 6.5, but for periods of one to two years: for suicide attempts, from 6.0 over 6 months to 10.0 over 1 month. In general, these sug-

gest effects that are higher than for depressive onset.

Overall, these effects are moderate in magnitude, suggesting an important effect but very far from an overwhelming one. A comparison is provided by acute infectious diseases where risks of disorder are high early after exposure then fall off rapidly. Using this comparison, risks are dramatically lower than for disorders such as chickenpox after exposure in those who have not acquired immunity, but comparable to tuberculosis, where there are many modifying factors (38). If effects were summed over a lifetime in suicide, they would be higher for persisting associations, such as demographic variables and, personality, than for recent life events, although in short periods the life event effect can be dominant (39).

There has been considerable study of interactions with potential modifying factors such as social support in depression (3,38), but relatively little similar study in suicidal behavior. Slater and Depue (15) found poorer social support in suicide attempters than controls, but much of this was due to prior exit events. A rich literature relates social isolation to suicidal behavior, although it is not so clear the extent to which some of this association might reflect personality and previous psychiatric illness, and the extent to which it acts specifically as a modifying factor to the consequences of recent life events.

Conclusions Regarding Recent Stressful Life Events

There are few studies of recent life events and youth suicidal behavior that use rigorous methodology. Including all studies irrespective of subject's age, findings are that life events strongly and consistently precede suicide, attempted suicide, and suicidal feelings. For suicide attempts, four studies, one of adolescents, also show stressful life events more common than in the general population; such life events are more common in attempters than in depressives, in mixed psychiatric patients, and in medical patient controls. One of the comparisons with other

psychiatric patients was in children and one in young adults; another found differences only among older and not younger adults. Various stressful events are involved. One flaw in existing studies is that few have considered separately events that are independent, in the sense of not previously being caused by the psychiatric disorders which may precede suicidal behavior. The one study that did so found that effects of events and bereavement, one event involved, is almost always independent. Lifestyle effects are not ruled out, but one study did find a fall-off of events on followup, supporting a clustering at onset. It cannot be excluded that lifestyle contributes to the events even if they do cluster at onset: even if this were the case, the events nevertheless may be pathogenic in their own right. Effects are moderate in magnitude, higher than for other psychiatric disorders, although predominately short term.

Possibilities for prevention are limited by the rarity of suicidal behavior. Many life events, at least in adults, are inevitable consequences of the life cycle and interpersonal relationships, and cannot easily be prevented. However, as will be seen in descriptive studies of children and adolescents reviewed in a later section, some events may be consequences of living in very disturbed family settings and might be preventable. Otherwise, preventive efforts must focus on modifying the consequence of the event. Major events can be used to signal a period of high risk when crisis intervention may be indicated, although in adults, so far, this approach has not proved useful in modifying behavior in adult repeat suicide attempters (40).

EARLY LOSS AND SUICIDAL BEHAVIOR.

Methodology

Studies of early environment and suicidal behavior have mainly concerned loss of a parent in childhood, by death or other causes. Careful controls and matching are required (41).

Rates of childhood bereavement tend to be higher in older subjects, born in earlier decades, as death rates in young adults, who are parents of young children, have declined progressively through this century. Divorce rates, on the other hand, have risen. Death rates also tend to be higher in lower social classes and in certain areas. Higher rates of childhood bereavement will also be found in conditions associated with greater parental age. Reliable information is difficult to obtain. Finlay-Jones et al. (42) found that only parental death and marital breakup were reported reliably in an eight-month test-retest study: these made up only one-third of reported childhood separations.

Childhood bereavement effects are generally assumed to be mediated environmentally, but could indicate common genetic influences on parent and child, such as suicide in affectively disordered parents. For loss in other ways, such as marital separation and divorce, the influence of personality patterns becomes more plausible. Parental chaotic lifestyle may contribute much to early marital breakdown and even early parent death, and could well represent genetically inheritable traits manifested in the next generation both in lifestyle and in suicidal behavior. Tsuang (43) found that, among families of schizophrenic and manic depressives, risk of suicide in relatives was higher when the patient had committed suicide.

Retrospective studies of qualitative aspects of early upbringing are even more difficult, in view of the likely retrospective distortions and the limited possibilities for validation. In an elegant study, Wolkind and Coleman (44) showed that recollections of the quality of relationships between parents in childhood varied with the mood state at the time of the interview, whereas reports of separation from parents in childhood did not.

Completed Suicide

The plentiful literature on early loss and depression suggests a weak association between parental death and later depression, a stronger association with parental loss by

separation, and a possible association with severity of depression (45,46). Most studies of suicidal behavior deal with suicide attempts rather than completed suicide.

In one of the few studies of completed suicide, Paffenberger et al. (47) used college records and death records of former students at Harvard and the University of Pennsylvania to examine antecedents of 381 suicides and 652 matched controls over a 17 to 51 year followup. An earlier publication (48) had used a smaller sample included in this later analysis. Maternal loss did not predict suicide, but paternal loss by death did so, with paternal loss by separation showing a trend at 10 percent significance. The effect of paternal death was a relatively small one, with a relative risk of 1.6, only reaching significance by the large sample size, but its specificity and causative importance were reinforced by an absence of any similar effects on accident deaths, another group where familial lifestyle might have been of importance. Roy (49) compared case notes of 30 chronic schizophrenics who committed suicide with 30 chronic schizophrenics who did not. The rates for loss of parent before age 17 by death or separation were closely comparable. Studying patients with recurrent affective disorder, the same author (50) found that more of those who committed suicide had early parental loss than those who did not. Studying 90 psychiatric patient suicides with mixed diagnoses, presumably including some or all of the above (51), he found only a trend at the 10 percent level for parental loss by death or separation before age 17.

Suicide Attempts

Table 4 summarizes a number of studies of suicide attempts and early loss in adults. Only two of these separately analyzed younger subjects under 30. Four studies made comparisons with general population samples. Two of these used medical patient controls. For the purposes of recent life event studies, these are best regarded as a patient control group since there is evidence

that life events may precede some medical disorders and hospitalization. For early loss, there is no similar evidence and it is reasonable to regard medical patients as a normal control group.

Greer et al. (20) compared suicide attempters, nonsuicidal psychiatric patients and medical patients and found significantly higher rates of early separation among attempters, particularly for loss of both parents and loss under the age of 4. Analysis confirms that the differences were significant separately for death and for separation or divorce. Crook and Raskin (52) compared depressed inpatients who had histories of suicide attempts, depressives without such histories, and general population controls. They reported a significant excess of loss in the suicidal group by divorce, desertion or separation, but not by death. Detailed figures were not given. Goldney (53) compared female suicide attempters aged 18 to 30 with a small sample of women attending a community health center. There was no difference for parental death but more loss by divorce and separation. Adam et al. (54) studied suicide attempters and general practice controls. Again, there was a slight but not significant difference for deaths, but there was a significant excess of loss due to divorce and separation. Overall, all four studies confirm that parental divorce or separation is a risk factor for suicide attempts in adults but, with one exception, leave doubtful the impact of parental death.

Other studies have made comparisons with psychiatric controls. Many have not distinguished the type of loss. Farberow (55) reported no difference overall in the incidence of separation in small samples of suicide attempters and nonsuicidal patients but more loss before the age of 6. Moss and Hamilton (56) reported separation in 60 percent of seriously suicidal patients as opposed to 15 percent in other patients, both those who were potentially suicidal and nonsuicidal. Walter (57) studies early loss in patients with suicidal threats or attempts, and in nonsuicidal depressed patients. Early loss

was reported in 77 percent of the former and 20 percent of the latter, a remarkably high difference. Bruhn (58) reported more loss in suicidal patients, than in nonsuicidal outpatients or inpatients.

Greer (59) studied patients with neurotic and sociopathic disorder. These with a history of a suicide attempt had more evidence of parental loss for at least 12 months before the age of 18; they had experienced such loss particularly before the age of 55 and more commonly were deprived of both parents. The analyses were significant both in patients under 30 and 30 & over. Reanalyzing Greer's data to examine the nature of loss, loss by death just failed to reach significant (23.5% attempters, 24.3% controls, p = .06), whereas loss by divorce or separation was significant (17.3% vs 8.3% p <.05). Gay and Tonge (60) found significantly more separations before the age of 15 in new consecutive referrals to a psychiatric department with a history of a suicide attempt than in those without it.

Hill (61) examined case notes of depressed patients, comparing those who had made a suicide attempt and those who had not, for early parental deaths. Overall rates were not much different in the two groups but there was some excess of deaths in certain subgroups: patients of both sexes who had lost their fathers when they were aged 10 to 14 and women who had lost their fathers when they were aged 15 to 19.

Birtchnell (25) studies psychiatric patients with a history of attempted suicide. Pooling data about all parental deaths and illegitimacy, he found more such events had occurred in suicide attempters. This was mainly due to parental deaths than occurred when the patients were age 10 to 19, although this difference failed to reach significance. In a later, similar study (62), he found no differences for loss at any age in childhood or adolescence.

Levi et al. (18) studies the effect of parental separation of six months, comparing psychiatric patients who had made a recent

suicide attempt, who had had suicidal feelings, or who were nonsuicidal. The first group were significantly more likely to have experienced a separation than the third, with the second group intermediate. The differences were particularly distinct when the separation occurred before the age of 7. Stein et al. (19) replicated this study in working class attempters, analyzed separately by sex and race. There were significant differences for loss up to the age of 7 for all four groups, and for loss up to the age of 17 for all except black males, for whom the differences were suggestive and the sample small.

Both these studies also examined separations in the last year and have been included in Table 2. Both sought to examine whether there was a particular aggregation of patients with the combination of early and recent loss, suggesting that early loss acted to sensitize the patient to recent loss. Brown and Harris (3) have presented evidence that this is the case for depression in women, although not all the evidence is consistent. Interactions in these two studies were tested by partitioning the total chi square; in neither study were they significant, although inspection of frequencies does suggest some interaction in the predicated direction. Greer et al. (20) used a different mode of analysis and found both suicide attempters and nonsuicidal psychiatric patients tended to show this pattern but medical controls did not, which would be consistent with an effect in various psychiatric disorders. Some confirmation of an effect was found in an uncontrolled study (63) in which suicide attempters were interviewed about early separation and recent interpersonal loss. There was an association between early and recent loss for females, but not males.

Pooling these comparisons with psychiatric controls, four studies have found more early parental death in adult suicide attempters than in psychiatric controls, while two have failed to find this association. Three studies have found a difference for parental separation or divorce and none have failed to. Among studies not distinguishing cause of

separations, and usually including temporary separation, all seven have shown an excess in suicide attempters. There is a clear and strong association with loss by other means and a weaker, but probable, association with loss by death.

Suicidal Feelings

Some additional studies have been made of suicidal feelings. Adam et al. (64) found in students attending a student mental health service that suicidal ideation was associated with loss of a parent by death and divorce or separation. Ross et al. (65) studied a mixed sample of students, medical patients, and state employees, and found that those with suicidal feelings more often reported their parents had separated. Goldberg (66) in an epidemiological community study of 18 to 24 year olds found a significant association with loss of mother before the subjects reached age 16.

Retrospective study of qualitative childhood environment is very liable to selective falsification. Ross et al. (65) found that those with suicidal feelings reported parents who favored siblings, were unstimulating, guilt-engendering, rejecting, and unaffectionate, abusing, and punitive. Goldney (53) found that young women attempting suicide were more likely than normal controls to report parental quarrelling, frequent disagreements with their parents, financial problems at home, poor childhood physical health, and various negative parental characteristics. These findings may say something important regarding subjects' perceptions rather than their real environments.

Studies in Children and Adolescents

Few studies of children and adolescents comparing early loss in suicide attempters and control groups have used adequate samples and methods. In the study already shown for recent life events in Table 1, Cohen-Sandler et al. (8) compared children aged 5 to 14, admitted after making suicidal acts of threats with admitted children who were depressed

but not suicidal, or not depressed. Data were obtained from case histories. When compared with the two other groups, the suicidal children showed, during infancy and preschool years, a higher incidence of separation from parents; during early childhood, more parental divorce; and, during late childhood, more separation and divorce of parents.

However, Jacobs (11) found only small differences between adolescent suicide attempters and general population controls in the incidence of separation or divorce of parents during childhood, with considerable differences for more recent break up.

Stanley and Barter (67), comparing suicidal and nonsuicidal hospitalized adolescents, found that parental loss through separations and divorce occurred in both groups, although more common before age 12 in suicide attempters.

Conclusions Regarding Early Loss

There are few adequately controlled studies of youth suicidal behavior, with no systematic study of completed suicide in the group under 25. The very few studies in adult groups do suggest that early loss characterizes suicides, when they are compared with psychiatric controls.

Regarding attempted suicide, one study of children does show a considerable increase of separation from and between parents, although methodology was not ideal, and other studies provide less support. Studies of adult suicide attempters show higher rates of early loss by separation and divorce than the general population in all studies, but increased parental death in only one of four.

Comparisons between adult suicide attempters and psychiatric controls consistently show more loss in the former when the study examines separation, divorce or loss not distinguished by nature, although in some studies, the differences are weak and selective to certain groups. Studies of parental death also tend to show an excess, but to a weaker degree and with some negative studies. Studies that specify the child's age at time of loss and sex of parent or patient do not report consistent findings.

More controlled studies of children and adolescents are needed. Stronger effects might have been expected if events decay over time; early childhood events are not far in the past for the child, as they are for the adult. Parental loss is also clearly an event of major salience in general terms for the child.

Effects are moderate in magnitude. In adult comparisons with the general population where relative odds are computable from the data given, the figures are: completed suicide and parental divorce or separation, 1.6 (47); attempted suicide and parental death 2.5 (20); attempted suicide and parental divorce or separation, 3.9 (20); 3.8 (54). Although lower than relative odds obtained for recent life events computed over six months, they are impressive for effects acting over prolonged times.

Overall, there is an association between early loss and suicide attempts, more marked than for psychiatric disorder in general and more marked for early loss by separation or divorce than by death. The association with death could be due to parental suicide and genetic transmission of suicidal behavior, since parental suicide is not usually excluded from parental death, but this is unlikely to be of sufficient magnitude to account for the differences. A more plausible explanation might be in an associated risk-taking lifestyle, but there is a prima facie case for regarding the death itself as pathogenic.

Loss for reasons other than death, is likely if permanent, to be due to breakup of parents' marriage. Here, conclusions can be less clear. The effect is larger and more consistent than for early parental death. This might reflect familial lifestyle towards acting-out, whether genetically or environmentally based, rather than causation. However, marital strife that precedes breakup and the subsequent uncertainties of having two separated parents may be more persistently harmful than the major loss itself, even by death.

OTHER STUDIES OF SUICIDAL BEHAVIOR IN YOUTH

The studies reported so far have been predominately of adults, reflecting the paucity of good controlled studies in young adults, adolescents, and children. Studies that lack control groups are unsatisfactory in life event collection or other methodological aspects can supplement these. A selection of studies is reviewed rather than a comprehensive survey.

One recent study is reassuring. Rich et al. (68) (in press) compared 133 completed suicides aged 15 to 29, with 150 aged 30 and over. There was no difference in the number of stresses at the time of death, although the older group had more illnesses and the younger group had experienced more unemployment and legal problems, with more separations regarded as suicide precipitants when present. The presence and salience of stresses is likely to be related to the life cycle. Even in this study only 31 of the suicides were under 25.

There have been many uncontrolled descriptive studies, mostly in adolescents rather than younger children. Shaffer (69) made a detailed study of 31 completed suicides aged under 15. Common precipitants were disciplinary crises, fights with peers and disputes with parents or with friends of the opposite sex, bereavements. Only in 10 percent were there no precipitants. Many suicides took place during a period of absence from school. Most children were living with one or both parents and early loss was not common. Amir (70) studied Israeli suicides aged 10 to 18. Common motives recorded were quarrels with parents, with family members and others. In only 3 percent were motives recorded as unknown. Seventy-six percent came from intact families.

Studies of suicide attempters are plentiful. Toolan (71) reviewed 102 admissions to Bellevue Hospital under age 18 but mostly over age 12. There was a high incidence of broken homes; only 32 were living with both parents, with paternal absence common. Jacobziner (72) reported on 597 suicide attempts in subjects aged 12 to 20 in New York City. There was a high incidence of family disorganization. In 21 percent of the cases, the parents were not living together. The author felt that most attempts were sudden, precipitous reactions to stressful situations.

Barter, et al. (73) studied case notes of 45 suicide attempters under 21. Twenty-three had lost one of both natural parents, and of 21 cases where natural parents were living together, 11 had marital problems. School performance was almost uniformly poor. Fifteen of the attempts grew out of an argument with parents and 14 were associated with a break-up of a relationship. Only in 9 cases did the case notes not indicate a precipitant cause.

Rohn et al. (74) studied 65 adolescents who attempted suicide. Fifty-nine percent came from one-parent families, with prolonged absence of a parent in 11 percent more; 25 percent were not living with either parent at the time of the attempt. Seventy-five percent had very poor school records. Tischler et al. (75) studying 108 adolescent suicide attempters, found that most frequently cited precipitants were family problems (52%), problems with the opposite sex (30%) and school problems (30%). Almost 50 percent reported that at least one of their parents had been divorced. Only 49 percent were living at home with both parents at the time of the event.

These studies were American. Similar findings have been obtained in Britain. White (76) studied 50 adolescents admitted to a general hospital following overdose. Seventy percent were experiencing difficulties with important persons in their environment, 8 percent academic worries, 6 percent concern regarding physical illness. In 10 percent no cause was known to the patient. Fifty percent had undergone separation from parents before the age of 15.

Hawton and colleagues (77,78) studies 50 adolescent overdosers. Family backgrounds were disturbed, 36 percent living with a single

parent and 12 percent with neither parent, higher than national figures. The common problems identified at the time of the overdoses were arguments with parents, problems with school or work, including unemployment and problems with boy or girl friends. Eleven percent had problems with physical health.

Seiden (79) reviewed the literature on the special case of university student stress and suicidal behavior. Most studies find students to have higher suicide rates than their nonacademic peers. The degree to which this is related to academic stress or other self-selection factors is not clear.

Otto (80), in a study of suicidal attempts in children and adolescents related to school problems, concluded that they were of relatively low importance. However, recent suicides in school children in Japan reported in the popular press suggest that findings may be different in a culture in which school children are under considerable academic pressure.

Comparisons with psychiatric controls tend to suggest that these factors are only weakly specific to suicidal behavior, and characterize a variety of disturbed adolescents. Mattson et al. (81) studied 75 suicidal children and adolescents referred as emergencies to a child psychiatry clinic. Only about half came from intact families, 27 having experienced parental divorce or separation, 6 loss of one parent, 8 loss of both. However, this was not different from other children referred to the clinic. The common triggering situations were conflicts with parents and loss of heterosexual love objects, with school problems, sexual conflicts, and pregnancy in a smaller proportion. In the nonsuicidal children these were less common, except for conflict with parents, whereas physical injury and exacerbations in chronic physical illness were more common.

Pfeffer et al. (82) studies 42 children with suicidal ideas, threats or attempts and 16 who were nonsuicidal. There were no differences between the two groups in the type of recent stresses, which were most commonly preoccupations about school failure, disturbed friendships, fears of parental punishment, and school and family crises. Nor were there significant differences in family situations, with high incidences of parental separation, parental absence and abuse home atmospheres in both groups. Comparing delinquent adolescents with and without a previous history of suicide attempts (Miller et al.) (83), found no difference in the incidence of absent parents. However, Garfinkel et al. (84), comparing case record information on 505 suicidal children and adolescents presenting at an emergency room and 505 nonsuicidal cases, found the attempters to show significantly more unemployed fathers, employed mothers, and parents absent form the home.

An English study (85) compared children admitted to a general hospital after overdoses with matched psychiatric outpatient referrals. The suicide attempters showed more family disturbances, with more evidence of poor relationship between child and father or mother, lack of warmth, and discord, but no greater evidence of other stresses such as poor living conditions, migration, stress within the family, stress at school, or other extra familial stress.

Overall, these studies uniformly confirm high rates of early loss, broken homes and precipitant stress in adolescent suicide attempters, but suggest lower rates of broken homes for completed suicides. Stresses particularly center around family problems, break or threat of a break in relationships, and school problems. Physical illness is uncommon as a stressor. The stresses are those which might be expected to loom importantly at this stage of the life cycle.

Controlled comparisons with other psychiatrically disturbed adolescents show similar rates of recent stress and fairly similar rates of family breakdown and early loss, indicating that these phenomena are not highly specific to the suicidal, but characterize the psychiatrically disturbed. The rates are probably above those in the general popula-

tion, although better studies are needed to confirm that.

One issue does emerge clearly: the precipitant life stresses in adolescents are to some extent bound up with the disturbed family backgrounds: both are facets of disturbed families. A second issue often described is the impulsiveness of the suicide attempts, raising the question of how much personality traits of impulsiveness and acting out contribute to the ultimate consequence.

GENERAL CONCLUSIONS

A number of general conclusions and directions for further studies emerge form this overview.

1. There is a dearth of studies that assess the impact of employing careful methodology and controlled comparisons of recent life events in the role of youth suicidal behavior.

2. There are more studies of early parental loss, but even here, there are not many controlled comparisons or attempts to date the family break-up to examine the extent to which the associations depend on recent or earlier family break-up.

3. There are few studies involving completed suicides, rather than suicide attempts. The former is more difficult to study, but the many differences in demographic and epidemiological characteristics of the two populations mandate separate studies.

4. Studies of recent life events in older populations consistently indicate increased rates before suicide attempts and suggest the same for major events, before completed suicides. In terms of relative risks, effects are moderate in magnitude, but tend to be short term, with rates of events in suicide attempters (and other psychiatric patients) converging with those in control groups as time periods are extended retrospectively beyond a year. Suicide attempts probably bear the strongest and most immediate relationship in time to recent life events of any

psychiatric disturbances; in particular, they often rapidly follow interpersonal disruptions.

5. Studies of early loss in older suicides and suicide attempters consistently show rates higher than in normal control groups or other psychiatric disorders because of break-up of parental marriage. Relative risks are moderate in magnitude; less than for recent events but apparently long-enduring. For parental death, the effects are less marked; rates are probably raised but only a little.

6. Uncontrolled studies of adolescent suicide attempters and the few comparisons with general population controls suggest particularly high rates both of recent life stress and of earlier family disruptions. Precipitant stresses particularly involve family problems, break-ups of relationships, and school problems. Physical illness as a stressor is uncommon. Recent stresses often appear to arise out of disturbed family settings.

7. Comparisons of adolescent suicide attempters with other psychiatrically disturbed adolescents show only small differences, suggesting that the early losses and disturbed families are relatively nonspecific, and the recent stresses only partly specific.

8. Interpretations of these associations are not fully clear cut. In careful studies of recent life events, it is clear that much of the excess in events is independent of causation by the patients and represents a genuine clustering of external stress before the suicidal act, rather than simply an enduring aspect of lifestyle that would be found at any other time. Nevertheless, generally disturbed lifestyles and, for adolescents, family settings not in their control, do put subjects more at risk of major events.

9. For early loss, the small differences in parental death and considerably larger differences in loss by marital break-up are susceptible to two alternative explana-

tions, both of which suggest that something other than the loss itself is pathogenic. One interpretation is that the findings to some degree reflect a tendency to an acting-out personality and life style, genetically or environmentally transmitted down the generations. The second is that the preceding marital strife and arguments are more disruptive to the child, on a long term basis, than is the loss of a parent itself.

10. Neither recent nor early environment can be regarded as sufficient causes by themselves. They, particularly recent events, clearly interact with other personality variables related to acting-out and impulsive behavior.

11. Implications for prevention are not easy. Partly, this is a general problem in relation to the occurrence of rare consequences, so that most occurrences of a cause will not be followed by disorder. In addition, most of the recent or early events are not preventable. At best, the recent events might serve as signals for high-risk periods when crisis interventions might be attempted.

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CONTROLLED COMPARISON OF LIFE EVENTS AND SUICIDE ATTEMPTS

Controls	Sample Size	Method	Findings
1. General Population Controls			
a) Studies of Children			
Jacobs (1971)	Adolescent attempters N = 31 Control adolescents N = 31	Interview	Excess of events in weeks/months before attempt, particularly break of relationship, physical illness, injury, pregnancy
b) Studies of Adults			
Paykel et al (1975)	Attempters N = 53 Controls N = 53	Interview for recent life events	Excess of life events over six months. Especially last month. Most types of event.
Cochrane & Robertson (1975)	Attempters N = 100 Controls N = 100	Self report checklist scores	Higher stress scores and number of life events over 1 year. Especially unpleasant events, disrupted interpersonal relationships. Equally for under 25, over 40.
Isherwood et al (1982)	Attempters = 150 Controls = 200 Automobile accident drivers = 100	Self report Total stress scores	Higher stress than both control groups. Time not stated.
2. Other Patients			
a) Studies of Children			
Cohen Sandler et al (1982)	Suicidal children N = 20 Depressed N = 21 Other psychiatric N = 35	From case records	Higher mean stress scores separation, divorce remarriage, hospitalization of parent, broken homes, other illness.
b) Studies of Adults			
Paykel et al (1975)	Attempters = 53 Depressives = 53	Interview for recent life events	Attempters experienced more events in threatening classes: undesirable; higher rated stress, uncontrolled.
Slater & Depue (1981)	Primary depressive Attempters N = 14 Depressive N = 14	Interview	Attempters experienced more independent events exits in year before attempt, particularly between onset of depression and attempt.

Table 1.

Controlled Comparison of Life Events and Suicide Attempts (continued)

Controls	Sample Size	Method	Findings
Luscomb et al (1980)	Male attempters N = 47 Psychiatric patients N = 51	Self report Checklist	More events, perceived stress, high stress events exits, desirable, undesirable events. In previous year, no attempter-control differences under age 35.
O'Brien & Farmer (1980)	Overdosers N = 197 General practice attenders N = 152	Interview	Higher rates in previous 6 weeks for most events. Fall off on one year follow-up.
Levi et al (1966)	Suicide attempters N = 40 Suicidal feelings N = 40 Non-suicidal N = 40	Interview Separations only	Attempters experienced more separations in last year. Suicidal feelings intermediate.
Stein et al (1974)	Suicide attempters N = 165 Other psychiatric N = 165	Interview Separations only	Attempters experienced more separations in last year. Significant except for black women where suggestive.
Greer et al (1966)	Suicide attempters N = 146 Other psychiatric N = 148 Medical controls N = 148	Interview only disrupted interpersonal relationships	Attempters experienced more disruption in last 6 months than either groups. Psychiatric controls intermediate.

Table 1 concluded.

STUDIES OF RECENT LIFE EVENTS AND COMPLETED SUICIDE

Study	Sample	Comparison Group	Method	Findings
General Population Controls				
Bunch (1972)	Suicides N = 75	General Population N = 75	Interview of informants. Bereavement only	More loss of parents spouse in previous 2 years. Males, especially unmarried more vulnerable to loss of mother.
MacMahon & Pugh (1985)	Suicides N = 320)	Non-suicidal deaths N = 320	Death Certificates of spouses	Clustering of subject death by suicide in 4 years following spouse death, especially previous year.
Hagnell & Rosman (1980)	Suicides N = 28	Natural deaths N = 25 General population controls N = 50	Sources unclear	More changes of living conditions, work problems and object loss than general population in last year: more object loss than natural death.
Psychiatric Patient Controls				
Humphrey (1977)	Psychiatric patient suicides on followup N = 98 (Males only)	Homicidal offenders N = 62 Neurotic patients N = 76	Psychological autopsy, life histories and hospital charts	More losses, not all recent, than in neurotics. Homicides intermediate.
Pokorny & Kaplan (1976)	Male psychiatric patient suicides N = 20	Patients who did not commit suicide N = 20	Interview with relative relative	More adverse events after discharge, particularly where higher defenseless, probably reflecting depression, during hospitalization.
Borg & Stahl (1982)	Psychiatric patient suicides N = 34	Patients who did not commit suicide N = 34	Case records	No significant diffference although tendency to more deaths.
Fernando & Storm (1984)	Patient suicides N = 22	Non-suicide patients N = 22	Case records	More losses.

Table 2.

RELATIVE RISKS IN COMPARISONS OF LIFE EVENTS
IN SUICIDAL AND GENERAL POPULATION SAMPLES

Author	Time Period	Event	Event Rates Patient	Controls	Relative Odds
Suicide					
Bunch (1972)	2 years	Bereavement	7/95	7/150	6.5
Hagnell & Rorsman (1980)	1 year	Work problems	14/28	10/56	4.6
		Object loss	11/28	4/56	8.4
Suicide Attempts					
Paykel et al (1975)	6 months	Undesirable events	32/53	21/53	6.0
	1 month	Any event	37/53	10/53	10.0

Table 3.

Studies of Early Loss in Adult Suicide Attempters

Study	Sample	Comparison Sample	Type of Loss	Findings
General Population Controls				
Greer et al (1966)	Suicide attempters N = 156	Non-suicidal psychiatric patients N = 156	Death of parent under 15	Greater incidence than both comparison groups.
		Medical patients N = 156	Separation, divorce under 15	Greater incidence than both comparison groups. Particularly under 4, and loss of both parents.
Crook & Raskin (1975)	Depressives with history of suicide attempt N = 115	Non-suicidal depressives N = 115 General population controls N = 285	Death of parent under 12. Loss for at least one year due to separation, divorce, desertion.	No difference. Higher incidence in suicidal.
Goldney (1981)	Female suicide attempters aged 18-30 N = 110	Women attending a community health centre (N = 25)	Death under 16 Divorce, separation	No significant difference. More loss in suicidal.
Adam (1982)	Suicide attempters N = 98	General practice controls (N = 102)	Deaths under 25 Divorce, separation	No significant difference. Significantly higher in suicidal.
Psyciatric Patients Controls				
Farberow (1950)	Suicide attempters N = 32 Suicide threat (N = 32)	Non-suicidal patients (N = 32)	Permanent loss under 19	No significant difference overall. More loss before 6.
Moss & Hamilton (1955)	Seriously suicidal inpatients (N = 50)	Potentially suicidal inpatients N = 50 Non-suicidal patients N = 50	Permanent loss in early life	60% in seriously suicidal vs 15% in each comparison group.
Walton (1958)	Psychiatric patients with suicide attempt or threat N = 60	Non-suicidal patients N = 60	Temporary loss under 15	Significantly more.
Bruhn (1962)	Suicide attempters N = 91	Psychiatric outpatients N = 91 Non-suicidal psychiatric inpatients N = 50	Temporary loss under 15	More loss in suicidal.
Greer (1966)	Neurotic or sociopathic patients with history of attempt N=81	Other neurotic or sociopathic patients N = 385	All loss for 1 year under 15. Death	More loss.. Both over 30 and under 30. More loss (p <.06)
Gay & Tonge (1967)	Psychiatric patients with history of suicide attempts N=111	Non-suicidal psychiatric patients N = 382	Separation for at least six months prior to 15	More loss in suicide attempters.

Table 4.

SEXUAL IDENTITY ISSUES

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Study Selection Criteria

In this literature review, it was necessary to create several criteria for selection of studies and for emphasis of certain types of studies.

1. Since much of the literature dealing with sexuality and suicide does not specifically focus on adolescent or youthful populations, it was decided to include all studies dealing with the relationship between suicide and a particular aspect of sexuality. Whereas this decision increased the number of studies to be reviewed, the final result was largely a study of youth suicide. This arose because many studies of sexuality are also studies of the young.

2. Those studies with control groups have been given greatest emphasis. However, single-group studies are also included.

3. Primary emphasis was given to studies of attempted and completed suicide with less attention to suicidal gestures, suicidal ideation, or self-mutilation.

4. Little attention has been given to clinical observations, interpretations, and studies reporting one or two cases.

Homosexuality

The literature clearly and consistently shows that homosexuals of both sexes attempt suicide much more often than do heterosexuals. Saghir and Robins found that 7 percent of their 89 homosexual males and none of the 35 heterosexual controls had attempted suicide (1). The respective percent-ages among the female groups were 12 (N=57) and 5 (N=43). All four groups generally studied young people in their twenties or thirties. In a much larger study in which the four comparison groups were matched on age, race, and education, Bell and Weinberg found the following percentages of subjects who had ever attempted suicide: homosexual men, 18 percent (N=686); heterosexual men, 3 percent (N=337); lesbians, 23 percent (N=293); heterosexual women, 14 percent (N=140) (2). Similar significant (ANOVA) differences in their histories of suicide attempts have been found in comparing lesbian and nonlesbian female prisoners, although means or percentages were not presented (3).

Turning to studies of clinical populations, one study of 500 psychiatric outpatients found that 50 percent of 12 homosexuals compared with 13 percent of 488 non-homosexual patients had attempted suicide (4). A 6 to 12 year followup study of these patients reported that two of the homosexuals had committed suicide (5). This suicide rate was 17 times greater than the age- and sex-specific death rate for that State. Another study of 60 homosexual men with a mean age of 20 found that 32 percent had attempted suicide at least once (6). As might be expected, the percentages who had attempted suicide are higher among the clinical than among the nonclinical populations.

The literature also speaks clearly to the nature of suicide attempts by homosexuals, al-

though that differs by gender. Five of the six homosexual male attempters reported by Saghir and Robins had made their attempts before the age of 20 during conflict with family members or within themselves over their incipient homosexuality (1). Five of the seven lesbian attempters had made their attempts during their twenties during a depression following the break-up of a relationship. Bell and Weinberg similarly report that homosexual men in their study generally attempted suicide at an earlier age than the lesbians (2). The homosexual men were more likely to report that their attempts were related to trying to deal with their homosexuality than was the case for the lesbians, whose attempts were more related to the break-ups of relationships.

The above data indicate that the period of coming to an acceptance of one's homosexuality--"coming out"--is a period that may be accompanied by a heightened risk of suicide attempts. The average age of coming out among homosexual men has been found to be 18 or 19; (7,8,9) this seems to coincide with the time when homosexual men are at risk of attempts. Two studies of large nonclinical populations of homosexuals have reported that just under half of the respondents agreed with the item: "Before I came out, the idea that I might be homosexual troubled me a lot" (8,10). In a recent study more intensively analyzing the Bell and Weinberg data, Harry found that, among the homosexual men, being troubled over one's homosexuality during adolescence was related to subsequent suicide attempts (11). Among the men of both sexual orientations, childhood cross-gender behaviors were related to attempts. Among all four study groups, being a loner during adolescence and general adolescent unhappiness were related to attempts. It thus seems that a number of the pre-adult characteristics and experiences of homosexuals may create special difficulties for them and that, for some, suicide may seem preferable to other solutions. Studies suggest that trying to grow up homosexual in a culture organized for heterosexuality likely contributes to many

of the problems of these troubled youths.

Confusion Over Sexual Identity

The topic of confusion over sexual identity has been here interpreted to mean transsexuals. Although it could also refer to the case of young homosexuals attempting to accommodate themselves to their sexual orientation, that has been dealt with in the previous section. All except one of the studies dealing with transsexuals and suicide are single-group studies lacking a control group. In the one exception, male transsexuals still living as males had made significantly more suicide attempts than male transsexuals living as females, homosexual psychiatric patients, homosexual nonpatients, and heterosexual nonpatients (12). Also, the two transsexual groups were significantly higher in suicidal thoughts than were the other three groups. The sample sizes in this study ranged from 19 to 25.

Turning to the single-group studies, Walinder reported that 20 percent of 30 Swedish male transsexuals and 8 percent of 13 female transsexuals had made attempts (13). These percentages should be considered minimum estimates because the author only reported attempts documented in hospital records, thereby excluding those not leaving such records. Another study of 72 English transsexuals (55 men and 17 women) reported that 53 percent had made attempts. Four (5.7 percent) had completed suicide (14). Person and Ovesey reported that six of ten male transsexual patients were preoccupied with suicidal thoughts and two had made attempts (15).

Although these studies dealing with transsexuals either lack a control group or do not report means or percentages of those who had made attempts, the percentages available indicate that transsexuals may be at higher risk for suicide attempts than other groups at risk, e.g., homosexuals, and much higher than the general population. As a matter of caution when discussing the attempts of transsexuals, it is important to distinguish between past attempts and threats,

attempts, and self-mutilation to induce a therapist to undertake desired medical actions. Such threats and acts seem to be fairly common among clinical transsexuals. However, as far as possible, such attempts have not been included in the percentages cited above.

Acquired Immune Deficiency Syndrome (AIDS), AIDS-Related Complex (ARC)

Since the phenomenon of AIDS is quite new and since the associated medical prospects are frequently changing, little can be said about the relationship of AIDS to suicide attempts or completions. Approximately 70 to 75 percent of persons with AIDS or ARC are male homosexuals. However, there have been cases reported of both attempts and completions (16,17,18). Also, one homosexual man who had been unsuccessful with suicide attempts devised an interesting—and successful—means: having sex with persons known to have AIDS (19).

With our current medical knowledge of AIDS as a classical terminal illness, one might expect suicide and attempts. If attempts and completions are not directly due to the medical aspects of AIDS, they may also be the indirect result of societal reaction to the individual with AIDS. For example, one homosexual man with AIDS attempted suicide after his employer fired him for having the illness (18). Similarly, AIDS can result in evictions, loss of a lover, and loss of a sex life. AIDS can also effect an involuntary disclosure of an individual's homosexuality to others. Hence, these indirect effects of the illness potentially could enhance the possibility of suicide. No information is currently available on any link between ARC and suicide.

Sexual Inhibition or Promiscuity

Computer searches of the SIEC data base, Psychological Abstracts, and Medline facilities produced nothing on this topic. One study suggested a relationship between promiscuity and suicide attempts in a population of 105 adolescents who were pregnant (20). The 14 (13 percent) who had attempted suicide during the two years following pregnancy were more likely to have had a venereal disease. While the presence of venereal disease indirectly suggests promiscuity, the 14 attempters were also significantly more likely to be single and have a number of other problems. Hence, isolating these girls' sexual activity as a contributory factor in their attempts should be viewed with extreme caution.

Victims of Physical and Sexual Assault

The strongest relationship between suicide attempts and physical abuse was reported in an Australian study comparing 20 suicidal and 50 nonsuicidal children under 14 from a child psychiatric hospital (21). Sixty percent of the suicidal children versus 4 percent of the nonsuicidal had been subjected to parental physical abuse; 65 percent versus 4 percent had also witnessed physical fights between their parents. However since one is more likely to be interested in predicting from abuse to attempts, rather than the reverse, these percentages should be made in the other direction. In that case, the percentage among the abused who were suicidal was 86 versus 14 among the nonabused. Viewed in this way, these data appear to show a massive and significant association between abuse and suicidality. However, this association is very likely an artifact of the clinical populations studied. Suicidal children are probably much more likely than nonsuicidal ones to come to clinical attention with problems. Also, abused children are probably more likely to come to clinical attention than are nonabused children with problems. Children who are both abused and suicidal are thus more likely to come to clinical attention than either the simply abused, the simply suicidal, or children who are neither. Hence, abused **and** suicidal children will be far over-represented in clinical populations and thus suggest an apparent association even when none may exist in the general

population. These data suggest that clinical populations may be very inappropriate for studying the association between two phenomena when both of those phenomena are major correlates of, or criteria for, admission to a clinical population.

Another study compared 60 abused children, 30 neglected ones, and 30 nonclinical children (22). Their respective rates of self-destructive behaviors were 41 percent, 17 percent, and 7 percent. The percentage among the abused who had made attempts was 8.5 (figures for the other two groups were not given). Again, since both self-destructive behaviors and abuse are both likely to be brought to either clinical or official attention, the reported associations may well overstate the strengths of the true associations.

The studies of sexual abuse and suicidal behaviors are also from clinical populations. Herman and Hirschman compared 40 women who had had incestual relationships with their fathers, with 20 women who had had seductive, but not incestual, relationships with their fathers (23). The women in both groups were private psychiatric patients. The researchers found that 38 percent of the former and 5 percent of the latter had attempted suicide; the difference was statistically significant. A single-group study of sexually abused girls from 201 families served by a protective service agency found that eight girls (4 percent) from these families had also attempted suicide (24). All attempts occurred when the girls were 14 to 16 years old. Since the families of these girls were generally chaotic and conflictful, it is difficult to attribute direct causality to the abusive behaviors of their fathers. Also, the percentages of attempts in this study and the one previously mentioned (22) are not particularly high when compared with groups discussed earlier. Although there may be a relationship between sexual abuse and suicide attempts, these studies cannot show one.

A study comparing 25 women who had been raped several times with 92 women who had been raped once indicates a possible relationship between suicide attempts and being multiply raped (25). All subjects were from a hospital rape center. The multiply raped women were significantly more likely to have attempted suicide (52 percent vs 16 percent), to be younger, poorer, loners, immigrants to the city, and to have had more psychiatric treatment. Although there may be an association between multiple rape and attempts, attribution of causality here is clouded because of the apparently disorganized histories of the multiply raped victims. Both their suicides and rapes may be symptoms of disorganized personal histories. A suggestive study of 13 young (18 to 23 years) military servicemen who had been raped by other military personnel found that two (15 percent) had made subsequent suicide attempts out of feelings of deflation of their manhood (26). A study of prison sexual violence in New York State men's prisons found that 38 percent of 107 inmates who had received verbal threats to physical assault for sex had made suicidal gestures (27). This percentage was more than twice that among 45 sexual aggressors recorded in inmate files and 17 times that among nonharrassed prisoners. These data provide some presumptive evidence that, at least among young males, being subjected to same-sex sexual harrassment or abuse in situations where there is little escape may precipitate suicide attempts. However, it is possible that those prone to suicide may also be subjected to more threats and assaults.

Pregnancy-Related Suicidality

It is very difficult to conclude anything about the association between suicide and pregnancy because of the diverse types of studies, the varying definitions of the term "pregnancy-related," the lack of adequate controls for age, and the small sample sizes.

1. Types of Studies. The studies divide into those that show the percentage of pregnancies among attempters, those that show the percentage of attempters among the pregnant, those with adequate control

groups, and those of completed suicides.

2. Definitions of "Pregnancy-Related." The definitions include pregnant during a suicide or attempt, postpartum attempts or suicides, belief that the attempter was pregnant, and overdue menstuation. These varying definitions make any conclusions from this literature almost impossible.

3. Controls for Age. Since suicide completers are generally middle-aged to old and both attempters and pregnant women are generally young, controls for age--and fairly precise ones--are mandatory.

The above-listed problems occur in the scientific literature about pregnancy and suicide in many, if not all, possible combinations. Below, we proceed through the most common groupings.

Attempts Among the Pregnant. One study of 105 pregnant girls under 18 at an urban hospital found that 14 (13.3 percent) had attempted suicide at least once during a 2-year followup (20). Clearly, these attempts are postpartum and beyond. The attempters were significantly more likely to be single, Catholic, to have had venereal disease, and to have come from higher socioeconomic areas. This study lacks a control group of adolescent nonpregnant girls.

Pregnancies Among Attempters. Comparing 30 pregnant attempters with 453 nonpregnant attempters from Australia, Whitlock and Edwards concluded that since 6 percent of suicidal women are pregnant compared with 7 percent of women who are pregnant in the population at any given time, pregnancy is not a predictor or inhibitor of suicide attempts (28). In their study, the pregnant women were less likely to be married than the nonpregnant (53 percent vs 41 percent). Teicher found that "Twenty-two percent of all suicide-attempting girls compared to zero percent of control girls were either pregnant or believed themselves to be pregnant" (29,30). It is difficult to determine the sample size on which this 22 percent figure is based because the various publica-

tions describing this study leave it unclear as to whether the number in the sample, which was three-quarters female, was 20, 48, or 68.

Pregnancies Among Attempters and Controls. It seems that in only two studies did the researchers bother to obtain a nonclinical control group matched for age with the attempters. Jacobs compared 50 adolescent attempters, of whom 38 were female, with 22 female age-matched adolescent nonattempters (22). Matches were made on age, race, sex, and maternal education. The data showed that 21 percent of the attempters were either pregnant or believed themselves to be at the time of the attempt compared with none of the controls. Since the figure of 21 percent is very close to Teicher's figure of 22 percent in the previous study and since the two authors worked together, it is unclear if they are actually describing different sets of respondents. The 22 or 21 percent figures of these studies are much higher than the figure of 6 percent of attempters who are pregnant reported by Whitlock and Edwards. However, since the former studies include both real and suspected pregnancies while the Whitlock and Edwards study includes only real pregnancies, no conclusions can be drawn.

Birtchell and Floyd compared 107 female attempters with 110 female nonattempters with a control for age (32). Of the attempters, 12.1 percent compared with 2.7 percent among the nonattempters, were either pregnant or overdue in their menstrual cycles. Ten (77 percent) of the 13 pregnant attempters were unmarried. Because the definition of "pregnancy-related" employed in this study includes being menstrually overdue, comparison with the immediately preceding three studies is, once again, impossible.

Studies of Completed Suicide. A study of completed suicides in Minnesota for the years 1950-1965 found that 1 percent (14/1019) of female suicides were pregnant (33). The study reported that suicides per 100,000 population were 16 for men and 4 for women during this period. For pregnant

women, suicides were close to 1 per 100,000 live births (14/92,982). None of these 14 pregnant women were unmarried. The author concluded that pregnancies during suicide were extremely low and that pregnancy served as a protector against suicide. Ten of the 14 pregnancy-related suicides in this study occurred postpartum. While this further reinforces the author's conclusion, it also suggests that the postpartum period may be the time of greatest, although still extremely low, risk. It should be noted from this study that using live births as a proxy for the number of pregnant women is a more accurate denominator than using the total universe of women in the reproductive age range (15 to 45).

A later study disputing the conclusion that pregnancy is an inhibitor of suicide presented data on 8 pregnancy-related suicides among a total of 47 suicides in New Mexico (34). Twelve and a half percent (4/32) of female suicides of ages 15 to 34 were pregnant. This age range was provided by the authors to coincide better with the principal years of childbearing. While the 12.5 percent figure is considerably higher than that from the Minnesota study, the numerator (four) is so low that the percentage is extremely unstable from a sampling viewpoint. It should be noted that all of the eight women who completed suicides were married and that their means of suicide were principally guns and hanging.

Despite the dreary inconclusiveness of the various studies on pregnancy-related suicides, one finding does emerge. Most pregnant attempters are single, whereas most pregnant completers are married (20,29,32,33,34). Also, the means of suicide for the single attempters are drugs primarily whereas the means for the completers are mainly guns and hanging. These data suggest that the two groups are different populations, although with some overlap. Hence, being in a pregnant population at risk of attempt may only marginally affect the risk of completing suicide.

Conclusions

Homosexuality. Homosexuals of both sexes are two to six times more likely to attempt suicide than are heterosexuals. Data on completed suicide do not exist. Kinsey et al. estimated that 10 percent of all males and 1/3 to 1/2 that of females are predominantly homosexual (35,36). However, because Kinsey's data included large numbers of prisoners, Gebhard later revised Kinsey's estimates to 4 percent of white males with at least some college education and 1 to 2 percent among all adult females (37). The data show that these two populations are markedly at risk of attempted suicide during late adolescence and early adulthood.

Confusion Over Sexual Identity. Whereas studies with adequate control groups are lacking, the percentages from the single-group studies strongly suggest that transsexuals may be an extremely high risk group for attempted suicide. Adequate data do not exist for completed suicide.

AIDS. Only case reports exist. However, there are strong reasons to suspect that suicidal behavior may be very common among AIDS sufferers.

Sexual Inhibition or Promiscuity. There has been no research on this topic. If research is undertaken, it is important to attend to the sexual behaviors of both men and women to prevent continued bias on labeling of promiscuous behavior in reference to women only.

Victims of Physical or Sexual Abuse. Although the data on this topic come mainly from single-group studies, there does not appear to be a markedly high rate of attempts among abuse victims. The two groups of abuse victims in which there might be an elevated rate are women who have been raped on several occasions and men who have been raped or sexually assaulted by other men.

Pregnancy-Related Suicide. The literature on this topic is too conflicting in its findings to conclude anything. However, the two sub-

groups who may be at risk are single pregnant women and married postpartum women. The former group may be at risk of attempts, while the latter group may be at risk of completing.

Recommendations for Future Research

Control Groups. We need control groups to determine whether a given population has a high or low risk for suicide.

Nonclinical Control Groups. While comparing suicidal with nonsuicidal patients is convenient, it can only show that one specially defined population may differ from another specially defined population.

In the case discussed earlier where one examines the association between attempts and some other clinical characteristic, both of which serve as criteria for becoming a clinical patient, it is likely that one may find totally false associations. When introduced to the clinical literature, such associations can mislead others into pursuing, or funding, lines of research that may be ultimately unprofitable, especially if pursued in clinical settings.

Nonclinical Experimental Groups. It would be most desirable to obtain both experimental and control groups from nonclinical populations through conventional methods of survey research. For example, it has been possible to profitably study family violence through survey methods, including even telephone surveys (38,39). Such research was an immense advance over earlier research of family violence based largely on clinical samples. Two major hurdles to conducting survey research on attempted or completed suicide come to mind. First, there is the intrinsic sensitivity of asking persons about the suicidal behaviors of themselves or of other family members. However, since it has proven possible to ask people in survey situations about the crimes they have committed, deviant sexual activities, and family violence, it should also prove possible to ask about suicide. Second, since attempted and completed suicide are infrequent-to-rare

events, the difficulty arises of obtaining sufficient numbers of such persons in a general survey to analyze. This difficulty can be overcome by focusing the survey on limited segments of the general population such as high school students or pregnant women. Also, the numbers for analysis can be increased by asking about suicidal behaviors not only of the respondent but also of a limited set of close relatives. This recommendation of survey research does not extend to possible research on AIDS or ARC and suicide since, given the infrequency of both of these phenomena, survey research on this topic without massive and expensive samples becomes impossible. However, given the considerable potential of AIDS as both a direct and indirect cause of suicidal behavior, one would hope that research on the relationship be soon undertaken.

As a concrete example of my proposed form of research, I suggest a survey of the general population which includes a question on sexual orientation. To date this has not been done. Until the 1960s, and especially the 1970s, homosexuality was a topic studied largely by clinicians. Beginning with the works of Evelyn Hooker, there began a continuing stream of studies based on nonclinical samples of homosexuals, the results of which differed much from those reported by clinicians (40). However, all studies of homosexuals to date still involve non-probability samples, hence, estimates of rates of suicide can only be approximate (41). The time may be ripe for a survey of the general population that includes a question, possibly placed among the demographic items, on sexual orientation. This would permit more accurate, if still imperfect, estimates of the true risk of suicidal behaviors among such populations.

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Risk Factors Potentially Associated with Adolescent Suicide or Attempted Suicide

Risk Factor	Citation	Outcome Variable	Experimental Group	Control Group	Results	Significance Tests*
Homosexuality	Bell, A., Weinberg, M. Homosexualities. New York, 1978, Simon & Schuster, p. 450	suicide attempts	686 gay males, 293 lesbians	337 straight males, 140 straight females	gay men, 18% straight men, 3%; lesbians, 23%; straight females, 14%	X^2
	Clement, C., Ervin, F., Rollins, A., Plutchik, R., Batinelli, C. Epidemiological studies of female prisoners: homosexual behaviors. J. Nerv Mental Dis 1977; 164:25-29.	suicide attempts	27 self-reported lesbians, 27 staff-identified lesbians in prison	27 straight women in prison	lesbians more, but figures not provided	ANOVA
	Harry, J. Parasuicide, gender, & gender deviance. J Health & Soc Behav 1983; 24:350-361.	suicide attempts	Same as Bell & Weinberg above	Same as Bell & Weinberg above	adolescent guilt over sexual feelings related to later attempts	Log-linear analyses
	Martin, R., Cleninger, R., Guze, S., Clayton, P., Mortality in a follow-up of 500 psychiatric outpatients. Arch Gen Psychiatry 1985; 42:58-66.	completed suicides	11 gay male outpatients	488 other outpatients	gays complete more suicides than other patients	X^2, Poisson
	Roesler, T., Deisher, R., Youthful male homosexuality. JAMA 1972; 219:1018-1023.	suicide attempts	60 young (16-22) gay males	none	32% made attempts	none
	Saghir, M., Robins, E., Male and female homosexuality. Baltimore: Williams & Wilkins, 1973; 118:276-277.	suicide attempts	89 gay men; 57 lesbians	35 straight men; 43 straight fem.s	gay men, 7%; straight men, 0%; lesbians, 12%; straight fem.s, 5%.	X^2
	Woodruff, R., Clayton, P., Guze, S. Suicide attempts and psychiatric diagnoses. Dis of Nerv Sys 1972; 33:617-619.	suicide attempts	12 gay male outpatients	488 non-gay outpatients	gay men, 50% others, 13%	none

Table 1.

Risk Factors Potentially Associated with Adolescent Suicide or Attempted Suicide

Risk Factor	Citation	Outcome Variable	Experimental Group	Control Group	Results	Significance Tests[*]
Transsexuals	Huxley, P., Kenna, J., Brandon, S. Partnerships in transsexualism, part I. Arch Sex Behav 1981; 10:133-141.	suicide attempts	72 English transsexuals	none	53% had attempted; 4 had completed	none
	Langevin, Paitich, D., Steiner, B. The clinical profile of male transsexuals living as males vs those living as females. Arch Sex Behav 1977; 6:143-154.	suicide attempts	25 transsexuals living as males; 18 transsexuals living as females; 20 gay patients	18 gay non-patients; 24 straight non-patients	both transsexual groups made more attempts than other groups; means, % not given	F-tests
	Wallinder, J. Transsexualism. Goteborg, Sweden: Scan University Books, 1967.	suicide attempts	30 male and 13 female transsexuals, all patients	none	males, 20%; females, 5% as recorded in Swedish hospitals	none
	Person, E. Ovesey, L. The transsexual syndrome: primary transsexualism. Am J Psychotherapy 1974; 28:4-21.	suicide attempts	10 male patient transsexuals	none	2 had made attempts	none
	Lockwood, D. Prison sexual violence. New York: Elsevier, 1980.	suicide gestures	107 targets of sexual harassment in men's prisons	45 sexual aggressors in men's prisons	targets more than twice as likely as aggressors to make suicidal gestures	none

Table 1 continued.

Risk Factors Potentially Associated with Adolescent Suicide or Attempted Suicide

Risk Factor	Citation	Outcome Variable	Experimental Group	Control Group	Results	Significance Tests*
Pregnancy-Related	Barno, A. Criminal abortion deaths, illegitimate Pregnancy in pregnancy. J Obst and Gyn 1967; 98:356-367.	completed suicide	14 pregnant suicides in Minn., 1950-1965	92,982 live births in Minn., 1 950-1965	suicide rate of pregnant women is about 1/100,000	none
	Birtchnell, J., Floyd, S. Further menstrual characteristics of suicide attempters. J Psychosom Res 1975; 19:81-85.	suicide attempts	107 female attempters	110 female non-attempters matched for age	13% vs 3% of controls were pregnant or menstrually overdue	none
	Gabrielson, I., Klerman, L., Currie, J., Tyler, N., Jekel, J. Suicide attempts in a population pregnant as teenagers. Am J Public Health 1970; 60:2289-2301.	subsequent suicide attempts	105 under 18 pregnant patients	none	13.3% made attempts in 2 years after giving birth	none
	Goodwin, J., Harris, D. Suicide in pregnancy. Suicide and Life-Threatening Behav., 1979; 9:105-115.	completed suicide during pregnancy or postpartum	8 pregnant or postpartum suicides in New Mexico	47 female suicides in New Mexico	17% female suicides are pregnant or postpartum	none
	Jacobs, J. Adolescent suicide. New York: Wiley, 1971; 67-68.	pregnant or believed self to be	38 adolescent female attempters	22 female age-matched controls	21% vs 0% of female controls were pregnant or believed self to be	none
	Teicher, J. A solution to the chronic problem of living: adolescent attempted suicide. In: Schoolar, J. Current Issues in adolescent psychiatry. New York: Brunner-Mazel, 1973: 129-147.	pregnant or believed self to be	female adolescent attempters; N = 20 or 48 or 68	22 female adolescents	22% versus 0% of controls were pregnant	none
	Whitlock, F., Edwards, E. Pregnancy and attempted suicide. Comprehensive Psychiatry 1968; 9:1-12.	being pregnant	30 pregnant attempters in Australia	453 nonpregnant attempters in Australia	6% of attempters are pregnant vs 7% of all women in Australia aged 15-45	none

Table 1 continued.

J.Harry: Sexual Identity Issues

Risk Factors Potentially Associated with Adolescent Suicide or Attempted Suicide

Risk Factor	Citation	Outcome Variable	Experimental Group	Control Group	Results	Significance Tests*
Physical and Sexual Abuse	Ellis, E., Atkeson, B., Calhoun, K. An examination of differences between multiple- and single-incident victims of sexual assault. J Abn Psychol 1982; 81:221-224.	suicide attempts	25 women raped more than once; hospital patients at rape center	92 women raped once; also patients at rape center	52% earlier attempts vs 16% in control group	x^2
	Goodwin, J. Suicide attempts in sexual abuse victims. Child Abuse & Neglect 1981; 5:217-221.	suicide attempts	8 children from 201 families with sexually abused daughters	none	4% had made attempts after abuse	none
	Goyer, P., Eddleman, H. Same-sex rape of non-incarcerated men. Am J Psychiatry 1984; 141:576-579.	subsequent suicide attempts	13 young (18-23) servicemen raped by other servicemen	none	15% made subsequent attempts	none
	Green, A., Self-destructive behavior in battered children. Am J Psychiatry 1978; 135:579-582.	suicide attempts	60 battered children	30 neglected children; 30 normal children	8.5% of battered made attempts; sign. difference, but data on other groups not given	ANOVA
	Herman, J., Hirschman, L. Families at risk for father-daughter incest. Am J Psychiatry 1981; 138:967-970.	suicide attempts	40 female patients with paternal incest	20 female patients with seductive fathers	38% vs 5% of controls and attempted suicide	none
	Kosky, R. Childhood suicidal behavior. J Child Psychol & Psychia & Allied Disciplines 1983; 24:457-468.	physical abuse	20 "suicidal" children patients under 14 in Australia	50 other child patients under 14 in Australia	60% had been abused vs 4% of controls; significant	x^2

*Where significant tests are indicated differences were significant at the .05 level.
  However, in studies involving more than 2 groups, not all differences among all groups are necessarily significant.

Table 1 concluded.

"MAJOR PSYCHIATRIC DISORDERS" AS RISK FACTORS IN YOUTH SUICIDE

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The aim of this review is to assess whether major psychiatric disorders constitute risk factors in youth suicide. As the data on this matter are limited, we have chosen to present succinct reviews of three different sources of information that can illuminate this relationship, namely: (1) the types of psychiatric diagnoses found among youths who have completed suicide, (2) psychiatric diagnoses among youth who attempted suicide, and (3) the relationship between familial aggregation of suicidal behaviors and familial aggregation of major psychiatric disorders. The limitations of each data source and of each group of studies will be discussed in each section.

Psychiatric disorders and youth suicide

The strongest evidence about the suicide risk posed by psychiatric illness would have to come from **prospective** studies of clearly defined psychiatric cohorts. Ideally, such a study would entail at least two different diagnostic samples; a suitable, psychiatrically unaffected group of controls; and a period of followup sufficient for the outcome of interest (suicide) to occur. Alternatively, a **retrospective** study of a consecutive, unselected sample of young people who had died by suicide could provide data about the incidence of various psychiatric disorders

among them. But, the resultant figures are best interpreted against base rates derived from demographically comparable populations. Finally, the retrospective, case-controlled study of select samples of youth suicides could shed light on the contributing role of mental illness. Strictly speaking, however, both the latter approaches identify correlates or associated features of suicide.

Although there has been increasing concern about youth suicide in the United States and other countries (1-5), the evidence about its association with specific psychiatric diagnoses is neither scientifically unassailable nor unequivocal. The scarcity of conclusive data is partly a reflection of the enormous technical, practical, and ethical problems that are inherent in the study of suicide, including the extremely low base rate of its occurrence. Additionally, data from earlier publications cannot be readily interpreted because, in the last 15 years, there have been substantial changes in the use of psychiatric diagnoses in juvenile cohorts. Nonetheless, the available findings are clinically alarming and suggest that major psychiatric disorders play an important role in youth suicide.

Suicide among psychiatrically ill youth: Prospective studies

The mere fact of "patienthood" is apparently

associated with a higher than expected rate of suicide across the age span. Morrison (6), whose database consisted of 12,104 patients (age range not given) treated over an 8-year interval (1972-1980) by a San Diego-based private practice group, computed the cohorts suicide rate by age and sex (controlling for years of followup). As shown in Table 1, the patients had a consistently higher suicide rate than similarly aged males and females in the general county population. This higher rate was most marked for patients aged 19 or younger, who committed suicide at roughly 40 times the expected rate.

There is evidence that suicide among youths is associated with certain major psychiatric disorders more than with others. Welner et al (7) reported on the 8 to 10 year followup status of 77 psychiatric inpatients whose index hospitalization occurred between 1965 and 1968, at a mean age of 16. On followup, a comprehensive interview verified initial diagnoses, according to the Feighner criteria. The data were gathered from the patients, significant others, or records of rehospitalizations. The authors provided the number of cases in each diagnostic group who committed suicide over the followup interval. Using these figures, we computed the number of suicides in a followup year, and then, the portion of each diagnostic group who committed suicide in a year. Then, we multiplied the resultant figure by 100,000 to estimate the **rough suicide rate** per 100,000 diagnostic population per year. Please note that these rates are only "rough estimates" in part, because inpatients may not represent the entire population of cases with a given diagnosis. We realize the shortcomings of this method, but the rates are easier to compare this way.

As Table 2 indicates, schizophrenia, bipolar affective illness, and primary unipolar depression in adolescence were associated with astonishingly high rates of suicide (the table does **not** include the "alcoholism only" diagnosis, because there were only two such cases, nor six others who had a variety of different diagnoses). It is of interest here that there were no suicides among the "antisocial personality" cases, although each had concomitant alcohol and drug abuse and most (7 out of 9) were hospitalized because of "depressive symptoms and suicide attempts."

We used the same computational procedure on data from King and Pittman (8) data who determined the 6-year followup status of 65 consecutively admitted patients (aged 12 to 19). This group was an earlier cohort from the same university hospital that provided cases in the study of Welner et al., with index admissions from mid-1959 to mid-1960. Followup status was ascertained via structured interviews with the patients themselves, adult informants, and/or hospital records. The diagnoses (listed in Table 3) were derived according to symptomatic criteria specified by the authors. On followup, all available data were used to determine the diagnoses. However, the findings were presently only for 51 cases who fell into two general categories: affective disorders ($\underline{n} = 26$) and "other" disorders ($\underline{n} = 25$). The one case of suicide was a patient whose diagnosis was "organic brain syndrome." This study is notable because it illustrates changes in diagnostic practices and/or in the actual manifestations of psychopathology. For example, the authors specifically stated that none of the patient met criteria for "addiction and alcoholism." In contrast, in a current inpatient adolescent sample, one is far more likely to

Suicide Rates in a Sample of Psychiatrically Hospitalized Adolescents at 6-Year Follow-up (Adapted from King & Pittman, 1970)			
Diagnosis/n	n	Suicide/Year No.	Rate
Affective disorder (depression/mania)	26	—	—
Schizophrenia/ schizophreniform syndrome	5	—	—
Organic syndromes (OBS, convulsive disorder, Sydenham's chorea)	12	.166	1,388/ 100,000
Sociopathic personality	4	—	—
Other	4	—	—

Table 3.

Suicide Rates in a Sample of Private Practice Patients and in the Corresponding General San Diego County Population (Adapted from Morrison, 1984)		
	Rate/100,000/Year	
Age/Sex	Patients	County Pop.
0-19		
Female	63.05	1.66
Male	173.01	3.99
20-24		
Female	80.61	10.71
Male	205.66	23.17

Table 1.

Suicide Rates in a Sample of Psychiatrically Hospitalized Adolescents (Adapted from Welner et al., 1979)			
Diagnosis at Follow-up (n; $\overline{X}$ age at onset)	Follow-up Length ($\overline{X}$)	Suicide/Year No.*	Rate/100,000
Schizophrenia (13; 14.5 yrs)	8.5 yrs		
Female (7)		.00	—
Male (6)		.235	3,921
Bipolar Affective (12; 15 yrs)	9.0 yrs		
Female (3)		.00	—
Male (9)		.333	3,700
Unipolar, Primary Depression (16; 15 yrs)	10.0 yrs		
Female (10)		.01	1,000
Male (6)		.00	—
Antisocial Personality (9; ?)	?		
Female (4)		.00	—
Male (6)		.00	—
No Mental Illness (8; ?)	?		
Female (6)		.00	—
Male (2)		.00	—
Undiagnosed Illness (8; ?) (probably adjustment reaction)	?		
Female (?)		.00	—
Male (?)		.00	—

? = data not given; *rounded to nearest digit

Table 2.

find the latter conditions than "organic syndromes."

Based on an average of 3 years of followup (up to June 1970) of 227 drug-using adolescent girls who had been admitted to a remand home in London during 1966-1968, Noble et al. (9) assessed the outcome and correlates of this condition. Using those data, Miles (10) computed the cohorts suicide rate as 3,500/100,000/year. However, a careful reading of the original publication reveals this rate to be suspect because the suicides were cited for all admissions commencing in 1964—which was 2 years before the study sample's admission date--and included deaths up to one year after the cut-off date for the study samples followup (p .501). Moreover, the number of all admitted cases was not provided.

We will close this section by noting three other studies which underscore that the likelihood of suicide being detected varies with the length of followup and the nature of sample, including the type of diagnosis. For example, Annesley (11) who described the 2 to 5 year followup status of 362 previously hospitalized adolescents (aged 7 to 18), reported no suicides among them. This was particularly notable because the admission diagnoses were wide-ranging, covering various psychotic disorders, sociopathy (i.e., "behavior disorders"), neuroses, and obsessional states. Likewise, Strober and Carlson (12), who conducted a 3 to 4 year followup of 60, hospitalized, depressed adolescents (diagnosed according to RDC), aged 13 to 16 years, found no suicide among them.

On the other hand, in a highly select sample, followed for a period ranging from 1 to 14 years, 2 out of 28 patients were found to have died by suicide (13). The patients, who had a diagnosis of manic-depressive illness, were specifically examined because their first attack occurred before age 19 at the mean age of 15 (range: 13-18). The patients entered the study as a result of having been hospitalized at a particular institution; the followup took place after the index the admission (mean age at followup: 41 years, range: 23 to 69

years). Again, using our rough computations, and taking the maximal followup interval (14 years), we obtain a frequency of .143 suicides/year in this group of 28, which then yields a suicide rate of 510/100,000/year.

Studies of youth suicides in the general population

The retrospective method of identifying psychiatric risk factors for suicide suffers from numerous constraints, including ascertainment and interviewer bias, incomplete databases, and probable distortions of historic information because of the informants' "need" to explain the suicidal act. Nonetheless, the findings do deserve consideration, although for youth suicides, estimated rates of mental illness are extremely variable, ranging from 92 percent (14) to 12 percent (15). All things considered, psychiatric disturbance seemed more likely to be detected if study investigators used more extensive or systematic information sources.

According to Rich and associates (14), "psychiatric illness is a necessary (but insufficient) condition for suicide." Using the San Diego Coroner's list for the period of November 1981 to June 1983, they located 133 consecutive cases of suicide under 30 years of age. These cases were compared with 150 consecutive cases aged 30 and older, sampled from November 1981 to September 1982. Multiple information sources were used (92% of the sample) to determine the most valid responses to an extensive, structured interview; then, consensual, DSM-III diagnoses were derived. Subsequently examined toxicology reports might be appended to the diagnoses. For our purposes, the interpretation of the findings were constrained because the data were grouped by cases aged "under 30" versus "over 30" and the exact age range was not reported. Although the second paper on this cohort (16), provided an age distribution by 5 and revealed that 44 percent ($\underline{n}$ = 59) of the 133 suicides were in the 25 to 29 age range, diagnosis data by age were not included. This is problematic because, for example, a particular diagnosis such as cocaine

abuse may be more prevalent among persons 25 to 30 than under 25. Without more specific age by diagnosis data, the exact prevalence of a diagnosis among early adolescent suicides cannot be determined.

Nonetheless, as Table 4 indicates, 92 percent of those "under 30" had psychiatric diagnoses (comparable to 91% of the older cases), and substance abuse was very prevalent (much more so than among the older suicides). According to a subsequent report (16), altogether 53 percent of the younger cases had a diagnosis of substance abuse. Affective disorders were relatively frequent ($\underline{n}$ = 47), but less than in the contrast group ($\underline{n}$ = 78), and 52 percent of the "under 30" cases had a past history of psychiatric care. It should be pointed out, however, that the high overall rate of disturbance in this study's cohort included "minor" DSM-III conditions, such as "adjustment disorders" or dysthymia (which has been viewed as a form of "minor" depression). Moreover, the use of multiple diagnoses per case accounts for the large, absolute frequencies in Table 4.

Psychiatric Characteristics of 133 Younger Suicides (aged <30) in San Diego County (Adapted from Rich et al., 1986).	
Post-Mortem Diagnoses-DSM-III	$\underline{N}$ cases with Diagnoses*
Substance Use Disorder	?
Drug Use	88
Alcohol Use	72
Affective Disorders	47
Atypical Depression	32
Major Depression	9
Schizophrenic Disorder	6
Other Psychoses	16
Antisocial Personality	12
Any Diagnosis (92%)	122
Psychiatric Care (%)	
Past	52
At time of suicide	23
*Table does not include all the diagnoses that were listed.	

Table 4.

Another methodologically complete study reported a very high rate of "psychiatric symptoms" and a notable incidence of psychiatric contacts among children who killed themselves; unfortunately, no diagnoses were provided (17). In this total population survey of suicides in England and Wales during 1962-1968, there were 30 unequivocal youth suicides (aged 12 to 14). Using coroner, school, psychiatric, and social service records, Shaffer (17) found that 30 percent of the victims ($\underline{n}$ = 9) had been in contact with a psychiatrist; 20 percent more ($\underline{n}$ = 6), although not referred to a psychiatrist, were recognized as having "conduct or emotional problems"; and all but 13 percent had "psychiatric symptoms" of the "antisocial," "emotional, affective," or "mixed" (emotional plus conduct) kind.

The foregoing findings were echoed by a recent study that combined the total population survey and case control methods (18). The Jefferson County (KY) coroner's office was used to locate all cases of youth suicides (aged ≤ 19 years) from January 1980 through June 1983; 24 cases (aged 12 to 19) were found, and their families were then contacted. The families of 20 (83%) agreed to cooperate. Extensive questionnaires, checklists, and inventories were used with families, friends, and relatives to determine the victim's psychologic profile. Similar data were collected on matched-pair controls (friends of the deceased). The 20 suicides differed from the 17 controls on the following variables of interest to us: frequent use of nonprescribed drugs or alcohol (70% vs. 29%, p <.02); having exhibited "antisocial behavior," including shoplifting, physical fights, or disciplinary problems in school (70% vs. 24%, p <.003); and having had previous psychiatric treatment (45% vs. 24%, p <.04). However, despite the high rate (65%) among the suicide cases of inhibited/withdrawn/overly sensitive "personality," they did not differ from the case-controls (25%) in this regard.

Although Bourque and associates (19) focused on long-term trends in suicides among females only, the data are useful to us

because they are analyzed by age. In this methodologically careful study, the authors examined the coroner's records in Sacramento County (CA) over a 55-year period; both case ascertainment and data retrieval accuracy were verified. In the final tabulation, data on Asian and Black women were excluded because of the small sizes of these subsamples. The authors appeared confident in their findings particularly because, since the 1950s, the county coroner's staff has been trained to systematically gather data on several psychosocial variables. The variables of interest to this paper included: "despondency," "emotional problems," "alcoholism," or "drinking problem," and prior psychiatric treatments. The data for the most recent 10-year period (1970-1979) are the most pertinent. During that time, 40 females, aged 15 to 24, were identified as suicides, of whom 85 percent had shown evidence of despondency; 45 percent had emotional problems or "unbalance;" 5 percent had recent arrests; 25 percent had prior psychiatric treatment; none had evidenced problems with alcohol.

In contrast, Sathyavathi (15) found a low rate of "mental illness" among children who killed themselves in Bangalore, India, during the years of 1967-1973. In this total population survey of suicides reported to the police ($n = 1834$), the author found 45 cases aged 14 years old or younger and 351 cases aged 15 to 19; only the findings on the younger aged group were summarized. The records were scrutinized for the presumed "causes" or "motives" of the fatal act. In 10 cases, the cause was "unknown." Categorization of the remaining records showed that in 12 percent, "mental illness was reported as the cause of suicide." Unfortunately, the author had no details as to the nature of the mental disturbances.

Another suggestive set of findings was reported by Marek et al. (20), based on their survey of all documented suicides in Cracow, Poland, for the period 1960-1974. There were 76 cases of youth suicides (aged 8 to 18). Although note is made of "mental disease such as schizophrenia, epilepsy, and characteropathy" ($n = 3$), as well as drug addiction

($n = 3$) in the cohort, the manner in which these diagnoses were ascertained and the exact meaning of the terms are ambiguous.

The final total population survey we summarize was conducted in Upper Austria, for the years 1977 to 1979 (21). The families of all 47 "adolescents" (age criteria not given) who committed suicide in the 3-year period were contacted; 29 families were finally interviewed within two to four years of the suicide. Based on a multi-item questionnaire, the deceased youths (aged 9 to 20) had the following attributes: 14\percent ($n = 4$) had a history of psychiatric treatment ("including two psychoses"); "2/3 had shown behavior disturbances;" 7 percent ($n = 2$) were "beginning stage" drinkers; and 10 percent ($n = 3$) were "unmistakably drug addicts."

Unfortunately, an extensive exposition of another cohort (aged 17 or younger) is uninterpretable for our purposes (22). For reasons best known only to the author, the psychosocial data on all official cases of suicidal acts by youths in Israel (for 1963-1966) were combined for the fatal-outcome and nonfatal-outcome cases ($n = 21$ and $n = 343$, respectively). We must also take note of a widely cited, mostly narrative-report by Jan-Tausch (23) on suicide among school children in the New Jersey public school system during 1960-1963. Although it was probably the first U.S. survey of its kind, its description of 41 child suicides (aged 7 to 19), did not include information on psychiatric or mental illness. Additionally, the study did use a preselected sample (rather than the general population), although the specific method by which cases were ascertained was not well described.

Table 5 summarizes some of the salient data from the studies we just reviewed. Findings on psychiatric variables (diagnoses, conditions, symptoms) are extremely difficult to synthesize because of the range of linguistic labels used, the lack of definitions, differences in data retrieval methods, and significant changes in "diagnostic habits" across the years.

Suicide Attempts and Psychiatric Diagnoses

Given the scant diagnostic information on completed youth suicides, we decided to examine also the evidence available on the relationship between psychiatric diagnoses and attempted suicide in the same age group. This strategy has been criticized because many attempters never complete suicide (24), and because systematic differences in demographics and diagnosis have been found between attempters and completers in both youth and adults (24 to 27). Nevertheless, it is also true that there is overlap between the two groups. For example, from a prospective viewpoint, suicide attempts among adults also represent a risk factor for completed suicide (28). It is known that up to 75 percent of adults who committed suicide had made previous attempts or threats (29). Attempts also predict future attempts; thus, about one quarter of adults who attempt suicide had at least one previous attempt (30).

The data for youth are similar. As in adults, sex ratios are different for completed and for attempted suicides. For every completed suicide in children and adolescents, there are at least 3 to 4 attempts in boys and 25 to 30 in girls (31). Among adolescent attempters, the male/female ratio is approximately 1:4, but in preadolescence it is 1:1 (31-33). In approximately 9/10 cases, drug ingestion was the method of choice (31,32,34). In two large studies of youth attempters 16 percent and 37 percent of their subjects had made at least one previous attempt, and 6 percent and 17 percent of the samples, respectively, had

Prevalence of Psychiatric Variables Reported in Total or Partial-Population Surveys of Youth Suicides

Variable	Study (by Reference List Number)						
	14 16	17	19	18	15	20	21
Location	U.S.	U.K.	U.S.	U.S.	India	Poland	Austria
Years: 19_	81-83	62-68	70-79	80-83	67-73	60-74	77-79
N described	133	30	40	20	45	76	29
Age range	"<30"	12-14	15-24	12-19	"≤14"	8-18	9-20
Psych. data source:							
records-coroner	X	X	X		X	X	
records-other	X	X		X			
interviews	X			X			X
Psych Rx (%)							
Past	52		25	45			14
Current	23	30					
Mental/emotional problems/illness (%)	92+	50+	45+		12	4	*
Behavior/conduct disturbances (%)		*		70			67
Psych symptoms (%)		87	85	65			
Drinking problem (%)	53++		0	70			7
Drug problem (%)						4	10

Table 5.

made two or more attempts (31,32). More important for this review, in Otto's study (31), child and adolescent attempters who ultimately killed themselves in the 10 to 15 year followup period were more likely to commit suicide in the first two years after the attempt, but the risk continued all through the followup, and repeated attempts constituted a major predictor of suicide in the boys in this sample. The suicide rate on followup in male attempters was 11.3 percent, a 7-fold increase over the control group. In the female attempters, the suicide rate was 3.9 percent, a 2-fold increase over the control group. Followup showed that about 19 percent of the male repeated attempters at intake, versus only 8 percent of those without prior attempts, subsequently completed suicide. The predictive power of early attempts for future suicidal acts has also been reported by Stanley and Barter (35) and by Cohen-Sandler et al. (36) in youth and by Tefft et al. (37) in adults, among others.

There is some evidence that suicidal attempts in childhood and early adolescence may be particularly associated with later suicide. In Otto's study (31), besides the history of repeated attempts for boys, other factors associated with later completed suicide among these attempters were male sex, length of prior functional impairment (which was, in turn, associated with attempts under age 13 years, and with major psychiatric disorders like manic depression and schizophrenia, in both boys and girls), and the use of active (violent) methods. Girls who used active methods in their attempts accounted for only 7 percent of all girl attempters, but appeared unique in that they were also over-represented among those whose first suicidal attempt occurred before the age of 13; they were more likely to have left a note and to have attempted suicide by hanging than by overdose. This divergence between intent and lethality has also been found among suicidal prepubertal children with major depression (38). It is apparent that pre- or peripubertal attempts may carry the highest risk for future suicide completion. Unfortunately, good prospective diagnostic studies

focusing on very young attempters cannot be found in the literature.

Psychiatric characteristics of youth who attempt suicide

Bergstrang and Otto (39) collected charts on 1727 patients under the age of 21 years who had presented to all hospitals in Sweden between 1955-1959 for attempted suicide. Evidence of parental mental illness (28%), parental alcoholism (15%), and father's absence (44%) were characteristics of the group. Otto (40) reexamined a probably representative subsample of 484 cases that yielded enough information to make a psychiatric diagnosis. Neurotic-depressive reaction was diagnosed in 30 percent of cases, neurosis in 23 percent, schizophrenia in 12 percent (19% in boys and 9% in girls), manic depression in 5 percent, and psychopathy in 13 percent (18% of boys and 11% of girls). Only primary diagnoses were considered. In an attempt to delineate a presuicidal syndrome in children and adolescents, Otto (41) could only ascertain that during the 3 months before the attempt, the symptoms of some mental disorders--namely, anxious and depressive neurosis, schizophrenia, and manic depression--had worsened considerably in about 50 percent of patients with these diagnoses. Personality characteristics showed much less change during the preattempt period. In a 10 to 15 year followup of the original sample (31), the investigators selected a control group matched for age, sex, and geographical birth site. Attrition rate of the attempter sample was only 10.4 percent. The attempters on followup had committed more legal offenses. Mental conditions in military health classifications were 10-fold higher (53%) in the attempters. Unfortunately, no systematic analysis of the predictive power of psychiatric diagnosis for suicide outcome was provided.

In a cross-sectional study based on chart reviews from a pediatric emergency room (ER), Garfinkel et al (32) identified 505 children and adolescents who had made 605 suicide attempts, and compared them with

505 nonsuicidal patients who had come to the same ER at the same time. Prior substance abuse, past history of psychotherapy, and current (not specified) psychiatric diagnoses (most frequent symptoms were dysphoric affect (55%) and aggressiveness and hostility (41%)) were significantly more common in the attempters. The families of the attempters had significantly higher rates of history of mental illness (especially drug and alcohol abuse), suicide, paternal unemployment, group or foster placement, and absence of father. Only 36 percent of the attempts were judged to have carried a moderate or high danger (criteria not provided). These were associated with family history of suicide and current psychiatric symptoms, although this analysis included 100 patients twice and it is therefore flawed. After a followup for up to 9 years, 8 of the 505 attempters had died by hanging, overdose, or motor vehicle accident, while the 5 deaths in the control group were due to medical disease.

Brent et al. (34) also used chart reviews to study the characteristics of 131 consecutive suicide attempts by 126 children and adolescents presenting in a pediatric emergency room between 1978-1983. The median age was 14 years. A bimodal distribution was noted, with approximately one-third of attempts noted to be medically serious, which usually involved a high degree of planning and use of a psychotropic agent (rather than an over-the-counter agent) (34). The following variables were associated with a medically serious attempt: male sex, family history of affective disorder, high suicidal intent, and a diagnosis of affective disorder, either in isolation or associated with substance abuse. The following distribution of diagnoses were found: affective disorder (39%), conduct disorder (26%), substance abuse (23%), and adjustment disorder (26%). Many of the patients had multiple diagnoses. Multivariate analysis of these data suggests the existence of two groups of attempters: **a dysphoric, affectively disturbed, hopeless group** whose lethality is very much a function of intent, and **an impulsive group** whose

lethality is very unpredictable. In fact, the class of agent ingested was the most important variable to predict the medical seriousness of the attempt in this impulsive group.

Strober (42) compared 250 suicidal inpatient youths aged 10 to 18 years with an equal number of nonsuicidal inpatient controls matched for age, socioeconomic status, and sex. From a diagnostic point of view, emotional, neurotic and conduct disorders (depression was "hidden" within these two categories, according to the author) were more prevalent in the suicidal group, although statistical significance levels are not reported. Alcoholism was only present in the suicidal group (5%). But Carlson and Cantwell (43), in a sample of 102 clinically referred children and adolescents, found that suicide attempts occurred with and without the syndrome of depression. Attempters did not differ from nonattempters in any particular diagnostic category.

Several studies have included only adolescents. In such studies, "neurotic" depression, conduct or personality disorders, and alcoholism, are the most common psychiatric diagnoses (44,45). As new assessment methods become more generally used, several reports have emphasized the relationship between suicidal attempts and major depression in adolescents (34,46-48). All these papers have also emphasized the increase in alcohol and drug abuse as an associated diagnosis to major depression, and also as a precipitant to the attempt. A similar point has been made by McKenry et al. (49) and by O'Brien (50). One study found a 5-fold excess of patients with epilepsy among attempters, of whom 60 percent were under 30 years old. Phenobarbital was the most frequent overdose (51). Brent (52) replicated this finding recently in adolescents, indicating further that 8/9 epileptic attempters were receiving phenobarbital as their main anticonvulsant. Studies of adolescent delinquents show similar agreement. Depressive symptomatology and suicidal behavior were found to be associated among 48 delinquent girls aged 13 to 18 years. All 23 girls with his-

tory of suicidal attempts were rated as moderately or severely depressed. In turn, depression and suicidality were mainly associated with antisocial and neurotic personality patterns. Some of the girls showed no suicidality in spite of marked depressive symptomatology (53). Alessi et al. (54) reported similar findings with a sample of incarcerated adolescent delinquents of both sexes. Those with major affective disorders or borderline personality disorders presented the highest suicidality and committed the most serious attempts. But there also is substantial evidence that various other characteristics (i.e., externalizing symptoms, impulsivity and borderline personality) may also be related to suicidality in the absence of an affective syndrome (34,55-57,17).

Studies of only preadolescents with suicidal behavior had to address suicidal threats and ideation, especially those with a definite plan, because actual attempts in this age group are rare. Evidence suggests that suicidality before 13 years may constitute a very high risk for later suicide (31). Myers et al. (58) compared chart reviews of 61 suicidal and 287 nonsuicidal preadolescent inpatient children. Depressive disorders were present in 30 percent of suicidal children and only 3 percent of the controls. This was the only diagnosis for which the rate significantly differed between the two groups. Other variables that differentiated the groups were family history of suicidal behavior and abuse of the mother (usually by the father). In a series of uncontrolled studies, Pfeffer et al. (59,60,61) have repeatedly found that prepubertal children with suicidal ideation, threats or acts, frequently present symptoms of depression, hopelessness and low self-esteem, psychomotor activity, conduct disorder, and that the parents present suicidal behaviors and/or depression. Ryan et al. (38) found that among prepubertal major depressive children, 46 percent present with persistent and severe suicidal ideation involving at least a concrete suicidal plan. Kazdin et al. (62) found that hopelessness related more closely than depression to suicidal intent in prepubertal inpatients, a finding similar to

that for adults, whereas hopelessness has been shown to be the key link between depression and suicidal behavior (63) and also predicts later suicide in samples of depressive patients (64).

Therefore, it appears that affective disorders, alcoholism, and other drug abuse play the same central role in regard to suicidal attempts among youth, as they do in completed suicide in youth and in the rest of the age spectrum. Schizophrenia appears more related to suicide than to attempts, whereas personality diagnoses may relate more to attempts. The primacy of unipolar and bipolar affective disorders and alcoholism, as well as schizophrenia and schizoaffective disorder, as the diagnosis most often associated with adult suicide has been known since the 1960's (65–70). But there appears to be no doubt that there is also a prominent component of irritability, aggression, impulsivity, borderline features, and conduct disorder among seriously suicidal young people, which is similar to findings in adults (71-73). It should be noted that many of these symptoms are by no means inconsistent with the diagnosis of an affective disorder (74) and especially bipolarity (75). Further refinement of diagnostic instruments and improvements in clinical skills to diagnose mixed bipolar illness in adolescents, which probably is the commonest presentation of bipolarity in adolescents, are likely to bring about further advances in the clinical characterization of this aggressive-impulsive subgroup. Nevertheless, it is also likely that a subgroup of impulsive suicidal adolescents will remain outside the major classical diagnostic categories. Their nosology and biology will require further study.

Familial patterns of suicidality and psychiatric disorders

It is clear that suicidality cuts across several psychiatric diagnoses, the most frequent being bipolarity, nonbipolar MDD, alcoholism and substance abuse,

schizophrenia, and perhaps some personality disorders including, borderline and antisocial. In addition, several of the studies previously cited have noted the frequency of suicidal behaviors in the relatives of suicide attempters and victims. Another way to study the relationships between specific psychiatric diagnoses and suicidality is to review their patterns of association in families, to determine if the familial transmission of suicidality overlaps with, or is independent from, the psychiatric disorders just mentioned. This strategy is possible because most of the diagnoses involved, as well as suicidality, have been shown to aggregate in certain families. Although most of the data come from adult studies of affective disorders, the findings are relevant to this review because there is increasing evidence of diagnostic continuity between youth and adults in most of the diagnoses involved, as well as in suicide, and because young adult, probands and relatives, were also included in many of the studies.

Most of the evidence indicates that although some diagnoses (i.e., major affective disorders) and suicide may be associated within families, familial transmission for suicidality and for psychiatric diagnoses are separate and probably independent. Overall, the data suggest that, given a positive family history of suicide, a superimposed major psychiatric disorder constitutes a serious risk factor for suicide.

In a study of adult primary major depressive probands, only age of onset of affective illness and the secondary diagnoses of alcoholism or an anxiety disorder in the proband were independently related to higher familial aggregation for major depression in relatives. On the other hand, suicidality or the presence of any of the following clinical characteristics during major depressive episodes in the proband showed no independent relationship to familial aggregation for affective illness: any of the Research Diagnostic Criteria depressive subtypes, recurrent depression, or hospitalization (76). A chart review of 243 inpatients

with a definite family history of suicide in a first or second degree relative, and 5602 inpatients without such family history found that almost half of the index group had attempted suicide, and that more than half had an affective disorder. A family history of suicide increased the risk for suicidal attempts across the following diagnostic categories: schizophrenia, unipolar and bipolar affective illness, dysthymia, and personality disorders (77). Similar findings were reported by Tsuang (78) comparing suicide rates among adult schizophrenics, manics, depressives, and surgical controls. Suicide rates were high for all psychiatric patient groups, and the relatives of patients who had committed suicide had higher risk of suicide than the remaining relatives.

Egeland et al. (79) reported that, among the Amish, 78 percent of all suicides in the last century were accounted for by four extended pedigrees with high density for major unipolar and bipolar affective disorders, which together account for only 16 percent of the Amish population. Nevertheless, other Amish pedigrees with heavy loading for affective illness present no suicidal acts among their members. Similarly, Linkowski et al. (80) in a study of 713 major depressive inpatients found that a family history of violent suicidal behavior was associated with the same in the proband, and the effect was more marked in bipolar women. In a sample of 50 bipolar patients, those with a family history of suicidality also had suicidal attempts, and associated alcoholism in the parents or in the probands increased the risk (81). From another viewpoint, the findings of Murphy and Wetzel (82) point to the possibility that in the presence of a similar family history of suicidal behavior, the presence of affective disorder or alcoholism, or both, in the proband will substantially increase the person's risk of completing suicide compared to cases with other or no psychiatric diagnoses.

CONCLUSIONS

The available figures suggest that the condi-

tion of psychiatric "patienthood" in the adolescent and young adult years is associated with an alarmingly high mortality risk via suicide. This conclusion is inescapable in light of the general population base rates for death-by-suicide for these age groups (83), and in comparison with the suicide mortalities associated with most psychiatric disorders among adults. Using very global and "rough" estimates, psychiatrically disturbed youths may be running a risk of suicide about 200-fold (or more) the rate of their general population counterparts. And psychiatric illness in the young also seems to pose a suicide risk that may be up to five times higher than the rates reported for adult patients (see below).

Although changes in diagnostic practices in child psychiatry and in the use, definition, and meaning of psychiatric labels make it exceedingly difficult to compare the risk value of various conditions, tentative conclusions can be made. The "classic" mood and thinking disorders, namely, affective illness and schizophrenia, are prognosticators of suicide mortality. Because much of the supporting evidence derives from studies of youths with a history of inpatient hospitalization, the implication is that the major factor could be the presence of psychosis. Among the affective disorders, this would further imply that bipolarity in this age groups is likely to be a major factor (12). The addictive disorders may also carry a high risk value, although the study of these conditions has been constrained by the fact that their incidence and prevalence may be far more subject to societal factors than seems to be the case for affective disorders and schizophrenia. Finally, data are scant on the prognostic value of "neurosis" or personality disorders for suicide in the preadult years. In no small measure, the relative absence of such evidence probably reflects long-standing debates about the diagnostic validity of these conditions in juveniles.

Our conclusions about the risk value of psychiatric illness for suicide in the younger years is underscored by the data on the prog-

nostic value of these conditions among adults. This body of information also suggests that "patienthood" is associated with elevated suicide rates; that the risk is probably higher for previous inpatients than outpatients; and that, although the mortality figures even within diagnostic groups vary, affective illness, schizophrenia, alcoholism, and disorders involving drug addiction probably carry the highest relative risk in this regard.

For example, in this recent 5-year followup report of 4,800 consecutive, first-admission VA psychiatric inpatients, Porkorny (84) found a suicide rate of 279/100,000 patients/year. In a similarly recent study, Morrison (85) estimated the suicide mortality among outpatients, using a large private practice sample (n = 12,500); the overall rate was found to be 120/100,000/year.

The rates for particular psychiatric conditions are difficult to interpret because of their variability. The variability is especially evident with data that were presented in percentages or frequencies without adjusting for the length of the followup. Miles (10), who, in his comprehensive review of this body of literature estimated the overall risk for several conditions, arrived at 230/100,000/year suicides for depressives; 270/100,000/year for alcoholics; and up to a 3-fold higher suicide rate for adult opiate addicts. However, the variable data bases with which Miles (10) had to contend can be readily illustrated in reference to schizophrenia. Recently reported suicide figures for this diagnosis yield rates ranging from a low of 203/100,000/year (86) to a high of 456/100,000/year (87).

Given the available evidence, therefore, it is difficult to say whether affective illness in adults is associated with a lower, higher, or equivalent suicide risk than schizophrenia, for instance. However, the two most recent studies of unselected adult patient samples give every indication that different conditions make differential contributions to the cohort's overall suicide rates. In Pokorny's (87) sample, for example, diagnosis-specific

suicide rates varied from a high of 695/100,000/year for affective disorder to a low of 71/100,000/year for organic brain syndrome, with other conditions occupying the middle ranges (e.g., 187/100,000 for alcoholism). Likewise, in Morrison's adult outpatient series (85), the suicide rates ranged from 42/100,000/year for "unipolar' affective disorder, through 318/100,000/year for bipolar illness, to the peak of 411/100,000/year for schizophrenia. Suicide rates for "personality disorders" as well as for the "neurosis" have been also estimated. The overall trends suggest that these diagnoses are also associated with elevated risk rates, although by no means as high as those cited above (e.g.,10,85).

In light of the available information on the various disorders in adults, it is more than likely that the major psychiatric illnesses also contribute differentially to the overall rate of suicide among children and adolescents. Furthermore, the diagnostic findings in attempted suicide in youth point in the same diagnostic directions as those for completed suicide, except for a larger overall proportion of cases with "personality disorders." Given the diagnostic problems associated with these conditions, not the least of which is that mixed bipolar illness can be easily missed, even when the patient can be interviewed, it is not unthinkable that this could also occur with post-suicide diagnoses. Thus, identifying a group of child and adolescent suicide attempters who resemble suicide completers may be very useful, not only for therapeutic and preventive purposes, but also because this population may most closely approximate suicide completers. Moreover, from these attempters, we could learn the most about the affective, cognitive, and biological process that characterize the young patients who actually do commit suicide.

Some have proposed focusing on patients who have engaged in suicidal behavior of high lethality and intent, on the assumption that only chance circumstances allowed their survival; however, in adolescent and adult subjects, such "chance" survival may represent lower intent. Although cluster analyses of data on adult suicidal attempters reveals a group who used more violent methods, with more intent to succeed (71), nevertheless, adolescents and adults with the highest intent are still much more likely to kill themselves, thereby removing themselves from prospective scrutiny (64,88,89). However, in prepubertal children, there is a discrepancy between intent and lethality which makes the situation quite different. While suicidal ideation with a plan occurs among prepubertal children with MDD almost as frequently as in their post-pubertal counterparts (46% vs. 49%) (38), the suicide rate among prepubertal children remains quite low (3,17), in spite of its secular increase among adolescents and young adults. Prepubertal children's lack of cognitive maturity and skills necessary to complete suicide probably accounts for the low rates (3,17). Therefore, this age group provides the opportunity to study suicidality naturally untruncated by suicide completion. The findings reviewed earlier, showing that attempts before age 13 seem to carry a bleak prognosis for later suicide, also suggest that prepubertal suicidality may be much more representative of completed suicides and deserve special study. Suicidality of very early onset may enable the selection for future studies of those attempters who are most at risk, as the closest approximation to completed suicides.

This approach would be consistent with the findings by one of us regarding differences in GH responses and REM latency, and in their patterns of association, among suicidal and among nonsuicidal prepubertal children with major depression, both during the episode and in the recovery drug-free state. Such findings may relate to the evidence for the association of a functional CNS serotonin deficit in adult suicides (90-103), which may be familial (102). Furthermore, the evidence for familial aggregation of suicidality is also consistent with higher risk with earlier age of onset, especially if genetic factors are at least partially responsible for such familial transmission (104-106).

It is difficult to integrate the pertinent data on youths who have killed themselves with the information on the prognostic value of psychiatric illness in juveniles. In part, this is a consequence of the methodologic problems posed by the use of coroner's records and "psychologic autopsies." In this ex post facto database, probably the most "hard core" indicator of psychiatric illness is a positive history of mental health care. However, even those figures can be only approximations of the prevalence of mental illness in the cohorts because treatment is mediated by a variety of factors including recognition that a disorder exists, the availability of mental health treatment resources, awareness of such resources, and social influences that determine referral patterns. With the above caveat in mind, we used known rates of treatment referrals for pediatric cohorts to interpret the pertinent data on completed suicide among youth.

In their review of epidemiologic studies, Gould and associates (89) noted that "almost all psychotic children and adolescents are known to some treatment facilitiy." But only approximately 1 percent to 49 percent of "maladjusted" children receive mental health care. If we eliminate figures that included treatment by general medical personnel (e.g., pediatricians), 30 percent is about the upper limit of treated cases among "maladjusted" youths. Turning to information about rates of referral, Costello (107) found that, from about 2 percent to 5 percent of youngsters seen by primary health care providers (pediatricians, family practitioners) are referred to mental health specialists. She also estimated that 50 percent is the modal referral rate for youths who had been definitively identified by their health care providers as having a psychiatric problem.

The reported rates of psychiatric treatment or contact among youths who have committed suicide in the United States and Britain (see Table 5) therefore suggest that these youths were unlike normal pediatric populations, but similar to maladjusted or disturbed juveniles. That is, the portions of youth suicides with known histories of psychiatric care--from one-third to about one-half of the samples--are far higher than the mental health referral rates in the general youth population. But the figures on the suicides are comparable in this regard both to the portion of psychiatrically identified cases who have been referred for treatment and the portion of maladjusted youths who actually received mental health care.

Our conclusions must be viewed in light of the "methodologic" problems that confound a review of this body of literature. First, using conventional referencing methods, it is not possible to access every study of mentally ill youths that may have found suicide among the sample (e.g., 7), because of the way in which the studies were apparently indexed. Second, in some of the available prospective studies of psychiatrically ill juveniles, the absence of data on suicide could mean either that this outcome was **not** observed or that the investigators did not look for it (e.g., 11,108,109). Third, some of the published data are inconsistent, which is most evident in multiple publications regarding the same cohort. For example, the followup time intervals and the sample sizes may be discrepant (6,74) or case frequencies with certain diagnoses may not exactly correspond (14,16). Should it be desirable to conduct a meta-analysis on the reported findings, such methodologic issues need to be taken into account.

In summary, there is significant evidence that major psychiatric disorders constitute an important risk factor for completed and attempted suicides in children and adolescents. The efficacious treatment and care of psychiatrically ill youths may be the most feasible way to alter their risk of suicide.

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PERSONALITY AS A PREDICTOR OF YOUTHFUL SUICIDE

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INTRODUCTION

This paper will summarize the limited available literature on the personality risk factors associated with youth suicide and will outline the methodological difficulties inherent in this line of investigation. Personality disorder research has recently flourished greatly because the Diagnostic and Statistical Manual III (DSM III) provided a separate axis for personality diagnosis and specified explicit criteria defining each of the personality disorders. This has led to the development of reliable semistructured interview instruments to assess personality disorders in adults. Preliminary findings also suggest that personality disorders may influence, in important ways, the presentation, course, biological test results, and treatment response of various Axis I conditions. Thus far, however, there has been very little systematic research on personality assessment in children and adolescents, and there are many inherent conceptual and practical obstacles to any precise determination of the personality risk factors for youth suicide.

We will briefly review personality variables associated with suicide in adults, summarize research on the personality variables associated with youth suicide, and outline a number of the pertinent methodological problems and some of their possible solutions. We will conclude with suggestions for future research, current clinical practice, and prevention. The most interesting question that emerges from this review is the degree to which the personality factors that predict youth suicide are equivalent to factors that also pertain to adult suicide. This question has important theoretical, clinical, and prevention implications.

Personality Predictors of Adult Suicide Behavior

The two DSM III personality disorders most clearly associated with adult suicides, both completed and attempted, are the borderline (BPD) and the antisocial (APD) (1). Suicide rates for several-year followup studies of BPD patients are reported at 4 percent (2) and 7 percent (3); on a 15-year followup, the rate was 7.5 percent (4). Several studies suggest that the comorbidity of BPD with affective and/or substance abuse disorders results in particularly lethal combinations (5-7). Although most self-destructive behavior in BPD patients is probably nonlethal in intent, a substantial portion of BPD patients do eventually die by suicide, usually in young adulthood.

Reported rates of suicide attempts in APD individuals vary considerably (11%-46%),

perhaps because of differences in underlying base rates of APD and of suicide attempts in the samples studied and the fact that most studies did not use DSM III criteria (8-10). It is thus difficult to generalize the findings across studies. It is estimated that 5 percent of APD individuals eventually die by suicide (8-11). APD may also predict for frequent and recurrent attempts (12-14). These may occur in response to anger and frustration in interpersonal relationships and in order to manipulate others (15,16). The comorbidity of APD with affective and/or substance abuse disorders may, as with BPD, result in more frequent and more lethal attempts (6,17,18).

The psychology literature has employed a different strategy to determine the personality predictors of suicide. Rather than assessing the presence of a categorical personality disorder in suicidal individuals or the rate of suicide in those with personality disorder, many psychology studies have measured specific personality dimensions or traits in suicide attempters and/or completers. Attempters and completers appear to be different in their personality and in other characteristics. Attempters have the more disturbed personality profiles and are also more likely to be young, female, to lack an Axis I diagnosis, and to commit public, impulsive, suicidal acts using less serious means (19). Most of the personality dimensions that have been studied apply only to suicide attempters and may not generalize to completers.

The following personality traits seem to be particularly characteristic of suicide attempters: aggression or hostility (20-29), impulsivity (30), social withdrawal or interpersonal difficulties (31-37), low self-esteem (38-45), dependency (21,26,27,46), hopelessness (47-49), external locus of control, rigid cognitive style, and poor problem solving (54). The many studies that have tested the ability of the MMPI to differentiate suicidal patients have been inconsistent (55), and the same is true for studies of the association of hysterical traits and suicide

(24,25,56,57,58). Studies using the Eysenck Personality Inventory fairly consistently find high neuroticism, psychoticism, and introversion scores (59-62). The major limitation of available personality dimension studies is that each has tended to assess in isolation only one or a small number of dimensions so that we don't know the degree and direction of convariation among them and the amount of total variance they explain. Dimensional personality trait measures may also be difficult to obtain in ordinary clinical situations.

Recently, a particularly fascinating connection has emerged between the personality dimension of aggressive impulsivity in suicidal and violent individuals and the biological finding of low central nervous system serotonin turnover (63-67). The association holds up in patients with impulsive personality disorder, even in the absence of an Axis I diagnosis of affective disorder (68,69). The serotonin dysfunction appears to represent more a trait than a state condition (70). It has been postulated that a central problem in serotonergic metabolism may contribute to the individual's impulsivity, aggressiveness, and suicidal potential, which then may be released in the presence of clinical depression.

Personality Predictors of Youthful Suicide

This paper reviews the available research literature on personality traits and disorders in adolescent suicide attempters and completers. Most of the literature on personality applies to suicide attempters and may not generalize to completers. The four studies on completed suicides in youth are retrospective and do not utilize standardized personality measures. In studies of attempted suicide, assessments frequently are brief and often are made in crisis settings. Patients in these studies who are not admitted to the hospital are difficult to follow and frequently do not want to discuss their suicide attempt. Assessment of personality occurs at variable time intervals from the attempt and

may be confounded by the presence of an Axis I diagnosis and by stress.

Very few of the studies reviewed have used systematic and rigorous diagnoses of personality disorder since the focus of attention has usually been on Axis I disorders. A variety of different control groups have been used in some studies but not in others. Because suicide is an event with relatively low frequency, there are few prospective studies in the literature. Furthermore, there are extremely few studies of suicide attempters in a population with identified personality disorders. This review focuses on studies using standardized personality measures and assessments with appropriate control groups. The most frequently used method of assessment has been the questionnaire, but issues of reliability and validity are infrequently addressed, and the findings and measures have not been replicated in other studies (11).

Conduct Disorder: Strictly speaking, childhood conduct disorders cannot be considered the exact equivalent of personality disorder since the majority of children who qualify for this diagnosis do not go on to display a pattern of adult categorical disorder (71). Nonetheless, we discuss conduct disorders here because they tend to be relatively stable and are, by far, the sturdiest predictors of adult antisocial personality. The fact that conduct disorder is a major risk factor for both youth suicide and for adult antisocial personality disorder (which itself predicts for adult suicide) suggests that this diagnosis deserves special treatment and preventive attention.

Conduct disorder appears to be strongly associated with both suicide (72-74) and with suicide attempts (75-77). Conduct disorder is much more common among male suicide victims, and the precipitating event for the episode is often a disciplinary crisis. There is a frequent comorbidity of conduct disorder with affective, substance abuse, and borderline personality disorders, and the frequency and lethality of attempts increases with the degree of comorbidity. The few studies reviewed here that have systematically assessed for conduct disorder in suicidal youngsters are supported by the additional studies to be reviewed soon that have found aggressive, impulsive, and irritable personality traits to be more generally associated with suicide.

Borderline Personality Disorder (BPD): Although the construct of borderline personality disorder has not yet been carefully investigated or validated in adolescent patients, there are several interesting preliminary studies suggesting that it is often present and can be reliably diagnosed in adolescent suicide attempters (78-81). It also appears that the comorbidity of BPD and other disorders in adolescents is particularly likely to predict for more frequent and more lethal suicide attempts. Friedman et al. (82) found that among 76 adolescent inpatients, those who met criteria for both BPD and for major affective disorder were the most suicidal. In this same sample, Clarkin et al. (78) found that adolescent suicidal patients were equivalent to their adult counterparts in the prevalence of personality disorders (defined by a duration criterion of one year). Crumley found that BPD was the most common personality disorder in a group of hospitalized adolescents and that this diagnosis usually coexisted with major depression (67%) and/or substance abuse (77%). Alessi et al. (81) found a high prevalence (35%) of BPD in a sample of incarcerated juvenile offenders who would presumably also meet criteria for conduct disorder. The BPD diagnosis strongly predicted for greater frequency, seriousness, and lethality of suicide attempts. The association between BPD and suicide held up in both the Friedman (82) and the Alessi (81) studies even when the suicide item was itself eliminated as a criterion for making the BPD diagnosis, thus removing the risk that the association was merely a tautological artifact resulting from the fact that the DSM III definition of BPD includes one criterion devoted to suicidal behavior. Pfeffer (76) and colleagues found that BPD was the most frequent diagnosis among 48 preadolescent

inpatients who were both assaultive and suicidal.

The place of the BPD diagnosis remains controversial in adult psychiatry and this is even more the case for adolescent patients who have received less systematic personality disorder assessment. Nonetheless, it seems likely that a diagnostic construct tapping characterological instability usefully predicts for suicidal behavior and this can be reliably assessed fairly early in life.

It is of great theoretical interest, and also of practical importance, that antisocial and borderline personality disorders that are most associated with adult suicidal behavior are also, in their adolescent form, (that is, conduct disorder substituting for antisocial) the most common personality disorders predicting adolescent suicidal behavior. Moreover, the personality trait measures associated with suicide are similar in adults and adolescents.

Personality Traits: In contrast to the relative paucity of studies having systematic psychiatric diagnosis, a number of studies have focused on personality traits in suicidal youngsters. The personality traits most commonly found in suicidal adolescents are equivalent to those found in adults and include aggressiveness (83-87), irritability (89-92), low frustration tolerance (83,84), social isolation (83,87,92-98), hopelessness and helplessness (91,104), poor self-concept (90,91,99-101), sexual conflicts (93,101,102), poor problem solving (100,103), resentfulness (88), and external locus control (105). It is of interest that these personality traits (especially aggressiveness, irritability, low frustration tolerance, and resentfulness) are fully consistent with the personality diagnostic categories (i.e., conduct disorder, borderline personality disorder) most often found in youthful suicides.

As is the case in studies of personality dimensions in adults, there have been several major problems in studies of such dimensions in adolescents. Generally, a given study focuses on only a small number of possibly important

dimensions so it is impossible to determine the degree to which the various dimensions can vary. Predictors are reported to be significantly different in large groups of suicidal individuals compared with nonsuicidal individuals, but the absolute and comparative predictive powers of the variables for the individual patient are not calculated. Studies of personality traits are usually not coordinated with studies of personality disorders so it is impossible to determine the degree to which these are correlated. Finally, there is the problem of comparison groups. Many studies of personality traits of suicidal individuals compared them to normal controls. Unless subjects are equivalent in their psychiatric diagnosis, it is impossible to determine the degree to which a given finding in the suicidal group is specific to suicide or whether it represents a trait more generally characteristic of psychiatric patients.

METHODOLOGICAL ISSUES

The Ability to Assess Personality in Youth: Before we can confidently determine whether particular personality disorders or personality traits are useful predictors of suicide, we must address the more fundamental question about the degree to which personality assessment is meaningful in the younger age groups. How does personality diagnosis in children approximate that in adults?

The DSM III definition of personality disorder requires an age of onset that occurs by adolescence or earlier and a continuous course throughout most of adult life. The relationship of personality disorder diagnosis in children and adolescents to that in adults is addressed specifically, and in some detail, in the introduction to the DSM III personality disorders section. It is proposed (without any great empirical support) that certain diagnostic categories from the DSM III Infancy, Childhood, and Adolescence section correspond to, and in effect eventually develop into, certain personality disorders (e.g. Schizoid Disorder of Childhood or Adolescence into Schizoid Personality Dis-

order; Avoidant Disorder of Childhood or Adolescence into Avoidant Personality Disorder; Conduct Disorder into Antisocial Personality Disorder; Oppositional Disorder into Passive Aggressive Personality Disorder; and Identity Disorder into Borderline Personality Disorder). The presumption is that the childhood or adolescent condition will be diagnosed if the individual is under age 18 whenever the personality psychopathology has persisted at an intensity sufficient to meet disorder criteria. Adult personality disorders without a corresponding childhood or adolescent category (e.g., hystrionic or paranoid) can be applied in childhood or in adolescence "in those unusual instances in which the particular traits appear to be stable. When this is done there is obviously less certainty that the personality disorder will persist unchanged over time."

Indeed, there are a number of reasons to be concerned that personality assessment may be less stable over time and predictive of future behavior in younger individuals. Since the past is the best predictor of the future in most things, including behavior, it makes sense to assume that the more of the past one has available, the more accurate the prediction will be. One is on statistically safer ground predicting that an individual with 30 previous criminal offenses by age 30 will soon commit more crimes than that a first offense at age 16 will be repeated over and over again. This general threat to the stability of personality assessment in early life is enhanced even further by three more specific confounds (personality/state; personality/role; and personality/developmental) which are also inherent problems in adult personality diagnoses but become especially problematic in assessing youths. We will discuss each of these in turn.

It is well documented that current state factors in adults (particularly the presence of accompanying mood disorder) greatly influence personality ratings by causing retrospectively distorted reporting of previous behaviors. State conditions, especially those that are chronic, may also interact in complicated ways with personality functioning; they may cause personality dysfunction or, conversely, personality dysfunction may predispose to state conditions, or, in many instances each may influence the other. The Axis I/Axis II confound presents major problems in adult personality disorder diagnosis, but there are several reasons to suppose that it is an even more difficult problem in childhood and adolescence. First, the various Axis I conditions have been less clearly and definitively described in younger patients and, in this age group, may be more likely to present in atypical or individual ways (perhaps influenced by developmental factors). Second, children have a less extensive track record on which to decide whether the problems are more state- or more trait-related. This combination of atypical Axis I presentations and a limited Axis II data base makes it doubly difficult to determine with any certainty whether a particular symptom or behavior (say irritability and/or poor conduct) arises from an Axis I syndrome (e.g., depression) or instead represents the early onset of stable personality features that may become manifest, for example, as conduct disorder or, ultimately, as antisocial personality.

The confounding of situational factors and personality disorders is also a problem in adult personality diagnosis but may be even more difficult in childhood because children tend to be more influenced by their social environment and its role expectations. For example, when a youngster presents with a conduct disturbance, it is difficult to determine whether he is responding to a disturbed family environment or to peer pressure or whether this is the beginning of what will become an antisocial personality disorder. In the first two instances, the appropriate diagnosis would be adjustment disorder with disturbance of conduct, with the expectation that the conduct problems will be self-limited if the precipitating stressors are removed. A diagnosis of conduct disorder or personality disorder implies that the behavior is more specific to the individual and likely to be

stable and manifest across different social situations and role expectations.

Developmental changes constitute the third specific confound complicating personality assessment in children and adolescents. It is often difficult to predict prospectively whether a given behavior represents a stage-specific manifestation that the child is likely to "grow out of" or whether it is the beginning of a stable and lifelong pattern of personality functioning. For example, as a group, adolescents in our society are probably more narcissistic, troubled by identity problems, and prone to conduct disturbances than they will be as adults. The diagnoses of narcissistic, borderline, or antisocial personality disorder therefore will be applied prematurely and too liberally if these are based on a small slice of developmentally influenced adolescent behavior. Rather, such diagnosis should be based on a longer and wider strip of life experience beyond the confines of the developmental epoch in which such behaviors are less pathologic and specific to the individual.

Despite all these methodological cautions concerning personality diagnosis in childhood, there is evidence that some personality characteristics consistent across time can be detected fairly early in life. A number of studies indicate that marked individual differences in aggression become manifest early in life (certainly by age 3) and remain stable to a degree that approximates the stability of the I.Q. There is also abundant evidence that the presence of conduct disorders in childhood is uniformly obtained in the histories of individuals who go on to exhibit adult antisocial personality. (Note, however, that the majority of childhood conduct disorder youngsters do not grow up to be antisocial.) (106-111). These data suggest that although many children with conduct disorders "grow out" of them, many others do not. A childhood diagnosis of conduct disorder predicts both for childhood suicide and also for adult antisocial personality. Thus, in the personality areas that most reliably predict youthful and adult suicide, the pertinent personality variables have demonstrated suffi-

cient stability to suggest the value of early detection, treatment, and prevention.

The best, although partial, solution to the methodological problem raised in this section is to develop semistructured personality disorder interviews adapted for children and adolescents. This is analogous to the fairly recent development of specialized Axis I interviews adapted especially for children (KIDDIE SADS). It will be necessary to define more specifically the behavioral criteria for childhood personality disorder as this is not handled with sufficient clarity in DSM III. Personality assessment in children will always be more difficult and less predictive than in adults, but such assessment will improve as it becomes more systematic and as empirical data accumulate.

Possible Relationships Between Personality Variables and Suicide: Establishing a correlational relationship between personality variables and suicide does not alone establish the direction of causality. We will discuss the several possible relationships that may be involved:

a. Definitional overlap: suicidal behavior may form an inherent part of the personality disorder definition, just as suicidal behavior is included within the definition for major depression. For example, DSM III includes reference to suicide within the criteria sets for both the borderline and hystrionic personality disorders. Whenever suicidal behavior is included within the definitional set for a disorder, it is inevitable that there will be some connection between that disorder and suicide. To establish that the relationship is real and not just definitional, one must demonstrate empirically that the criteria set for the personality disorder predicts for suicide even when the suicide item is omitted.

b. Personality disorder directly predisposes to suicidal behavior or to a form of suicide attempt (e.g., if one considers the impulsivity and aggressivity of BPD as a direct cause of suicidal behavior).

c. Personality disorders may predispose to Axis I disorders (e.g., depression), which then independently increase the risk for suicide.

d. Personality disorders may exert an influence on the expression of the Axis I condition so that the suicide risk is increased (e.g., most depressed patients do not suicide; the presence of personality disorder may increase the vulnerability to suicide in depressed patients.

e. Axis I conditions (e.g., depression), especially in chronic presentations, may predispose to behaviors that are indistinguishable from personality disorders or may exacerbate personality characteristics so that they present at the disorder level and/or the combination may interact to increase risk for suicide.

f. Personality traits (e.g., impulsivity or aggressivity) that cut across the categorical Axis II personality disorders may predispose to suicidal behavior.

g. The covariation between suicide and personality disorders may be based on chance or on the covariation of each with some other underlying factor.

A number of different types of studies and analyses are necessary to establish the nature of causality. The first step is to document that the prevalence of personality disorders is higher in suicidal patients compared with nonsuicidal patients, controlling for Axis I diagnosis. This would establish that there is a greater than baseline or chance comorbidity. The degree of independent specific contribution to suicide of the pertinent personality disorders (BPD and APD) can be determined by comparing their rates of suicide with those that occur in other kinds of personality disorder and also comparing the rates that obtain for them with and without comorbid Axis I disorders. Studies should also compare that predictive power of the categorical DSM III disorder system with dimensional measures of pertinent personality traits (e.g., aggressivity).

Attempters vs. Completers: In adults, suicide attempters and suicide completers seem to constitute two separate, but overlapping populations. A previous attempt carries an increased risk of eventual suicide (2% in one year and 10% lifetime), but attempters do not greatly resemble completers in demographic, diagnostic, or personality variables. The relationship of attempters to completers needs to be defined for the child and adolescent populations. The degree to which data on attempters (who are much easier to study) can be extrapolated to completers remains unclear. Moreover, the data gathered after a suicide attempt may not accurately reflect the individual's presuicidal functioning. Studies on personality characteristics in successfully completed suicides will have to depend upon informant methods of data gathering that are now being developed for adult personality assessment. Informant methods also may be very useful for childhood attempters who are not very reliable reporters of their own personality characteristics.

Comparison Group Selection: Many studies attempting to isolate the characteristics of suicidal patients compare them with normal controls. This is a serious methodological limitation, given that factors in the suicidal patients may be secondary to their psychiatric disturbance and not be particularly specific to, or predictive of, suicide. To relate a risk factor specifically to suicide, it is necessary to use a comparison group that is matched on diagnosis (as well as other possibly pertinent variables) so that suicide is the only uncontrolled variable in the comparison. Risk factors may vary by sex and age groups.

Interactions with Environmental Variables: Personality variables usually have been considered in isolation from the environmental variables with which they may interact in important ways. Future studies will have to redress this simplification. It will be necessary not only to tap the personality variables and the environmental variables associated with suicide but also to determine the specific interactions between these variables that

heighten risk (e.g., angry impulsivity in a borderline personality disorder interacting with the loss of love object or the conduct disorder individual who has been caught in a misdemeanor).

Predictive Power: Suicide is a rare event, is associated with many correlates, and may result from heterogeneous causes. It seems unlikely that any variable, or grouping of variables, will ever have a high predictive power for suicide, especially in cross-sectional evaluation. By isolating personality variables associated with suicide, we can probably improve our ability to identify a group of youngsters at high suicide risk who deserve extra treatment and preventive efforts. Assessment is unlikely ever to be very successful in predicting which specific youth is at high risk to attempt suicide in the very near future.

DISCUSSION

Thanks largely to the increased reliability afforded by DSM III, personality disorder research in adults has recently been flourishing and promises to provide increasing clarity on the relationship of Axis I and Axis II disorders and in the interaction of these with suicidal behavior. However, the technical innovations in personality assessment developed for adults have not yet been translated into improved assessments of childhood personality features. Although the diagnosis of personality in youngsters is inherently problematic in the many ways we have outlined, it is likely to improve greatly as research attention turns in this direction. The results of this literature review suggest that the personality features that predict youthful suicide are very closely related to those that are associated with suicide in adults (borderline personality, conduct disorder/antisocial personality, impulsivity, aggression, social withdrawal). This would seem to confirm the continuity of personality factors throughout the life cycle as possible contributors to suicide risk.

Suggestions for Current Clinical Practice: Youngsters who present with conduct disorders and/or the impulsivity associated with borderline personality disorder deserve an especially thorough diagnostic evaluation that specifically assesses for the possible presence of Axis I conditions (e.g., affective disorder and substance abuse). Suicide risk and lethality appear to be highest for patients who present with comorbid combinations of Axis I and personality disorders so that aggressive treatment of the depression and/or substance abuse is crucial in this group. The presence of specific stressors (trouble with the law, loss of love object) that are particularly associated with suicide in personality-disordered youngsters should alert the clinician to increased risk and provide a target for immediate education and intervention. Although effective treatments for conduct and borderline disorders have yet to be documented, certain promising leads deserve further clinical and research attention.

Suggestions for Prevention: Robins and Earls (112) have suggested a promising research design to test the ability of a special prevention strategy to reduce the incidence of conduct disorder. They would select a group of children who have at least a 50 percent morbid risk of developing conduct disorder (i.e., those who have at least one antisocial parent). Since some of the origins of conduct disorder may occur early (prenatal exposure to neurotoxins and distress, postnatal trauma and illness, and parental deprivation) and since the earliest manifestation may occur during the preschool years, the preventive intervention would be designed for early delivery. The sample would be selected from pregnant women with antisocial disorder. The intervention aim to offset known risks for conduct disorder by providing adequate prenatal and pediatric care, offering high risk infants a special curriculum to increase language and social skills, and providing training and support of the parents. The research design would include randomization to a special developmental center or to a no-intervention control group. If the intervention were suc-

cessful, Robins and Earls would expect significant differences to be evident by age 3 and that these would be substantial through age 10. Positive results detected at this point would presumably reduce the longer term risk of antisocial personality and also of youthful adult suicide, although such determination would require additional longitudinal study. This strategy for studying the effects of primary prevention for conduct disorders would appear to be feasible, cost-effective, and likely to have an impact on youthful suicide rates.

Suggestions for Future Research: The most immediate need is to develop methods to assess childhood personality disorders and personality traits. Available personality definitions and assessment instruments designed for adults have been developed only recently and must now be adapted for use in youngsters. The stability and predictive power of childhood personality measures and their relation to Axis I conditions must be determined empirically. Once assessment problems have been addressed, it will be important to evaluate treatment and prevention programs.

CONCLUSIONS

Personality disorder diagnosis has only recently achieved reliability, and empirical studies have only just begun to demonstrate the predictive power of personality variables. Thus far, almost all the available research has been conducted among adults, and we must recognize that personality assessment in childhood and adolescence is difficult and subject to inherent limitations. Nonetheless, it is fascinating that the very same personality variables that are associated with adult suicide are also associated with youth suicide, suggesting that preventive efforts focused on personality variables should be targeted to early identification, treatment and prevention, in high risk populations. Interventions that are effective in reducing personality risk factors are likely to reduce the suicide rates, not only in youthful populations but also in these same populations as they grow older.

It seems crucial to develop programs of prevention and treatment to counteract the disturbing cohort effect for conduct and affective disorder that may be responsible for the increasing rate of suicide in younger age groups.

Specific conclusions derived from our review include:

- The personality predictors of youthful suicide are equivalent to the personality predictors of adult suicide.

- There is stability of adolescent personality diagnoses into adulthood.

- Conduct disorder and borderline personality disorder are the most important personality disorder risk factors for adolescent suicide.

- Certain dimensional personality and cognitive traits (e.g., aggressivity, impulsivity, hopelessness, social isolation) may be important predictors, perhaps cutting across categorical personality disorder diagnosis.

- The comorbidity of Axis I and personality diagnosis increases the frequency and lethality of attempts.

- There may be a contributory role of a family history of antisocial behavior, substance abuse, and/or affective disorders to suicidal behavior.

- Comorbidity plus family history may increase lethality (both through genetics and environmental reinforcers).

- There is a need for better personality measures and assessments for children and adolescents.

- There is a need to establish whether the biological (particularly serotonergic) correlates of personality and suicidal behavior found in adults also apply to adolescents.

- It is necessary to determine how personality disorder/traits interact with other risk factors (i.e., family history, biological abnormalities, lack of social

supports, other psychosocial risk factors, presence or affective disorder) to increase risk for suicidal behavior.

• Perhaps most important of all is the possibility that programs of primary and secondary prevention that succeed in reducing the morbidity of personality disorders in the young may thereby reduce not only the youthful suicide rate, but also the rates of adult personality disorders and the rates of adult suicide.

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SUBSTANCE USE AND ABUSE: A RISK FACTOR IN YOUTH SUICIDE

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INTRODUCTION

This paper reviews the relationship between the use and abuse of substances and adolescent suicidal behaviors. Before presenting the actual data, it is important to address some relevant problems of definition.

For purposes of this overview, childhood and adolescence extend to age 24, although the majority of studies have focused on people 19 years old or less. Suicidal behavior can include intense thoughts of wishing to be dead; attempts or "gestures" can relate to any level of deliberate self harm; while completion of suicide requires documentation through a coroner's report or interviews with "significant others."

Alcohol and substance use connote intake of these drugs without associated major life problems (1,2). Information about use is distinct from data on alcoholism or drug abuse which relate to heavy intake of drugs or alcohol and documentation of serious and persistent related life problems (1,5). Unfortunately, in many studies specific criteria are not clearly stated.

Also of central importance to this discussion is the definition of psychiatric disorders. Many of the earlier studies set forth no rigorous criteria for the syndromes being described. The more recent investigations often use the Research Diagnostic Criteria (RDC) or the Third Diagnostic and Statistical Manual of the American Psychiatric Association (DSM III) (4,5). Reflecting these more rigorous and reliable classifications, whenever possible emphasis is placed on findings from current studies.

Discussions of behavior associated with substance abuse, however, must go a step further in classifying subjects. In the course of misuse of drugs or alcohol almost all types of behavioral aberrations can develop, including severe states of anxiety, depression, acute psychoses, and severe confusion (1,2,6). Using diagnosis to indicate prognosis and to help in selection of treatment, it is important to attempt to establish a hierarchy of problems. One approach is to differentiate between primary and secondary illness (3,7). A primary psychiatric label is assigned when an individual fulfills criteria for that disorder and has no major preexisting psychiatric problem. An example would be an adolescent who met the requirements for drug abuse and who had no antisocial personality disorder (ASPD), major depressive disorders, schizophrenia, etc., prior to the onset of severe drug related difficulties. A secondary label is assigned when an individual meets criteria for a disorder only after another

major psychiatric illness was present. An example of this phenomenon is the man or woman with an ASPD (e.g. the onset prior to the age of 15 of pervasive antisocial difficulties) who, at age 18, went on to develop severe alcohol-related life problems; this is a case of primary ASPD and secondary alcoholism and the prognosis is likely to be that of the personality disorder, not alcoholism (6,8-10).

With these caveats in mind, we turn to a discussion of some risk factors associated with adolescent suicidal behavior. Section II briefly reviews the prevalence of suicide attempts and completions among young people in order to place into perspective the data that follow. Section III reviews the direct relationship between substance use or abuse and suicidal behavior, emphasizing the application to adolescents. Section IV looks at indirect associations between substance use or abuse and suicidal behavior as they relate to other primary diagnoses including ASPD, borderline personality, affective or depressive disorders and schizophrenia. This includes brief comments on the ties between suicidal behavior and substance abuse in adolescents and family environment or family history of psychiatric disorders. Finally, Section V synthesizes the information and offers some clinical and research implications.

THE EPIDEMIOLOGY OF SUICIDE ATTEMPTS AND COMPLETIONS

The following discussion distinguishes between the prevalence of suicide attempts and completions. Within each section, information is first given regarding rates in the general population, and this is followed by figures among adolescents. Each section concludes with data on changes in the rate of these phenomena over the years.

Attempts

About 10 percent (10,000/100,000/yr) or more of people in the general population reported suicidal feelings over the prior year, including 2.5 percent who had more intense thoughts (11-13). Counting all age groups, actual suicide attempts are observed at a rate between 100 and 800/100,000/yr, with women age 15 to 24 years standing out with the high figures shown in Table 1 (12,14,16). In men, the 15 to 24 year olds also predominate, but in each age group the actual rates are about half those seen in women (12,14,15,17-22).

Since the peak age for suicide attempts is between 15 and 24 years old (14-19), it is not surprising that a number of studies have focused specifically on the attempt rate for

Suicidal Behavior by Sex and Age per 100,000/yr (12-15,17,19,22,30,31)				
	ATTEMPTS		COMPLETIONS	
Age	Male	Female	Male	Female
<15	26	92	<1	<1
15-24	423	786	16	4
25-44	267	598	24	10
45-64	152	257	26	14
65+	70	41	33	11

Table 1.

children and adolescents. Looking first at more anecdotal data on children who have sought help, it has been estimated that 3 percent of a consecutive series of young people coming to private practice or psychiatric outpatient settings had ever attempted suicide. The same is true for 10 percent to 30 percent of adolescents coming to emergency rooms, and the rate of attempts increases to between 10 percent and 50 percent among young psychiatric inpatients (18,20-22). These figures are probably inflated because of the troubled nature of the populations observed.

The high prevalence of suicide attempts in any age group, including adolescents, is not a new phenomenon (13,16,17,23-25). Most of the literature focuses on more anecdotal reports; between 1972 and 1980 there was a 5-fold increase in adolescents seen for suicide attempts in a Louisville, Kentucky psychiatric hospital (26), and an almost doubling of adolescent suicidal behavior was seen between 1970 and 1975 in a New Haven, Connecticut emergency room (14).

Suicide Completions

Suicide completion is a much rarer phenomenon than suicide attempt. The ratio between the two depends upon the definitions used, but is at least 10 to 1 (17,27), and could be as high as 100 or more to 1 in some groups (28,29). There is, however, an important connection between attempts and completions, because as many as 50 percent or more of completers have attempted suicide in the past (27).

As shown in Table 1, overall about 15 people per 100,000 of the general population died by suicide in 1980, with a male preponderance of between 2 or 3 to 1, and a peak rate for men age 65 or older (15,30-33). As infrequent as completed suicide is in the general population, it is even less common among adolescents. However, self-inflicted death has long rated as the third leading cause of mortality in this otherwise healthy group, especially for youth with histories of psychiatric care (18,21,34,35). Despite isolated cases of apparent short-term

"epidemics" of suicidal behavior among young people (36), completed suicide is especially rare for children under age 15 (15,30,35).

The prevalence of suicides in the United States and Canada appears to have been stable during the 1950s (20,32). However, as reported for attempts, suicidal death began to increase in the 1960s. The overall rate in 1961 was 5/100,000/yr for men and 1 for women in Alberta, Canada; almost double the figures from 1951 (32). Self-inflicted death rose to 25 and 5 for the two sexes by 1971, on to approximately 32 and 5 by 1976 (32). In general, the U.S. suicide rate rose from 5.2 to 13.3/100,000/yr from 1960 to 1980 (31). Other investigators have also documented an increase of at least two- to three-fold between 1960 and 1980 (18,30,31,37,38).

SUBSTANCE USE/MISUSE AND SUICIDE RISK: A DIRECT ASSOCIATION

Alcohol and drug use and violent death (accidents, homicide, and suicide) are potentially related in a number of ways (39-41). Drugs of abuse, especially brain depressants (e.g. barbiturates, antianxiety drugs, and alcohol) and brain stimulants (e.g. amphetamines, cocaine, weight reducing products) can impair judgment, increase levels of impulsivity, and are capable of producing severe mood disturbances, including temporary, intense and suicidal depressions (1,6,42). Any substance of abuse can also exacerbate a preexisting state of psychopathology, including increasing the level of hallucinations or delusions in psychoses, enhancing anxiety, and increasing levels of depression (1,6,43-45). The following sections briefly review information on the association between substances and suicide attempts or completions in general (Section A), as well as in adolescents (Section B).

Alcohol, Drugs, and Suicide Attempts: A General Discussion

One obvious association between substances

and suicide is the use of alcohol or drugs as vehicles for the suicidal act. Historically, drug overdoses of prescription or over-the-counter drugs have been a favored mechanism in suicide attempts, especially overdoses with brain depressants in women (14,46). The use of drugs as the mechanism of attempt by young people is equally strong. In one consecutive series of 505 adolescents and children seen in a pediatric emergency room for a suicide attempt, 88 percent had used drug overdose, as had 78 percent to 100 percent of suicide attempting youth reported in other samples (1,22,47-49), although some authors have reported lower rates (30,31).

In any age group, intoxication with alcohol or drugs often immediately precedes suicidal behavior (17,39,50-52). In some instances, this relates to suicide attempts among alcohol or drug abusers, but in others it reflects the use of substances as part of the attempt itself or in an effort to "screw up enough courage" to carry it out. In any event, one study reported as many as 70 percent of male and 40 percent of female suicide attempters had consumed heavy doses of ethanol before the act, with average resulting blood alcohol concentrations (BACs) of almost 150 milligrams per deciliter (mg/dL) for the men and over 100 mg/dL for the women (12). Alcohol was found to have "contributed to the death," through perhaps impaired judgment or exaggerated mood swings as well as through effects on vital systems, in more than half the autopsied cases in one study in Washington, D.C., and more than two-thirds of the suicides in another study in New York City (61,62).

There is ample documentation of a high suicide rate among substance abusers themselves. At entrance into an alcohol treatment program, at least 20 percent of alcoholics report histories of suicide attempts (53). Prospective followup of identified alcoholics have revealed a three-fold or higher increased rate of suicide completion (41,54,55), with Miles estimating a lifetime rate as high as 15 percent (56).

The association with violent death extends to drug abusers as well, with at least 15 percent admitting to past suicide attempts. The estimated lifetime suicide completion rate among some types of drug abusers exceeds 10 percent (1,53,56-59), including a four-fold increased rate over the general population among amphetamine abusers, as well as a high of suicide among cocaine and heroin addicts. Drug abusers who express extreme feelings of depression or hopelessness may be at exceptionally high risk (60).

Considering the lifetime rate of suicide completion among substance abusers, it is not surprising that studies of patients who have committed suicide have noted that a high proportion have a history of substance misuse. Using rigorous criteria, 20 percent to 50 percent of suicide attempters or completers were found to be drug abusers, while between 15 percent and 50 percent of completed suicides in several studies were alcoholics (27,33,63-68).

In summary, from the studies in the general population and focusing on all ages there appears to be a close relationship between alcohol and drug use or abuse and suicide. The association is supported by followup studies of alcoholics or drug abusers, evaluations of the characteristics of suicide victims, and followup evaluations of psychiatric patients.

Alcohol, Drugs, and Suicidal Behavior Among Adolescents

Analyses of data for adolescents also document a close association between substances and suicide, as outlined in Table 2 (35,69,70). This conclusion is supported by studies of suicidal youth, evaluations of substance abusers, and through observation of young psychiatric patients.

Adolescents who fulfill criteria for drug abuse or who have relatively heavy drug intake patterns have an increased rate of death overall, including high rates of suicide. A 10-year followup of two groups of teenagers (one from the general population and the second identified because of prior drug use) revealed a two- to seven-fold increased death

rate among boys with histories of drug misuse, and an almost two-fold to eight-fold increased death rate among girls (71). Approximately half of this increase in death rate was from suicide.

The relationship between drugs, alcohol, and suicide in young people is corroborated when populations identified because of suicidal behavior are evaluated. Patel reported that among suicide attempters age 12 to 19 years old, 41 percent of the boys and 19 percent of the girls had been drinking immediately before the attempt (13), and Garfinkel found a ten-fold higher rate of recent alcohol or drug use in 505 adolescent attempters than for controls (22). Shafii noted "frequent use of nonprescription drugs or alcohol" among 70 percent of the 20 teenagers who committed suicide in the Louisville area between 1980 and 1983 (26), while almost half of the suicides aged 15 to 19 in Erie County, New York, had alcohol in their blood (50). The study of suicides under age 30 in San Diego found that more than 75 percent abused drugs or alcohol, including between a third and a half for whom these diagnoses were the primary illnesses (31). Among those with drug problems in the San Diego sample, 79 percent had abused marijuana, 45 percent cocaine, 34 percent amphetamines, and about 25 percent each had abused opiates, sedatives/ hypnotics, or hallucinogens. There was an average of three to five substances abused per individual.

The association between suicidal behavior and drugs is just as strong among adolescent psychiatric patients. Robbins and Alessi studied 33 teenage psychiatric inpatients who had histories of prior suicide attempts, looking for the relationship between alcohol or drug use and suicidal behavioral (18). They used an analysis of correlation that evaluates the degree to which two factors change at the same time (the higher the correlation, the greater the similarity in change). A history of alcohol abuse correlated with the number of past suicidal "gestures" at a 0.42 level (p<.001), accounting for 25 percent of the variance or range of the number of gestures in this group. Similarly, the correlation between alcohol abuse and the seriousness of past attempts was 0.35 (p<.01), and alcohol problems correlated with the level of medical seriousness at 0.36 (p<.01). Overall, the association between a history of alcohol abuse and the occurrence of a suicide attempt was 0.28 (p<.05). A history of drug abuse correlated with the number of suicide "gestures" at 0.32 (p<.05), and with the medical seriousness at 0.26 (p<.05). Those authors conclude that "substance abuse in depressed adolescents appears both to increase the risk of multiple attempts and to add to the medical seriousness of the attempt."

Suicidal Behavior and Substance Abuse in Adolescents are Linked
(13,18,22,26,30,31,50,71)

Among heavy substance users:	Four fold increased suicidal death rate
Among adolescent suicide attempters:	Ten fold increased substance use 30 percent drank before attempt
Among adolescent suicide completers:	70 percent used drugs frequently 50 percent had alcohol in blood 75 percent fit criteria for drug or alcohol use disorders
Among young psychiatric patients:	Suicidal behavior and substance abuse correlate

Table 2.

Several factors complicate the interpretation of these data. First, adolescence and early adulthood are ages of maximal alcohol and drug use (1,72-74). Second, as discussed by Weissman (75) people with multiple problems are more likely to seek care than those with one problem alone. Therefore, substance users who also have depressive symptoms and multiple life crises are the ones most likely to be identified and to be a part of studies. The apparent close association between substance use and suicidal behavior in treated groups might not completely generalize to substance users in the general population.

In summary, there is much evidence connecting alcohol and drug use with suicide attempts and completions in both adults and adolescents. This includes an increased prevalence of alcohol and drug use prior to suicide attempts, a marked increase in risk for suicide attempts and completions among drug and alcohol abusers, an overrepresentation of drug and alcohol abusers among suicide attempters, and a correlation between suicide attempts and a history of drug or alcohol abuse among psychiatric patients.

MORE INDIRECT EVIDENCE CONNECTING DRUGS AND ALCOHOL WITH SUICIDAL BEHAVIOR

Section I described how careful psychiatric diagnostic labels can give important clinical information on a patient's probable prognosis and treatment needs (1,3). To meet these goals, however, it is necessary to distinguish between primary disorders and those illnesses that develop only after another preexisting psychiatric problem was established (secondary illness). This is especially important for alcohol and drug abuse, because the prognosis and rehabilitation needs can be quite different for primary and secondary misusers (1,6,9,45).

This section highlights a number of primary psychiatric disorders in which both suicidal behavior and substance abuse are common

problems. Thus, an important association between substance abuse and suicidal behavior is mediated through personality disorders and psychiatric illnesses that can be seen in adolescents and that sometimes run in families.

Personality Disorders

Over the years, attempts have been made to use clear-cut criteria to outline psychiatric disorders for which good followup data are available (3-5). Unfortunately, with one or two exceptions, the progress for personality labels has been less impressive than for the other categories of the DSM III.

Personality disorders in general are likely to be associated with suicidal behavior. Anecdotally, character and behavior (or personality) disorders are among the most frequent diagnoses for soldiers or sailors with suicide attempts (17,19,29,76). Among psychiatric patients with histories of self-harm, between 35 percent and 80 percent are noted to have some type of personality disorder (21,77-79), although few studies used objective criteria to identify the personality problem involved.

It is probable that the specific label of the antisocial personality disorder (ASPD) is closely tied to suicidal behavior. The diagnostic framework for this problem has changed over the years, evolving from the psychodynamic concept presented by Cleckley (80) to a more precise constellation of symptoms outlined by Robins and colleagues and adopted (with some modifications) by the DSM III (5,81,82). As presently used in most studies, the label of ASPD connotes an individual with antisocial problems in multiple life areas beginning prior to the age of 15 and continuing into adulthood; these are problems that cannot be explained solely by alcohol or drug use histories. Subjectively, these individuals are likely to be impulsive, have difficulty conforming to the expectations of others and learning from mistakes, and show impairment in establishing long-term relationships.

Approximately 80 percent of ASPD patients

have a history of alcohol abuse and associated serious problems (6,83,84), and these men and women carry an elevated risk for drug related pathology as well (82-86). ASPD patients are also more likely than the general population to attempt and complete suicide (1,35,68,83). One in four have history of suicide attempts, and during a 5- to 6-year followup, 5 percent had died by suicide (53,87).

Two other personality disorders appear to be associated with both substance abuse and suicidal behavior. First is the DSM III syndrome of somatization disorder that grew out of a concept of hysteria and Briquet's disease (3,5,88,89). Patients with this disorder are usually women who at an early age develop somatic complaints in multiple body system, including numerous conversion symptoms (neurological symptoms other than pain with no known medical basis). Severe mood swings are common and suicide attempts occur at a much higher rate than in the general population (3,89,90). Women with this disorder may have a 15 percent prevalence of concomitant use of substances for "recreation" or use outside of normal prescribing practices (89). Therefore, considering the relatively early age of onset, this may be a second example where substance misuse and suicidal behavior are tied together through a separate primary illness.

Finally, an early onset personality disorder characterized by severe mood swings and an inability to handle life stress has been described as the "borderline personality" (91,99). Subjectively, these patients share many characteristics with individuals with ASPD or somatization disorder, demonstrating impulsiveness and frequent mood swings. In addition to an increased rate of suicide attempts, these men and women are also more likely than the general population to misuse alcohol or other drugs (93,94).

Major Psychiatric Disorders

The most frequently reported diagnoses associated with suicidal behavior are affective illnesses, usually unipolar or bipolar major depressive disorders or, in the earlier studies, "depressive neurosis." An affective disorder is seen in 50 percent to 65 percent of adult suicide attempters (19,20,53,100,103), as well as in between 55 percent and 95 percent of suicide attempting adolescents and children (18,22,93,104). The association between suicide completion and depressive illness is also high for all ages, with about half of suicide completers noted retrospectively to have had major depressive disorders (64,101,105). Synthesizing this information, Miles projects that the life-time risk for completed suicide among major affective disorder patients is at least 15 percent (56).

Another psychiatric illness with an elevated risk for suicide attempt and completion appears to be schizophrenia. This diagnosis is especially important in young people because the onset of the process is usually in the teens or twenties (3). While definitive conclusions are jeopardized by the marked variation in diagnostic criteria utilized in different studies, it appears that 12 percent to 15 percent of adolescent or adult suicide attempters have schizophrenia (20,21), while 3 percent to 10 percent of suicide completers fulfill criteria for this disorder (64,101,105).

This section is included both because each of these problems is a risk factor in suicidal behavior, and because secondary substance abuse during the course of these disorders can exacerbate symptoms (1,6). As many as two-thirds of manics and one-third of severe depressives escalate their drinking while ill, a problem that could intensify depressed feelings and impulsiveness and might increase suicidal behavior (45). Similarly, schizophrenics who increase intake of brain depressants or stimulants are likely to experience a worsening of their poor judgment and psychotic thinking (107,108). Finally, it is possible that heavy drinking or drug use might exacerbate mood swings or intensify almost any major medical disorder (1,109).

Substance Misuse, Suicidal Behavior and the Family

The previous subsections have documented

that few adolescents who attempt or complete suicide are free of major psychopathology. This finding impacts on two other observations: the high prevalence of family instability and the high rate of psychiatrically ill relatives among suicidal young people.

During the 1970s it was common for authors to emphasize the observation of broken or chaotic homes among suicidal youth (19,101,105). Interpersonal difficulties were often named as an immediate precipitant for suicide attempts in adolescents (19), and many of these young people were reported to have observed suicidal behavior within their immediate families. Indeed, there is evidence that self-destructive acts run in families (111). For example, one evaluation of 243 psychiatric inpatients concluded that those with a family history of suicide were more likely than their coevals to have themselves attempted suicide (50 percent vs 22 percent, p<.0001) (110).

Few clinicians doubt the interaction between suicidal behavior, chaotic homes, and a family history of suicide attempts or completions. The causal nature of the relationship is, however, less obvious. Not only are most children raised by their parents, but they also get their genetic material from them. Considering the close relationship between suicidal behavior and psychiatric illness described in the prior sections, if the major psychiatric disorders associated with suicide are themselves genetically influenced, then part of the familial nature of suicidal behavior could relate to genetic factors increasing the predisposition towards similar illness in parents and children.

Three of the disorders carrying the highest lifetime risk for suicide attempts and completions do each appear to be genetically influenced. The importance of biological, genetic factors in alcoholism is supported by the familial nature of this disorder, the 60 percent to 80 percent rate of concordance for alcoholism in identical twins of alcoholics compared to a risk of approximately 30 percent for the fraternal twins, as well as the four-fold increased risk for alcoholism in

sons and daughters of alcoholics adopted away close to birth and raised without knowledge of the biological parent's problem (112-114). Similarly, family, twin and adoption studies indicate that major depressive disorders (especially bipolar, manic depressive disease) are also genetically influenced (115,116), and the data supporting the probable importance of genetic factors in schizophrenia are equally impressive (116). For at least one of these disorders (alcoholism), the greater the number of alcoholic relatives and the more severe their problem, the greater the probability of an earlier onset and more intense course for those children who develop the disorder (117,118).

Thus, there is another level of association between substance misuse, psychiatric disorders, and suicidal behavior in children and adolescents. Alcoholism or other illness in parents are relatively common findings among suicidal children and teenagers (110), it is possible that substance abuse or psychiatric disorders in these parents might have contributed to the increased rate of broken homes and chaotic childhood lifestyles for young people; these children may have a high risk for early onset of the disorder itself (117,118). Therefore, the suicidal behavior in these children may sometimes reflect their own early onset of illness associated with disordered mood or judgment.

In summary, substance abuse or psychiatric disorders in parents could contribute to the suicidal behavior in young people in at least two ways. First, some of the self-destructive problems in these children could have been influenced by the models set by the rearing parents, as well as the child's reaction to the anger and frustration engendered by the behavior of the ill parent. Second, some of the suicidal behavior observed in the children may reflect the inheritance of a predisposition towards the genetically influenced illness itself, with concomitant suicidal risk associated with the disorder and not just the specific childhood environment.

SUMMARY AND CONCLUSIONS

This paper has presented data and also attempted to stimulate thought and discussion. The emphasis has been on the potential contribution of alcohol and drugs to suicidal behavior in children and teenagers.

There is an important relationship between substance use or misuse and violent behavior in adults. Controlled substances and/or alcohol are frequently used as the means of attempting self-harm (especially among younger women), and alcohol is often taken as a prelude to the suicidal act, thus contributing to impaired judgment and impulsivity. Also, the lifetime risk for completed suicide appears to be 15 percent among alcoholics and about 10 percent for drug abusers.

It is not surprising, therefore, that the association between substance intake or abuse and suicidal behavior is also observed in adolescents. Whether studied in the general population or among groups in treatment, substance abusing young people have a significantly increased rate of self-inflicted death; youth identified because of their suicidal behavior frequently use and abuse nonprescription drugs and alcohol; and there is a close relationship between substance misuse patterns and the number and severity of suicide attempts.

Suicidal behavior early in life is also associated with substance problems in more indirect ways. Diagnoses such as the ASPD and "borderline personality" carry high risks for both self-harm and substance misuse. It is also probable that heavy drinking or drug use during major depressive episodes or in the midst of other psychiatric problems can exacerbate problems and might contribute to a suicide attempt or completion in these high risk individuals. A third indirect association between substance abuse and self-harm relates to the probable importance of genetic factors in the development of alcoholism and early onset psychiatric disorders. Thus, for example, children of alcoholics are more like-

ly than the general population to observe suicidal behavior in their parents, more likely to suffer chaotic homes during childhood, and themselves have a genetically increased risk for both suicidal behavior and substance misuse.

From this review it is appropriate to conclude that, through both direct and indirect mechanisms, intake and abuse of substances is a potentially important risk factor in suicidal behavior early in life. The relationships between these substances and self-harm is rather complex, and careful data collection will be required if we are to understand more about this clinically relevant association.

It is possible to speculate about some of the clinical implications of the data reviewed in this paper. First, through numerous direct and indirect mechanisms, adolescent alcohol and drug abusers have an elevated risk for suicide attempts and completions. Second, whatever the mechanism, children of alcoholics and of patients with depressive or schizophrenic disorders may themselves be at elevated risk for suicide attempts and completions. The same may be true for children of drug abusers, although less data is available to substantiate that conclusion. In working with these families the potential dangers for self-harm in children should be recognized. A third clinical implication of the data comes from the recognition that almost all substances of abuse are likely to exacerbate preexisting emotional or psychiatric disturbances. Therefore, heavy intake of any of these controlled substances or alcohol may be important risk factors increasing the suicidal propensity of young people in crises, as well as those with major psychiatric disorders or personality disturbances. Efforts aimed at minimizing the risk for suicide should include educating young people and their families about the need to refrain from intake of all substances of abuse during times of mood swings or anger. Finally, physicians must learn to be careful in prescribing psychotropic agents or drugs of potential abuse to teenagers with emotional or

psychiatric disturbances because there is evidence that in many instances the suicidal overdoses involve prescribed drugs (119).

The research implications of this review are also apparent. Studies of suicidal behavior in adolescents should rigorously document drug and alcohol use patterns in the recent past, evaluate individuals for major primary and secondary psychiatric disorders including those related to substance abuse, and document the presence of these problems in first-degree relatives. Investigators must also take care to not assume that an association between two factors (e.g., a suicide attempt in a child and alcoholism in a parent) proves that it is the disturbance in the home environment that caused the attempt. While the environmental stressors probably contribute greatly, other important avenues of influence must also be considered. For example, it is possible that children of alcoholics may themselves have inherited (or acquired through *in utero* damage) problems of impulsivity, hyperactivity, or a propensity to misuse substances with subsequent mood swings, anger, and frustration in their own lives.

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METHODS AS A RISK FACTOR IN YOUTH SUICIDE

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In this paper we will consider methods of suicide as a risk factor. Although other risk factors already discussed in this conference may be more important than methods as precipitants and precursors of suicidal behavior, none is more important than methods when it comes to the risk of death. Some methods lead to almost certain death while other methods are more uncertain as to outcome and they portend more reversibility and rescuability. We have seen a recent rise in youth suicide, especially with regards to completed suicide. Is this increase in completed suicide due to an overall increase in suicidal behavior or is it due to the fact that youths who engage in suicidal behavior are using more lethal means of self-destruction? A better understanding of methods may provide us with an answer to this question, as well as providing us further insights into the dynamics of youth suicide and possibly offering some clues for prevention.

How do adolescents and young adults kill themselves? Overall, those in the 10 to 24 age range most frequently kill themselves by firearms and explosives, with guns being the most prominent means. The second most frequently used method of suicide is by hanging, strangulation, or suffocation. Self-poisoning by ingesting solid and liquid substances is the third most frequent method of self-destruction. (Holinger, 1978). Although there are few major differences in choice of method between black and white youths, there are some distinctives. Proportionately more black males than white males hang themselves or die by jumping from high places or drowning, whereas relatively more white males use firearms or die utilizing carbon monoxide. White females are more likely to hang themselves than black females. Overall, a higher proportion of females to males poison themselves irrespective of race. (Fredrick, 1984). It is interesting to note that suicide statistics in the United States are not kept for children under 10 years of age. This implies that suicide is not seen as an option for young children by those collecting such information.

Paulson at UCLA disputes this fact. Studying children who were seen at the UCLA Neuropsychiatric Institute from 1970 to 1974, Paulson found 34 children ages 4 to 12 who demonstrated suicidal behavior--mostly suicide threats and attempts. The mean age of his sample was 8.2 years. Suicidal behavior in this age group involved more self-abuse and bodily mutilation than self-poisoning. Examples of self-abuse were cutting, stabbing, burning, and jumping either from high places or in front of moving vehicles. Children exhibiting the most mutilating assaults on themselves frequently came from highly disorganized families and were also the children with the highest ideational violence. It is interesting to note that Paulson did not find significant gender differences in ideational violence among his young subjects. (Paulson et al., 1978).

Pfeffer also studied suicidal behavior among younger children. In investigating children ages 6 to 12 who were inpatients in the child psychiatry unit of the Bronx Municipal Hospital and who demonstrated some type of

suicidal behavior, she found that jumping was the most frequent choice of these young attempters. Out of the 42 subjects in her study, jumping was chosen by 38 percent of the children. Of those remaining, 25 percent chose self-poisoning, 19 percent burned themselves, 13 percent cut themselves, and 6 percent ran into oncoming traffic. (Pfeffer et al., 1979). In a subsequent study of 65 children admitted to the child psychiatry unit of New York Hospital Westchester she also found jumping from high places to be the most frequent method and this was found in 25 percent of the cases. (Pfeffer et al., 1982).

Although jumping is a frequent method for these very young attempters, self-poisoning should not be overlooked. McIntire and Angle discovered an interesting phenomenon when investigating reports from 50 poison control centers in the United States and the United Kingdom. In the 6 to 10 age range, self-poisoning was more frequently found among males (63%) than females (37%). This is the opposite of what they found in their older group of children, 11 to 18 where self-poisoning by females far exceeded that by males. This same gender differences can be also found among adult self-poisoners where the number of females exceeds males. McIntire and Angle offered no explanation for the difference they found, but they did conclude from their study that self-poisoning in a child over the age of 6 is rarely accidental. (McIntire & Angle, 1971b). It should also be noted, however, that completed suicide for these very young children is rare.

Hawton & Goldacre studied cases of self-poisoning in a population of young people ages 12 to 20 years who were admitted to hospitals in the Oxford area of England. They also noted that self-poisoning was higher for females than for males at all of these ages. (Hawton & Goldacre, 1982). It would have been useful if the investigators had included the younger children from ages 6 to 12 in their study to see if the reverse male to female phenomenon that McIntire found could have been replicated in such a large

sample and in another country.

There is general agreement that incidents of self-poisoning become more frequent as children increase in age. There is less agreement as to what substances they ingest. Hawton compared adolescent self-poisoners to adults and found that adolescents more frequently ingested non-opiate analgesics and less frequently took psychotropic drugs. The use of alcohol as an adjunct factor in an overdose was found less frequently among adolescents than among adults. This was especially true in the younger groups of children. Most young children tended to ingest drugs found around the house rather than drugs specifically prescribed for them. (Hawton, 1982). Hawton also found that the ingestion of psychotropic drugs increased as the females in his study became older, but the same was not true for the males studied. Fredrick (1984) reported that barbiturates and tranquilizers were the most frequently ingested substances for completed suicides among 15 to 24 year olds in 1979. Goldney in looking only at female self-poisoners ages 18 to 30 found that anti-depressant medications were often ingested as overdoses. This was especially true for attempts judged to be highly serious both from the standpoint of medical lethality and the ratings from the Beck Intent to Die Scale which was given to these 109 women in the study. (Goldney, 1981). One might conjecture that younger children are more likely to ingest substances found around the home. As children grow older they may be in psychiatric treatment and receiving medication which is available to them if they decide to overdose.

The reasons given for choice of method are always of interest. Some suicide behavior is well thought out and the methods selected well in advance. Other suicides are impulsive and the person may turn to the nearest perceived lethal substance at hand. To the extent that the choice is rational, there was an interesting study conducted by Marks with approximately 700 college students. The mean age of his respondents was 19.5 years. He asked the students to rank order nine

means of self-destruction according to their acceptability and to suggest which methods they thought were used most often by males, by females, and why. Both males and females in his study ranked self-poisoning as the most acceptable. Firearms were ranked higher by men than by women. Women were more likely than men to cite "lack of pain" as the reason for their choice. In citing additional reasons, "availability" and "knowledgeability" were associated with self-poisoning for females; with firearms for males. Similarly, "efficiency" was related to self-poisoning for females and to firearms for males. (Marks, 1977).

Although self-poisoning is the frequent choice of the adolescent suicide attempter, it ranks third in the causes of suicidal deaths in the 10 to 24 year old population. Most young people who succeed in taking their own lives do so with guns and explosives. For young people ages 15 to 24 the rate of suicide by firearms increased 97.1 percent from 1966 to 1975 while the rate of suicide by other means increased 72.4 percent for the same period. The significantly large increase in death by firearms may reflect the 14.5 percent increase in the availability of legal handguns during that same time period (Seiden & Freitas, 1980, Boyd, 1983).

To what extent, then, is availability a determining factor in the choice of a method of self-destruction? There has been considerable discussion as to the availability of a method, both as a determinant for choice and as a possible way to reduce suicidal behavior, such as gun control. Marks and Abernathy (1974) minimize physical availability as a determinant. The most available methods are not those most frequently employed. For example, rope with which to hang oneself is more readily available than firearms, yet firearms are more frequently used. Obviously, however, availability is a necessary precondition in the choice of a method.

There is evidence that when a certain method becomes unavailable some persons wishing to suicide will switch to another means. Lester and Murell (1982) found that States with stricter gun-control laws had lower rates of suicide by firearms but higher rates of suicide by other means. However, in an earlier report, Lester and Murell (1980) found that the total suicide rate was lower in States with stricter gun-control laws. Thus it is possible that when firearms are less available, persons turn to other methods which may leave more time for intervention.

Marks and Abernathy (1974), in trying to explain both gender and individual differences in choice of method, have posited a sociocultural perspective of differential socialization which takes into account not only availability but several other factors which also influence such a choice. Marks and Abernathy respond negatively to what they term the "psychological perspective"--a perspective which suggests that the difference in choice of method solely reflects a difference in intent to die. This perspective implies that the higher incidence of handgun use in male suicides indicates that males are more intent on killing themselves.

Marks and Abernathy argue against this psychological perspective on several grounds. For instance, if it were correct, then we would expect to find different methods employed by female attempters than female completers. However, the use of poisons is high in both groups. Furthermore, one would expect those areas of the country in which the more deadly methods, e.g. firearms, are preferred to also have the highest suicide rates. However, such is not the case.

Marks and Abernathy have identified at least three factors beyond availability which may influence the choice of a suicide method. The first of these is the sociocultural acceptability of the method. Certain methods have greater or lesser acceptability within the internalized social and cultural norms of the individual, and this will be reflected in the choice of a method. Examples of this may be reflected in the distinctives mentioned earlier between young black and white males and between young black and white females. The second factor is the person's knowledge

of the methods. A person is more likely to employ a method with which he or she is knowledgeable and familiar. The third factor is personal or social accessibility. For example, heroin may be physically available from a street supplier but socially inaccessible because of the person's social standing as a police officer. In this example heroin would be a less likely method for an overdose.

Research by McIntosh & Santos (1982) also supports the idea that selection of a method is dependent upon a constellation of sociocultural factors. They found that no generalization could accurately describe the range of suicidal behavior displayed by various sex, racial, or ethnic groups. Although they did not specifically study youth suicide or break down their sample by age, their point is most applicable to our discussions of youth suicide in this conference. We must be careful not to draw overgeneralized conclusions about youth suicide methods without more closely examining the various sociocultural influences on these young men and women and how these influences might differ by age, sex, social position, cultural background, geographical location and personal history. Much more research is needed to understand the selection of suicide methods by youth.

One important factor influencing gender preferences for suicide methods may be "anticipatory socialization." (Marks & Abernathy 1974). Traditionally boys have been exposed to and encouraged to participate in violent games and activities to a greater degree than their female counterparts. An example would be the game of cops and robbers. This may account, in part, for the greater incidence of firearm use by males. One could speculate that changing role definitions for women may account for the increase in the use of firearms in female suicides. It is interesting to note that the majority of young women in the U.S. Army who suicide (73%) do so predominantly with firearms (Datel & Jones, 1982). Taylor & Wicks (1980), while supporting the sociocultural perspective, find no evidence that cer-

tain groups of women who prefer firearms to other methods are any more "liberated" than those women who prefer poison or some other means of self-destruction. Liberation is probably a poor choice of terms. Changing role definitions does not necessarily imply liberation. Location within the social structure is a better term than liberation and fits within the sociocultural perspective. Changes in traditional role expectations are pervasive in our society and its culture and this needs to be taken into consideration when explaining gender changes in patterns of suicidal behavior.

There are important implications to be drawn from the sociocultural perspective with regard to suicide methods and youth. The most important is the need to determine what sociocultural factors differentiate youths and adolescents from the adult population. Are different methods more or less available to youths than to adults? Are certain methods more culturally acceptable to youths? How do these sociocultural factors vary by age within the youth population? There is no specific research in this area though it is clearly needed. We recommend research which will clearly differentiate between adults and youth and carefully examine the influence of sex, age, geography, cultural values, social status, intent to die, familiarity and availability of methods, and how these factors relate to the choice of self-destructive methods in these populations.

Some suicidal methods obviously carry more risk of death than others. Because of this, clinicians are apt to use nominal classifications when they discuss the relative lethality of a suicidal act. Words like "gesture," "moderate lethality," and "serious suicide attempt" are still used when talking about a person's suicidal behavior. However there are many suicide attempts of intermediate lethality which cannot be dichotomized easily into "gestures" and "serious" attempts. This is especially true in the area of self-poisoning.

In 1972, Weisman and Worden developed a scale known as the Risk-Rescue Rating Scale

in an attempt to describe and quantify lethality in suicide attempts. (Weisman & Worden, 1972). This scale is based on the assumption that the probability of death is substantially influenced by what a person does to himself and the context in which he does it. Any suicide attempt entails a calculated risk. But because any attempt must also take place in a psychosocial context or within a specific set of circumstances, survival may depend upon the resources for rescue as well as upon the specific form of the attempt. Jumping off a high bridge into the river beneath has similar risk to physical damage whether it is done at 3 p.m. or 3 a.m. However, rescue factors are different in the early morning hours when it is dark and there are fewer people around. The Risk-Rescue Rating Scale assesses five factors of risk and five factors of rescue and enables the clinician or researcher to quantify the lethality of implementation in any suicide attempt.

There are other scales similar to the Risk-Rescue that look at the relative seriousness of methods. Recently, Smith, Conroy, and Ehler at the Menninger Foundation created a nine-point interval scale for assessing the relative lethality of a suicide attempt. (Smith et al., 1984). This is a well developed scale and their updated toxicity chart is an improvement over the older one developed by Sterling-Smith and used by Weisman and Worden.

The ability to quantify a suicidal act by looking at methods in context is valuable from several standpoints. First, you can compare one group of suicide attempters with another. We know for example that young females more frequently use self-poisoning than young men, but young men do poison themselves. Even though there is less self-poisoning among males, is the lethal level of their attempts higher than for females? Using a scale like the Risk-Rescue Rating could help answer this. We presently know the types of methods used by youth in different age categories and the percentage of use for various methods varies widely for different age groups and possibly for youth in

various social sub-cultures and geographic locations. Being able to rate methods within their context and to be able to scale the observations would clearly aid in our attempt to understand youth suicide across the age cohorts.

Second, such a rating scale also helps one to assess relative lethality for a person who has made multiple attempts. It is well known that those who have made previous attempts are at higher risk for completed suicide. Rating each attempt with the same scale enables one to see whether lethality is ascending, decending, remaining the same, or forming some other pattern. In one study Worden found that one could predict the lethal level of subsequent attempts in adults by rating previous attempts in combination with various other demographic information. (Worden & Sterling-Smith, 1973).

A third use for a lethality rating scale is to better understand the complex issue of intent to die. Measuring intent is often very difficult. Patients do not always give an accurate account of their intent to die from an attempt. There are both conscious and unconscious factors that lead to distortion. Patients may say one thing when taken to the emergency room and have a totally different story a day later. Also, ambivalence is present in most people trying to hurt themselves. On the extreme ends of the spectrum intent to die is rather easy to discern. The young girl who ingests 25 aspirin and immediately tells her mother is clearly in the low lethal range. The young man who takes a gun into the remote woods and shoots himself in the head is obviously in the high lethal range. These are obvious. But there is a whole range of behaviors that fall into the middle ranges of lethality and using a rating scale that looks at methods in context would be very useful in future studies of youth suicide to better understand the issues of intent especially in those falling into the middle ranges of lethality.

In any discussion of youth suicide methods one should not overlook automobile accidents as suicide equivalents. In the 1970s we

did a study of automobile fatalities in the greater Boston area under a grant from the Department of Transportation. One part of the study investigated the human factors associated with these accidents. A number of these fatal accidents involved young drivers from 18 to 25 years of age. Our retrospective analysis, fashioned after the psychological autopsy, revealed a number of probable suicides especially in cases involving young men who died in single car accidents. (Sterling-Smith, 1976).

What are the implications and recommendations from our investigation into youth suicide methods? There are several:

- Although the numbers may be few, suicide statistics should be gathered on children under 10 years of age.

- In the U.S. Vital Statistics we were able to find methods by age and methods by sex but not methods by age by sex. We recommend that statistics be made available in this fashion.

- The extant literature on youth suicide with regards to method has several shortcomings. There is a lack of control studies. These are necessary so that we might determine more accurately to what extent youth suicide differs by age and from the adult population.

  For example, are different methods available to youth than adults? If so, at what ages and how does this discrepancy arise?

- We believe that the selection of a self-destructive method depends upon a constellation of sociocultural factors. However, just what and how these factors are has not been well documented. There is a need for well developed studies that will identify what social factors are influencing the choice of method for the youth population and how these factors might differ by sex, by age, and from the adult population. It is also important, once these factors have been isolated to know how they might be changing. This would have implications both for prevention and for prediction of future trends.

- We also believe that methods should be studied in context. If those who are collecting data on youth suicide methods would use one of the existing scales that accounts for the context of the event, we would have a better grasp on the relative lethality for various age, sex, and ethnic groups as well as important distinctives between methods chosen by youth as compared to adults. This would greatly enhance our understanding and take us beyond our current state of listing methods only in the grossest of forms.

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ACKNOWLEDGEMENT

STUDY	N	AGES	POPULATION	FINDINGS
Goldney 1981	109 Females	18-30	Women admitted to large city general hospital for self-poisoning.	—There was no significant correlation between age and intent to die. (Beck Scale) —There was a significant correlation between intent to die and seriousness of the attempt. —Many of the serious attempts involved anti-depressant medications.
Hawton	50	13-18	Admissions to Oxford General Hospitals.	Compared to adult self-poisoners, adolescents more frequently took non-opiate analgesics and less frequently took psychotropic drugs. Alcohol was less related to overdoses among adolescents than in adults, especially in the younger groups. Most of the drugs used were found around the house and not prescribed specifically for the patient.
Hawton & Goldacre 1982	682	12-20	General Hospital admissions, Oxfordshire 1974-79	Self-poisoning was higher for females than for males. Of frequent use were analgesics and anti-pyretics, the use of which increased by age for males and decreased by age for females. The use of psychotropic drugs increased as the women got older but such was not true for the males.
Hollinger 1978	unknown	10-24	U.S. vital statistics completed	(see table below)
McIntyre & Angle 1971 (A)	1,103 35% M 65% F	6-18	Reports from 50 poison centers in U.S. and U.K., 1968-1969.	—75% of the poisonings were suicide related. —Self-poisoning was higher among males than females in the younger ages (6-10) but the order was reversed in the older group (11-13). —Self-poisoning among blacks decreased with age while it increased with age for caucasians. There is speculation that the older blacks may have looked to other means than poison.
McIntrye & Angle 1971 (B)	1,103	6-18	Reports from 50 poison control centers in U.S. and U.K.	(see table below)
Marks 1977	600 M=268 F=332	Mean age was 19.5 yrs.	College Students from South and Non-South	In ranking preference for method of suicide, both sexes ranked self-poisoning the most desirable. Firearms were ranked higher by men than women. Women were more likely than men to cite painlessness for their choice of method. Men were more likely to choose methods because of their accessibility or efficiency.

Hollinger 1978 findings:

	Poison	Gas	Hanging	Firearms	Other
10-14	5%	0%	46%	47%	3%
15-19	13%	7%	19%	55%	3%
20-24	13%	8%	16%	55%	0

—The smaller number of self-poisoning in the 10-14 age may be due to listing such behavior as "accidental."
—Firearms, Gas, and Hanging were used most frequently by males; self-poisoning was not frequently used by females.

McIntrye & Angle 1971 (B) findings:

	Male%	Female%
6-10	63%	37%
1-13	31%	69%
14-16	28%	72%
17-18	39%	61%

—As in adults, self-poisoners are more frequently female.
—Self-poisoning in a child over 6 years of age is rarely accidental.
—Sedatives (barbiturates, non-barbiturates, & Tranquilizers) were used most frequently by all age groups. The next most used drug was aspirin which was used in a quarter of all cases.

Table 1.

STUDY	N	AGES	POPULATION	FINDINGS
Paulson 1978	34 M=23 F=11	Mean age=8.2 yrs.	Seen at UCLA Neuropsychiatric Institute 1970-1974	Documented suicide attempts involved more self-abuse and bodily mutilation than self-poisoning. Self-abuse involved cutting, stabbing, burning and jumping in front of moving vehicles or from high places. Although there were no sex significant differences in ideational violence, there was a significant relationship between family disorganization, violent ideation, and a mutilating assault.
Pfeffer 1979	42	6-12 Mean age=9.0	Bronx Municipal Hospital, Child Psyc. In-patient.	Jumping was the most frequent choice of attempters (38%), followed by self-poisoning (25%), burning (19%), cutting (13%), and running into traffic (6%).
Pfeffer et al. 1980	13	6-12		Although jumping was the most frequent ideation or threat, only one jumped in front of traffic. Of the remaining 12, there was 1 self-poisoning, 1 stabbing, 2 hangings, and ??
Pfeffer	65 M=48 F=17	6-12	Children admitted to the child psychiatry unit of New York Hospital, Westchester March 1979-June 1981	Jumping from high places was the most frequent method used and it was used in 25% of all cases.
Shaffer 1974	30	12-14	Completed suicides in England & Wales 1962-1968.	—Most frequent method used was carbon monoxide. —More males than females hanged themselves. —More females than males used self-poisoning.
Selden & 1980	unknown	15-24	National statistics??	The rate of suicide by firearms increased 97.1% from 1966-1975 while the rate of suicide by other means increased 72.4% for the same period. The significantly large increase in death by firearms may reflect the 14.5% increase in the availability of legal handguns during the same time period.

Table 1 concluded.

NEUROTRANSMITTER MONOAMINE METABOLITES IN THE CEREBROSPINAL FLUID AS RISK FACTORS FOR SUICIDAL BEHAVIOR

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Introduction

The idea that brain biochemistry may contribute to a person's decision to take his own life is fairly recent. In a bibliography (1) of research on suicide published between 1958 and 1967, only five out of 1267 titles deal with biochemical subjects. Suicide has been conceived of as an exclusively human behavior, which presupposes intentionality and a concept of death, and whose biological background is remote and irrelevant.

Recently, however, two lines of study have suggested that some instances of suicidal behavior may indeed have biological correlates, which obtain not only in conjunction with depression, but even perhaps when no depressive disorder is apparent. Two clusters of biological factors have emerged that tend to correlate with suicidal behavior, namely variables associated with a neurotransmitter, the monoamine serotonin (5-hydroxytryptamine, 5-HT), and variables associated with certain neuroendocrine functions. This paper will review the evidence for a relationship between serotonin and suicide attempts or completed suicide.

Biochemical Methods

The biochemical investigation techniques used in the field almost entirely derive from studies of depressive illness. They include studies of brain tissue obtained at autopsy, and measurements in cerebrospinal fluid (CSF), blood platelets and plasma, and urine. Monoamines and their precursors, catabolizing enzymes, and degradation products have all been measured; and hormonal processes thought to be controlled by monoamine neurons, and the reaction of the various systems to challenge, have been studied. This review will focus on measurements of CSF concentrations of monoamine metabolites, particularly the serotonin metabolite, 5-hydroxyindoleacetic acid (5-HIAA) and the dopamine metabolite, homovanillic acid (HVA).

Cerebrospinal Fluid Measurements as an Indicator of Brain Events

CSF metabolite concentrations have been widely studied to clarify the turnover of the monoamines in the brain. The advantage of the CSF studies is that spinal fluid is comparatively easily obtained with little discomfort to the patient--usually by means of a lumbar puncture (LP), a routine procedure in neurological investigations.

There are disadvantages as well. The concentration of the metabolites of serotonin and dopamine, 5-HIAA and HVA, depend, *inter alia*, on the subject's sex and age (2-4),

and on body height (5-7). The dependence on body height is presumably due to an active removal from the CSF of the acid metabolites as they flow from the brain ventricles down to the lumbar sac where the CSF is sampled. The concentrations of 5-HIAA and HVA decrease along the route of the CSF from the cerebral ventricles to the lumbar sac (8-9). A concentration gradient is seen even within the small volume usually drawn at lumbar puncture (10-12).

Metabolite concentrations also vary seasonally (7,13), and with the time of the day (14). Most important for clinical studies, the concentrations of 5-HIAA and HVA are drastically altered by treatment with certain psychotropic drugs. Many antidepressant treatments lower CSF 5-HIAA (4,15-19), and neuroleptic drugs usually increase HVA (20-23). Some factors of importance for the concentrations of 5-HIAA and HVA in lumbar CSF are summarized in Table 1. (Tables begin on page 207.)

Clearly, when groups of subjects are compared, confounding factors must be controlled or taken into account, as their influence is sometimes substantial and may lead to erroneous conclusions. Thus, if consistently more CSF is drawn from one group than from another in a comparative study, the average concentration of 5-HIAA and HVA will naturally be lower in the group from whom less CSF was taken. On the other hand, a true difference in concentration may be hidden if, for instance, control subjects are taller on the average than experimental subjects. The difference in average CSF 5-HIAA between depressed patients and healthy controls of equal stature, is numerically smaller than the difference between tall (>180 cm) and short (>160 cm) subjects, irrespective of whether they are healthy or depressed (7).

The concentration of a transmitter metabolite in the CSF is at best an indirect measure of the turnover of the parent amine in the brain, and it has been argued that, for example, 5-HIAA concentrations reflect events in the spinal cord, rather than in the brain (24). However, the recent finding by Stanley and coworkers (25) of a strong correlation between 5-HIAA concentrations measured *post mortem* in the frontal brain cortex, and in the lumbar spinal fluid, supports the contention that CSF 5-HIAA indeed reflects brain events; interestingly, the correlation between HVA in brain and in CSF was lower and was not statistically significant.

The concentration of the acid monoamine metabolites in the CSF is a function not only of their production rate, but also of their removal by an active transport mechanism from the cerebrospinal space. That the transport mechanism can be blocked by means of probenecid, has been taken advantage of in attempts to obtain more valid estimates of transmitter turnover (26). The probenecid technique has been described in detail by van Praag et al. (28). The probenecid technique, while removing one source of error, introduces other problems, however. With lower concentrations of probenecid, the blockade of the transport mechanism is incomplete, and may vary within individuals because of differences in probenecid metabolism. Higher probenecid concentrations often cause nausea and vomiting, and may also alter central neurotransmitter turnover.

One of the advantages with the probenecid technique is that concentrations of the monoamine metabolites are increased, which places less heavy demands on the analytical methods. With the very sensitive methods available today, concentrations in the nanomole range can be measured with satisfactory precision, and most investigators rely on baseline measures of the metabolites rather than on probenecid-induced accumulation.

Measures of Suicidal Behavior

In comparison with the advanced biochemical methods used in the studies to be reviewed, the approach to measuring suicidal behavior has been much less sophisticated. The reason for this is probably that, rather

than being designed to deal with suicidal behavior, most studies were focused on depressive illness and relied on procedures developed for measuring severity of depression. Diagnostic inventories and depression rating scales often contain an item dealing with suicidal ideation and tendencies, and such ratings have been used in some studies.

In other studies, the occurrence of 'suicide attempts' has been related to the biological variables. While some studies use more or less explicit, operational definitions of the term **suicide attempt**, others do not even attempt a definition. Although, in very few studies, ratings have been made of intent and lethality of a suicide attempt, heuristically the most useful classification seems to be according to the method used in the attempt (active, violent, or passive, nonviolent)-- perhaps because of its high reliability.

The time span involved also varies from one study to another. Some investigators have considered the incidence of any suicide attempts in the patient's history, while others have focussed on attempts during the current illness episode. In the former approach, the biological measures are assumed to be stable over time, a controversial assumption which will be discussed later.

Only a very few investigators have examined the possible predictive value of biological variables for ultimate suicide--understandably so, considering the low base rate of suicide and the time and cost of the investigation.

None of the available studies has dealt with the question of youth suicide. Although there seems to be little reason to believe *a priori* that a correlation between a biological variable and suicidal behavior would be limited to a certain age group, the issue remains to be empirically examined.

CSF 5-hydroxyindoleacetic acid (5-HIAA)

In a study of possible clinical correlates of CSF 5-HIAA in depressed patients, Asberg et al. (29) unexpectedly found patients with low concentrations of the serotonin metabolite to represent an increased incidence of suicide attempts (defined as any deliberate, self-inflicted injury, regardless of the lethality risk involved, that the patient had thought to entail a death risk).

The findings of previous research by van Praag and Korf (30) and Asberg and coworkers (4,31) (see also Gibbons and Davis (32)) had indicated that the concentrations of the metabolite were bimodally distributed in depressed patients, suggesting the existence of a biochemical subgroup of depressive illness characterized by disturbed serotonin turnover. In the study by Asberg et al. (29), 40 percent of the patients with low CSF 5-HIAA concentration had attempted suicide during their current illness, as compared with 15 percent in patients with normal 5-HIAA. Moreover, the attempts were of a more determined nature with a preference for active, violent methods in the low 5-HIAA patients, whereas those in the high 5-HIAA groups were confined to drug overdoses. Two deaths from suicide occurred during the study period, both in low 5-HIAA patients.

The relationship between CSF 5-HIAA and suicidal behavior was confirmed by Agren (33), who studied depressed patients and measured suicidal behavior by means of the suicide behavior scales in the Schedule for Affective Disorder and Schizophrenia (SADS). These scales do not differentiate suicidal ideation and suicidal acts. In the Asberg et al. (29) study, low CSF 5-HIAA was not correlated to suicidal ideation, only to suicidal acts. Argren's choice of method may thus have weakened the correlation, which nonetheless was statistically significant.

These early studies did not take into account the relationship between CSF 5-HIAA and such interference factors as sex and body height. Men tend to have lower CSF 5-HIAA concentrations than women, and they are also more prone to use violent methods if they attempt suicide. The sex factor could, however, be ruled out in a subsequent confirmatory study by Traskman et al. (34), who

adjusted for interference factors by analysis of covariance (ANCOVA).

More recently, the relationship between 5-HIAA and suicide has been confirmed in Dutch depressed patients studied by van Praag (35), who found a highly significant increased incidence of suicide attempts in patients with low probenecid-induced accumulation of 5-HIAA. The association between 5-HIAA and a violent mode of the attempt was not confirmed, however.

In a British study of depressed patients, Montgomery and Montgomery (36) also found more suicide attempts in patients with low CSF 5-HIAA concentrations (using the cut-off point between "low" and "normal" 5-HIAA suggested by Asberg and coworkers (31)).

Among depressed patients in India, Palaniappan and coworkers (37) found a significant correlation between CSF 5-HIAA concentrations and suicidal tendencies estimated by scores on the item Suicide in the Hamilton Rating Scale. A rating scale index of suicidal tendencies was also used by Leckman et al. (38), who found an association with 5-HIAA which was confined to patients with disturbed reality testing.

Banki and coworkers (39) found a relationship between low CSF 5-HIAA and suicide attempts in Hungarian female patients, a relationship that was confined to those who had used active methods. Lopez-Ibor et al. (4) (1985) reported a relationship between suicide attempts and low CSF 5-HIAA in Spanish patients, irrespective of the method used in the attempt. A further confirmation in Swedish patients was provided by Edman and coworkers (41), using the same methods as in the original Asberg et al. (29) study.

There are also, however, some nonconfirmatory studies. Vestergaard and coworkers (42) mention that among depressed patients studied by them, suicide and suicide attempts were equally frequent in individuals with low and high CSF 5-HIAA. Since they do not provide any further information, their data

have not been included in Table 2, which summarized the relevant studies.

A well-designed, nonconfirmatory study was performed by Roy-Byrne and coworkers (43), who studied American patients, most of them more or less treatment-resistant, referred to a research center specializing in the study of depressive disorders. No significant relationship was found between CSF 5-HIAA and suicide attempts (over the individual's lifetime), possibly owing to the high proportion of bipolar (manic depressive) patients in the group. Suicidal unipolar patients tended to have lower CSF 5-HIAA than had nonsuicidal unipolars, but the number of such patients was too small for statistical analysis. The biological correlates of suicidal behavior may thus differ between bipolar and unipolar disorders, a conclusion also reached by Agren (44).

Another difference between the study of Roy-Byrne et al. (43) and those of Asberg et al. (29) and Traskman et al. (34), is that the former considered suicidal behavior over the patient's entire life span. In the Asberg et al. (29) study, the significant association with CSF 5-HIAA was restricted to suicidal behavior during the index illness episode. The discrepancy suggests that CSF-HIAA values may not be stable over time in suicidal individuals, a possibility that will be discussed in further detail below.

Only about half of those who commit suicide are retrospectively diagnosed as having suffered from a depressive syndrome, as suggested from the thorough psychological autopsies performed by Beskow (45) and Asgard (in preparation). Several groups have studied the relationship between suicide attempts and CSF 5-HIAA in other diagnostic categories. Traskman et al. (34) found CSF 5-HIAA concentrations to be lower in **nondepressed** suicide attempters (mainly patients with personality disorders and minor affective disorders). Brown et al. (46-47), studying two groups of men with **personality disorders**, found more subjects who had made a suicide attempt at some point in life among those with low CSF 5-HIAA.

van Praag (48), and Ninan and coworkers (49), found a similar association in **schizophrenia.** This finding is somewhat against the odds, considering the report by Sedvall and Wode-Helgodt (5) that a subgroup of schizophrenic patients (those with a family history of the disorder) have abnormally high concentrations of the metabolite. Both suicide studies are well-designed with carefully selected, matched controls. Patients with a depressive disorder superimposed on their schizophrenia were deliberately excluded from van Praag's (48) study. Roy et al. (51), however, found no difference in CSF 5-HIAA concentrations between chronic schizophrenic subjects who had attempted suicide at some time during their life, and those who had not made such attempts. Lower CSF 5-HIAA concentrations were, however, reported in suicidal patients with schizophrenia than in nonmatched controls by Banki et al. (39), who also found similar relationships in **alcoholism** and **adjustment disorder.** The bulk of the evidence would thus seem to support the notion that potential for suicidal behavior is reflected in low concentrations of CSF 5-HIAA-- even when no major affective disorder is apparent.

CSF Concentrations of Homovanillic Acid (HVA)

The average concentration of the dopamine metabolite, HVA, in CSF is reduced in depression (52-53), and more consistently so than is CSF 5-HIAA, to which HVA is nevertheless strongly correlated. Whether the correlation between the two metabolites is due to their sharing the same transport mechanism, or to a functional connection between the parent amines is not known. A functional connection would seem to be indicated because of the consistent finding that, in addition to reducing 5-HIAA, drugs that interfere with serotonin turnover--such as the antidepressants clomipramine (54), zimeldine (19), and citalopram (55)--change HVA concentrations in CSF, while having no known direct effects on dopamine neurons.

Low concentrations of HVA in suicidal depressed patients have been reported by Traskman et al. (34), by Montgomery and Montgomery (36), by Palianappan (37), and by Roy et al. (56). In the Roy et al. (56) study of 27 depressed patients, the association between low HVA and suicidal behavior was much stronger than that between 5-HIAA and suicide, which did not reach statistical significance. In his 1980 study, Agren (33) found no association between HVA and any of the SADS suicide scales. In Agren's later (44) and larger patient group, he reports an association between low HVA and the lethality of suicide attempts made prior to the current episode.

Banki et al. (39), on the other hand, found suicide attempts to be less clearly related to HVA than to 5-HIAA. In particular, their depressed patients who had taken drug overdoses had significantly higher HVA than had nonsuicidal patients, whereas HVA was low in attempters who had used violent methods.

The studies of HVA in CSF in relation to suicidal behavior are summarized in Table 3. Interestingly, none of those who have studied nondepressed groups have reported any association between CSF HVA and suicidal behavior. Thus, Brown et al. (47) found no association in their patients with personality disorders. Leckman et al. (38) report no association in their diagnostically heterogeneous group, and Traskman et\al. (34) found an association only in those of their patients who fulfilled research criteria for a diagnosis of depressive illness. Ninan et al. (57) found no association in their schizophrenic subjects. A possible interpretation of the findings would be that CSF concentrations of HVA are related to suicidal tendencies, but only in conjunction with a depressive illness. Studies of patients with bipolar depressive illness would seem to be particularly interesting in the context.

Noradrenaline and 4-hydroxy-3-methoxy-phenylglycol (HMPG)

In contrast to the evidence relating suicide to serotonin, the relationship with noradrenaline is less clear. In depressed patients, Agren (33) reported a negative correlation between suicidal tendencies and the CSF concentration of the noradrenaline metabolite, 4-hydroxy-3-methoxy-phenylglycol (HMPG). Brown and coworkers (46) found a positive correlation in subjects with personality disorders, which was not reproduced in their study (47) of borderline patients.

In two studies of mixed diagnostic groups, Ostroff and associates (58-59) measured the ratio between noradrenaline and adrenaline (the NA:A ratio) in urine and found a relationship between a low ratio and suicidal behavior. Within a group of suicide attempters, Prasad (60) found the NA:A ratio to be significantly lower in those who used violent methods in the attempt.

Other Substances in the CSF: Cortisol and Magnesium

The relative robustness of the association between CSF 5-HIAA and suicide tendencies has inspired investigators to examine the correlations with other biological markers than the amine metabolites. Traskman et\al. (61) thus measured cortisol concentrations, but found no abnormality in suicide attempters. Depressed patients, on the other hand, had significantly higher CSF cortisol than had healthy control subjects.

Banki and coworkers (62) found a relationship between suicide attempts and low CSF concentrations of magnesium. There was a strong positive correlation between CSF magnesium and CSF 5-HIAA. Interestingly, magnesium concentrations in CSF are strongly correlated to CSF melatonin concentrations (63). Melatonin in plasma may in turn be related to suicidal tendencies. Beck-Friis and coworkers (64) reported that nocturnal serum melatonin concentrations, known to be decreased in depression (65-66),

were closer to normal in suicidal, than in non-suicidal depressed patients. Melatonin production is dependent on prevalent lighting conditions and thought to be regulated by beta-adrenergic neurotransmission. Serotonin is a precursor of melatonin, although little is known of any correlation between the concentrations of the two compounds in humans.

Post Mortem CSF Measurements in Suicide Victims

The concentrations of monoamines (serotonin, dopamine, noradrenaline and adrenaline) after death by suicide were measured in suboccipital CSF by Kauert et al. (67), who somewhat unexpectedly found increased serotonin concentrations in the suicide victims. Their finding has, however, received support from preliminary findings by Arato et al. (68), who report significantly higher concentrations of 5-HIAA in lumbar and suboccipital CSF obtained post mortem from suicide victims.

The CSF autopsy studies are summarized in Table 4, which also contains summaries of some studies of monoamines and metabolites in brain tissue from suicide victims. The post mortem CSF findings may prove crucial for our understanding of how alterations in serotonin transmission predispose to suicidal behavior—that is, if they can be confirmed and are not due to any of the sources of error that mar autopsy studies of suicide victims (such as delay between death and discovery of the body, the influence of drugs, mode of dying and agonal state).

Prediction of Suicide from CSF Measures

Those who commit suicide and those who merely attempt it differ notoriously in many important respects, even if there is an overlap between the two populations (69). In several studies, subsequent mortality from suicide among suicide attempters has amounted to about 2 percent within a year after the attempt (70). Although this is a

considerable increase in suicide frequency over that of the general population, suicide is a rare event even in this group.

Estimating suicide risk so as to be able to take appropriate precautions is one of the most difficult tasks of the practicing psychiatrist, and many attempts have been made to create rating scales and inventories for the purpose. Most of these have not been very successful (71-72), which may be due, at least partly, to the low base rate of suicide and other statistical problems (73).

Among a well-known risk group for suicide, namely patients who have made a suicide attempt, those with low CSF 5-HIAA were 10 times more likely to die from suicide than the remainder (34) (see also Table 5). Roy et al. (56) reported a relationship to exist between low concentrations of HVA in the CSF and subsequent suicide in depressed patients, regardless of whether previous attempts have been made. These findings suggest that inclusion of biological variables in the clinical assessment of suicide risk might increase its precision.

To judge from the studies published so far, there is fairly consistent evidence that low concentrations of CSF 5-HIAA are associated with an increased rate of suicide attempts, and may be a risk factor for suicide in individuals with a psychiatric history. There is also evidence relating low HVA concentrations in the CSF to suicide, although so far only in depressed individuals.

Among the many questions raised by these findings, a few will be discussed here: how do the CSF risk factors correlate with other potential biological risk markers; what can be inferred about the processes whereby a disturbed serotonin system may predispose to suicide; and how this knowledge can be applied in preventing suicide.

Correlations Between Possible Biological Risk Factors

Apart from the 5-HIAA concentrations in CSF, a series of biological markers related to serotonin have been reported to be disturbed in depressive illness. Among them are the concentrations of the precursor, tryptophan, in serum and its ration to other amino acids transported by the same mechanism (74), the binding of the antidepressant drug imipramine to specific sites in blood platelets (75-76), the uptake of serotonin by the platelets (77-78), and the concentrations of serotonin in platelets and plasma. The urinary output of 5-HIAA, on the other hand, is of little interest since it is strongly influenced by diet, varies from day to day, and is uncorrelated to CSF 5-HIAA (79).

So far, there are very few studies of other serotonin-related markers in relation to suicidal behavior, and little is known of the interrelations between them. These relationships need to be clarified, both with a view to understanding their physiological significance and for practical diagnostic purposes.

Interestingly, there are no clear-cut relationships between imipramine binding and serotonin uptake in depressed patients (80). These two possible serotonin markers may thus reflect different aspects of serotonin function. The relationships reported between CSF 5-HIAA and platelet MAO activity have not been consistent (81-82).

Monoaminergic neurons are known to be involved in the chain of events resulting in the release of many hormones, including cortisol. The details of this have not yet been worked out, but the data from the Meltzer et al. (83) study of 5-hydroxytryptophan-induced release of cortisol strongly suggest a functional connection between the serotonin system and HPA axis.

The available human data do not, however, show any negative correlations between markers of the serotonin system and the hypothalamus-pituitary-adrenal axis, such as might be expected if they reflect an identical risk factor for suicide. Thus, CSF concentrations of cortisol and of 5-HIAA have been shown to correlate positively, though weakly (61), or not at all (62,84). Both Carroll et al.

(85), and Banki and Arato (86), found a positive correlation between postdexamethasone cortisol and 5-HIAA. Interpretation of the results of Carroll et al. (85) is, however, complicated by the fact that spinal fluid was drawn after the administration of dexamethasone, which raises CSF 5-HIAA concentrations (87).

Among other potential markers of serotonin, the ratio of l-tryptophan to other neutral amino acids was positively correlated to postdexamethasone cortisol (88), whereas vmax of serotonin uptake into platelets (which is reduce in depression) tended to be negatively correlated to an abnormal DST (89). Preliminary reports suggest that the 5 hydroxytryptophan-induced cortisol release may be related to CSF 5-HIAA (90).

Gold and coworkers (91) report an inverse correlation between CSF 5-HIAA concentrations and the magnitude of the increase in thyroid stimulating hormone (TSH) reaction to administration of thyrotropin releasing hormone (TRH). The negative correlation between CSF 5-HIAA and the TRH/TSH-test also appears in a study by Banki and coworkers (39), where it is compatible with their finding of more normal TRH/TSH- responses in suicidal than in nonsuicidal patients.

Stability of CSF Concentrations of 5-HIAA over Time

Related to the question of the usefulness of biological markers as risk factors for suicide, is their stability over extended periods.

Unfortunately, CSF studies of recovered depressives are rare. Such patients are often maintained on drugs for extended periods, and those who are not, even if available for lumbar puncture studies, may well be non-representative of the depressed population.

A further complication in followup studies is that most serotonin-related variables also seem to vary seasonally. Seasonal rhythms have been shown for the serotonin concentration in the human hypothalamus (92),

for the platelet serotonin uptake (93-94), and for the platelet 3H-imipramine binding (95-96). There is some evidence that a seasonal rhythm, very similar to that observed for serotonin in the hypothalamus, may also exist for CSF 5-HIAA (7).

The evidence from four published followup studies. of depressed patients (52,97-99) is summarized in Table 6. 5-HIAA concentrations in CSF appear to remain fairly stable over limited periods in normal subjects, and in depressed patients re-admitted for relapse of depression (99). Recovered depressives, whose concentrations are normal during illness, also remain stable over prolonged periods, whereas in depressives with low 5-HIAA during illness the concentration sometimes increases with recovery, though it remains in the low range in most cases.

A possible interpretation of available data is that there is a subgroup of depressed patients, characterized by concentrations of CSF 5-HIAA that are not only low but also less stable over time. If this type of unstable serotonin system is associated with an increased vulnerability to illness, and with a further decrease in release during illness, the emergence of bimodal distributions in diseased populations is easily explained.

In line with the 'instability' hypothesis, are findings from two patients in whom repeated lumbar punctures were made, and who subsequently committed suicide (Asberg and coworkers, in preparation). In both cases, there was a substantial reduction in CSF 5-HIAA from one puncture to the next. The above-mentioned finding by Arato et al. (68), of higher CSF 5-HIAA in CSF from suicide victims than in controls may also be in line with an instability hypothesis.

Low CSF 5-HIAA - a Vulnerability Marker?

Low concentrations of 5-HIAA in CSF occur not only in depressed and suicidal people, but also in perfectly healthy subjects (53). This suggests that low CSF 5-HIAA is not a marker of the state of depression, but rather

an indicator of vulnerability. Supporting the vulnerability hypothesis, van Praag and de Haan (100) found an increased incidence of depressive illness in relatives of patients with low CSF 5-HIAA, compared with those of patients with normal 5-HIAA concentrations. This finding is reminiscent of the observation by Sedvall and coworkers (101) that CSF 5-HIAA concentrations were lower in healthy subjects with a family history of depressive illness than in healthy subjects without such antecedents. Preliminary data from twin studies by Sedvall and coworkers (102) further support familial involvement in CSF concentrations of the monoamine metabolites.

Serotonin, Aggression and Suicide

If serotonin transmission is permanently low or unstable, it is conceivable that this may be manifested in other ways than in suicidal tendencies. The often quite unpremediated, impulsive and violent character of may of the suicide attempts in low 5-HIAA patients gave rise to the suggestion (29) that they might have difficulties in controlling aggressive impulses. The hypothesis was supported by the association known to exist between aggression in animals, and serotonin turnover (summarized by Valzelli (103)), as well as the links between anger and suicide proposed by classic psychoanalytical theory (104-105).

'Aggression' is a somewhat nebulous concept. The word has many meanings, and some aspects of aggression are hardly amenable to empirical study. Aggression, in the sense of verbal threats or violent acts aimed at causing injury to others or to oneself, has, however, been studied in suicidal individuals. Thus, Weissman et al. (106), found that excessive hostility was characteristic of suicidal depressed patients, and Brown et al. (47), found more overt aggressive behavior in subjects who had made suicide attempts.

One of the strongest predictors of suicide is murder. In Great Britain, a 30 percent suicide rate is reported among murderers after the act. The risk of suicide is greatest

in those cases where the victim is a spouse (107). (In the United States, the suicide rate among murderers is lower, around 4 percent according to Wolfgang (108).)

Several investigators have tested the hypothesis that aggression dyscontrol is the link between serotonin turnover and suicidal behavior. Brown and associates (46) found a life pattern of aggressive behavior in subjects with personality disorder and low CSF 5-HIAA.

Further support for a relationship between serotonin and violence came from three studies of murderers. Linnoila and coworkers (109), found lower CSF 5-HIAA in violent offenders whose crimes were unpremediated. Lidberg et al. (110), found lower CSF 5-HIAA in homicide offenders who had killed a spouse or a lover than in those who had killed someone of less emotional significance (usually a drinking buddy). Lidberg and coworkers (111) also found very low CSF 5-HIAA concentrations in three cases, where suicide attempters had killed, or attempted to kill, their children.

A relationship between serotonin and aggressive behavior in alcoholics was also found by Branchey et al. (112), who studied the ratio of tryptophan to other neutral amino acids in serum. They found significantly lower ratios, compatible with a deficiency of brain serotonin, in those subjects who had been arrested for assaultive behavior than in other alcoholics or in nonalcoholic controls.

Suicide and the Biology of Personality

Interestingly, some personality features that seem to be prominent in patients who attempt suicide, are also associated with CSF concentrations of 5-HIAA. These personality features often reflect impulsivity and problems in the handling of anger. In normal people, low CSF 5-HIAA appears to be associated with vitality, social dominance and easily aroused anger, as shown by Zuckerman et al. (82), and Schalling et al. (in preparation). In psychiatric patients, low

CSF 5-HIAA has also been associated with high vitality, self-reported impulsivity and psychopathy- related features (47,113-114), and with high hostility and anxiety in ratings based on Rorschach protocols (115). Correlations with HVA, when reported, are generally parallel those with 5-HIAA, but are weaker.

Implications for Suicide Prevention

Their association with a heightened risk of suicide suggests that markers of serotonin may be valuable in a clinical context. Low concentrations of CSF 5-HIAA in suicide attempters, for instance, were connected with a 20 percent mortality from suicide within a year, which suggests that the combination may be one of the strongest suicide predictors hitherto identified. The number of false positives is, however, still very large.

Although it seems likely that CSF determinations might help in the assessment of suicide risk, there are problems in applying the technique in a clinical setting. Owing to the many factors that influence CSF concentrations of 5-HIAA and HVA, the spinal tap procedure must be standardized to an extent that is rarely practical in a busy clinic. Furthermore, the patients must be hospitalized overnight, and most difficult of all, they must have been off antidepressant and neuroleptic drugs, and lithium, for several weeks prior to the puncture.

Usually, the spinal tap is easily tolerated by the patient, and the post LP headache that afflicts about a third of the subjects is not a major problem. The procedure sometimes appears to pose greater problems for the psychiatric staff, who may feel that it is too "medical" and out of tune with the type of therapeutic relationship they wish to establish with the patient.

Thus, though there is an obvious need for new, more easily accessible markers of the state of the serotonin system, in centers with access to the relevant analytical procedures, routine spinal taps may nevertheless be a real help in clinical management.

A better understanding of the biological and psychological links between serotonin turnover and suicidal behavior might also open up new approaches to the prevention of suicide. Serotonin transmission can be controlled, with drugs or amino acid precursors, and possibly by dietary changes, and it would seem important to test such treatment regimens in patients with a high suicide potential. It is also possible that an increased understanding of the psychological processes that are controlled by serotonin neurons could be used to develop more specific psychotherapeutic techniques than has hitherto been possible.

CONCLUSIONS

In a number of studies, a relationship has been shown to exist between low CSF concentrations of the serotonin metabolite 5-HIAA and an increased incidence of suicide attempts in psychiatric patients. Although most studies deal with depressed patients, there is fairly strong evidence that this relationship exists in other disorders as well, particularly in personality disorders and possibly also in schizophrenia. Some reports suggest that bipolar (manic-depressive) disorder may be an exception.

Low concentrations of the dopamine metabolite HVA may also be associated with suicide attempts. Although this may to some extent be accounted for by its correlation with 5-HIAA, there is probably more to it, since unlike 5-HIAA, the association may be confined to depressive disorder.

Both markers have been associated with an increased frequency of ultimate suicide, but there is a need for further prospective studies.

Low CSF concentrations of 5-HIAA may reflect a low serotonin output, or possibly a low stability serotonin system, which may in turn be a vulnerability factor. In most individuals with low CSF 5-HIAA, this vulnerability will never be manifested in a suicide attempt. A suicide attempt is unlikely to occur unless the individual finds himself

in a situation which he conceives of as desperate, or when he is without hope for the future. Adverse events may have created this situation, or the individual's perception of the situation may be colored by depressive illness. Previous experience of adverse events (e.g., during childhood) is liable to render the interpretation of current adversity more ominous. Whether this state of affairs leads to a suicide attempt, is to some extent determined by the quality of the person's social support network, which may attenuate the effect of adverse events, or render the sufferings of depressive illness more tolerable.

A low-output serotonin system (or perhaps even more likely, a low-stability one) might render an individual more vulnerable to self-destructive or impulsive action in time of crisis. This characteristic of the serotonin system may have a genetic basis, or it may be acquired.

Although little is known of the processes linking serotonin with suicidal behavior, there is some evidence that personality features such as impulsivity and difficulties in handling aggression may be important intervening variables.

CSF measures are currently used as an aid to suicide risk prediction in some highly specialized clinical settings. They appear less likely to be useful on a larger scale, because of the need for strict standardization of the procedure. An important research task would seem to be to identify other markers of the serotonin system that can be measured repeatedly over time in large groups of subjects.

The potential for treatment and prevention of suicide remains to be explored.

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Some factors of importance for the concentrations of 5-HIAA and HVA measured in lumbar spinal fluid samples.

Factor	Possible control measure
Subject's age and sex (2-3,6)	Matched controls or ANCOVA
Subject's body height (5,6)	Idem
Physical illness, e.g. Parkinson's disease (116), multiple sclerosis (117), adult coeliac disease (118) and hydrocephalus (119)	Physically healthy subjects
Drug treatment (4, 15-23)	Drug-free subjects
Time of day (14)	Samples always drawn at the same time
Time of year (7,13)	Patients and controls matched for season
Diet a	Fasting subjects or controlled diet
Physical movement (120)	Bed rest prior to lumbar puncture
Subject's position at lumbar puncture b	Same position always used
Amount of CSF drawn (122)	Same amount always drawn
Handling and storage of samples	Identification procedures for all samples
Analytical method (123-125)	Best available method

a. It cannot be excluded that a diet particularly rich (or poor) in monoamine precursors might influence the metabolic concentrations. Thus underweight anorexia nervosa patients have significantly lower CSF 5-HIAA than weight-recovered and long-term weight-recovered anorectics. (126)

b. Siever et al. (10) report that the concentration gradient of CSF 5-HIAA was cost in the decubitus position. Gateless et al. (127), on the other hand, found similar gradients in sitting and lying patients.

Table 1.

Studies of CSF 5-HIAA in Relation to Suicidal Behavior

Author	Subjects	CSF sampling and analysis	Confounding factors	Measure of suicidality	Result
Asberg et al. 1976 (29)	68 hospitalized depressed patients	standardized; GC-MS	not controlled	attempted or completed suicide within index illness episode	low 5-HIAA in the 15 attempters, particularly those using violent methods
Brown et al. 1979 (46)	22 men with personality disorder	standardized; fluorometry	not controlled	lifetime history of suicide attempt	lower 5-HIAA in the 11 suicide attempters
Agren 1980 (33)	33 depressed patients	standardized; GC-MS	not controlled	SADS suicidality scales	negative correlation between 5-HIAA and suicidality scores
Traskman et al. 1981 (34)	30 suicide attempters (8 major depressive, 22 other psychiatric disorders excluding schizophrenia and alcoholism), 45 healthy controls	standardized; GC-MS	controlled by ANCOVA for age, sex and body height	recent attempted or completed suicide	5-HIAA lower in both categories of attempters than in healthy controls
Leckman et al. 1981 (38)	132 psychiatric patients, several diagnoses	standardized, after probenecid; fluorometry	not controlled	item suicidal ideation or nurse rating scale	negative correlation with suicidal ideation in the 76 psychotic patients
Brown et al. 1982 (47)	12 patients with borderline personality disorder	standardized; GC-MS	not controlled	life time history of suicide attempt	lower 5-HIAA in the 5 attempters
Montgomery and Montgomery 1982 (36)	49 patients with endogenous depression	not reported	not controlled	history of suicidal act	more attempters among patients with low CSF 5-HIAA
van Praag 1982 (35)	203 depressed patients	standardized, after probenecid; fluorometry	not controlled	recent suicide attempt	significantly more suicide attempters among patients with low CSF 5-HIAA
Palaniappan et al. 1983 (37)	40 hospitalized depressed patients	LP procedure not fully described; fluorometry	not controlled	suicide item in the Hamilton Rating Scale	negative correlation between CSF et 5-HIAA and suicide score
Agren 1983 (44)	110 depressed patients	standardized; GC-MS	not controlled	SADS suicidality scales	low 5-HIAA associated with recent or current suicidal ideation

Table 2.

Studies of CSF 5-HIAA in Relation to Suicidal Behavior

Author	Subjects	CSF sampling and analysis	Confounding factors	Measure of suicidality	Result
Roy-Byrne et al. 1983 (43)	32 bipolar, 13 unipolar patients in different phases of illness	standardized; fluorometry or HPLC	not controlled	lifetime history of suicide attempt	no association with 5-HIAA in bipolar patients
van Praag 1983 (48)	10 nondepressed schizo-phrenics who attempted suicide in response to imperative hallucinations, 10 nonsuicidal schizo-phrenics, 10 controls	standardized, after probenecid; fluorometry	matched for age and sex	recent suicide attempt	lower CSF 5-HIAA after probenecid in suicide attempters
Banki et al. 1984 (39)	141 female inpatients (36 depressed, 46 schizophrenic, 35 al-coholic, 24 with adjustment disorder; 45 previously reported)	standardized; fluorometry	adjusted for age and body height by ANCOVA	recent suicide attempt	negative correlation with 5-HIAA in all diagnostic groups, particularly with violent attempts
Ninan et al. 1984 (49)	8 suicidal, 8 nonsuicidal schizophrenic patients	standardized; HPLC	matched for age, sex, and physical characteristics	lifetime history of suicide attempt	lower 5-HIAA in suicide attempters
Lopez-Ibor et al. 1984 (40)	21 depressed patients	standardized; fluorometry	controlled	suicide attempt, suicidal ideation rated on the Hamilton Scale and the AMDP system	more attempts and higher suicidality scores in patients with low 5-HIAA
Roy et al. 1985 (51)	54 patients with chronic schizophrenia	standardized; HPLC	adjusted for age and body height by AN-COVA	lifetime history of suicide attempt	no difference in 5-HIAA between 27 attempters and 27 non-attempters
Edman et al. 1986 (41)	7 suicide attempters with various psychiatric disor-ders, 7 healthy controls	standardized; GC-MS	matched for sex, age and body height	recent suicide attempt	lower 5-HIAA in attempters
Roy et al. 1986 (56)	27 depressed patients, 22 healthy controls	standardized; HPLC	adjusted for sex and age by ANCOVA	lifetime history of suicide attempt	lower HVA in the 19 attempters

Table 2 concluded.

Studies of CSF HVA in relation to suicidal behavior

Author	Subjects	CSF sampling and analysis	Confounding factors	Measure of suicidality	Result
Brown et al. 1979 (46)	22 men with personality disorder	standardized; fluorometry	not controlled	lifetime history of suicide attempt	no correlation reported
Agren 1980 (33)	33 depressed patients	standardized; GC-MS	not controlled	SADS suicidality scales	no significant correlations
Traskman et al. 1981 (34)	30 suicide attempters (8 major depressive, 22 other psychiatric disorders excluding schizophrenia and alcoholism), 45 healthy controls	standardized GC-MS	controlled by ANCOVA for age, sex and body height	recent attempted or completed suicide	lower than controls in depressed attempters, nondepressed attempters similar to controls
Leckman et al. 1981 (38)	132 psychiatric patients, several diagnoses	standardized after probenecid; fluorometry	not controlled	item suicidal ideation on nurse rating scale	no correlation reported
Brown et al. 1982 (47)	12 patients with borderline personality disorder	standardized; GC-MS	not controlled	lifetime history of suicide attempt	no correlation
Montgomery and Montgomery 1982 (36)	49 patients with endogenous depression	not reported	not controlled	history of suicidal act	more attempters among patients with low CSF HVA
Palaniappan et al. 1983 (37)	40 hospitalized depressed patients	LP procedure not fully described; fluorometry	not controlled	suicide item in the Hamilton Rating Scale	negative correlation between CSF et HVA and suicide score
Agren 1983 (44)	110 depressed patients	standardized; GC-MS	not controlled	SADS suicidality scales	low HVA associated with high lethality of suicide attempts prior to present episode
Banki et al. 1984 (39)	141 female inpatients (36 depressed, 46 schizophrenic, 35 alcoholic, 24 with adjustment disorder; 45 previously reported)	standardized; fluorometry	adjusted for age and body height by ANCOVA	recent suicide attempt	higher HVA for drug overdose case within the depression subgroup, otherwise no clear cut association
Ninan et al. 1985 (57)	8 suicidal, 8 nonsuicidal schizophrenic patients, matched for age and sex	standardized; HPLC	matched for sex, age and physical condition	lifetime history of suicide attempt	no difference in HVA between the two subject groups
Roy et al. 1985 (51)	54 patients with chronic schizophrenia	standardized; HPLC	adjusted for age and body height by ANCOVA	lifetime history of suicide attempt	no difference in HVA between 27 attempters and 27 non-attempters
Roy et al. 1986 (56)	27 depressed patients, 22 healthy controls	standardized; HPLC	adjusted for sex and age by ANCOVA	lifetime history of suicide attempt	lower 5-HIAA in the 19 attempters, although the difference was not statistically significant

Table 3.

Some Controlled Studies of Monoamines and Their Metabolites in Brain Tissue and Cerebrospinal Fluid from Suicide Victims

Author	Subjects	Tissue	Result (concentrations in suicide victims compared to controls)
Shaw et al. 1967 (128)	22 suicides, 17 controls	Hindbrain	5-HT lower
Bourne et al. 1968 (129)	23 suicides, 28 controls	Hindbrain	5-HT similar, 5-HIAA reduced, NA similar
Pare et al. 1969 (130)	26 suicides, 15 controls	Brainstem, caudate, hypothalamus	5-HT reduced, NA and DA similar
Lloyd et al. 1976 (131)	7 suicides, 5 controls	Six raphe nuclei	5-HT lower in nuclei raphe dorsalis and centralis inferior, 5-HIAA similar
Cochran et al. 1976 (132)	19 suicides, 12 controls	Several brain areas	5-HT similar
Beskow et al. 1976 (133)	23 suicides, 62 controls	Several brain areas	5-HT similar after adjustment for difference in postmortem delay; NA, DA, 5-HIAA and HVA similar
Owen et al. 1983 (134)	7 suicides, 18 controls	Frontal cortex	5-HIAA similar
Korpi et al. 1983 (135)	30 schizophrenics (50 % dead from suicide), 14 nonschizophrenic suicides, 29 controls	Several brain areas	5-HT lower in hypothalamus in non-schizophrenic suicide victims 5-HIAA and TRY similar
Kauert et al. 1984 (67)	80 suicides and controls	Cerebrospinal fluid	5 HT, NA, NM higher, DA and A similar
Arato et al. 1986 (68)	Not stated	Cerebrospinal fluid	5-HIAA higher

Abbreviations: 5-HIAA = 5 hydroxyindoleacetic acid, 5-HT = 5 hydroxytryptamine (serotonin), A = adrenaline, DA = dopamine, HVA = homovanillic acid, NA = noradrenaline, NM = normetanephrine, TRY = tryptophan.

Table 4.

Mortality from Suicide within One Year after Admission to Hospital in Some High Risk Groups

Patient category	Number	Percentage suicides
Patients admitted to intensive care unit after suicide attempt	45	2%
Patients admitted to a psychiatric clinic after a suicide attempt, CSF 5-HIAA above 90 nanomol/L	42	2%
Ditto, CSF 5-HIAA below 90 nanomol/L	34	21%

Data on suicide attempters admitted to the psychiatric department of the Karolinska Hospital derive from the studies by Asberg et al. (29), Traskman et al. (34), and Edman et al. (41). Data on patients admitted to the intensive care unit of the same hospital after a drug overdose are given for comparison.

Table 5.

Changes in CSF 5-HIAA after Recovery from Depression

Author	Type of 5-HIAA measure	N	Interval between examinations	Results
Coppen et al. 1972 (97)	Baseline 5-HIAA	8	3-59 w	Stable over time
van Praag 1977 (98)	5-HIAA after probenecid	50	6 mo	2 % of patients with low CSF 5-HIAA during illness normalized; the rest remained stable
Post et al. 1980 (52)	5-HIAA after probenecid	11	several months	Stable over time
Traskman-Bendz et al. 1984 (99)	Baseline 5-HIAA	11	2-7 yr	Increased concentrations at follow-up in patients whose levels were low during illness; stable in the remainder

Table 6.

POST MORTEM STUDIES OF SUICIDE

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Suicide is a major cause of death in the United States for the adolescent and young adult population. In the 13- to 24-year age range, it ranks as the second leading cause of death. Furthermore, a dramatic increase in the adolescent suicide rate has occurred in the last 15 years. In an effort to counteract this growing rate, recent research has begun to focus on the identification of youths "at risk" for suicide and prevention of suicide. These studies, which are few in number, have principally investigated personality, psychosocial and diagnostic factors. However, suicide research on adults, focusing on the same factors has had limited success and the suicide rates have not been significantly reduced. Predictors are typically overinclusive and identify many individuals as "at risk" who never commit suicide. Furthermore, the association of these predictors with suicide is too weak to have much utility in the clinical setting. Thus, the traditional approaches to identifying suicide risk have been inadequate. Therefore, while psychosocial and diagnostic factors are important to examine in the adolescent and young adult population, the study of suicide in this age group may benefit from an alternative approach that takes into account neurochemical factors. To date, there have been no studies of the neurochemistry of suicide in adolescents.

The purpose of this paper will be to review the post mortem biological findings in the field of suicide. This review will include critiques of studies that have examined enzymatic findings, concentrations of biogenic amines and their metabolites, and the findings from studies that have employed the more recently developed technology of receptor binding.

The advantages of human post mortem neurochemical studies must be balanced against those disadvantages inherent in these investigations. In post mortem research numerous confounding variables may contribute to inconsistencies within a study or across studies. In this review, we will assess the impact of some of these variables (e.g., age, post mortem interval, and regional brain dissection) and describe their impact on several of the neurochemical measures described.

There are several lines of evidence that suggest an association between serotonin and suicidal behavior (2).

Because of the involvement of 5-HT in suicide and because 5-HT is a substrate for monoamineoxidase (MAO-A), Mann and Stanley (6) thought it would be of interest to conduct a post mortem study of this enzyme in a series of suicide victims.

Two previous studies had examined post mortem MAO activity in suicide victims. One study reported no differences in MAO activity compared with controls (7). A second study found reduced MAO activity in patients where the suicide was associated with alcoholism (8). Both these studies, in contrast to the study of Mann and Stanley (6), included a significant proportion of patients who had died by carbon monoxide or drug overdose that may have altered

neurochemistry and employed a single substrate concentration, a method that is less informative and less sensitive than enzyme kinetic studies.

Mann and Stanley (6) assayed MAO-A and B in the frontal cortex of 13 suicides and 13 controls using labeled 5-HT and phenylethylamine (PEA) as substrates for MAO-A and B, respectively. The suicide victims we studied generally died by determined and violent means, with the exception of one overdose. There were no significant differences between the suicide and control group with respect to factors such as age, sex and post mortem interval.

The results of this kinetic study show no significant difference between the groups for either substrate (5-HT or PEA). There was a significant positive correlation between age and MAO-B Vmax for both groups. There was no correlation between post mortem interval and MAO enzyme kinetics.

The series of suicide victims included in this study are distinguishable from those of other studies of brain MAO in as much as those who died by overdose were largely excluded, thereby avoiding the potential problem of drug effects contaminating the results. Other studies have suggested that MAO activity was reduced in alcoholic suicides but not in non-alcoholic suicides (8). The data suggest that the reported lowered brain MAO activity in alcoholic suicides, if confirmed, may be related primarily to alcoholism rather than to suicidal behavior.

In many of the post mortem studies, which have measured the concentration of 5-HT or its principal metabolite, 5-Hydroxyindoleacetic acid (5-HIAA), it is important to point out that some diagnostic information was available for the suicide victims. These data indicate that approximately 50 percent of the suicide victims were diagnosed as endogenously depressed: the remaining cases carried a variety of diagnoses including schizophrenia, personality disorders, alcoholism, and reactive depression. These diagnostic groupings are consistent with a number of studies that have made a retrospective diagnostic analysis of individuals who have committed suicide (9-11). In general, these studies found that in addition to the diagnosis of depression, individuals classified as schizophrenic, alcoholic, and having personality disorders were also represented. Thus, it is of both theoretical and practical importance to note that suicide victims typically represent a diagnostically heterogenous group of individuals. With regard to biochemical findings within this population, the diagnostic heterogeneity suggests that differences in neurochemistry may be more related to suicidal behavior rather than to depression per se.

It should also be mentioned that none of the studies described below had youth suicide as their focus.

A total of 11 studies have investigated the concentration of 5-HT, 5-HIAA, or both in several brain regions of suicide victims (12-22). In addition to measurements of the serotonergic system, 3 of the 11 studies also report findings for the noradrenergic and dopaminergic systems.

With regard to findings reported for the serotonergic system, 7 of 11 studies have reported significant decreases in the levels of 5-HT, 5-HIAA, or both. In general, decreases were noted in the area of the brain stem (Raphe Nuclei) and in other subcortical nuclei (e.g., hypothalamus). Lloyd et al. (15) measured 5-HT and 5-HIAA in Raphe Nuclei of five suicides and five controls. Three of the five suicides had died by drug overdose. They found no significant difference in 5-HIAA levels between the two groups. There was, however, a significant reduction in 5-HT levels for the suicide group. Pare et al. (14) determined norepinephrine, dopamine, 5-HT, and 5-HIAA levels in suicide victims who had died by carbon monoxide poisoning. They found no significant difference between the two groups for norepinephrine, dopamine, and 5-HIAA. They did report a significant reduction in brainstem levels of 5-HT, for the suicide group. Shaw et al. (12) found lower

brainstem levels of 5-HT in suicide victims compared with controls, a statistically significant difference. However, it should be noted that about half of the suicide group died by barbiturate overdose and the other half died by carbon monoxide poisoning.

More recently, Korpi et al. (17) reported significant decreases in the hypothalamic concentration of 5-HT of suicide victims compared with nonsuicide controls. Similar findings were reported by Gillin et al. (16). They noted that 5-HT levels were significantly lower in the hypothalamus of suicide victims compared with controls.

Three studies have reported significant reductions in the levels of 5-HIAA in suicide victims. Bourne et al. (13) measured norepinephrine, 5-HT, and 5-HIAA in the hind-brain and found significantly lower levels only for 5-HIAA. Beskow et al. (18) measured dopamine, norepinephrine, 5-HT, and 5-HIAA in brainstem areas of suicide victims and controls. They noted significant reductions in 5-HIAA levels for the suicide group. The results of these studies are summarized in Table 1. (Tables and figures appear at the end of the chapter.)

In many of the foregoing studies, factors such as death by overdose or carbon monoxide poisoning, extensive post mortem delay, and lack of age-matched control groups figure significantly in the interpretation of these findings. These variables may also account in part for the lack of uniformity of findings among the post mortem studies. In addition to these potential sources of error, the levels of monoamines and their metabolites are known to be influenced by factors such as diet, acute drug use, alcohol, etc. While it is possible to control for the acute influence of these factors in CSF studies, for obvious reasons this is not the case in post mortem assessments. In an effort to minimize the impact of the aforementioned variable, we decided to examine a system--receptor binding--which has been shown to be generally nonresponsive to these acute influences.

Binding studies have shown that changes in the number of sites (or their density) can be induced by either chronic exposure to a chemical agent (e.g., antidepressants) or deprivation of the particular amine by its removal (e.g., lesioning). Recently, binding assays that appear to be associated with pre-(imipramine) and post-(spiroperidol) synaptic 5-HT neurons have been developed (23,24). Imipramine binding sites have been characterized in platelets and various regions of the brain. Some of the experimental evidence linking imipramine binding with 5-HT is that (1) radioautography studies of 3-H imipramine binding sites show distribution similar to serotonergic terminals (25); (2) chemical and electrolytic lesions of the Raphe nucleus cause a significant reduction in serotonin level and in the number of imipramine binding sites (26); (3) the use of an irreversible ligand results in reduced 3-H imipramine binding and serotonin uptake (27); (4) the potency of antidepressant drugs to inhibit serotonin uptake is significantly correlated with their potency to inhibit 3-H imipramine binding (28); (5) serotonin is the only neurotransmitter known to inhibit (^{3}H) imipramine binding (28,33); and (6) there is a similar pharmacologic profile between brain and platelet (^{3}H) imipramine binding sites (27).

The clinical significance of imipramine binding was provided by the studies of Langer and coworkers who reported decreases in the number of binding sites in the platelets of depressives (29). The combined association of imipramine binding with 5-HT function, as well as the significant reduction in binding density in depressives, suggested the possibility of alterations in imipramine binding in suicide victims. To test this hypothesis, Stanley et al. (30) determined imipramine binding in the brains of suicide victims and controls. Because of the problems previous research groups had encountered conducting post mortem studies, we took particular care in selecting cases for this study. Thus, there were no significant differences between the two groups with respect to age, sex and post mortem interval. The suicide victims chosen for this study had died in a determined man-

ner (e.g., gunshot wound, hanging, jumped from height) and, as is the general practice of these researchers, the control group was chosen to match for sudden and violent deaths.

The findings indicated a significant reduction in the number of imipramine binding sites in frontal cortex (suicides B_{max} = 330 ± 39 fmole/mg/protein; controls B_{max} = 587 ± 75 fmole/mg/protein) with no difference in binding affinity (K_d) (Fig. 1). The results of this experiment seem to be consistent with the accumulating evidence suggesting the involvement of 5-HT in suicide. Specifically, reduced imipramine binding (associated with presynaptic terminals) may indicate reduced 5-HT release and agree with reports of reduced post mortem levels of 5-HT and 5-HIAA in suicides as well as lower levels of 5-HIAA in the CSF of suicide attempters.

Since the completion of this study, there have been four other studies that have measured imipramine binding either in suicide victims or in depressive persons who died from natural causes.

Paul and coworkers (31) measured imipramine binding in hypothalamic membranes from suicides and controls. Both groups were matched for age, gender, and post mortem interval. Imipramine binding was significantly lower in the brains of the suicide victims compared with controls. This group also measured desipramine binding in the same samples and noted no significant difference between the suicide and control group. They interpreted this finding as arguing against the possibility that the reductions they had observed in imipramine binding could be attributed to a drug-induced effect. Perry and colleagues (32) measured imipramine binding in the cortex and hippocampus of depressed individuals dying from nonsuicidal causes. They reported a significant reduction in imipramine binding in the depressive group relative to a non-depressed control group that had been matched for age, sex, and post mortem interval. Crow et al. (20) also reported a significant decrease in imipramine binding in

the cortex of suicide victims compared with controls. In contrast to the findings cited above, one study has reported an increase in imipramine binding in the brains of suicides compared with control (33). Possible explanations offered to address this discrepant finding include single point analysis instead of saturation isotherms and inadequate matching of factors such as age, gender and post mortem interval. In summary, five published post mortem studies have measured imipramine binding. Thus far, four of the five studies reported a decrease in imipramine binding and one study found an increase. And, as was the case in those post mortem studies that measured levels of 5-HT and 5-HIAA, none of the aforementioned studies had youth suicide as their focus (2).

In addition to assessing of post mortem presynaptic function of the 5-HT system in suicide, Stanley and Mann also measured post-synaptic 5-HT binding sites using ^{3}H-spiroperidol (5-HT2) (34). 5-HT2 binding in animals has been shown to change in response to chronic antidepressant treatment and lesioning of 5-HT nuclei (26,34).

In this study, suicide victims were compared with controls, and, as in previous studies, both groups were matched for age, sex, post mortem interval, and suddenness of death. Also, care was taken to select subjects who had died by nonpharmacologic means.

The study found significant increase in the number of 5-HT2 binding sites in the frontal cortex of suicide victims with no change in binding affinity (Fig. 2).

Because many of the brains had also been used in the previous report on imipramine binding by Stanley et al. (30), the researchers were interested in assessing the degree to which these measures of receptor function correlated. They found that the number of binding site (B_{max}) for 5-HT2 and imipramine was negatively correlated. This finding is of interest because it closely parallels the experimental observations noted in animal studies. Brunello et al. (26) lesioned

the Raphe nucleus of rats using the 5-HT selective neurotoxin 5,7-dihydroxytryptamine. Two weeks following such lesions, 5-HT levels were significantly reduced. The same researchers found significant reductions in imipramine binding (associated with presynaptic serotonergic terminals) with significant increases in 5-HT2 binding (postsynaptic). They suggested that the increase in 5-HT2 binding might reflect a compensating increase in postsynaptic binding sites secondary to a loss of presynaptic input. Extrapolating to human data in suicide victims where Stanley et al. observed an increase in postsynaptic binding sites as well as a decrease in presynaptic binding sites, it may be that the functional consequences of this receptor arrangement could result in an overall hypofunction of this system. Thus, reduced levels of 5-HIAA in the CSF of suicide attempters as well as reduced levels of 5-HT and 5-HIAA in the brains of suicide victims would be a logical consequence of a hypofunctioning serotonergic systems.

Subsequent to the study done by Stanley et al. (34), there have been two additional reports of 5-HT2 binding in suicides. Owens et al. (19) reported an increase in 5-HT2 binding in nonmedicated suicide victims. Crow and colleagues (20) found no change in 5-HT2 binding between suicides and controls (2).

In addition to examining serotonergic binding sites in suicide victims, muscarinic binding in this group was also measured (35). The rationale for this assessment was based in part on the several lines of cholinergic sensitivity with affective disorders and the high incidence of individuals diagnosed as having an affective disorder who subsequently commit suicide.

In this study, muscarinic binding was estimated using the reversible antagonist 3-quinuclindyl benzilate (QNB). Samples of frontal cortex from 22 suicide and 22 controls matched for age, gender, post mortem interval and suddeness of death were used in this study. As previously, care was taken to chose a majority of cases where the cause of death was nonpharmacological (3).

Scatchard analysis of the binding data indicated that there were no significant differences in the mean number of binding site (Bmax) between the two groups (suicide victims, 493 fmole/mg protein, and control subjects, 492 fmole/mg protein) (Kd) between the means of the two groups (suicide victims, 14 pM, and control subjects, 13.68 pM) (Figs. 3 and 4).

Correlations between ^{B}max or Kd and either the suicide victims or control subjects were not significantly related to factors such as age and interval between death and autopsy. However, when both groups were combined, Bmax was significantly correlated with time between death and autopsy (r = .35, p< .02).

Comparisons between ^{B}max values of suicide victims who died by violent means (gunshot wounds, hangings, or jumping from height) and of controls who had died either by violent or nonviolent methods revealed no significant differences. Variations in muscarinic cholinergic binding as a function of the time of day that individuals died have been reported (36). The Bmax values for the combined samples (suicide victims and control subjects) were examined at eight, separate 3-hour intervals by one-way analysis of variance; none of the intervals significantly differed from each other.

Two other studies have estimated QNB binding in suicides and controls. Kaufman et al. (37) determined QNB binding in three brain regions (including frontal cortex) in suicide victims and found no differences between the groups for any of the regions studied. In contrast to our findings and those of Kaufman's, Meyerson and colleagues (33) reported a significant increase in QNB binding in the frontal cortex of a small group of suicides not adequately matched for factors such as age, sex and post mortem interval (2).

More recently Mann et al. (38) have measured beta adrenergic receptors in suicide victims in the hope that such studies might indicate the functional status of central catecholamine neurons in suicidal behavior.

It has been suggested that down-regulation of beta adrenergic receptors may be linked with the therapeutic effect of antidepressants and that changes in these receptors may also relate to the neurochemical substrate of suicide and depression.

The researchers measured beta adrenergic receptor binding in the frontal cortex of suicide victims and controls using dihydroalphrenolol (DHA). There was a 73 percent increase in beta adrenergic receptor binding in suicide victims compared with controls.

In addition to this study, Zanko and Beigon (39) reported an increased number of binding sites (B_{max}) with no change in K_d in a small series of six suicide victims and matched controls. In contrast with the above studies, Meyerson et al. (33) reported no alteration in DHA binding in suicide victims. Thus, two of three studies measuring beta adrenergic receptors report an increase in binding in suicide victims. It should be noted that ante mortem use of antidepressants would not explain the receptor alterations we observed. Data from animal studies indicates that chronic antidepressant treatment causes a down-regulation of beta adrenergic receptors. Findings in suicide victims studied by Stanley et al. indicate alterations in receptor binding in the opposite direction from that which would be expected if drug effects had been present.

Having set forth the principal neurochemical findings in suicide research, it is important also to examine some factors that may exert an influence on some of the measures previously described in this review.

A preliminary analysis of 50 cases with an age range of 16 to 79 years revealed no significant relationship between age and 5-HT or 5-HIAA (2). However, imipramine was positively correlated with age. Severson et al. (40) recently published data on age effects and 5-HT and 5-HIAA levels as well as imipramine binding in human post mortem samples. They too noted that age did not appear to influence 5-HT or 5-HIAA levels.

They also found that the ratio of 5-HIAA/5-HT, an estimate of serotonin turnover, was uninfluenced by age. Severson did note a significant positive correlation between imipramine binding and age (range 17-100 years). Severson's and Stanley's findings of a positive correlation between these variables is of interest because the findings are in the opposite direction of those reported by Langer and coworkers (23) for imipramine binding in the platelet. Langer (23) reported that platelet imipramine binding decreases as a function of age. These discrepant findings are of interest because imipramine binding in the platelet and the brain were thought to be identical. Thus, findings such as these raise questions about the validity of peripheral measures as indices of central systems. A significant age-related decrease in 5-HT2 binding sites in frontal cortex ($r = -0.42$, $N = 34$, $p < .01$) was observed in the study of Mann and colleagues (38). A statistically significant increase in cortical DHA binding with age was seen in our study ($r = 0.60$, $N = 19$, $p < .01$) (38).

Another area that also represents a potential problem in post mortem research is that of post mortem interval (PMI) that time between death and the time the brain tissue is removed and frozen. The human post mortem studies conducted by Stanley et al. (41) assessed the influence of post mortem interval on 5-HT and 5-HIAA levels. Their post mortem interval was approximately 15 hours with a range of 6 hours to 45 hours. They found that there was a significant positive correlation between frontal cortex 5-HT levels and PMI. No significant findings were noted for 5-HIAA levels with PMI.

Severson and colleagues (40) also found that PMI was related to significant changes in 5-HT levels. However, their findings were in the opposite direction from that which Stanley and colleagues (41) observed-- namely, they reported a significant decline in 5-HT with increasing PMI. One possible explanation for this discrepancy may be the difference in the length of PMI between the two studies. In Stanley's study, the PMI was ap-

proximately 15 hours, while in Severson's study PMI averaged 36 hours (in some cases >72 hours). It may well be that while 5-HT levels appear to rise initially with a shorter PMI they subsequently fall with a more extensive delay (>1-1/2 days). In any case, previous research has shown that amines, such as DA and 5-HT, are more sensitive to PMI than are their acidic metabolites. Wilk and Stanley et al. (42) had previously published a study that assessed the influence of PMI and DA, DOPAC and HVA levels. They found that DA levels—not DOPAC or HVA—were more likely to be influenced by delay. Also, those same researchers published a similar study on the influence of PMI on 5-HT and 5-HIAA levels. Again, in general, they found a significant change in 5-HT, but not 5-HIAA, levels.

In contrast to variations in the concentrations of biogenic amines, it has been observed that most of the binding sites are uninfluenced by post mortem interval (30). Thus, with the exception of QNB, which displayed a modest decrease in binding density with increased post mortem delay, imipramine, 5-HT2, and beta adrenergic binding were not affected.

Another area of post mortem research that can result both in variations within and between studies, is nonspecific or "regional" dissections. In our animal studies (43), it had been our practice, and that of others, to analyze samples taken from general areas, e.g., frontal cortex. It occurred to us that our lack of precision in dissection might account for some of the variability we had observed from time to time.

In an attempt to investigate possible regional differences of 5-HT and 5-HIAA concentrations within the cortex, we dissected homogenous samples corresponding to frontal, temporal, and occipital cortex. In this experiment, the frontal cortex showed significantly higher concentrations of 5-HT and 5-HIAA compared with temporal or occipital samples. In a second experiment, three progressive 1 mm slices of the frontal cortex were examined in a rostral to caudal

fashion for regional concentration differences of 5-HT and 5-HIAA levels (43). Additional significant variation was noted within the frontal cortex with a rostral to caudal increase in 5-HIAA levels; 5-HT levels were consistent. Therefore, differences are found not only among the general areas of the cortex, i.e., frontal, temporal, and occipital, but significant differences can also be found within each area.

One of the potential criticisms of post mortem studies is that their findings lack a proven clinical utility, as no means of monitoring the alterations reported is provided. Thus, the clinical significance of post mortem findings must be inferred. (Both the ease and correctness with which these inferences are drawn remains largely untested.) Therefore, it would be useful to develop a method with clinical application that could be used in post mortem studies.

In ante mortem studies, biogenic amine metabolites in CSF are generally regarded as the best indicator of neuronal function in the brain. One way of testing the strength of this relationship is by simultaneously assessing the CSF and brain levels of the same metabolite in the same individual.

Stanley et al. (41) measured the acidic metabolites 5-HIAA and HVA, the principal metabolites of serotonin and dopamine, respectively, in the lumbar CSF and brains of the same individuals at autopsy. The post mortem lumbar punctures and samples of frontal cortex corresponding to Brodmann's Area 8-9 were obtained from 48 individuals (37 men and 11 women). The average age was 37 ($\pm$2.6, S.E.) years with a range of 16 to 78 years. The causes of death among the individuals in this study were generally sudden in nature, e.g., homicides, auto accidents, etc. The post mortem interval between death and tissue collection for the individuals in this study ranged from 285 to 1,815 minutes and averaged 891 $\pm$ 58 (S.E.) minutes.

Lumbar CSF samples were obtained. At autopsy, once the organs were removed from

the chest and abdominal cavities, an 18 gauge spinal needle was inserted in the L-3, L-4 inter space. A 10 cc syringe with a leur-lock stop cock was attached to the needle and used to withdraw samples of CSF. (Figure 5)

The results of this study indicate the presence of a significant correlation between CSF and brain levels of 5-HIAA and HVA, $r = 0.78$, $p < .001$; $r = 0.35$, $p < .02$, respectively (Figs. 6 and 7).

In addition to the principal aim of the project presented above (i.e., the assessment of the relationship between metabolite levels in CSF and brain), Stanley et al. (41) were also interested in determining the degree to which post mortem CSF measures agreed with the CSF findings of ante mortem studies. In this regard, some of the findings that point out similarities between these results and those obtained from living individuals are: (1) a significant gradient in metabolite concentration in serial samples of CSF (Figs. 8 and 9); (2) the mean CSF concentrations of 5-HIAA (34.4 ng/ml) and HVA (71.6 ng/ml); (3) a significant correlation between the post mortem CSF concentrations of 5-HIAA and HVA ($r = 0.69$, $p < .001$) (Fig. 10); and (4) an inverse correlation between body height and CSF levels of 5-HIAA.

Thus, the relationship between metabolite levels in the brain and CSF provides direct evidence for the validity of using these CSF measures as an index of brain metabolism in the living. Further, this methodology could be used to examine the interrelationship between a biogenic amine or its metabolite and the status of the various receptors associated with the same neuronal system and to provide a means for applying post mortem finding to the clinical setting.

In summary, there are several lines of evidence suggesting that there may be a neurochemical component associated with the act of suicide. Thus far, the post mortem biochemical evidence tends to support the hypothesis that in individuals who commit suicide, there is some form of serotonergic dysfunction. With regard to youth suicide, it should be emphasized that no post mortem biochemical studies have been conducted on this age group. We are, therefore, left to speculate whether the alterations reported in adult suicide studies will also be found when appropriate youth suicide studies are conducted. As has been previously noted, some of the relevant neurochemical measures are known to be influenced by age, e.g., imipramine binding increases with age. Therefore, it will probably be necessary to conduct normative studies for many of these measures, either separately or in parallel with comparative studies of suicide victims.

One of the frequent criticisms of biochemical post mortem studies is that they fail to obtain diagnostic information. This information is critical if we hope to relate biochemical findings either directly to suicide behavior itself or to specific diagnostic groups.

It should be noted that this term "suicidal behavior" encompasses a complex array of symptoms. Previous studies describing a link between suicidal behavior and serotonin have also reported an association between this neurotransmitter and other behaviors. Specifically, Brown and colleagues (44) have reported a significant inverse correlation between individuals' history of aggressive behavior and their CSF levels of 5-HIAA. Linnoila et al. (45) found lower levels of CSF 5-HIAA in individuals who had engaged in violent and impulsive acts. To the extent that impulsivity and aggression can be regarded as risk factors that have an identifiable biochemical substrate, it will be important for future studies of suicide in youth to assess the degree to which these behaviors are present in this age group. Thus, it may be possible to systematically construct a behavioral and biochemical profile to aid the clinician in identifying individuals at high risk of committing suicide.

Recommendations for future studies of youth suicide should include projects that will integrate biochemical and behavioral factors. For post mortem research, this will

necessitate interviewing next of kin to obtain the needed personality descriptors and diagnostic information that can then be assessed in the light of neurochemical findings. The priority for neurochemical studies should initially parallel studies that have already been conducted in adults. In an effort to maintain a link between post mortem findings and the clinical application of such findings, investigators should obtain samples of post mortem CSF where possible. Ante mortem studies should follow the same basic approach as described for post mortem investigations. Thus, normative behavioral/diagnostic and biochemical data should be collected together so investigators can identify behaviors or clusters of behaviors that may correlate with biochemical findings.

Based on the results of the studies proposed above, it may be important to explore the use of various pharmacologic probes in the treatment of suicidal behavior. The biochemical findings in suicide to date seem to relate more to this specific behavior itself, rather than to any particular diagnostic group. Therefore, while it may be necessary to treat the symptoms associated with an individual's psychiatric syndrome, it may also be necessary to separately treat symptoms associated with their suicidal behavior.

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Post Mortem Neurotransmitter and Metabolite Studies in Completed Studies

Shaw et al. (12)	↓ Brainstem 5-HT
Bourne et al. (13)	↓ Brainstem 5-HIAA
Pare et al. (14)	↓ Brainstem 5-HT No change in brainstem 5-HIAA
Lloyd et al. (15)	↓ Brainstem 5-HT No change in brainstem 5-HIAA
Gillin et al. (16)	↓ Hypothalamus 5-HT Nucleus Acumbens 5-HIAA
Korpi et al. (17)	↓ Hypothalamus 5-HT
Beskow et al. (18)	↓ Brain 5-HIAA
Owens et al. (19)	No change in 5-HIAA levels in frontal cortex
Crow et al. (20)	No change in 5-HIAA levels in frontal cortex
Cochrane et al. (21)	No change in brain 5-HT
Stanley et al. (22)	No change in 5-HIAA or 5-HT levels in frontal cortex

Table 1.

Stanley et al. (30)	↓ ^{3}H-imipramine binding in cortex
Paul et al. (31)	↓ ^{3}H-imipramine binding in brain
Perry et al. (32)	↓ ^{3}H-imipramine binding* in cortex
Crow et al. (20)	↓ ^{3}H-imipramine binding in cortex
Meyerson et al. (33)	↑ ^{3}H-imipramine binding in cortex
Stanley and Mann (34)	↑ 5-HT$_2$ binding in cortex
Owen et al. (19)	↑ 5-HT$_2$ binding in cortex**
Crow et al. (20)	No change in 5HT$_2$ binding in cortex
Stanley (35)	No change in muscarinic cholinergic receptor binding in cortex
Kaufman et al. (37)	No change in muscarinic cholinergic receptor binding
Meyerson et al. (33)	↑ in muscarinic cholinergic receptor binding
Zanko and Biegon (39)	↑ in beta receptor binding
Mann and Stanley (6)	↑ in beta receptor binding
Meyerson et al. (33)	No change in beta receptor binding

* Depressed patients dying of natural causes

** Increased but not significantly

Table 2.

Characteristics of Suicide Victims (n=22) and Control Subjects (n=22) Whose Death was by Nonsuicidal Means

Subject	Age (years)	Sex	Cause of Death	Time Between Death and Autopsy (min.)	Number of Binding Sites (B_{max})	Binding A????? ($K??$)
Suicide Victims						
1	46	M	Hanging	1,440	191	17
2	13	M	Gunshot wound	1,140	197	15
3	15	M	Hanging	555	677	13
4	25	M	Gunshot wound	1,560	387	28
5	33	M	Gunshot wound	1,020	773	15
6	55	M	Jumping from height	1,140	388	16
7	25	M	Hanging	1,365	450	10
8	30	M	Hanging	1,320	640	11
9	34	M	Jumping from height	1,320	454	13
10	22	M	Gunshot wound	555	671	10
11	25	M	Drowning	1,005	498	8
12	80	M	Gunshot wound	1,335	555	24
13	18	M	Gunshot wound	1,055	505	16
14	30	M	Jumping from height	1,260	553	9
15	37	M	Drug overdose	795	605	11
16	64	M	Drug overdose	1,110	574	16
17	43	M	Gunshot wound	460	583	16
18	65	M	Jumping from height	1,110	406	10
19	30	F	Gunshot wound	1,290	621	12
20	72	F	Drug overdose	1,185	339	17
21	79	F	Drug overdose	1,080	543	12
22	18	F	Jumping from height	600	229	9
Control subjects						
1	45	M	Gunshot wound	1,650	232	8
2	21	M	Gunshot wound	1,205	242	17
3	22	M	Cardiovascular disease	750	735	14
4	20	M	Gunshot wound	1,570	411	23
5	31	M	Cardiovascular disease	880	423	11
6	47	M	Cardiovascular disease	1,200	526	13
7	28	M	Auto accident	735	439	8
8	18	M	Gunshot wound	805	649	19
9	39	M	Falling from height	1,245	510	11
10	30	M	Auto accident	460	527	10
11	26	M	Falling from height	1,350	652	12
12	53	M	Cardiovascular disease	860	393	36
13	24	M	Cardiovascular disease	1,305	485	12
14	23	M	Gunshot wound	1,035	563	10
15	39	M	Knife wound	600	597	11
16	40	M	Gunshot wound	735	606	16
17	33	M	Gunshot wound	435	593	13
18	82	M	Falling from height	770	382	8
19	23	F	Gunshot wound	865	640	10
20	45	F	Knife wound	1,020	592	19
21	73	F	Cardiovascular disease	1,440	279	10
22	50	F	Auto accident	630	343	10

Table 3.
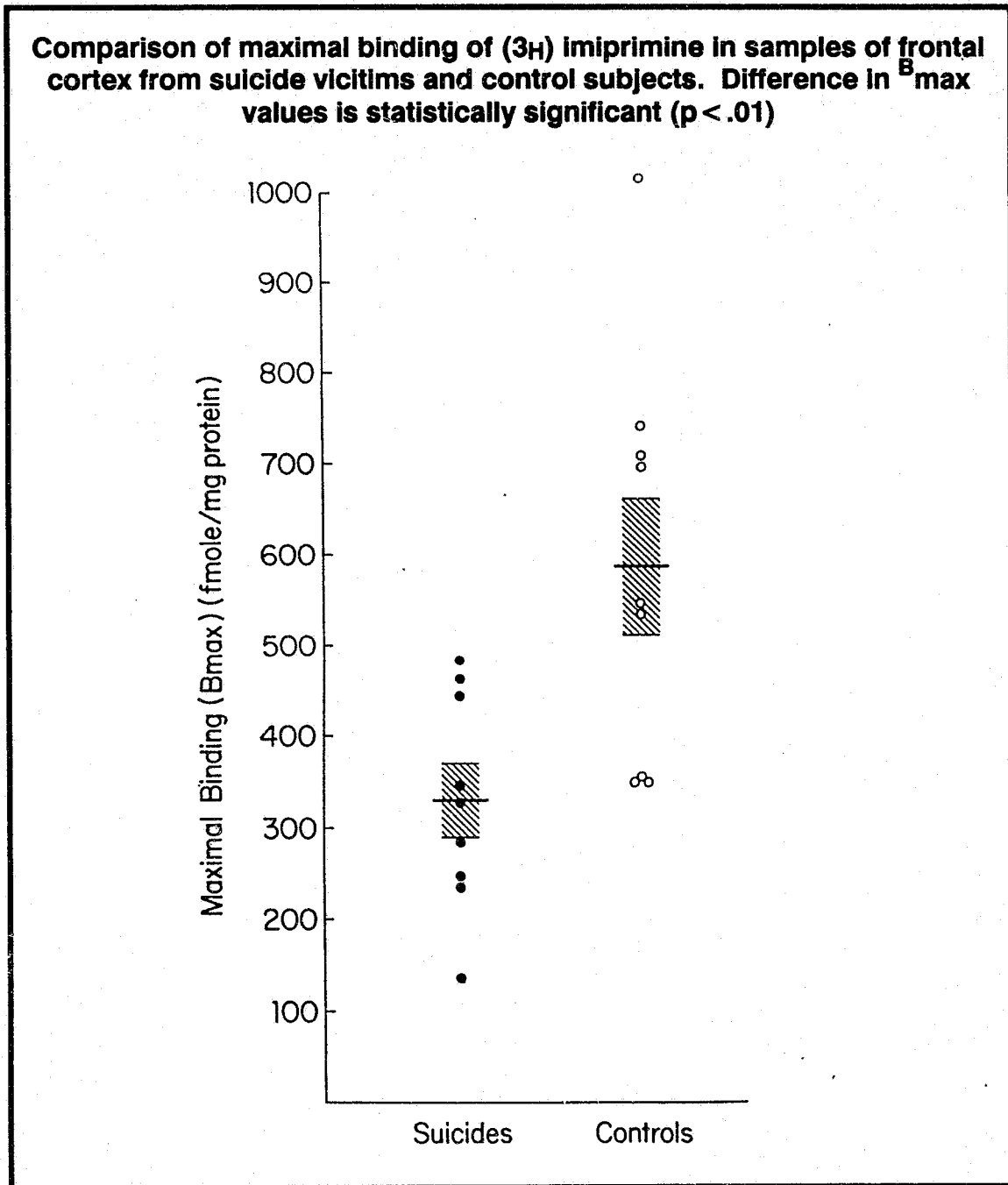
Figure 1.

5-HT$_2$ binding parameters in post mortem frontal cortex from suicide victims and control subjects. ^{B}max and K$_d$ values expressed as means $\pm$ S.E. p< 0.01 by Wilcoxon's test (two-tailed) for ^{B}max.

Figure 2.

Number of binding sites (^{B}max) for suicide victims (n=22) and control subjects (n=22).

Figure 3.

Receptor affinities (K_d) for suicide victims (n=22) and control subjects (n=22).
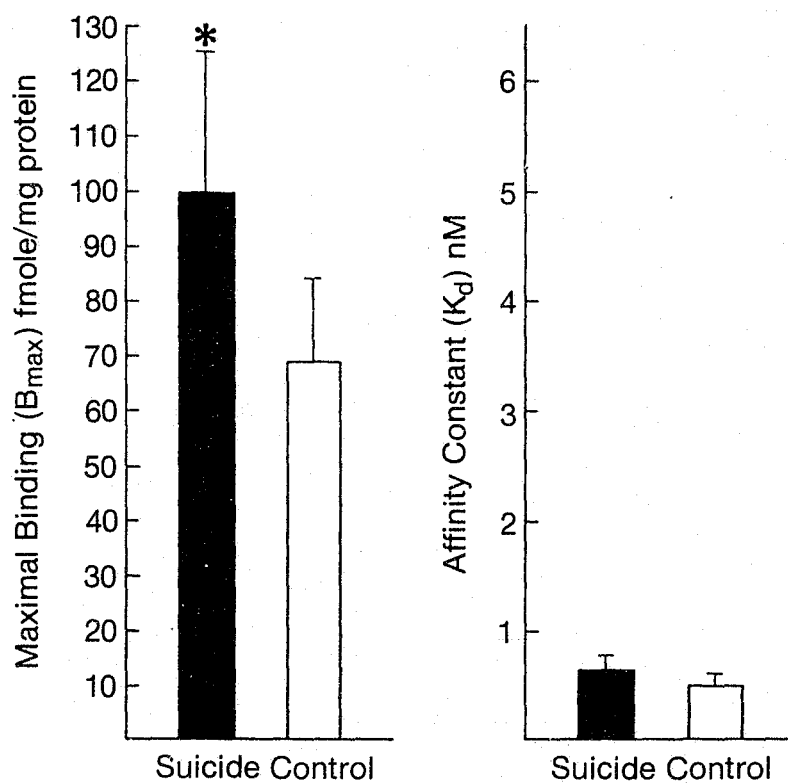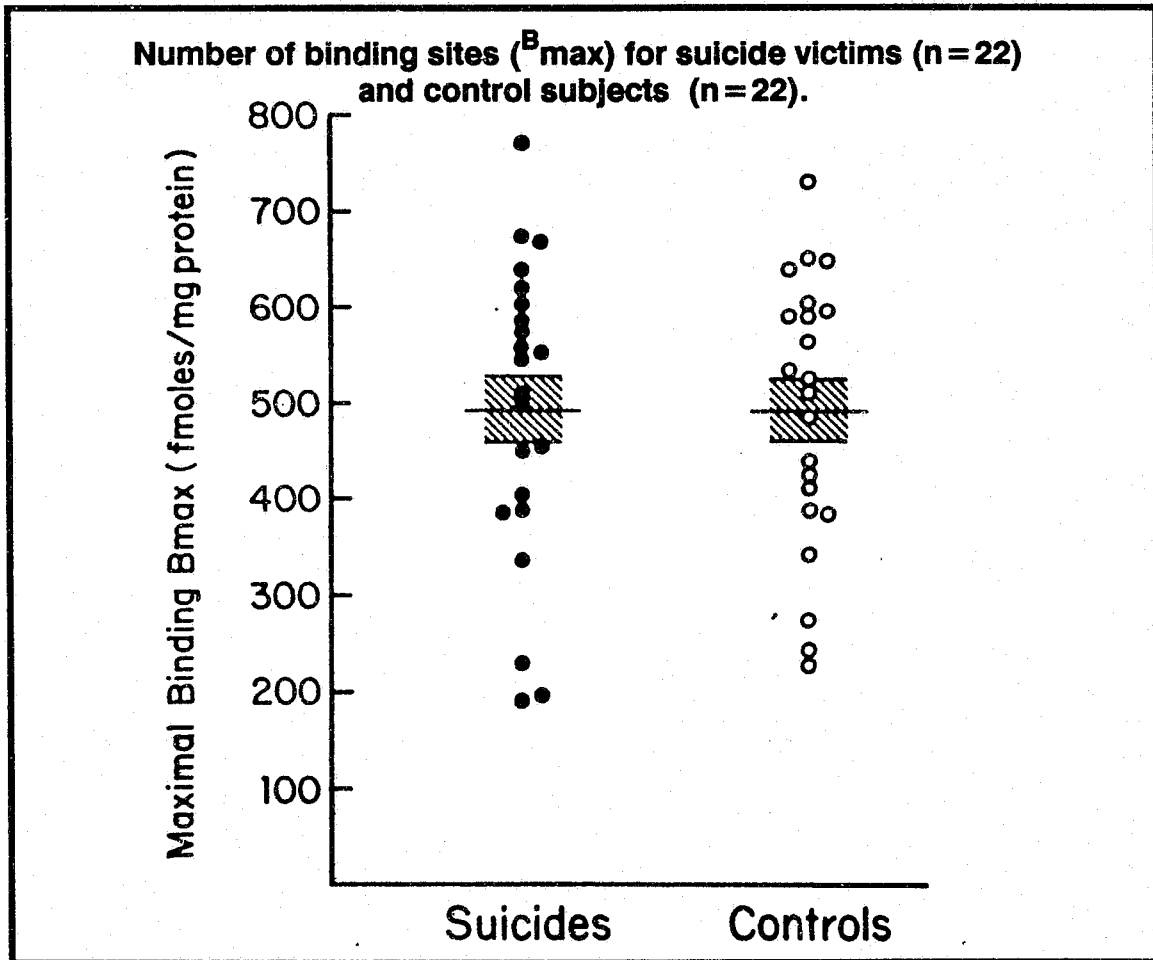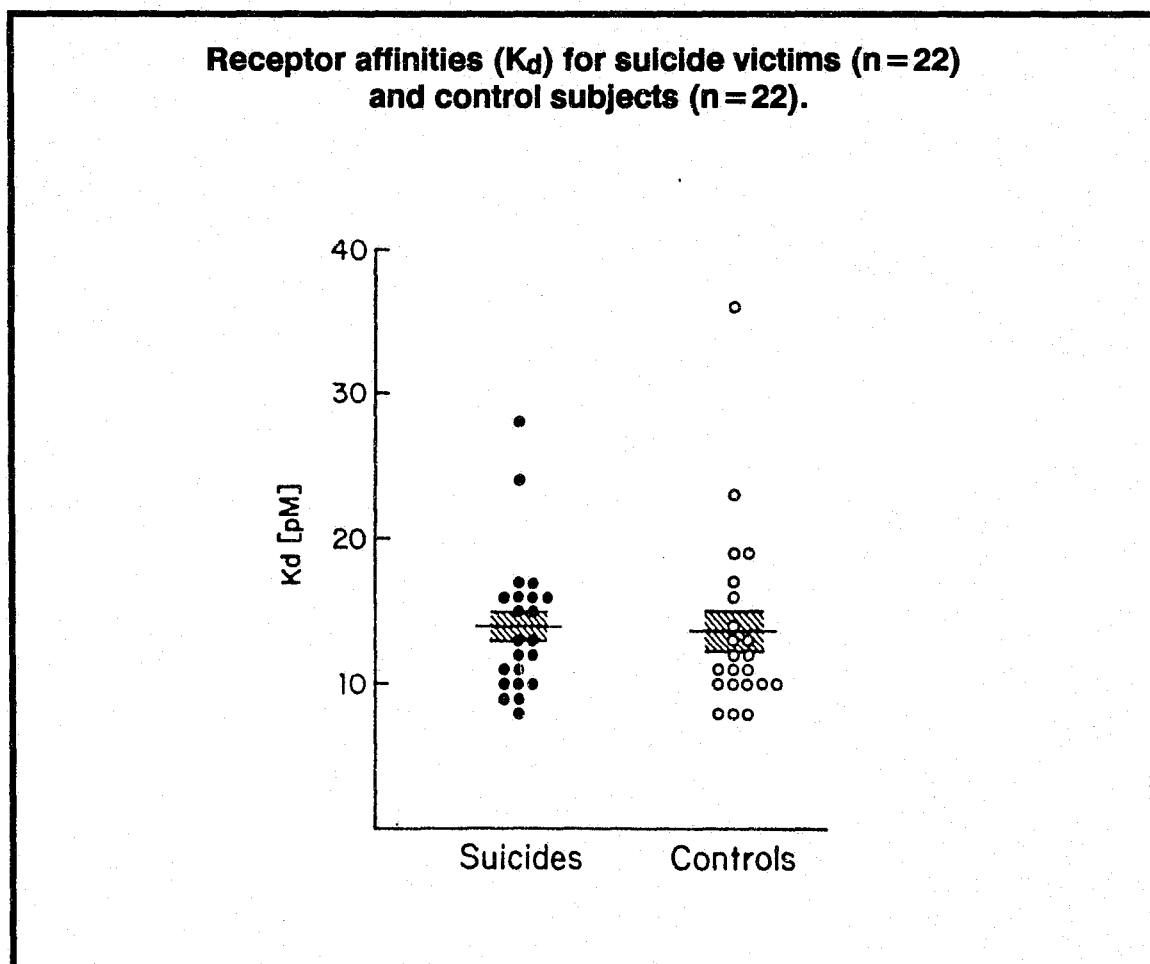
Figure 4.

Diagram of the procedure used to obtain CSF samples.

Figure 5.

CSF Levels of 5HIAA vs. 5HIAA in Cortex

Correlation of the concentration of CSF levels of 5-HIAA (ng/ml) and brain levels of 5-HIAA (ng/mg).

Figure 6.

CSF Levels of HVA vs. HVA in Cortex

Correlations of CSF levels of HVA (ng/ml) and brain levels of HVA (ng/mg).

Figure 7.

Post Mortem CSF 5-HIAA

p<0.01

Graph display of progressive concentration gradient for 5-HIAA.

Figure 8.

Post Mortem CSF HVA

Graph display of progressive concentration gradient for HVA following serial sampling of CSF fractions (ng/ml).

Figure 9.

HVA vs. 5-HIAA in CSF

Correlations between CSF samples in post mortem samples (ng/ml) of 5-HIAA and HVA.

Figure 10.

THE NEUROENDOCRINE SYSTEM AND SUICIDE

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SUMMARY

Suicide is increased in frequency in Cushing's syndrome which is characterized by increased hypothalamic-pituitary-adrenal axis (HPA) activity. Several types of studies suggest increased HPA axis activity in depression or stress may be related to increased suicidal behavior: increased serum cortisol, increased 24 hour urinary free cortisol and an enhanced 5-hydroxytryptophan-induced increase in serum cortisol. However, these associations are weak and some cortisol measures do not relate to increased suicidal risk. The TRH-induced increase in TSH may be blunted in violent suicide but shows a positive relation to suicidal ideation. There is some evidence linking the HPA abnormalities and the blunted TSH response to serotonin, the neurotransmitter most closely linked to suicid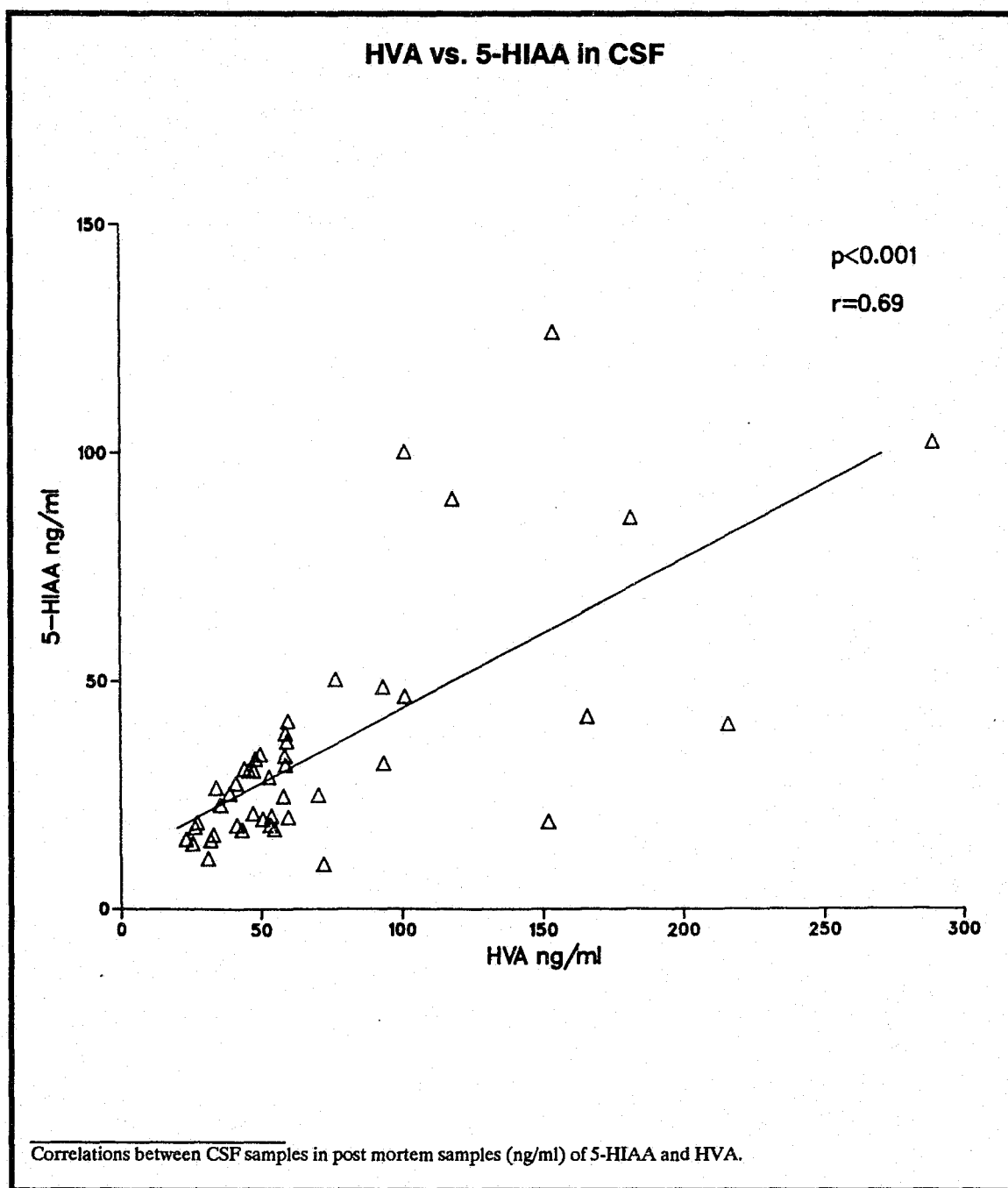e. Suicide in adolescence may occur in the context of a rapidly changing and aroused neuroendocrine system. Hormonal markers of suicide risk and the role of hormones in altering neurotransmitter function appear to be worthy of further study.

INTRODUCTION

The endocrine system is of interest in relation to suicide for a variety of reasons. An increased likelihood of suicide is found in some endocrine disorders, e.g. Cushing's syndrome, and during corticosteroid therapy. As will be reviewed, the thyroid stimulating hormone (TSH) response to thyrotropin-releasing hormone (TRH) and the basal secretion of cortisol correlate with violent suicide or suicidal ideation. Perhaps more importantly, cortisol as well as other hormones can influence the activity of neurotransmitters such as serotonin (5-HT) which may have a more direct causal effect in suicide. Given that no one factor is likely to be the sole determinant of a complex behavior such as suicide, it is important to develop models of the etiology of suicide which integrate a variety of influences such as hormone secretion and neurotransmitter chemistry. We will attempt to do this by considering the hypothalamic- pituitary-adrenal (HPA) axis and the serotonergic system, considering the evidence relating both to suicide, and then the interaction between the two systems. We will also briefly consider other hormones that may contribute to suicide potential and hormone challenge tests that may predict suicide.

There is only minimal data concerning the endocrine status of adolescents who have made suicide attempts or putative biological markers of suicide in adolescents with psychiatric disorders. Therefore, this review will of necessity focus on studies in adult populations. How applicable these results are to adolescents remains to be determined.

In the one instance where data exists for adolescents and adults (the dexamethasone suppression test, DST), the findings are quite comparable. Suicide in both adolescents and adults often occurs as a consequence of major depression or schizophrenia, complicated by alcohol or drug abuse. Both adolescents and adults may suicide impulsively and as a consequence of severe stress. There is no a priori reason to consider any of these factors would act differentially in adolescents, so it is most likely relevant to the task of this symposium on risk factors in adolescent suicide to consider the data concerning suicide in adults. This is not to say that unique biological, especially endocrine, factors are inoperative in adolescents or that they are less important than those common to suicide in both age groups. Rather, it is our belief that future studies on the biology of adolescent suicide may well use findings in older adults as appropriate guidelines for research to determine what are the most important influences on adolescent suicide.

ENDOCRINOPATHIES, CORTICOSTEROIDS AND SUICIDE

There are many aspects of the HPA axis which point toward its importance for understanding the biological contribution to suicide. Six of 35 consecutive patients with Cushing's syndrome, a group of disorders associated with large increases in glucocorticoid output, were reported to have suicidal thoughts and two of these made suicide attempts (Starkman and Schteingart, 1981). In another study, one of 29 cases of Cushing's syndrome made a suicide attempt (Cohen, 1980). Lewis and Smith (1983) reviewed the literature on exogenous corticosteroid-induced psychiatric syndromes and found that 3 percent of the cases for whom outcome was specified committed suicide. This data points towards a role of corticosteroids in increasing vulnerability to suicide. As will be discussed, this might occur because of effects of corticosteroids on neurotransmitter or neuromodulator physiology.

In addition to Cushing's syndrome, other endocrine disorders, various aspects of normal endocrine maturation, function and decline, and hormones other than glucocorticoids, may be associated with profound affective, cognitive and psychomotor disturbances. Hypo- and hyper- thyroidism, hypocortisolism (Addisonian syndrome), hypopituitarism (Simmond's disease), hyperpituitarism, pheochromocytoma, hypo- and hyperparathyroidism, hypo- and hyperglycemia, pancreatitis, pancreatic carcinoma, androgen excess and deficiency and estrogen-progesterone disorders associated with menarche, premenstrual syndrome, oral contraceptives, pregnancy and the postpartum period may produce highly disturbing changes in mental status that could figure in an individual's ability to function adequately, his sense of optimism concerning the future, the desirability of continuing to live, thoughts of suicide and capacity to carry out a suicide attempt. It is beyond the scope of this review to consider these conditions in detail. They are adequately described in textbooks of medicine and clinical endocrinology. Clearly, any adolescent presenting with suicidal ideation or a suicidal attempt should have a thorough medical workup to evaluate the possible presence of an endocrinopathy which might be causing symptoms that directly or indirectly compromise mental status. Conversely, adolescents with serious endocrinopathies such as juvenile diabetes, hypothyroidism or Cushing's syndrome may be at increased risk for suicide and a greater than usual index of suspicion concerning suicide might be advisable in such cases until adequate therapy was instituted.

TRH STIMULATION TEST AND SUICIDE

A blunted TSH response to TRH (<5 uU/ml) has been reported in about 25 percent of depressed patients (Loosen and Prange, 1980). Three studies have reported a relation between a blunted TSH response and violent suicide. Eight depressed patients with past, and three with recent, violent

suicide attempts were found to have a low TSH response compared to patients who had made past (N=7) or current (N=7) non-violent suicide attempts and 26 depressed patients without any suicide attempts (F=3.46, p< .005) (Linkowski et al., 1983). A two-way ANOVA showed a significant relationship of the TSH response to violence but not for recent vs. past attempts. Seven of 12 patients with an absent TSH response had a previous history of violent suicide attempts compared to four of 39 patients with a maximum TSH response above 1 mU/1 (p <.001). During a five year followup period, three committed suicide by violent means and one by overdose. All had an undetectable TSH response to TRH. Linkowski et al. (1984) subsequently reported similar findings in a slightly expanded sample. In agreement with this, Kjellman et al. (1985) reported that the TSH response to TRH was significantly lower in three depressed patients who made violent suicides than in 27 who had made no attempt or a nonviolent attempt. van Praag and Plutchick (1984) also report an association between violent suicide and a blunted TSH response to TRH.

The possibility that a blunted TSH response to TRH may have long term prognostic significance for suicide is intriguing. This could be mediated by a relationship between the blunted TSH response and specific neurotransmitter abnormalities such as diminished activity in 5-HT pathways. There is some evidence relating the TSH response to TRH to the serotonergic system. Cyproheptadine, a 5-HT antagonist, was found to inhibit the TSH response to TRH in two studies (Ferrari et al., 1976; Egge et al., 1977), but not in another (Goldstein et al., 1979). Cyproheptadine has multiple effects other than 5-HT antagonism and is not a particularly potent 5-HT antagonist. Gold et al. (1977) found a negative relationship between the TSH response and CSF 5-hydroxy-indoleacetic acid (5-HIAA), the major metabolite of 5-HT in depressed patients, which suggests that diminished serotonergic activity might be associated with a larger TSH response. Thus, our TSH results indicating a

positive relation between the TSH response to TRH and suicidal ideation are consistent with a relation between diminished brain 5-HT and suicidal ideation. Krulich (1979) has reviewed the evidence from rodent studies which suggest that 5-HT may either inhibit or enhance TSH secretion. Krulich et al. (1979) found that quipazine, a 5-HT agonist, did not affect the TRH-induced increase in TSH in the rat but quipazine and 5-HT did inhibit endogenous TSH secretion. The relationship of brain 5-HT, the TSH response to TRH, and suicide requires further study. In light of these findings, we carried out a retrospective analysis of the relationship between suicide ratings and TSH response in a group of newly admitted psychiatric patients to our Mental Health Clinical Research Center who had had a TRH stimulation test (500 ug intravenously). TSH levels over the next 120 minute period was determined by radioimmunoassay. The subjects were drug-free for at least 7 days and consisted of 24 depressed patients (including six schizoaffective depressed, mainly affective), 13 schizophrenic patients (including three schizoaffective depressed, mainly schizophrenic patients), three manic patients and five with miscellaneous diagnoses. Patients were diagnosed according to Research Diagnostic Criteria. Suicidal behavior was assessed during the first week of hospitalization as part of the Schedule for Affective Disorders-Change (SADS-C) interview. Thirteen of the 45 patients admitted to slight or moderate suicidal ideation. Only two patients had made suicide attempts, not considered lethal in intent. There were no violent suicide attempts. We found a significant positive correlation between maximum TSH response to TRH (peak-minus-baseline) and suicide ratings (Spearman rho=0.30, N=45, p=0.044). The mean TSH response to TRH in this group was 9.8 ± S.D. 5.6 uU/ml. This is very similar to that found in 19 normal controls 8.9 ± S.D. 7.2 uU/ml. Ten of the 45 patients (22%) had a blunted TSH response (<5uU/ml). Of these, only three had any suicidal ideation, one mild, one slight, one moderate. Further

study is needed to determine if current suicidal ideation is associated with a more robust TSH response but still within the normal limits.

There is conflicting data concerning the linkage between increased HPA axis activity and the blunted TSH response to TRH in depression. Kirkegaard and Carroll (1980), Asnis et al. (1981), Agren and Wide (1982) found no correlation between these two variables. We found no relationship between the TSH and 8 A.M. response to TRH plasma cortisol obtained within the same drug-free evaluation period that included the TRH stimulation test (Spearman rho=0.061, N=38, p=NS). Sixteen of the 45 patients had also undergone other neuroendocrine challenge test within the same three week drug-free period as the TRH test, e.g., the 5-hydroxytryptophan-induced increase in serum cortisol (Meltzer et al., 1984). We also examined the correlation between basal serum cortisol (obtained 60 minutes after catheter placement) and the TSH response in these 16 subjects. We found a highly significant negative correlation between these variables (Spearman rho=-0.65, N=16, p=0.007). This is consistent with the studies of Loosen et al. (1978) who reported a negative correlation between the TSH response to TRH and basal plasma cortisol just before a TRH infusion. The significant correlation between the TSH response to TRH basal and basal serum cortisol levels obtained during the 5-HTP study may be due to lesser influence of stress in the catheter study and the fact that both the TRH and 5-HTP studies were carried out at 10 A.M. Basal cortisol levels obtained at 8 A.M. may reflect the nocturnal surge of cortisol secretion. However, Asnis et al. (1981) did not observe any relationship between the TSH response to TRH and multiple measures of cortisol secretion, including plasma cortisol levels before and throughout the TRH infusion.

HYPOTHALAMIC-PITUITARY-AD RENAL AXIS AND SUICIDE

The presence or absence of a relationship be-

tween the TSH response to TRH and basal cortisol is directly relevant to consideration of the importance of TSH as a marker for suicide since there have been a variety of findings which indicate excessive activity of the HPA axis in suicide. Two early National Institute of Mental Health studies reported elevated urinary 24 hour 17-hydroxycorticosteriod (17-OHCS) levels in depressed patients who suicided. The enhanced cortisol secretion preceded the suicide attempts by several weeks (Bunney and Fawcett, 1965; Bunney et al., 1969). These findings were not replicated in subsequent studies of four patients who suicided but who did not evidence elevated 24 hr 17-OHCS prior to suicide with the period of study ranging from a day to eight months prior to suicide (Levy and Hansen, 1969; Fink and Carpenter, 1976). Agren and Wide (1982) found a negative correlation between Medical Lethality of Worst Ever Suicide Attempt and 24 hr urinary free cortisol in 76 patients with major depression. Ostroff et al. (1982), however, did find higher 24 hr urinary cortisol levels (as well as lower urinary norepinephrine-to-epinephrine levels) in three of 22 subjects, two of whom made lethal and one a near lethal suicide attempt.

In addition to urinary cortisol, which is a good measure of adreno-corticoid output, other studies have reported elevated plasma cortisol in suicide. Thus, Krieger (1974) reported that plasma cortisol in 13 patients who suicided during a two-year followup period (21.1 ± 5.6 ug/dl) was significantly higher than in 39 who did not (16.5 ± 2.4 ug/dl). However, single plasma samples, especially those obtained by venepuncture, may not be an accurate measure of cortisol output. Venepuncture may induce stress-related cortisol secretion. The results of Kreiger (1974) could indicate that individuals who are vulnerable to suicide may be particularly prone to stress-induced cortisol secretion.

We have recently examined plasma cortisol concentrations in relation to recent suicidal history (Meltzer et al., in preparation). Basal

serum cortisol levels from unmedicated patients with major depression, mania or schizophrenia and normal controls who were part of a study of the cortisol response to 5-hydroxytryptophan (5-HTP) (Meltzer et al., 1984) were analyzed. In this study, subjects were fasted overnight and an indwelling venous catheter was inserted at 9 A.M. Thirty minutes later the first basal sample was withdrawn. Other samples were drawn 15 and 30 minutes later. The 10 A.M. sample (To) was related to the Hamilton Depression Rating scale (HDRS) suicide item (0-4) and the SADS-C suicide item (0-6). Serum cortisol (To) was significantly but weakly correlated with the HDRS suicide item for all subjects (Spearman rho=0.20, N=107, p=0.04). This included 61 depressives, 16 manics and 30 schizophrenics. The HDRS suicide rating was also correlated with To cortisol in the combined group of affective disorders (rho=0.23, N=77, p=0.05) but not in the depressed patients alone (rho=0.18, N=61, p=0.16). SADS-C suicide ratings and To cortisol were not significantly correlated in the affective disorder patients. The magnitude of the correlation between the HDRS suicide item and serum cortisol indicates only a small portion of the variance in suicide ratings can be attributed to elevated 10 A.M. cortisol levels. However, it is possible that this relationship is stronger at other times of the day. It would be of interest to examine the relationship between serum cortisol between 1 P.M. - 4 P.M. and suicide ratings,

since cortisol secretion during this period appears to best reflect 24 hour cortisol output (Halbreich et al., 1982). In the 61 depressed patients, To cortisol was significantly correlated with the Hamilton scale ratings of helplessness (rho=0.38, p=.003), depressed mood (rho=0.29, p=0.02), hopelessness (rho=0.27, p=0.03), paranoid symptoms (rho=-0.26, p=0.06) and work and activities (rho=0.25, p=0.06). These relationships are consistent with the conclusion that increased HPA axis activity is a state marker for severity of depression and as such could be an indicator of suicidality. This may be of some clinical value in patients who falsely deny suicidal ideation and intent.

We have also examined the relationship between basal cortisol levels and suicide attempts, both violent and nonviolent, together and separately, in these patients. As can be seen in Table 1, the 10 A.M. serum cortisol was not significantly different in any of these groups although the highest levels were found in the violent attempters, next in the nonviolent attempters and the lowest in the normal controls. No significant differences in basal serum cortisol were found when the two types of attempters were combined and compared to nonattempters and normal controls (data not presented). The trends evident in Table 1 for all psychiatric patients were more prominent in just the affective disorders (Table 2) but these differences were not significant either.

Basal Serum Cortisol in All Psychiatric Patients in Relation to Suicide Attempts		
Group	N	Basal Serum Cortisol (ug/dl)
Normals	21	11.5 ± 5.0*
No Attempts	73	12.0 ± 5.1
Nonviolent	11	12.7 ± 7.7
Violent	12	13.6 ± 6.1
* X ± S.D.		

Table 1.

Basal Serum Cortisol in Affective Disorders in Relation to Suicide Attempts		
Group	N	Basal Serum Cortisol (ug/dl)
Normals	21	11.5 ± 5.0*
No Attempts	55	11.7 ± 4.8
Nonviolent	9	13.5 ± 8.4
Violent	9	15.1 ± 6.4
* X ± S.D.		

Table 2.

We did find a trend for serum cortisol in the depressed and manic patients who had made an attempt (14.3 ± 7.3 ug/dl, N=18) to be higher than that of the nonattempters (11.6 ± 4.8 ug/dl, N=76, p=0.08). We examined whether serum cortisol levels above 20.0 ug/dl might have some value as a means of identifying suicide attempters but found no indication that was the case. Nevertheless, the trend in this data, considered in the context of the evidence for an association between excessive HPA axis activity and suicide, suggests that it would be of interest to carry out a prospective study in which serum cortisol was monitored in adolescents at high risk for suicide, e.g., those adolescents presenting at a clinical setting because of the suspicion of being suicidal or adolescent patients placed on suicide precautions in clinical or perhaps forensic settings.

In addition to plasma cortisol studies, there has been one study which related cerebrospinal fluid (CSF) cortisol to suicide. Traskman et al. (1980) reported no differences in CSF cortisol levels in five suicidal patients and 14 nonsuicidal depressives. There was also no relationship between a history of ever making a suicide attempt and high CSF cortisol. CSF cortisol was significantly correlated with urinary free cortisol (r=0.67, N=14, p<.01) which provides further evidence against a relationship between elevated urinary free cortisol and suicide. Nevertheless, further studies of CSF cortisol and suicide, especially violent suicide, would be of interest.

There have been eight published studies of the relationship between dexamethasone suppression test (DST) status at admission to hospital in psychiatric patients and prior suicidal activity. These are summarized in Table 3. Five of the eight found a significant relationship between suicidal activity and nonsuppression. Coryell and Schlesser (1981) found that all four patients who suicided out of a group of 205 unipolar depressions had been nonsuppressors. Carroll et al. (1981) reported that all five melancholic suicide completers were non-

suppressors whereas three completers with diagnoses other than major depression were suppressors.

They also noted eleven other suicide attempters who were nonsuppressors but failed to report how many other nonsuppressors were not suicidal. They proposed that the relationship between suicide and nonsuppression was restricted to melancholics. Banki and Arato (1983) and Targum et al. (1983) also found evidence that nonsuppression predicted suicidal activity. Robbins and Alessi (1985) studied 45 newly hospitalized adolescents, with various psychiatric disorders 23 of whom had attempted to commit suicide. Of the 39 suppressors, 17 (43.6%) made suicide attempts, none considered to have a lethal intent. However, all six nonsuppressors had made suicide attempts; of these, four were medically dangerous or lethal attempts. The two adolescents who had made nonmedically serious attempts and who were nonsuppressors subsequently made medically serious attempts, one of which was fatal. Thus, this study strongly supports a highly significant association of DST nonsuppression with lethal or potentially lethal suicidal behavior in adolescents.

Zimmerman et al. (1986) recently reported no relation between suicidal ideation, serious suicide attempts and nonsuppression in 187 major depressives. Brown et al. (1986) found no differences in the incidence of nonsuppression in 10 recent suicide attempters, 10 past attempters and 37 nonattempters. Moreover, nonserious suicide attempts were more common in suppressors than nonsuppressors. Meltzer et al. (in preparation) have recently reported no relation between violent, nonviolent and no suicide attempts and nonsuppression in 55 patients with major affective disorder. However, there was a trend for suicide attempters to be nonsuppressors (10/16, 62.5%) more commonly than nonattempters (16/39, 41%) (Fisher exact test, p=0.085). We also found that Hamilton Depression Scale suicide ratings were significantly higher in nonsuppressors (all diagnoses) than suppressors and that

nonsuppressors had suicidal ideation significantly more frequently than suppressors. Differences in the number of days between the suicide attempt and the DST could account for some of the discrepencies between studies. However, Brown et al. (1986) found no such correlation in recent attempters. It is possible that the association between non-suppression and suicide may be confined to patients with endogenous depression as proposed by Carroll et al. (1981).

In addition to these studies of the relationship between suicidal ideation or acts and DST status, there are several other relevant reports. Two studies describe five patients who made suicide attempts within a few days of receiving dexamethasone as part of the DST (Beck- Freis et al., 1981; Asberg et al., 1981). Other investigators did not confirm this finding (Coryell, 1982; Kronfol et al., 1982). Yerevanian et al. (1983) reported an association between failure of the DST to normalize and subsequent suicide. Greden et al. (1980) also noted one such case.

Although there appears to be some evidence supporting a relationship between the DST and suicide, it is important that these results be interpreted cautiously because of the evidence that nonsuppression with the oral 1 mg test may be related to differences in dexamethasone pharmacokinetics. There are now several studies reporting lower dexamethasone levels in nonsuppressors than suppressors (Arana et al., 1984; Berger et al., 1984; Holsboer et al., 1986; Johnson et al., 1985; Lowy et al., in press). Differences in dexamethasone levels might produce both false positives and false negatives. Thus, there could be an association between low plasma dexamethasone levels and suicide rather than nonsuppression and suicide. In any event, it would appear prudent to assess DST status, including measurement of dexamethasone levels, in relation to suicidal activity. Such studies should include post-treatment repeat DST testing and long term followup to assess whether nonsuppression does have prognostic value for suicidal risk.

Suicide and the Dexamethasone Suppression Test

Authors	Patient Population	Suicide/ Attempt Suppression	Suicide/ Attempt NonSuppression	p	Comment
Coryell and Schlesser(1981)	UP Dep	0/109	4/96	0.06	1 suicidal neurotic NS.
Carroll et al (1981)	MDD21 Mixed 3	0/0	16/19		5/8 NS completers.
Banki and Arato(1983)	Mixed	2/20	12/37	<.10	
Targum et al (1983)	UP Dep	3/26	14/23	0.01	5 NS vs 0 S made subsequent attempt.
Robbins and Alessi(1985)	Adolescent. inpatients	17/22	6/6	0.01	4 NS made near lethal attempts. 5 made no serious attempts.
Zimmerman et al (1986)	MDD	12/127* 31/127+	2/60 5/60	NS 0.01	Nonserious more common in S.
Brown et al (1986)	MDD	18/37	9/20	NS	
Meltzer et al (in preparation)	Mixed	6/29	10/26	NS	

NS = nonsuppressor   S = suppressor
* serious suicide attempt   + nonserious suicide attempt
UP Dep = Unipolar depression   MDD = major depressive disorder.

Table 3.

It appears unlikely that nonsuppression at admission has noteworthy significance for suicide but it is possible that failure to normalize during treatment might. We have demonstrated that depression and nonsuppression may be related to glucocorticoid receptor subsensitivity (Gormley et al., 1985). These results have recently been replicated (Whalley et al., 1986). These studies involved measurement of glucocorticoid receptor concentration in lymphocytes. They could reflect similar changes in the HPA axis. Glucocorticoid influences on serotonergic neurons might mediate the relation between suicide and DST status. This will be discussed subsequently.

In addition to abnormalities in glucocorticoid output, we have raised the possibility that abnormalities in glucocorticoid response may be a factor in major depression and other psychiatric disorders (Lowy et al., 1984). Failure to suppress cortisol after dexamethasone may be a special instance of glucocorticoid receptor (GCCR) resistance. The lack of stigmata of Cushing's syndrome in psychiatric patients with excessive glucocorticoid output suggests some GCCR subsensitivity. Glucocorticoid receptor number or affinity may change in response to changes in the availability of glucocorticoids, e.g., administration of dexamethasone (1-24 mg) produces a decreased number of GCCR in lymphocytes from normal volunteers which can be detected as little as 12 hours after first administration (Bloomfield et al., 1981; Schlechte et al., 1982). GCCR down regulation following glucocorticoid administration can also occur in a selective manner within the brain (Meany and Aitken, 1985; Tornello et al., 1982). Alterations in the level of endogenous glucocorticoids can also modify GCCR number e.g., stress results in the decreased number of GCCR in both brain and liver (Loeb and Rosner, 1979; Sapolsky et al., 1984). Chrousos et al. (1983) has reported a familial glucocorticoid resistance in man characterized by a marked increase in serum cortisol levels, abnormal DST and no physical stigmata of glucocorticoid excess. A decreased number or affinity

of the GCCR in lymphocytes was observed.

We have found decreased *in vivo* inhibition of the lymphocyte proliferative response to the mitogens conconavalin A (ConA) and phytohemaglutinin (PHA) following 1 mg dexamethasone in depressed patients who are nonsuppressors (Lowy et al., 1984). Depressed patients, especially nonsuppressors, also had lower binding of 3H-triamcinalone (Gormley et al., 1985). The failure to suppress serum cortisol following dexamethasone was associated with a smaller decrease in GCCR content. We measured serum dexamethasone levels and found significant negative correlations between the change in the PHA response, but not in the ConA response (Meltzer et al., 1984). We have also observed a subsensitivity of the lymphocytes of patients who were nonsuppressors to the inhibitory effect of 10-9 and 10-10M dexamethasone on the lymphoproliferative response to ConA (Lowy et al., in press). These concentrations of dexamethasone correspond to those present at 8 A.M. after a 1 mg dose. The difference between suppressors and nonsuppressors was observed only with ConA, not PHA.

Because of this, we thought it would be important to examine the relationship between suicide and subsensitivity to glucocorticoids as indicated by the *in vivo* responses to ConA and GCCR content. The presence of GCCR subsensitivity might counteract the effect of increased glucocorticoid output. The combination of the two factors might turn out to be a better predictor of suicide than measures of glucocorticoid output such as basal plasma cortisol or urinary free cortisol alone. We correlated Hamilton Depression Scale suicide ratings with these measures in unmedicated patients, the majority of whom met RDC for major depression. The results are preliminary because the number of subjects for whom data is available is small. We found no significant correlations between the change in the ConA and GCCR content following dexamethasone or basal GCCR concentration and the suicide rating. Since the group included only two subjects who had

made a severe suicide attempt, further study is needed to rule out a relationship between GCCR resistance and suicide.

We have reported that the 5-HTP-induced increase in serum cortisol showed a significant positive correlation with HDRS suicide ratings at admission in 24 depressed and manic patients and that seven patients who made violent attempts had a larger cortisol response to 5-HTP than 33 who had not (Meltzer et al., 1984). We have continued this investigation using the same methodology with the exception that L-5-HTP 100 mg has been substituted for D,L-5-HTP, 200 mg. We have now examined our data in relation to suicidal attempts at any time in life, with information from the patient and informants. As can be seen in Table 4, patients with affective disorders who made violent attempts had the highest cortisol response, followed by those who made no attempt, a nonviolent attempt, and normal controls. The violent attempters had a significantly greater cortisol response than the nonviolent attempters ($p = 0.003$) and the normal controls ($p = 0.0008$) but just failed to differ from the nonattempters ($p = 0.08$).

Glucocorticoids modulate the biosynthesis and functional activity of many neurotransmitters and neuromodulators. Thus, abnormalities in the GCCR could contribute to some of the known biochemical changes associated with depression. 5-HT, in particular, interacts with glucocorticoids in

Cortisol Response to 5-Hydroxytryptophan in Patients with Major Affective Disorders		
Group	N	Cortisol Response (AUC)
Normal Controls	22	1624 ± 540
No Attempt	55	2112 ± 713
NonViolent Attempt	9	1776 ± 1046
Violent Attempt	9	2772 ± 846
$F = 6.10$, df = 3,89, $p = 0.0008$		

Table 4.

a variety of ways. 5-HT has a well known stimulatory effect on the adrenocortical system (Meltzer et al., 1984). Glucocorticoids, in turn, have been shown to have a facilitory effect on 5-HT biosynthesis and turnover (Rastogi and Signhal, 1978; deKloet et al., 1982). Glucocorticoids also modify 5-HT receptors (Bigeon et al., 1985) and various serotonergic drugs modify GCCR (Angelucci et al., 1982; Patacchioli et al., 1984). A decrease in glucocorticoid-mediated 5-HT synthesis due to a GCCR dysfunction could contribute to the postulated decreased level of 5-HT which occurs in some depressed patients. Recently, an association between the DST and platelet 5-HT uptake in depressed patients has been reported (Meltzer et al., 1983). In addition, dexamethasone has been shown to directly modify cerebrospinal fluid levels of the 5-HT metabolite, 5-hydroxyindoleacetic acid, in psychiatric patients (Banki et al, 1983).

Adrenalectomy increases $5-HT_1$ receptor binding in some regions of the hippocampus (Bigeon et al., 1985). Adrenalectomy also counteracted the stimulatory effect of vasoactive intestinal peptide (VIP) on $5-HT_1$ binding sites in the dorsal subiculum of the hippocampus, but not the inhibitory effect of VIP on the $5-HT_1$ binding sites in the suprachiasmatic nucleus. Other complex interactions between VIP and adrenal steroids on $5-HT_1$ binding were also reported (Rostene et al., 1985). Adrenalectomy also increases brain ^3H-imipramine binding (Arora and Meltzer, in press). Chronic corticosteroid administration appears to have mixed effects on 5-HT function (Dickson et al., 1985; Nausieda et al., 1982).

As discussed elsewhere in this symposium, 5-HT is thought to play an integral role in the biology of suicide, especially violent suicide, impulsivity or violence per se. In view of the above mentioned interactions between 5-HT and glucocorticoids, it will be important to obtain biological measures of both serotonin and glucocorticoid activity or function in individuals who have made suicide attempts or are considered high risks. Further basic re-

search on the interaction of these two systems is strongly indicated.

CONCLUSION

There is a possibility of neuroendocrine trait markers for violent or lethal suicide. A blunted TSH response, abnormal DST or increased UFC appears to be associated to past, current or future violent suicides. Similarly, the 5-HTP-induced increase in serum cortisol may be largest in patients who have made a violent suicide attempt anytime in life. Some, all or none of these neuroendocrine abnormalities may relate to decreased brain serotonergic activity. If they are related to decreased serotonergic activity, then the results would be consistent with a broad range of other biochemical studies summarized elsewhere in this report. Together the neuroendocrine studies suggest a concerted effort should be made to identify the abnormalities of 5-HT and the endocrine system in anyone who has made a violent suicide attempt and survived. The blunted TRH response may be related to increased HPA activity. More sophisticated ways of assessing increased HPA activity are now available to be applied to suicide research. A DST with measures of dexamethasone levels and a measure of glucocorticoid receptor sensitivity might prove a more sensitive index of suicidal activity. The 1-4 P.M. cortisol output, ACTH and CRF stimulation tests, measures of serum cortisol binding globulin and circadian rhythm disturbances are among the measures that might be evaluated. The aim of these studies would be to identify possible biological markers and to further develop an integrated neuroendocrine-neurotransmitter hypothesis of the etiology of suicide. For some biological factors that predispose to suicide, suicidal ideation, nonviolent, nonlethal intent attempts may represent a continuum. For other factors there may be a unique association with each level of suicidal intent or in relation to violence. A uniform way of collecting and presenting data in this regard might be useful. Methods for quan-

tifying duration and intensity of ideation might help.

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ACKNOWLEDGMENT ·····················

GENETICS AND SUICIDAL BEHAVIOR

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There are five lines of evidence about genetic factors in suicide. This paper will review the clinical, twin, Iowa-500, Amish, and Copenhagen adoption studies, all of which provide evidence about genetic factors in suicide. Most of these are studies of suicidal behavior among adults but it is likely that genetic factors for suicide are similar in both adolescents and adults.

CLINICAL STUDIES

A family history of suicide has been noted to be associated with suicidal behavior at all stages of the life cycle. There are five such studies among adolescents. In 1974 Shaffer (1) reported a comprehensive survey of all 31 suicides among children aged 14 years or younger in England and Wales during the seven years from 1962 to 1968. Suicidal behavior in a first degree relative had occurred in seven of these 31 youth suicides (22.6 percent). In four relatives this suicidal behavior had occurred before the child's suicide, but in three other cases a first degree relative attempted suicide after the child had committed suicide. There was also a high incidence of depression among the first degree relatives (20 percent).

In 1981 Tishler et al. (2) found that 22 percent of a series of 108 adolescents seen at a children's hospital emergency room after attempting suicide had a history that "at least one family member had exhibited suicidal behavior in the past."

In 1982 Garfinkel et al. (3) reported a review of the hospital charts of 505 children and adolescents who appeared at the emergency room of the Hospital for Sick Children in Toronto between January 1, 1970, and January 30, 1977, and had "deliberately inflicted self-injury with a documented conscious desire to die from the injury." A control group was derived by examining the charts of individuals of the same sex and of a similar age who did not have a history of attempting suicide but who had been admitted at about the same time to the same emergency room. The researchers found that significantly more of the youthful suicidal attempters, than their controls, had a family history of suicidal behavior (8.3 percent vs 1.1 percent) (Table 1).

Garfinkel et al. also used Weisman and Worden's Risk/Rescue Rating Scale (4) to obtain ratings of severity for the adolescent's suicide attempts. Interestingly, they found that significantly more of those who had made serious suicide attempts had a family history of suicide (Table 2).

As found in Shaffer's London study, the suicide attempters in Garfinkel et al.'s study also had a significant excess of relatives with mental illness and they concluded: "A strong genetic loading for affective disorder in families of individuals who attempt suicide is supported by our findings of an eight times higher rate of suicide attempts or suicide in the families of the index group and an absence of completed suicide in the families of the controls." They also noted: "Attempted suicide is on a continuum with completed

suicide, as demonstrated by the finding that there was no family history of completed suicide in the control group and that the followup mortality rate from suicide in the index group surpassed the death rate for the controls."

In 1985 Shafii et al. (5) reported data derived from psychological autopsies carried out after lengthy home visits with the families of 20 children and adolescents who had committed suicide in Jefferson County, Louisville, between January 1980 and June 1983. Friends and significant others were also contacted and three extensive questionnaires were completed. Shafii et al. were able to match 17 of the suicide victims with controls drawn from among the suicide victim's closest friends. These controls, and their families, were interviewed using the same

methodology as was used with the families of the suicide victims. Shafii et al. also found that significantly more of the youth suicide victims, than controls, had a family history of suicide (Table 3). Again, there was a significant difference between the families of suicide victims and controls for emotional problems in the family. These workers concluded that "exposure to suicide or suicidal behavior of relatives and friends appears to be a significant factor in influencing a vulnerable young person to commit suicide."

In an ongoing study, Shaffer et al. (6) are performing extensive psychological autopsies on a consecutive series of youthful suicides under 19 years of age occurring in New York City. In a preliminary report of the first 52 suicide victims studied, they noted that a substantial number (20, 38 percent) had a rela-

Family History Differences Between Children and Adolescents Who Attempted Suicide and Controls

	Suicide Attempters			Controls			Signif		
	Available	With Charact.		Available	With Charact.				
Characteristic	N	N	%	N	N	%	x^2	df	P
Family History of mental illness	442	228	51.6	452	74	16.4	122.3	1	.01
History of suicide	443	37	8.3	442	5	1.1	23.95	2	.01
Suicide attempts		26	5.9		5	1.1			
Completed suicide		11	2.5		0				

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Table 1.

Variables Discriminating the Severity of 604 Suicide Attempts by Children and Adolescents.

	Percent of Attempts					
	Low Danger	Moderate Danger	Severe Danger	Significance		
Variable	(N = 385)	(N = 149)	(N = 70)	x^2	df	P
Family history of suicide	4.6	12.7	16.1			
No family history of suicide	95.4	87.3	83.9	13.09	4	.01

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Table 2.

tive who had either committed or attempted suicide. Although cautioning that the family data are complex and are not yet fully explored, Shaffer et al. (7) consider that this aspect of these youthful suicides may represent an environmental rather than a genetic phenomenon; they may be imitative acts similar to the recently well publicized clustering of teenage suicides.

Among adults who exhibit suicidal behavior, there are also surprisingly few studies about the presence or absence of a family history of suicide. In an early study Farberow and Simon (15) reported that among 100 suicide victims in Vienna and Los Angeles, six had a parent who had killed himself, a rate more than 88 times the expected rate. Robins et al. (8) found that 11 percent of 109 suicide attempters had a family history of suicidal behavior. Murphy et al. (9) reported that one third of 55 callers to a suicide prevention center had a family history of suicidal behavior and that this was significantly more likely to be the case if the caller had himself at-

tempted suicide. Flinn and Leonard (10) noted that among 480 young nonpsychiatric subjects, those reporting their own suicidal behavior also reported more knowledge about suicidal behavior in others.

More recently, Murphy and Wetzel (11) systematically interviewed a random sample of all persons seen and admitted during a one-year period at the St. Louis County Hospital following a suicide attempt. Of the 127 patients in the study, 14 percent gave a family history of suicide, 24 percent a family history of attempted suicide, and 6 percent a family history of suicide threats. One or more of these family suicidal behaviors was reported by 36 percent of the suicide attempters. Among suicide attempters with a primary diagnosis of primary affective disorder, 17 percent had a family history of suicide and 17 percent a family history of suicide attempt (Table 4). As individuals with affective disorders comprise a larger proportion of suicides than individuals with personality disorders, Murphy and Wetzel predicted that

Significant Differences Between Children and Adolescents Aged 12-19 Who Committed Suicide and Matched-Pair Control Subjects.

Variable	Suicide Victims N=20		Control Subjects N=17		McNemar Test	
	N	%	N	%	(df=1)	P
Family and environmental variables						
Exposure to suicide	13	65	3	18	6.12	<.008
Sibling's or friend's (attempted or completed suicide)	12	61	2	12	6.12	<.008
Parent's or adult relative's (suicidal ideation, threats, or attempts of completed suicide)	6	30	2	12	2.25	n.s[a]
Parent's emotional problems	12	60	4	24	5.14	<.02

$x2 = 3.3$, $df = 1$, $P < .04$
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Table 3.

more of their patients with affective disorder could be expected to present a significant suicide risk in the future. Therefore, they concluded that a "systematic family history of such behavior coupled with modern clinical diagnosis should prove useful in identifying those attempters at increased risk for suicide."

The first study providing data about how commonly a family history of suicide is found among psychiatric patients was that of Pitts and Winokur (12). They found that among 748 consecutive patients admitted to a hospital, 37 reported a possible or definite suicide in a first degree relative (4.9 percent). In 25 (68 percent) of these 37 cases the diagnosis was an affective disorder, and these investigators noted that the statistical probability of this distribution occurring by chance was less than 0.02. When the probable diagnoses in the cases of the first degree relatives who suicided were considered, in 24 of the 37 patient-relative pairings, both members had affective disorders. Pitts and Winokur estimated that 79 percent of the suicides of the first degree relatives were associated with probable affective disorder.

In 1983, Roy (13) reported a study of all the 5,845 psychiatric patients admitted to the Clark Institute of Psychiatry in Toronto between January 1974 and June 1981. There were 243 inpatients with a family history of suicide (4.2 percent), a percentage very similar to the 4.9 percent reported by Pitts and Winokur nineteen years earlier. The patients with a family history of suicide were compared with the 5,602 inpatients without such a history. A family history of suicide was found to significantly increase the risk for an attempt at suicide in a wide variety of diagnostic groups (Table 5). Almost half (48.6 percent) of the patients with a family history of suicide had themselves attempted suicide. More than half (56.4 percent) of all the patients with a family history of suicide had a primary diagnosis of an affective disorder and more than a third (34.6 percent) had a recurrent unipolar or bipolar affective disorder.

Recently Linkowski et al. (14) investigated past suicidal behavior and family history of suicide among a consecutive series of 713 patients with affective disorder admitted over several years to the psychiatric department of the University of Brussels. They found that 123 of the depressed patients (17 percent) had a first or second degree relative who had committed suicide. They also found that a family history of suicide significantly increased the probability of a suicide attempt among the depressed women, especially the risk for a violent suicide attempt. Among the male depressives, a family history of suicide significantly increased the risk only for a violent suicide attempt (Tables 6 and 7). Linkowski et al. concluded that "a positive family history for violent suicide should be considered as a strong predictor of active suicidal attempting behavior in major depressive illness."

A family history of suicide has also been found significantly more among psychiatric patients who commit suicide (16). As manic-

Family History of Suicidal Behavior by Broad Diagnostic Groups				
			% with Family History of	
Diagnostic Group	F	Suicide	Attempt	Any[a]
Personality disorders	56	20	34	46
Primary affective disorder	29	17	17	38
Other diagnoses and none	42	5	17	21
All patients	127	14	24	36

[a]Any suicidal behavior includes suicide and attempted and threatened suicide.
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Table 4.

depression is the psychiatric diagnosis most commonly found among suicide victims, it is not surprising to find that, across the various published series, approximately 10 percent of manic depressive patients have a family history of suicide (17-20).

A family history of suicide has also been noted to be associated with suicidal behavior among individuals in the last stages of the life cycle. Batchelor and Napier (21) found that among 40 consecutive cases of attempted suicide admitted to a general hospital, aged 60 years or over, a family history of suicide was present in 7 (17 percent) of the cases.

A consecutive series of 5845 inpatients admitted to the Clarke Institute of Psychiatry between January 1974 and June 1981. Patients, by diagnostic group, who attempted suicide comparing those with a family history of suicide with those without such a history.

Diagnostic Group	Second- or first-degree relative suicided			No family history of suicide		
	No. Attempted	(%)	No. of Attempts	No. Attempted	(%)	P
Schizophrenia	15/33	(45.4)	28	150/1114	(13.5)	<.0001
Unipolar	13/32	(41.6)	24	50/373	(13.4)	<.0001
Bipolar	22/58	(37.9)	48	56/405	(13.9)	<.0001
Depressive neurosis	26/47	(55.3)	45	221/715	(30.9)	<.0001
Personality disorder	33/48	(68.8)	89	328/1048	(31.3)	<.0001
Alcohol	3/7	(42.9)	3	42/147	(28.5)	NS
Others	6/18	(33.3)	16	378/1801	(21.0)	NS
Total	118/243	(48.6)	252	1225/5602	(21.8)	<.0001

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Table 5.

Clinical characteristics of the major depressive (MD) patients

	MD with past violent suicidal attempt		MD with past non-violent suicidal attempt		MD with no suicidal attempt	
	Males	Females	Males	Females	Males	Females
BP FH+*	3	6	0	7	14	14
FH−	10	11	9	19	72	79
UP FH+	4	12	1	19	16	27
FH−	16	15	23	84	92	160
Total	33	44	33	129	194	280

* FH+ patients with familial history of suicide
BP = bipolar; UP = unipolar
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Table 6.

THE IOWA-500 STUDY

The Iowa-500 study is a followup study of just over 500 psychiatric patients consecutively admitted to the University of Iowa Psychiatric Hospital between 1934 and 1944. The 525 patients in the study were chosen because they met certain research criteria. They consisted of 200 schizophrenic, 100 manic, and 225 depressed patients. They were compared with a control group of 160 psychiatrically normal individuals admitted to the University of Iowa Hospital during the same period for appendectomy or herniography. Followup studies between 1972 and 1976 revealed that 30 of these 685 subjects subsequently committed suicide; 29 of the suicides were found among the 525 psychiatric patients and only 1 among the 160

normal controls (5.5 percent vs 0.6 percent) (30). This finding is impressive evidence for the close association of suicide with psychiatric disorder.

The Iowa-500 study has yielded other informative data (31) and Tsuang has recently reported the development of this study in another important direction. He and his associates not only followed up the psychiatric patients and controls but also their first degree relatives (32). The first degree relatives were interviewed, and Tsuang was interested in the answers to four questions which are relevant to the possible role of genetic factors in suicide. These questions were:

1. Are relatives of patients with schizophrenia and affective disorders subject to higher risk of suicide than relatives

Significances and relative odds ratios for the comparisons tested in subgroups of depressive attempters and non-attempters

	Comparison*					
	A		**B**		**C**	
	M	F	M	F	M	F
Significance of main effect**						
Polarity	n.s.	0.045	n.s.	n.s.	n.s.	0.021
Family history (FH+)	n.s.	0.004	n.s.	0.0003	0.010	0.010
Age	n.s.	n.s.	n.s.	n.s.	0.050	n.s.
Relative odds ratio***						
Polarity (BP vs UP)	0.65					2.43
Family history (FH+ vs FH-)		2.02		3.53	14.96	2.68
Age, years						
31-45 vs 15-30					0.32	
46-60 vs 31-45					4.92	
>60 vs 46-60					2.19	
>60 vs 15-30					3.46	
No. of patients	260	453	260	453	66	173

*A) Presence versus absence of any suicidal attempts; B) violent versus non-violent attempt plus no suicidal attempt; C) violent versus non-violent attempts.
M = males; F = females
**All interactions between main effects (polarity x FH+, polarity x Age, and FH+ x Age) non-significant.
***Given only for statistically significant main effects.
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Table 7.

of nonpsychiatric control patients?

2. Are relatives of patients with schizophrenia and affective disorders who committed suicide subject to higher risks of suicide than relatives of patients who did not commit suicide?

3. Is the risk of suicide among relatives of schizophrenics different from that for relatives of manics and depressives?

4. Are the suicide risks different for male and female relatives of patients from different diagnostic categories?

The first degree relatives of the psychiatric patients were found to have a risk of suicide almost eight times greater than the risk in the relatives of the normal controls. When only deceased relatives were considered, the relatives of psychiatric patients were found to have a risk of suicide almost six times greater than the risk among the deceased relatives of the controls (Table 8).

Among the first degree relatives of the psychiatric patients, those who were the relative of one of the 29 patients in the Iowa-500 study who committed suicide themselves had a four times greater risk of committing suicide compared with the relatives of the patients who did not commit suicide. Among the deceased relatives, the suicide risk was three times greater (Table 9).

Next, the individual psychiatric diagnoses were examined. The risk of suicide was sig-

		Suicides		Relatives[a]	
Subjects	**N**	**N**	**%**	**BZ**	**MR(%) $\pm$ SE**
Patients (N = 510)					
All relatives	3941	55	1.4	2348	2.3 $\pm$ 0.3[b]
Deceased relatives	2294	55	2.4	1338	4.1 $\pm$ 0.5[b]
Controls (N = 153)					
All relatives	1403	2	0.1	672	0.3 $\pm$ 0.2
Deceased relatives	589	2	0.3	305	0.7 $\pm$ 0.5

Risk of Suicide among Relatives of Patients and Controls

a. BZ = Bezugsziffer (age-adjusted size of the sample), MR = Morbidity risk.
b. P < .01 (comparison of patients with controls).
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Table 8.

		Suicides		Relatives[a]	
Subjects	**N**	**N**	**%**	**BZ**	**MR(%) $\pm$ SE**
Suicide (N = 29)					
All relatives	193	9	4.7	114	7.9 $\pm$ 2.5[a]
Deceased relatives	136	9	6.6	78	11.5 $\pm$ 3.6[a]
No suicide (N = 481)					
All relatives	3754	46	1.2	2234	2.1 $\pm$ 0.3
Deceased relatives	2158	46	2.1	1259	3./ $\pm$ 0.5

Risk of Suicide Among Relatives of Patients with and without Suicide

a. P < .05 (comparisons of suicide with no suicide).
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Table 9.

nificantly greater among the first degree relatives of depressed patients than it was among the relatives of either schizophrenic or manic patients. When the relatives of patients who committed suicide were compared, the suicide risk was even higher, but it was equally high among the relatives of both depressed and manic patients (Table 10).

The suicide risk was also examined separately for the male and female relatives of the psychiatric patients. In general, the suicide risk was higher for male first degree relatives than it was for females (Table 11).

Thus, this followup of the first degree relatives of the subjects in the Iowa-500 study is

Risk of Suicide Among Living and Dead Relatives of Schizophrenics, Manics, and Depressives with Suicide and without Suicide.

	Suicides			Relatives	
Patients	N	N	%	BZ	MR(%) ± SE
Schizophrenia (S)					
Suicide (N=8)	41	0	0.0	23	0.0 ± 0.0
No Suicide (N=187)	1159	9	0.8	723	1.2 ± 0.4
Total (N=195)	1200	9	0.8	746	1.2 ± 0.4
Mania (M)					
Suicide (N=6)	53	3	5.7	32	9.4 ± 5.2
No Suicide (N=86)	748	4	0.5	426	0.9 ± 0.5
Total (N=92)	801	7	0.9	458	1.5 ± 0.6
Depression (D)					
Suicide (N=15)	99	6	6.1	59	10.2 ± 3.9
No Suicide (N=208)	1847	33	1.8	1085	3.0 ± 0.5
Total (N=223)	1946	39	2.0	1144	3.4 ± 0.5

Significant comparisons are as follows: Suicide, S vs M (P<.10), S vs D (P<.01); no suicide, S vs D (P<.01), M vs D (P<.01); and Total S vs D (P<.01), M vs D (P<.05).
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Table 10.

Risk of Suicide Among Relatives of Schizophrenics, Manics, and Depressives by Sex

	Suicides			Relatives	
Diagnostic Group	N	N	%	BZ	MR(%) ± SE
Schizophrenia					
Male relatives	601	9	1.5	359	2.5 ± 0.8[a]
Female relatives	590	0	0.0	394	0.0 ± 0.0
Mania					
Male relatives	395	5	1.3	221	2.3 ± 1.0
Female relatives	390	2	0.5	238	0.8 ± 0.6
Depression					
Male relatives	994	30	3.0	587	5.1 ± 0.9[a]
Female relatives	921	9	1.0	568	1.6 ± 0.5

a. P<.01 (comparison of males and females).
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Table 11.

an important study and demonstrates that there are genetic factors in suicide. The main findings are summarized in Table 12.

TWIN STUDIES

Compelling evidence for the genetic transmission of manic-depression and schizophrenia is that the concordance rate for these psychiatric disorders is substantially higher among identical twins, who share the same genes, than it is among fraternal twins who share only 50 percent of their genes (22). Thus, if the propensity to commit suicide was genetically transmitted, concordance for suicide should be found more frequently among identical than fraternal twins. This was well stated by Kallman (23); "If hereditary factors play a decisive role we should find a concordant tendency to suicide more frequently in one-egg than in two-egg pairs regardless of ordinary differences in environment. If the main emphasis is placed on certain constellations of nongenetic factors, concordance should be expected in some twin pairs of either type, who shared the same environment and responded to a similar degree of distress with the same type of psychosis."

Kallman had collected 2,500 twin index cases from mental institutions, TB hospitals, old age homes, and other parts of the population of New York State. In 1947, he reported that among this clinical material, there were 11 twin pairs where one twin was known to have committed suicide. Three of these 11 twin pairs were monozygotic and 8 dizygotic. In none of these 11 twin pairs had the other twin committed suicide (24). This negative finding led him to conclude that "there is no statistical evidence for the popular notion that the tendency to commit suicide recurs in certain families as the result of a special hereditary trait or of a particular type of genetically determined personality deviation."

However, 20 years later in 1967, Haberlant (25,26) pooled the accumulated data from twin studies from different countries. By then, 149 sets of twins had been reported in which one twin was known to have committed suicide. Among these twin pairs there were nine sets of twins where both twins had committed suicide. All of these nine twin pairs were identical twins; there was no set of fraternal twins concordant for suicide (Table 13).

Four of these nine monozygotic twin sets concordant for suicide came from the Danish Psychiatric Twin Register and their case histories revealed that in three of them the twins were also concordant for manic-depressive disorder (27). In another of these nine monozygotic twin sets, the twins were also concordant for schizophrenia. Since Haberlandt's review, Zair (28) has reported a tenth pair of identical twins who both com-

Summary of Morbidity Risks of Suicide in Patients and Relatives

Diagnostic Group	Patients			Relatives			Relatives of Suicides		
	N	BZ	MR%	N	BZ	MR%	N	BZ	MR%
Schizophrenia	8	125	6.4	9	746	1.2	0	23	0.0
Mania	6	62	9.7	7	458	1.5	3	32	9.4
Depression	15	173	8.7	39	1144	3.4	6	59	10.2
Control	1	97	1.0	2	672	0.3	0	7	0.0

BZ = Benzugsziffer (age-adjusted size of the sample)
MR = Morbidity risk
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Table 12.

mitted suicide. Again there was an association with affective disorder as both twins had killed themselves during a depressive episode and both their parents and a grandmother had also been treated for depression.

Approximately 1 in 250 live births is an identical twin and between 0.5 and 1 percent of all deaths among the general population are due to suicide. Thus, it is somewhat surprising that only 10 pairs of monozygotic twins concordant for suicide have been reported in the 173 years since the first report of suicide in twins (29). Also, in 5 of these 10 twin pairs, the twins were also concordant for either depression or schizophrenia. Thus, although twin data provide evidence for the genetic transmission of suicide, this evidence may be partly confounded by the issue of the genetic transmission of psychiatric disorders themselves.

Suicide in Twins

Type of twins	Number of twin pairs	Number of twin pairs where both twins committed suicide (%)
Identical	51	9* (17.7%)
Fraternal	98	0 (0%)

P < 0.0001
* Four of these 9 sets of twins have been reported twice. They are included in Haberlant's 1967 review (26) and have also been reported in detail in 1970 by Juel-Nielsen and Videbech. (27)
Reproduced with permission of Diseases of the Nervous System (22)

Table 13.

THE AMISH STUDY

In 1985 Egeland and Sussex (33) made their first report on the suicide data obtained from the study of affective disorders among the Old Order Amish community of Lancaster County in southeastern Pennsylvania. This is a continuing study into the genetics and course of illness of the affective disorders among this population (34). Suicide research among the Amish is of great interest

for several reasons. They are an Anabaptist, nonviolent, pacifist society where there are no violent crimes and where there has been no known murder. Alcohol is prohibited and there is no alcoholism. Also, the Amish are a wealthy farming community among whom there is no unemployment. Their strong religious beliefs foster a tightly knit community, and three generations commonly live together under the same roof. Family life is valued and divorce precluded. Social isolation is rare and the cohesive nature of their community offers social support for individuals who encounter stress or adverse life events. Thus, several of the important social risk factors for suicide among individuals in the general population such as unemployment, divorced or separated marital status, social isolation, and alcoholism are risk factors not commonly found among these Amish (35-38). This means that genetic factors for suicide may play a larger part in suicides occurring among the Amish.

Not surprisingly, suicide is a relatively rare event among this group of Amish. In fact Egeland and Sussex were only able to find 26 suicides over the 100 years from 1880 to 1980. Over these 100 years the suicide rates among these Amish have consistently been substantially lower than the rates for the rest of the United States.

Egeland and Sussex's team used the Schedule for Affective Disorders and Schizophrenia-Lifetime Version (SADS-L). They conducted an average of six interviews, with various family members, for each of the 26 suicide victims. A five-member psychiatric board used the Research Diagnostic Criteria (RDC) to make psychiatric diagnoses based on these interviews and supplemented by information from other sources. The first important finding of the study was that 24 of the 26 suicide victims met RDC criteria for a major affective disorder. Eight had bipolar I, four bipolar II, and 12 unipolar affective disorder. A further case met the diagnostic criteria for a minor depression. Furthermore, most of the suicide victims had a heavy family loading for affective disorders.

For example, among the eight bipolar I suicide victims the morbidity risk for affective disorders among their 110 first degree relatives was 29 percent compared with the 1 to 4 percent found among the general population.

The second finding of the study was that almost three quarters of the 26 suicide victims were found to cluster in four family pedigrees, each of which contained a heavy loading for affective disorders and suicide. Figure 1 shows a very heavy loading for affective disorders in one family where there have been seven suicides. All seven suicide victims were found among individuals with definite affective disorder. Figure 2 shows a second pedigree, also with a heavy loading for affective disorders, where there have been six suicides, five of which were found among individuals with definite affective dis-

order.

Interestingly, the converse was not true as there were other family pedigrees with heavy loadings for affective disorder but without suicides. It is also of note that the morbidity risk for affective disorders among 170 first degree relatives in other bipolar I pedigrees without suicide was, similar to that found in bipolar pedigrees with suicide, also in the 20 percent range. Thus, in this study, a familial loading for affective disorders was not in itself a predictor for suicide.

The third finding of the study was that only six of the 26 suicide victims (23 percent) had received any psychiatric treatment despite the fact that 24 of them had severe affective disorders whose natural history is usually that of recurrent episodes. The other 20 suicide victims had either never received any medi-
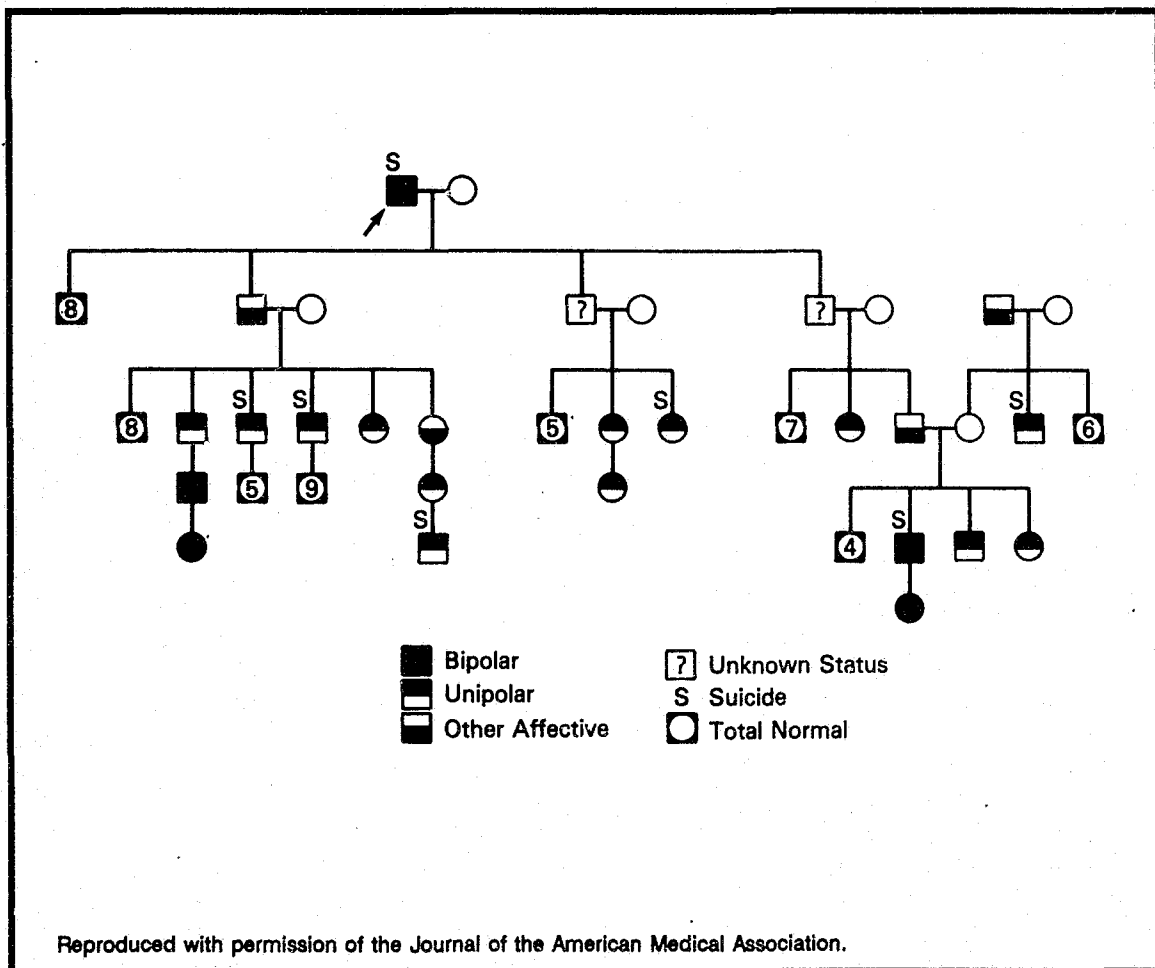
Figure 1.

cal treatment for their psychiatric disorder, or they were seeing a family doctor at the time they committed suicide, or they were planning to seek help for themselves.

Egeland and Sussex concluded: "Our study replicates findings that indicate an increased suicidal risk for patients with a diagnosis of major affective disorder and a strong family history of suicide." They also noted: "Bipolar and unipolar illness conveying a high risk as a diagnostic pattern in pedigrees. The number not receiving adequate treatment for manic-depressive illness (among the suicides) supports the common belief that intervention for these patients at risk is recommended. It appears most warranted in those families in which there is a family history of suicide. The clustering of suicides in Amish pedigrees follows the distribution of affective

illness in the kinship and suggests the role of inheritance."

DANISH-AMERICAN ADOPTION STUDIES

The strongest evidence that we have for the presence of genetic factors in suicide comes from the adoption studies carried out in Denmark by Schulsinger, Kety, Wender, and Rosenthal (39-41). The strength of the adoption strategy is that it is one of the best ways to tease apart "nature" from "nurture" issues. This is because individuals separated at birth, or shortly afterwards, share their genes, but no subsequent environmental experiences, with their biological relatives. In contrast, adoptees share their environmental experiences through childhood and adolescence with their adopting relatives but they
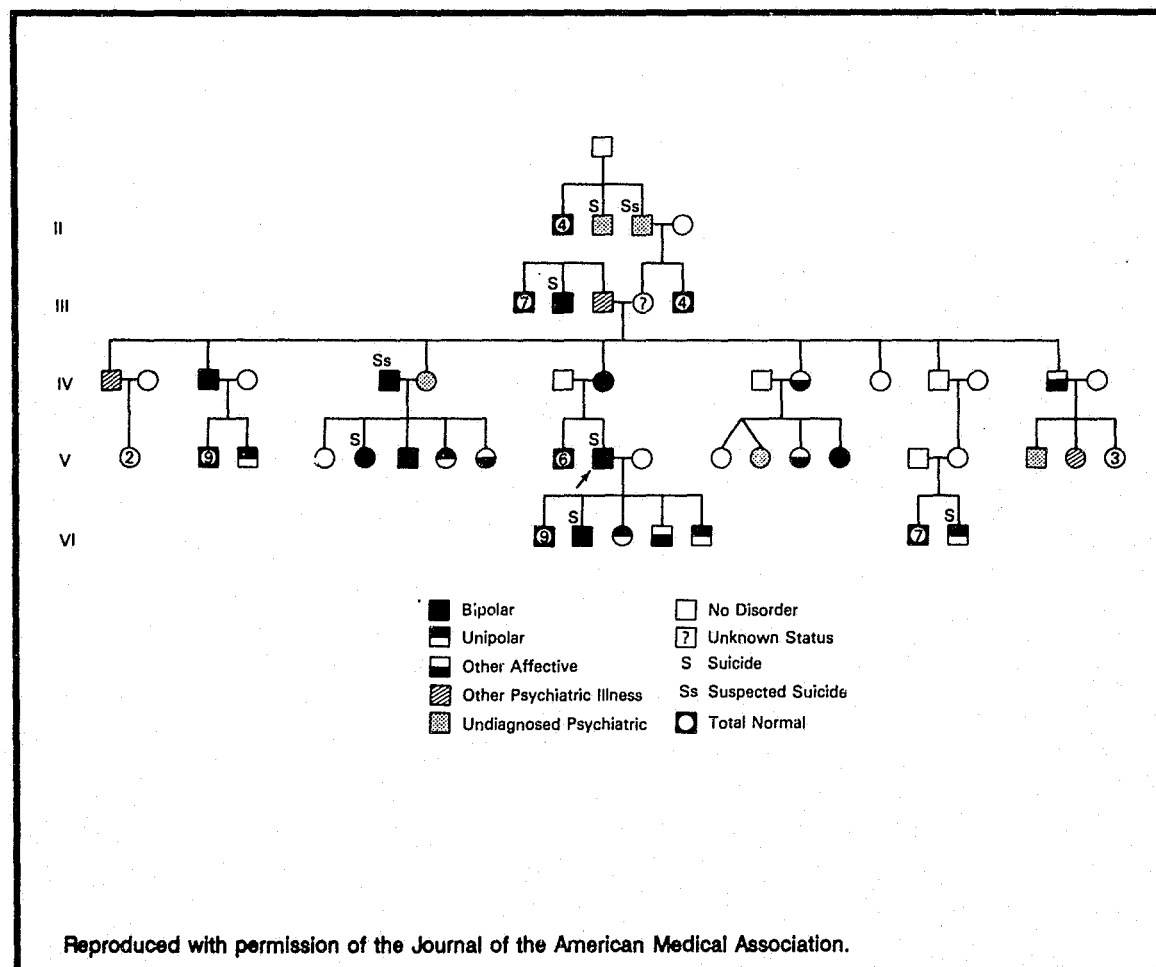

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Figure 2.

share no genes with them.

The Psykologisk Institut-has-a-register of the 5,483 adoptions that occurred in greater Copenhagen between 1924 and 1947. A screening of the registers of causes of death revealed that 57 of these adoptees eventually committed suicide. They were matched with adopted controls for sex, age, social class of the adopting parents, and time spent both with their biological relatives and in institutions before being adopted. Searches of the causes of death revealed that 12 of the 269 biological relatives of these 57 adopted suicides had themselves committed suicide compared with only 2 of the 269 biological relatives of the 57 adopted controls. This is a highly significant difference for suicide between the two groups of relatives (Table 14). None of the adopting relatives of either the suicide or control group had committed suicide.

Also, these striking results are of additional interest because the suicides were largely independent of the presence of psychiatric disorder. Schulsinger and coworkers also investigated whether or not the names of the 12 biological relatives who committed suicide appeared on the psychiatric case registers. They found that 6 of these biological suicide relatives had had no contact with the psychiatric services and thus presumably did not suffer from one of the major psychiatric disorders commonly found among suicide victims--manic-depression, schizophrenia, or

alcoholism--as these are chronic disorders with frequent relapses usually requiring psychiatric hospitalization. Schulsinger et al. (39) therefore proposed that there may be a genetic predisposition for suicide independent of, or additive to, the major psychiatric disorders associated with suicide.

Wender et al. (41,42) went on to study another group of the Danish adoptees. These were the 71 adoptees identified by the psychiatric case register as having suffered from an affective disorder. They were matched with 71 control adoptees without affective disorder. The results of this study showed that significantly more of these adoptees with affective disorder, than their controls, had committed suicide. Thus this study, too, demonstrates that there is a genetic component to suicide (Table 15).

Of further interest in this study was the examination of the adoptee suicide victims and their biological relatives by the type of affective disorder suffered by the suicide victim. It was particularly adoptee suicide victims with the diagnosis of "affect reaction" who had significantly more biological relatives who had committed suicide than controls. The diagnosis of "affect reaction" is used in Denmark to describe an individual who has affective symptoms accompanying a situational crisis--often an impulsive suicide attempt (Table 16). These findings led Kety (42) to suggest that a genetic factor in suicide may be an inability to control impulsive behavior which

Incidence of Suicide in the Relatives of Adoptees Who Committed Suicide and Their Controls

Adoptees	Biological Relatives		Adoptive Relatives	
57 adoptees died by suicide	12/269	(4.5%)	0/148	(0%)
57 matched control adoptees	2/269	(0.7%)	0/150	(0%)

P<0.01
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Table 14.

Incidence of Suicide in the Relatives of Adoptees Who Have Suffered a Depressive Illness and Their Controls

Adoptees	Biological Relatives		Adoptive Relatives	
71 adoptees with depression	15/407	(3./%)	1/187	(0.5%)
71 matched control adoptees	1/360	(0.3%)	2/171	(0%)

P<0.01
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Table 15.

has its effect independently of, or additively to, psychiatric disorder. Psychiatric disorder, or environmental stress, may serve "as potentiating mechanisms which foster or trigger the impulsive behavior, directing it toward a suicidal outcome (42)."

Kety (42) also noted that there has been much recent work on the biology of impulsivity and that disturbances in central serotonin systems have been described in relation to suicidal behavior in personality disordered individuals and in patients with various other psychiatric disorders (reviewed in this volume by Asberg). In this regard it is noteworthy that Buchsbaum et al. (44) found that significantly more college students with low levels of the enzyme monoamine oxidase (MAO) in their blood platelets had a family history of suicidal behavior compared with students with high platelet MAO levels. This enzyme is involved with the metabolism of serotonin. Furthermore, as there is some evidence that lithium may be useful in impulsive and aggressive individuals (43), Kety (42) also suggested that controlled trials of drugs acting on central serotonin system might be informative among patients who exhibit suicidal behaviors.

SUMMARY

Suicide, like so much else in psychiatry, tends to run in families. The question is what is being transmitted. No doubt in some youthful suicide victims what is transmitted is not a genetic factor but a psychological factor. The family member who has committed suicide may serve as a role model to identify with, and the option of committing suicide becomes one possible "solution" to intolerable psychological pain. However, the family, twin, and adoption studies reviewed here show that there are genetic factors in suicide. In many suicide victims, these will be genetic factors involved in the genetic transmission of manic depression, schizophrenia, and alcoholism--the psychiatric disorders most commonly associated with suicide. However, the Copenhagen adoption studies strongly suggest there may be a genetic factor for suicide independent of, or additive to, the genetic transmission of psychiatric disorder. Interestingly, support for this possibility comes from the recent Amish studies, which showed that suicide was much more likely to occur when an individual had genetic vulnerabilities to both suicide and to affective

Incidence of suicide in the biological relatives of depressive and control adoptees		
Diagnosis in Adoptee	Incidence of suicide in biological relatives	Significance
Affective reaction	$\frac{5}{66}$ (7.6%)	P <0.0004*
Neurotic depression	$\frac{3}{127}$ (2.4%)	P <0.056
Bipolar depression	$\frac{4}{75}$ (5.3%)	P <0.0036
Unipolar depression	$\frac{3}{139}$ (2.2%)	P <0.06/
No mental illness	$\frac{1}{360}$ (0.3%)	

* compared with biological relatives of control adoptees with no known history of mental illness
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Table 16.

illness.

There is a possible practical implication for the prevention of youth suicide arising from this review. It is that an adolescent who develops a depressive episode, or who exhibits suicidal behavior, and who has a family history of suicide might be considered to be at risk of committing suicide. Such an individual might, therefore, be more closely assessed and followed, particularly with a view to determining whether he is developing a recurrent affective disorder for which psychopharmacological intervention might be appropriate.

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SUMMARY AND OVERVIEW OF RISK FACTORS IN SUICIDE

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INTRODUCTION

This conference brings together two independent traditions in the study of suicide-- the psychosocial and the psychiatric-biomedical. Although we focus here primarily on potential biological risk factors, we also highlight opportunities for interdisciplinary cooperation that could enhance scientific understanding and lead to improvements in treatment and prevention. The educational efforts that we hope will grow from this conference should, wherever possible, be based on firmly established knowledge, rather than simply belief systems--however compelling they may seem. Much of the apparent disparity among the different schools of thought represented at this conference might be due to the fact that different approaches focus on different populations. By and large, psychosocial studies have focused on individuals with suicidal ideation who contact suicide prevention programs, whereas the psychiatric-biomedical studies have focused on actual suicides or major suicide attempts, largely among individuals with a major psychiatric diagnosis.

Biological investigations of suicidal behavior have been most active in the following areas of study: brain chemistry as measured through cerebrospinal fluid (CSF); postmortem analyses of tissues from individuals who have committed suicide; neuroendocrine correlates; and genetics. Each of these subjects has been well reviewed by the previous authors, Asberg (1), Stanley (2), Meltzer (3), and Roy and Kety (4). Rather than covering the same ground again, we will briefly summarize these excellent reviews and then add some comments of our own.

CSF BIOCHEMICAL STUDIES

Asberg reports that several studies have found an increased rate of suicide attempts in psychiatric patients with low CSF concentrations of the serotonin metabolite, 5-hydroxyindoleacetic acid (5-HIAA). Many of the study populations were depressed patients, but similar studies involving populations with other psychiatric diagnoses, such as personality disorders (5,6) and schizophrenia (7,8), suggest that the association between low levels of CSF 5-HIAA and suicide is not confined to depression. The association may not, however, be present in manic-depressive patients.

Asberg notes that evidence to date also suggests that low concentrations of CSF homovanillic acid (HVA), a metabolite of dopamine, are associated with suicide attempts in depressed patients. This associa-

tion has not been found in other psychiatric populations.

Asberg points out that CSF metabolites are only indirect measures of amine turnover in the brain. She notes some confounding influences on such measures--age, sex, body height, concentration gradient, circadian and seasonal rhythms, drug effects, medical diseases, diet, and physical activity. Methodological problems include lumbar-puncture location and subject position, amount of CSF drawn, handling and storage, assay methods, and within-subject stability of CSF 5-HIAA. Despite these problems, the biochemical methodology is elegant compared to measures of suicidal behavior. Among problematic methodological factors Asberg notes, is the lack of clear definitions of **suicide attempt** in most studies and the assumption made in "life history" measure-

ments of behavior that biological systems remain stable over time.

Asberg characterizes low CSF 5-HIAA as an indicator of vulnerability rather than as a marker of the **state** of depression. She cites longitudinal CSF studies as well as genetic evidence in support of this conclusion.

The mechanisms by which serotonin function influences suicidal behavior are unknown, but Asberg points out that some evidence links impulsivity and difficulties in handling aggression to suicide attempts. Formulations of such a link come from animal studies, classical psychoanalytic observations, and behavioral and biochemical studies in clinical populations.

Asberg suggests that including lumbar punctures to obtain CSF is a reasonable part of the clinical assessment in some psychiatric patients. In conclusion, she proposes a
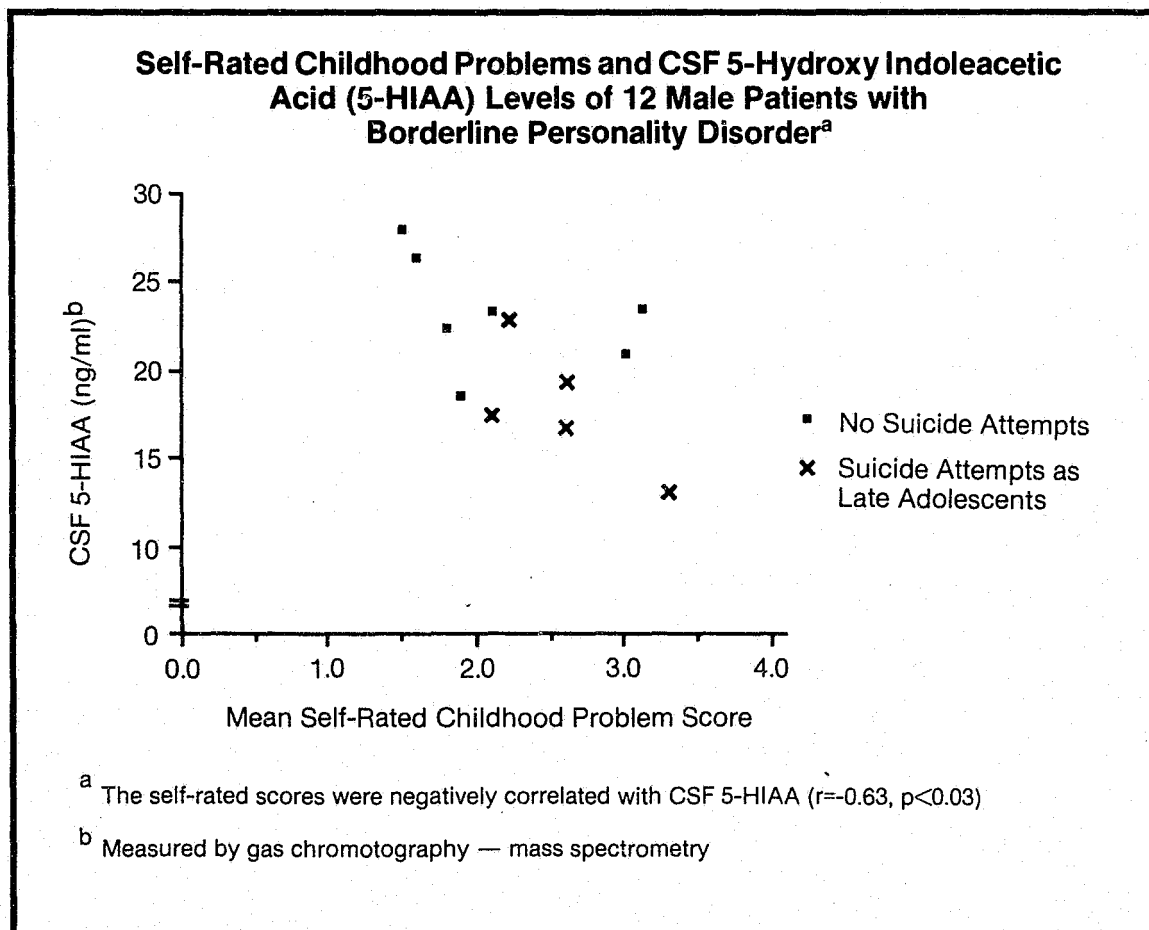

Self-Rated Childhood Problems and CSF 5-Hydroxy Indoleacetic Acid (5-HIAA) Levels of 12 Male Patients with Borderline Personality Disorder[a]

- No Suicide Attempts
- ✗ Suicide Attempts as Late Adolescents

Mean Self-Rated Childhood Problem Score

[a] The self-rated scores were negatively correlated with CSF 5-HIAA ($r=-0.63$, $p<0.03$)

[b] Measured by gas chromotography — mass spectrometry

Figure 1.

model of interaction between biological vulnerability and psychiatric symptoms (e.g., depression), psychological factors, adverse environmental occurrences, and childhood history.

Of most interest to us is the factor that implies a **trait**, a relatively stable characteristic that changes little, if at all, with clinical condition, in contrast to the factor that changes with clinical **state**. Our data (5,6,9) show that young adults with a history of aggressive and impulsive behavior (including a childhood history) have low levels of CSF 5-HIAA. Such evidence suggests that these behaviors reflect, in part, certain trait characteristics, which may be relatively independent of changing environments and personal relationships. More ambiguous are data linking CSF 5-HIAA levels to Asberg's categories of nonviolent and violent suicide, the latter usually associated with the lowest levels of CSF 5-HIAA. Is the violent behavior a reflection of an isolated **state** or is it one episode in a long-time history of similar behavior, not all of which may have been self-destructive or suicidal?

Some studies indicate that young children have higher levels of CSF 5-HIAA than do adults. It is unclear whether this difference relates to the observations that serious suicidal behaviors are more common in adults and adolescents than in young children. In our replication study, young adults and late adolescents with the lowest levels of CSF 5-HIAA had childhood histories that included many affective-impulsive symptoms, but no reported incidence of childhood suicidal attempts. (Figure 1)

POSTMORTEM STUDIES

Stanley reviews postmortem studies of biogenic amines, their metabolites and enzymes, and receptor binding. He points out that available information indicates that suicide victims are diagnostically heterogenous, so that differences in neurochemistry found at autopsy may be more related to suicidal behavior than to

depression per se. He also cautions that none of the postmortem studies he reviews focus on youth.

Postmortem enzyme studies of suicide reveal no consistent patterns. Stanley's own group found no differences between suicidal subjects and controls in either the A or B forms of monoamine oxidase (MAO). Previous findings of lowered brain MAO activity among suicide victims may have been related to alcoholism.

Earlier studies of serotonin and its metabolite 5-HIAA generally found decreased levels in subcortical nuclei, including the hypothalamus and parts of the brain stem. Some of the variability in these studies is undoubtedly due to confounding variables, such as manner of death (e.g., drug overdose), and the extent of delay between death and autopsy ("postmortem interval").

Receptor-binding studies may be less influenced by these variables. Stanley's group controlled for age, sex, and postmortem interval, as well as the manner of death, which in each case was sudden and violent. They found significantly fewer imipramine-binding sites in the frontal cortex of suicide victims, a finding consistent with the association between suicide and low central serotonin function since imipramine binding is a marker for presynaptic serotonin nerve terminals. Of the four other imipramine-binding studies published, three have replicated the findings of Stanley and his colleagues. However, generalizing from these results in adults to suicide in the young is risky because some relevant neurochemical measures, such as imipramine binding, are known to be influenced by age. Thus, Stanley's call for studies of young people, both normal controls and suicide victims, is well taken. He points to the need for better diagnostic information and greater specificity in reporting related aggressive, violent, and impulsive behavior. He closes by suggesting a behavioral-biochemical profile to help clinicians identify patients at high risk for suicide.

Issues that seem important to us include the fact that subjects in most postmortem studies of serotonin (5-HT) and its metabolite (5-HIAA) are predominantly depressed patients. None of the reports indicate any attempt to determine a history of aggressive behaviors. This absence of data on aggressive-impulsive behavior in completed suicides seems especially to highlight the importance of collecting careful psychological autopsy data in conjunction with the biological assessments in postmortem studies.

A curious discrepancy is apparent in this literature. The lowered 5-HT functioning in the frontal cortex suggested by receptor studies has not been subjected to postmortem analysis, which is so aptly suited to anatomical localization. Older studies have, however, shown lower levels of 5-HT and/or 5-HIAA in the midbrain-brainstem area, the nucleus acumbens, and hypothalamic area, the latter of which has also been shown to have increased 5-HT presynaptic receptor changes (10,11,12). These apparent inconsistencies may be clarified as postmortem and receptor studies move beyond the preliminary stage. Catecholamine neurotransmitter-metabolite studies are not consistent and relevant receptor data are lacking; the same can be said for the cholinergic systems.

NEUROENDOCRINE STUDIES

A link between suicide and hormonal functioning is strongly suggested by the suicidal behavior of individuals with endocrinopathies, particularly Cushing's syndrome. In his review of endocrine abnormalities in suicide, Meltzer suggests that they may serve as weak markers for suicide, but further research is more likely to show their role in influencing neurotransmission, which in turn may be more directly associated with causal factors.

Although urinary corticosteroids were the original biological variable associated specifically with suicidal behavior (13), plasma and CSF studies are still too few to warrant any conclusion. An association between dexamethasone suppression test (DST) non-suppression and suicidal behavior seemed to be positive in earlier studies, but more recent studies bring this association into question. Some earlier indications that the administration of the test dose of dexamethasone might increase the risk of suicidal behavior seem not to be borne out in the more recent analyses.

Meltzer discusses new work on glucocorticoid-receptor-resistance (GCCR) studies. In an earlier report, he indicated that the plasma 5-hydroxytryptophan (5-HTP)-induced cortisol response was negatively correlated with CSF 5-HIAA; such a correlation might link the urinary and plasma cortisol findings with CSF 5-HIAA in suicidal patients. In ongoing studies of patients with major affective disorders, the elevated cortisol response to 5-HTP seems particularly linked to a history of violent suicide attempts.

Early studies in patients with histories of violent suicidal attempts showed a blunted thyroid-stimulated-hormone (TSH) response to thyrotropin-releasing hormone (TRH); more recent work, including some of Meltzer's, does not always confirm the early reports, however. Evidence that the TSH response is negatively related to CSF 5-HIAA is consistent with a relationship between low levels of brain serotonin and suicidal ideation, which had been shown to be positively related to the TSH response.

It seems particularly important to us that continued efforts be made to integrate the neuroendocrine and the 5-HT data. Animal studies indicate that increased plasma cortisol decreases 5-HT synthesis in the CNS via activation of liver tryptophan hydroxylase, which shifts peripheral tryptophan to the kynurenine pathway from its availability to the CNS for 5-HT synthesis (14). Humans with carcinoid syndrome (5-HT-secreting tumors in the small intestine) are often depressed, insomniac, and irritable, if not overtly aggressive; they may have a decreased 5-HT synthesis in the CNS secondary to decreased availability of the precursor, tryptophan. If so, the treatment of these patients

with para-chlorophenylalanine (PCPA), a 5-HT synthesis inhibitor that crosses the blood-brain barrier (12), might be expected to worsen their CNS symptoms, as has been reported (15,16).

GENETIC STUDIES

Roy and Kety point out that suicidal behavior and depression are common in first-degree relatives of children and adolescents who commit suicide--both before and after the suicide. A significantly higher rate of psychiatric illness has also been found. In his ongoing study, Shaffer has found that 38 percent of suicidal adolescents have a family history of suicide. Increased incidence of suicidal behavior has also been shown in relatives of suicidal adults; a recent, controlled study found that among 127 patients admitted to a hospital following suicide attempts, 24 percent gave a family history of suicide attempts. Psychiatric diagnoses commonly associated with a family history of suicide are personality disorders and affective illness, especially manic-depressive illness.

The familial association with suicidal behavior is clear enough, but it begs the question of its source--in psychosocial or biomedical-genetic factors or some combination of them. First one must know what is transmitted: is it suicide per se, a vulnerable personality (i.e., aggressive/impulsive), or an illness (i.e., affective disorder)? Secondly, one must know whether proneness to suicide is transmitted genetically or environmentally through learning.

Twin and adoption studies address both of these questions. Evidence from all the twin studies together appears to show a genetic vulnerability both toward suicidal behavior and severe mental illness.

The Danish adoption study provides especially strong evidence for a genetic factor in suicide, and further, the data indicate that this genetic vulnerability to suicide can be inherited independently of overt psychiatric illness. Among the adoptees who committed suicide, half had a major psychiatric illness among their biological first-degree relatives; the remainder had family histories of suicide without a major psychiatric diagnosis but often with a history of aggressive/impulsive symptoms. Psychiatric and/or suicidal histories were virtually absent among the adoptive families or their relatives. The Amish study has shown that a heavy loading for affective disorder and for suicide can be somewhat independent of each other.

It seems to us particularly important to pursue the identification or clarification or possible biological differences within special families or populations with known, epidemiologically characterized behavioral vulnerabilities. An example of such work is the ongoing attempt to clarify how chromosome 11 may be related to the occurrence of affective disorders (and possibly to suicidal behavior) in the Amish population, and whether this finding can be characterized in other populations. Clearly, genetic factors are involved in suicidal behavior, but that is not to say that environmental (learning) factors are not operating.

RESEARCH STRATEGIES

Before proposing research strategies, we will briefly summarize the five categories of risk factors that ought to be considered.

Behavior

Longitudinal history from childhood to the present. As noted above, not only does a history of aggressive and impulsive behavior seem to be associated with vulnerability to suicide, but affective or impulsive symptoms in childhood are related to low levels of CSF 5-HIAA in adolescence, which in turn is associated with increased suicidal behavior. In addition, differences in drug states may be relevant to behavioral predispositions. The natural history of an illness should also be taken into account; for example, manic-depressive illness--a condition with a high risk for suicide--has been hypothesized to begin when a genetic vulnerability interacts

with an environmental stressor, and once such an interaction begins, it takes on a life of its own, eventually requiring little environmental stress to produce recurrences.

Aggression history. The single best predictor for aggressive behavior is a history of such behavior, just as the best single predictor for suicidal behavior is a history of it (17,18).

Family History

The data reviewed here make a strong case for the importance of assessing family history of both suicidal and aggressive-impulsive-violent behaviors as well as of psychiatric illnesses.

Psychiatric History and Diagnoses

The evidence further argues for determining whether a psychiatric illness is present in individuals who are prone to self-destructive behavior. Indeed, the number of individuals who actually kill themselves in the absence of a psychiatric illness would appear quite low. As noted earlier, the psychosocial focus of the suicide prevention movement has primarily derived its experience from working with people who threaten or attempt suicide, while the clinical-medical focus on suicide as an integral part of major psychiatric illness has primarily derived its experience from working with patients with completed or nearly completed suicide. Although the domains of attempters and completers do overlap somewhat, by and large they represent different populations (19). The major affective illnesses, particularly manic-depressive illness, alcoholism, schizophrenia, and other psychoses all have substantially higher associations with suicidal behavior than one would expect for a normal population. Individuals suffering from these major psychiatric disturbances make up the majority of completed suicides. To this we can now add that the risk is increased when one of these disorders occurs in an individual with aggressive/impulsive "personality" traits. On a practical level, a proper diagnosis can lead to appropriate treatment for the specific

disorder, and indeed we believe that this will turn out to be the single best approach to preventing actual suicides.

Medical History

The presence of a major medical illness is a risk factor for suicide. In addition, some specific medical disorders have been associated with a higher incidence of suicidal or aggressive behavior. Most are associated with disturbances in corticosteroid or serotonin metabolism. They include:

- Endocrinopathies, particularly Cushing's syndrome (corticosteroids).

- Metabolic disorders, i.e., carcinoid syndrome (serotonin), Lesch-Nyhan syndrome (serotonin alteration and aggressive behavior (20), incidence of suicide is unknown).

- Neurological disorders, i.e., Parkinson's disease (21,22) and epilepsy (low CSF 5-HIAA) (23,24) and Gilles de la Tourette syndrome (sometimes associated with low CSF 5-HIAA and, often, aggressive behavior (25), but incidence of suicide in unknown).

Biological Parameters

In the future, we should do studies to clarify the seasonality of suicide (26), receptor studies *in vivo*, controlled pharmacological studies of suicidal and aggressive behaviors, and seriously consider doing lumbar punctures as part of the psychiatric assessment in some patients. Very few of such studies are being done now. The development of a clinical-risk profile for suicidal behavior might be very useful to clinicians. An important and unanswered clinical-scientific question related to the biological factors that may contribute to the high incidence of suicide in manic-depressive illness, given the fact that the association between low levels of the serotonin metabolite and a history of suicide, consistent across a wide variety of disorders, does not hold for manic-depressive patients. Nevertheless, the tripartite relationship between suicide, aggression, and affective ill-

ness remains an important cornerstone on which to build further understanding. (Figure 2)

·One of our stated goals in the introduction was to promote and foster interdisciplinary collaboration and mutual cooperation in the pursuit of scientific knowledge in the service of public health. Some of the areas of research most likely to support such a goal include:

- Genetic research, especially of special populations (e.g., Amish, Indians, Greenlanders, Hungarians), offers opportunities for further dissection of genetic and environmental factors.

- Much could be gained from pursuing psychological-autopsy data with the same methodological vigor that has been applied to the biological postmortem studies. In such studies we need to assign as much importance to measures of "personality" dimensions as we do to formal psychiatric diagnoses. In this regard, we should evaluate the relationship between formal psychiatric profiles--e.g., sensation-seeking (27)--and relevant biological measures.

- Longitudinal studies are particularly important if we are to tease apart whether some behaviors are strongly dependent upon an environmental stimulus or whether some individuals tend to repeat the same kinds of behaviors independent of a particular environment. The state vs. trait issues cannot be confidently elaborated without such studies.

- Powerful statistical methods should follow well thoughtout hypotheses rather than blindly applied in the hope of uncovering significant associations among large samples. When such findings do occur, they must be replicated with a fresh sample.
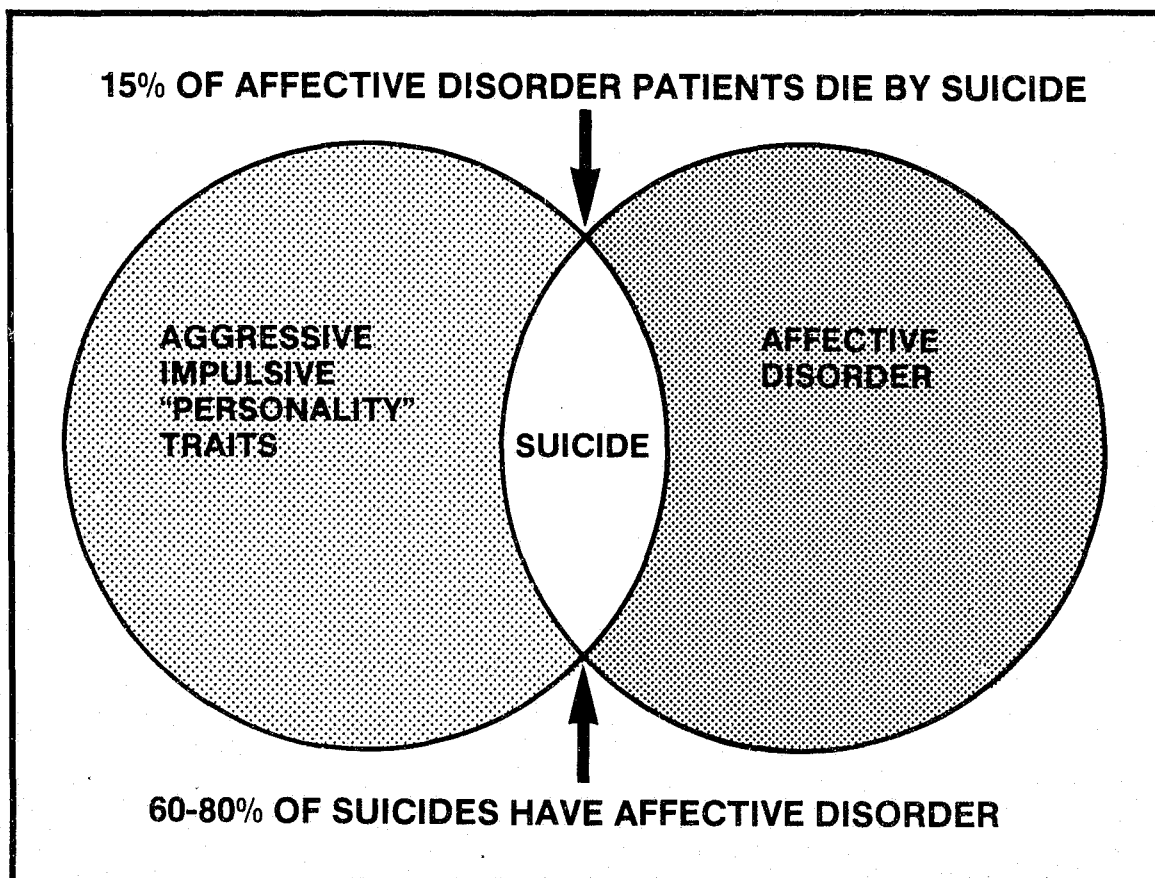

15% OF AFFECTIVE DISORDER PATIENTS DIE BY SUICIDE

AGGRESSIVE IMPULSIVE "PERSONALITY" TRAITS

SUICIDE

AFFECTIVE DISORDER

60-80% OF SUICIDES HAVE AFFECTIVE DISORDER

Figure 2.

• Few studies have examined the importance of drug states as predispositions to suicidal behavior.

SUMMARY

Certain principles should underlie our attempts to make a significant and meaningful difference in dealing with the major public health problem of suicidal behavior, particularly in youth. Recommendations receiving the highest priority should be based on sound, scientific data. Second priority should be assigned to activities that will promote the development of needed data (e.g., well-controlled epidemiological studies). For services, the highest priority should go to programs that provide direct treatment to high-risk individuals--those with a psychiatric or medical disorder known to be associated with a high rate of completed suicide (as distinct from suicidal ideation), those who have made previous suicidal attempts, and those with a strong family history of suicidal behavior. Obviously, preference must be given to treatments for which efficacy is based on actual data, rather than impressions or hopes.

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Edited by:
Marcia R. Feinleib

January 1989

The members of the Secretary's Task Force on Youth Suicide wish to acknowledge
the extraordinary effort of the Executive Secretary,
Ms. Eugenia P. Broumas.

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INTRODUCTION

Since the mid-1950s, fundamental and important changes occurred in suicide patterns in the United States. Suicide rates among older persons decreased while rates for young persons between ages 15 to 24 nearly tripled. Between 1970 and 1985, approximately 75,000 young people took their own lives. Beginning in 1980, more than half of all suicides occurred among persons less than 40 years old. The taking of one's own life is now the second leading cause of death among those ages 15 to 24 and is one of the leading causes of premature death--200,000 potential years of life are lost annually because of suicide. White males account for the preponderance of all suicides and more males are using guns to commit suicide.

Suicide among the young was recognized as a public health issue of national importance when the nation's health priorities were reordered in 1979. The Surgeon General's report, *HealthyPeople*, called for reducing the suicide rate among persons 15 to 24 from 12.4 per 100,000 (in 1978) to 11 per 100,000 by 1990.

The Secretary's Task Force on Youth Suicide was established as a response to the public demand for action to end these tragic events. It was charged with the responsibility for coordinating suicide activities among various Federal agencies, Congress, State and local governments, private agencies, and professional organizations. Its major functions are to assess and consolidate information on suicide, to provide a forum for communication among health care providers, educators, social service profes-

sionals, and families; and to recommend and initiate activities to address the problem. The ultimate goal of this task force is to formulate a national plan comprised of research activities, educational efforts, and health services involving the public and private sector in efforts to reduce youth suicide.

NATIONAL CONFERENCES

The Task Force on Youth Suicide sponsored a series of national conferences which served as forums for exchanging the most up-to-date information on risk factors and preventive strategies. The first of the conferences made clear that while each suicide is different, a complex interplay of characteristics, or risk factors, contribute to suicide in general and youth suicide in particular; these contributing factors are complex, often interrelated, and only partially understood.

Indicators of risk include, but are not limited to, the presence of psychiatric disorders such as depression or schizophrenia, parental loss and family disruption, being abused or neglected, being a friend or family member of a suicide victim, having genetic or biochemical factors (such as elevated serotonin or 5-HIAA levels), sexual identity problems, being a runaway, having a family with a history of substance abuse, having an unwanted pregnancy, suffering a humiliation or perceived humiliation, and having a propensity toward impulsive and aggressive behavior. Alcohol and drug abuse often complicates and sometimes precipitates suicidal behavior. Cultural pressures and

socioeconomic variables also contribute to suicide among minority youth.

Conference on Prevention and Interventions in Youth Suicide

In June 1986, a national conference was held in Oakland, California to review the current state of knowledge in suicide prevention activities and intervention strategies. Participants in the conference included persons in many disciplines who work with troubled youth: researchers who study suicide; professionals in mental health, medicine, education, and social work; representatives of national and professional organizations, representatives of community-based service programs, including volunteers, civic and religious leaders, parents, and others who work at the front lines of prevention programs.

The papers and research studies presented at the conference addressed intervention strategies on several levels—primary and secondary prevention, community-level health and social services, the role of volunteers in suicide prevention, school-based education, interventions for special populations, early detection and treatment for suicidal adolescents, and federally supported research and demonstration centers. Issues relating to the effectiveness of prevention activities were thoroughly aired. The value of the conference was expanded by frequent open discussion periods and review panels that critiqued the presentations.

Many recommendations for intervention and evaluation approaches made by representatives of public and private interests have been integrated into the task force's recommendations to the Secretary; many more suggestions are included in the commissioned papers contained in this volume.

For many years, research into suicide concentrated on the well established relationship between suicide and psychiatric disorders in adults, usually white males over the age of 40. Intervention and prevention efforts generally involved the detection and treatment of mental illness, most commonly depression. Recent research, however, suggests that among the young, the patterns of suicide differ from the traditional picture; only a portion of young people who commit suicide are known to have a diagnosable mental disorder. Many investigators now believe that treatment modes used for adults (e.g., treating depression) will not be effective with young people and that conclusions drawn from research on adults, cannot be generalized to youth.

From the conference on risk factors, we learned that a multiplicity of factors contribute to a young person's decision to end his or her life, and from the conference on prevention and interventions that no single therapeutic model is ideal to combat the problem; multiple interventions are necessary. Clearly, we need to know a great deal more about the usefulness and effectiveness of interventions. Good epidemiologic data on suicides will help in identifying risk factors and in planning prevention and intervention approaches targeted to specific needs in the populations at risk. We need to evaluate carefully the services now in use and to develop well-planned interventions that include rigorous analyses and interpretation of results.

The participants in the conference believe that the precursors to suicide can be treated and that many potential suicides can be redirected toward alternate, life-sustaining choices. Success will require the combined efforts of all sectors of society: parents, peers, and caring people; and professionals in the fields of health, education, social and mental health services, collaborating to prevent a broad range of self-destructive behaviors in youth.

CONFERENCE SUMMARY

Suicide is a rare phenomenon, affecting about 1 out of 10,000 people. Most of our knowledge about the causes and prevention of suicide is based on relatively few cases. Research projects studying young people

are, with a few exceptions, poorly designed, lack adequate comparison groups or realistic outcome measures, and often involve too few subjects to be considered statistically significant.

A strategy for prevention of youthful suicidal behavior must reconcile two points of view. One view sees completed suicides as the culmination of processes that begin with some problem early in life–educational, behavioral, family, psychosocial, physical–and progress along a continuum of suicidal thoughts, attempts, and finally successful suicide. Many of these young people are highly vulnerable to the stresses of life and they are unable or refuse to adapt to life conditions. Inability to cope with these problems may be predictive of a number of self destructive behaviors, including suicide threats, attempts, and completions.

The other point of view characterizes attempted suicides and completed suicides as distinct but overlapping entities. An estimated 25 to 40 percent of those who complete suicide are known to have made a previous attempt.

A prevention effort for the former entails a broad-based primary intervention at early points along the continuum, while the latter group requires an approach tailored to a smaller group of individuals whose characteristics or specific problems place them at high risk for suicide. A prevention program targeted only to those with demonstrable risk factors may miss reaching some potentially suicidal individuals in the larger population; on the other hand, a broad-based effort requires a large cohort, but one in which low risk individuals may be strengthened while helping those who need to be helped.

Primary prevention in youth suicide

The concept of primary prevention dictates that preventive efforts, grounded in a sound knowledge base, be administered before signs of a condition or problem develop. For suicide, this refers to any intervention that reduces the possibility of suicide by an adolescent. Because the pathways that led to suicide are so varied, the issue of when to apply primary prevention may become a problem. For example, should efforts be instituted when a specific disorder identified with suicide appears? Or, should efforts begin when risk factors appear, such as early trauma, sexual identity problems, drug problems, or negative social behavior?

Dr. Felner (see paper, this volume) avers that youth suicide is part of a developmental pattern of general emotional and behavioral problems related to stress, including depression, acting out problems, risk-taking and other self-destructive behaviors such as alcohol and substance abuse, confounded by the intentional, perhaps impulsive, use of lethal means.

A broad-based primary prevention model as proposed by Dr. Felner involves two strategies. One strategy would be devoted to modifying social systems in which youth function in ways that make the youngsters' environment less difficult to adapt to. Making the school environment less anxiety-producing, for example, might affect the mental health and well-being of individuals such that stress is reduced and life opportunities are increased. The second strategy seeks to help youths develop skills that enable them feel better about themselves and less anxious about the future. Enhancing young persons' problemsolving, decisionmaking, and coping skills through educational programs and support networks are examples that might equip youngsters to function better in their environment.

While broad-based prevention programs require exposing a very large population of children to a "treatment," reducing suicide is not the only expected outcome. Numerous beneficial effects are possible with this approach that may generate better mental health even among persons at low risk for suicide including enhancing self-esteem, reducing school failure, increasing the sense of control young people have over their future, and reducing depression and a range of other health-related risky behaviors in

adolescents.

The effects of primary prevention are hard to isolate from other variables that may influence a potential suicide. Few data, no established models or sound evidence suggest that a broad-based primary prevention approach would be effective in reducing suicide among young people. Before proceeding with such a costly effort, models confirming the benefits of such programs need to be tested and evaluated.

Overview of prevention activities

Opinions of scientists in the field vary regarding the relationship between suicide attempters and completers. Data on unsuccessful suicide attempts are skimpy and uncertain, and it is not clear to what extent the psychological problems of attempters resemble those of completers. Nevertheless, it seems prudent to regard any suicidal behavior as presaging completion. In his review, therefore, Dr. Shaffer addressed a wide range of primary and secondary prevention activities (See Shaffer, this volume). The primary prevention activities critiqued by Dr. Shaffer include providing psychiatric care to vulnerable groups; increasing sensitivity of school personnel to the characteristics of the suicide-prone child, and providing skills for teachers, counselors, and other pupils to use when they identify a child at risk; providing information on suicidal behaviors to school children; encouraging students to talk about their suicidal thoughts; suggesting referrals to students suspected to be at risk; and intervening early and treating conditions which are known to predispose toward suicide.

Secondary prevention encompasses activities directed toward preventing completion of suicide among persons who have already threatened or attempted suicide. Approaches include psychological treatment for suicidal individuals, providing emergency crisis intervention at times of maximal stress (including crisis centers and telephone hotlines for counseling and referral), and ongoing treatment after the crisis has passed.

Identifying suicidal youth through psychological autopsies

The psychological autopsy is a method used by investigators to obtain more information about suicide victims with the goal of identifying a set of conditions or warning signs which may predict other suicides. (See Litman, this volume.) Through interviews with family members, friends, teachers, and other contacts, the researchers attempt to reconstruct the lifestyle, symptoms and behaviors, personal and occupational histories, and medical records of deceased persons.

Psychological autopsies of adults show that depression and alcoholism account for most suicides. Analyses of younger victims, however, show that while adolescent suicides are preceded by psychological maladjustment, fewer young suicide victims suffered from depression; most had a combination of affective and antisocial, aggressive behaviors. The largest group of young suicides (mostly males) are those with conduct or personality disorders, often mixed with drug use. These include impulsive or antisocial young people, many of whom had gotten into some kind of trouble. Another group (usually females) suffer from depression. A third group of suicides consist of youngsters who are compulsive, hard striving perfectionists, socially inhibited and prone to extreme anxiety in the face of any social or academic challenge. A proportion of youngsters do not appear to have diagnosable psychological disorders and their emotional or psychological problems are sometimes unrecognized and untreated.

The researchers further found that adolescents who were presuicidal differed from one another in behaviors, psychological diagnoses, and responses to environmental stresses. School problems and conduct disorders were common as were social withdrawal and friendlessness. Some were high achievers, some were low achievers. The breakup of a relationship was a traumatic factor strongly contributing to suicide. Many suicide victims had been exposed to suicide previously

through suicidal siblings, friends, parents, or other relatives. Many had thought about, threatened, or made a previous suicide attempt.

What all had in common were periods of hopelessness and thoughts of death as a solution to their problems. Most of the youngsters gave clues to their suicidal intentions, to a peer, a family member, or a professional person, either verbally or by their behavior. These clues might be construed as "reaching out for help." Clues, however, were often recognizable only in hindsight because adolescents tended to camouflage them well. About half of the young suicides had recent, but brief contact with the mental health system. In fact, a major problem with young people at risk for suicide is getting them into a therapeutic contact and keeping them there. Families and therapists tend to ignore or deny clues to suicide, thus making it even more difficult for a child in trouble to enter treatment.

Role of alcohol and substance use

Few clinicians doubt the close association of alcohol and heavy drug use with suicide. An estimated one-half of all suicides are associated with alcohol use. The effects of chronic drug use increase the likelihood of depression, despair, and feelings of hopelessness. Dr. Meeks points out that a great deal of depression found in chemically dependent individuals is a result of addiction rather than its cause (see Meeks, this volume). Chronic use of cocaine, for example, produces depression and dysphoria. These drug effects are enhanced in adolescents who are developing emotionally and physically. Adolescents heavily involved in drugs are particularly susceptible to increasing feelings of guilt resulting from the loss of judgment and self control, alienation from families, accumulating failures, and personally unacceptable behaviors which the adolescent had to perform in order to get drugs. Although these feelings may be denied at first, continued drug use coupled with the feelings of uselessness, failure, and confusion, eventual-

ly may overwhelm the young person and lead to suicidal behavior as a way out of psychological pain.

In addition to depression, other frequently observed factors make chemically dependent youngsters more vulnerable to suicide: a strong family history of alcoholism or other drug abuse, and a recent loss or separation (most commonly parental separation or divorce).

In treating suicidal adolescent drug users, the crucial aspects in preventing suicide are recognizing when the adolescent is in crisis (e.g., stating a desire to die) and providing care and protection at the time. These patients are difficult to treat partly because adolescents and their parents resist treatment and try to make the process as difficult as possible. In addition, the underlying problems that led the youngster to use drugs in the first place are difficult to change on a permanent basis. They require long-term treatment and continued alertness to the recurrence of suicidal risk. A team approach treatment--involving family, friends, and peers--seems to work well for chemically dependent adolescents.

MINORITY AND GAY YOUTH

Some young people may respond to external pressures with which they cannot cope by exhibiting self-destructive behaviors, the most extreme of which is taking one's own life. Suicide victims who are homosexual, belong to minority groups, and children who are unduly influenced by violence in the media may fit this model.

Many significant life events ultimately determine one's behavior, personality, and coping styles. Adolescence is a turbulent period filled with many complex physical and psychosocial developmental problems which make the transition from childhood to adulthood difficult. A major developmental task for adolescents is to establish a stable identity. Adolescents are beginning to develop sexually and trying to understand their sexual identity. Those who have homosexual ten-

dencies are confused about their feelings and face a tremendous internal struggle to understand and accept themselves.

Stresses related to being a member of a minority group in the United States may complicate the adolescent maturing process. Environmental factors and conflicts a young person encounters in reconciling minority cultures with the dominant American culture have been postulated as contributing factors to suicides among black, Native American, Hispanic, and Asian youth.

Gay youth

Gay and lesbian youth are two to three times more likely to attempt suicide than other young people (See Gibson, this volume). Gay youth face a hostile and condemning environment, verbal and physical abuse, and rejection and isolation from families and peers (an estimated 25% of young gay males are forced to leave home because of conflicts over their sexual identity). The traumatic consequences of these external pressures make gay, lesbian, bisexual, and transsexual youth more vulnerable than other youth to a variety of psychosocial problems and self-destructive behavior, including substance abuse, chronic depression, relationship conflicts, and school failure, each of which are risk factors for suicidal feelings and behavior.

Help for these adolescents needs to derive from all levels of a society that stigmatizes and discriminates against gays and lesbians. For example, mental health and youth service agencies can provide acceptance and support for young homosexuals, train their personnel on gay issues, and provide appropriate gay adult role models; schools can protect gay youth from abuse from their peers and provide accurate information about homosexuality in health curricula; families should accept their child and work toward educating themselves about the development and nature of homosexuality.

Minority youth

Data show that the highest suicide rates among minorities (Native Americans, blacks and Hispanics) occur in the younger age groups, a pattern that differs from whites among whom suicide rates increase with age. Strong cultural traditions and social support systems among minority groups are believed to play a role in protecting older age groups from suicide.

Because minority groups are made up of many different cultural entities, one must be cautious about using aggregate data to generalize about a segment of a larger group. For example, Hispanics include people with Mexican, Cuban, Puerto Rican, and other Latin American heritages; Native Americans include members of more than 500 federally recognized tribes, many of whom have different languages, customs, and cultural traditions.

Native Americans

Dr. Thompson (see report, this volume) points out that a true picture of suicide among Native American youth may not be accurate from the aggregated data furnished by the Indian Health Service (IHS). Suicide rates vary considerably among individual American Indian tribes and data from a few tribes cannot be generalized to all Indians. Several other reasons contribute to the unreliability of American Indian suicide data; few data are available on American Indians who live outside IHS service areas and off reservations. American Indians living in urban areas may not be correctly identified as Indians on death certificates; deaths may not be reported as suicides partly because of reluctance to bring adverse publicity to an American Indian community; and small changes in raw numbers of suicide may look very large in terms of changes in rates.

The IHS, nevertheless, reports an average rate of 27.9 suicides per 100,000 Native Americans of ages 15 to 24 during 1981 to 1983; the suicide rate for all Americans 15 to 24 was 12.2 during the same time period. The base population, however, used by the IHS to calculate these rates has changed over time, thereby presenting problems in observ-

ing suicide trends. Suicide patterns among Native Americans differ from those of their white peers in that the peak rate of suicide occurs between ages 15 through 24; white suicide rates are higher after age 35.

Preventive interventions for Native Americans should focus on those communities which can be demonstrated by epidemiologically sound research to have a problem needing a specialized response. A better approach is needed for suicide data collection and data comparisons. Addressing the enormous cultural conflicts between the white and Indian cultures is a necessary preventive strategy. Other efforts, such as primary prevention and early recognition and treatment of the social and psychiatric conditions which lead to self-destructive behaviors, must be planned in conjunction with the individual tribes themselves with unobtrusive measures and with cultural sensitivity.

Blacks

Dr. Baker (see report, this volume) reviewed black suicide rates and characteristics of black suicide attempters in an effort to discern reasons for the large increase in black suicide rates for 15 to 24 year olds--from 4.9/100,000 in 1950 to 11.1 in 1981. Except in specific instances, the suicide rate for blacks is roughly half as great as among whites for both males and females. Black male suicides outnumber black females by about 4 to 1.

Many scientists have suggested that the lower suicide rates reflected a strong support system in traditional black culture, reinforced by the black church and social and fraternal organizations, but that marked sociocultural changes in black families and black communities have caused those institutions to lose their appeal to many black people.

Dr. Baker discusses several theories that have been advanced to explain the rise of suicide among blacks, but only the theories which emphasize interpersonal conflicts,

familial discord, financial concerns, and the impact of poverty and racism on the individual and his family seem to hold up as specific etiologies of suicide attempts and completions among blacks.

Primary preventive strategies, Dr. Baker suggests, should focus on helping black youth understand the sources of their stress and identify effective action. For example, improving families' knowledge of symptoms of mental illness and alcohol and drug abuse will allow a family to seek help before a destructive episode occurs. Secondary prevention should focus on evaluation and crisis intervention for suicide attempters and their families, and, to prevent further suicide attempts, provide a family with alternatives for help in the event of a future crisis.

Hispanics

Suicide data on Hispanic youth were obtained from five southwestern States where more than 60 percent of all Hispanics in the United States reside (see Smith, this volume). The suicide rate for Hispanics (mostly Mexican-American in this geographic area), is lower than the rate for non-Hispanic whites but higher than rates for blacks. Young Hispanic males, however, in the 15 to 19 year age group, have a slightly higher suicide rate than non-Hispanic white males in the same age group. Contrary to the patterns observed among non-Hispanic whites for whom the suicide rate increases with age, the highest suicide rates for Hispanics occur in the 20 to 24 year age group. The ratio of male to female suicides is 4.3 to 1 for Hispanics.

The lower overall suicide rate among Hispanics likely reflects the strength of Hispanic cultural traditions in which close family ties along with the desire not to dishonor one's family through suicide decrease the risk of social isolation. The extent to which these cultural traditions continue to be held within Hispanic communities may influence the future incidence of suicide. As younger Hispanics become assimilated

into American culture, Hispanic traditions may lose their power to influence behavior. Hispanic youths, caught between traditional values and their experiences in the larger social order, coupled with the marginal socioeconomic status of this group, may experience stresses that explain the younger age distribution pattern of Hispanic suicide victims.

Asian-Americans

Very few studies have examined suicide among Asian American youth. Available information indicates that Chinese, Japanese, and Filipino male suicide rates are generally lower than those of American males except in the oldest age groups. Dr. Yu analyzed the sparse suicide data for Asian American (see this volume). By calculating proportional mortality rates, Dr. Yu showed that, within Chinese and Japanese-American populations, suicides have risen dramatically between 1970 and 1980. Possible explanations may be rooted in the social problems faced by young Asian Americans in their struggle to excel and establish themselves in American society.

Influence of the media on suicide

A social factor often cited as having an effect on suicide is the popular media. Several research projects have suggested that violence on television leads to imitative aggressive behavior by children and teenagers.

Other studies suggest that televised news stories or fictional portrayals of suicide contribute to suicidal behaviors among young people with imitative behavior of suicides. One study reported an increase in teenage suicides during the week following news or feature stories about suicide. Another group analyzed the effect of four fictional television programs about suicide that were broadcast in the New York City area. Much advance publicity generated public awareness of youth suicide and some areas provided telephone hotline numbers and information about local crisis services. The rates of both completed and attempted suicides rose in the two weeks following the telecasts.

In his review, Dr. Berman (see this volume) believes that television's influence on suicides is equivocal. Broadcasts portraying violence or suicide (including news reports of celebrity suicides) might influence the method of suicide in persons already predisposed to killing themselves, but are unlikely to entice nonsuicidal youngsters.

As a significant part of the sociocultural milieu in which children are raised, television and other mass media have the potential to profoundly alter the message environment to which children react. The best use of the media for prevention may be in prosocial education in early childhood. Cooperation between media representatives and suicidologists might be useful in establishing guidelines for news reports and fictional presentations of suicides. Public information campaigns for suicide prevention should be guided by principles, learned from other health promotion campaigns, regarding dissemination, targeting, timing, frequency, and duration of messages. A media campaign should be reinforced by supplementary efforts in the home, school, or other settings where interpersonal communication is promoted. Careful evaluations must be incorporated into a public information campaign to establish rational bases for future campaigns.

Religious beliefs and family structure

Religion and the family are social contexts in which people are physically, emotionally, and psychologically bonded. Religious committment and strong family ties, in general, provide protection from suicide by promoting shared values, strong social interaction and supportive connections with other people. The greater the intensity of people's ties and connections with each other, the less chance there will be of suicide.

Criminal and juvenile justice

Each year about a half million juveniles are put in adult jails. The risk of suicide for these young persons is particularly high. Jails are frightening, intimidating environments, especially for youngsters detained for the first time. Although many facilities have incorporated special precautions to minimize the opportunity for suicide and prevent detainees from taking their lives, the suicide rate for juveniles in jails is five times higher than the national rate.

Most of the juveniles arrested are coming out of drug or alcohol intoxication, runaways, children fleeing from abuse or neglect, or are retarded, disturbed, mentally ill, or handicapped individuals. Approximately 10 to 15 percent of young people are jailed for violence offenses. For all of them, the first few hours of confinement are the most dangerous.

Young people who have been arrested should be evaluated by a mental health professional to determine whether incarceration or hospitalization is appropriate. If placed in jail, careful observation, separation of juveniles from adults, and removal of personal items that can be used as a means for hanging might reduce the chance of suicide.

COMMUNITY EFFORTS IN SUICIDE PREVENTION AND INTERVENTION

Various suicide prevention programs emerged during the 1960s and expanded rapidly during the 1970s, but little attention was paid, until relatively recently, to the specific needs of young people. Very few reports appeared in the health or social scientific literature addressing detection and treatment of suicidal behavior in the young.

Among the earliest prevention concepts were the suicide prevention centers, which were consortia of psychologists, social workers, psychiatrists, and trained volunteers combining suicide research with treatment of troubled individuals. Although supported initially with Federal funds, many suicide prevention centers evolved into locally funded, community-based services. About 1,000 suicide prevention programs or crisis programs, exclusive of community mental health programs, are in operation in the United States today; about 200 are specifically called suicide prevention centers. Most of the program names, however, e.g., crisis center, telephone hotline, reflect a broader, crisis intervention purpose than suicide prevention. They offer counseling, caring voices and listeners (by telephone or in person), and other crisis services such as short-term therapy delivered by trained para-professionals. These programs generally focus their efforts on adults, but with the increasing importance of youth suicide, some, but not the majority, of these programs have established components specifically directed at adolescents (see Comstock, Simmons, Franklin, this volume).

Centers usually have referral networks--a consulting staff of health professionals, access to other community services such as law enforcement, social service or mental health agencies, and emergency medical personnel, to serve as back-up resources.

After a teen's suicide, the surviving parents and siblings experience significant stress and dysfunction. Many centers, as well as private therapists, offer grief counseling to help family members, friends, and peers to deal with the pain, guilt, anger, and other emotions following a suicide. Counseling survivors often includes examining the emotional and mental problems experienced by the young suicide victim for the purpose of making it more difficult for survivors to identify with the dead person. Such therapy helps to lessen the chances of suicide by bereaved persons. (See Mitchell, this volume.)

Role of volunteers

Eighty percent of the suicide prevention centers in the United States operate with nonprofessional volunteers as their primary

staff. In fact, the centers are one of the few instances in which trained, lay volunteers provide clinical services that had traditionally been provided by professionals. The crisis worker's role is to establish a rapport with a caller, listen to a person's description of his problems, and work with him in setting a course of action. (Some researchers have reported that people with professional training are not demonstrably more effective than lay volunteers as crisis intervention workers.) Since the early 1980s, operating standards for suicide prevention centers and training and performance evaluation criteria for volunteer crisis workers promulgated by the American Association of Suicidology have made progress in alleviating public mistrust and professional skepticism about crisis intervention techniques and volunteer crisis workers. (See Wyatt, this volume.) Whether health professionals or lay volunteers serve as crisis workers, special training as well as in-service training is necessary to maintain the unique and special skills required for crisis intervention and suicide prevention.

Caring and intelligent young people can also be involved in suicide prevention strategies (see Bolton, this volume). Young people experience many losses and stresses (including body changes, moving away from friends and support groups, and living up to parental and social expectations) and need help in acknowledging and understanding their feelings and coping with sorrow and anger. With proper help and guidance, young people can take charge of their own lives, handle crisis and solve problems and feel valued and worthwhile.

An independent suicide prevention organization is The Samaritans, founded in England in 1953. (See Katzoff, this volume.) Samaritans have 275 branches worldwide and 14 branches in the United States. The branches provide walk-in and 24-hour telephone crisis services for lonely, suicidal individuals. Volunteers offer "befriending" by listening without judging, offering unwanted advice, or intervening without being asked. With the caller's permission, volunteers can call in professional consultants. Several branches provide outreach programs such as developing school curricula on suicide awareness, distributing literature, and providing speakers for schools and universities.

Despite the variety of programs and community agencies available to assist young people in dealing with stressful situations, to obtain help, young people must be able to identify the appropriate community agencies (e.g., emergency medical centers, community mental health agencies, child abuse services, crisis hotlines or help centers). A high level of community awareness must be achieved and sustained over time in order to facilitate knowledge about resources available within the community which can provide services to people under various forms of stress.

Effectiveness

Of the wide range of interventions that administer to young people at risk for suicide or who have attempted suicide, little is known about their effectiveness--whether the intervention can prevent suicide or suicidal risk. The conference presenters emphasized that no evaluation studies of preventive activities targeted exclusively to young people appeared in the scientific literature. For example, no data demonstrate that the numerous community-based suicide prevention programs for young people (telephone hotlines, school-based suicide education programs, peer support groups, counseling of runaways, and similar attempts) are effective in preventing suicides. The same applies to psychiatric or psychological therapy and to other services that include suicide prevention as part of their mission, such as mental health centers, clinics, or counseling agencies.

EARLY DETECTION AND TREATMENT

A wide range of psychological, sociological or

psychiatric theories attempt to explain suicide among the young. Adolescence is a time when youngsters experience important physical and emotional changes, feel new desires, develop a sense of identity, and break the dependent bonds formed in childhood with parents. For some youngsters, this is a time of profound sadness, stress, and loss, causing serious mental and emotional adjustment problems. Understanding the behaviors and life events that precede suicide are essential to designing models for detecting a potential suicide, preventing the act, and treating the individual.

Detection

Prevention would be most efficient if we could identify some common characteristics which allow individuals who have a high probability of later suicide to be identified and brought into a prevention program. Drs. Blumenthal and Kupfer (see paper, this volume) have proposed a three-level model for detecting potentially suicidal behavior. The first level represents a detection strategy in which high risk groups are identified and "red-flagged" for tracking and educational purposes. While level I includes individuals who are not in immediate danger of suicide, they have certain risk factors such as being children of substance abusing parents, or children who have experienced extreme stress such as divorce or the recent death of a parent. Level II deals with young persons with major behavioral symptoms who do not meet criteria for a psychiatric disorder, but in whom assessment and intervention may be required. Children with emotional difficulties, learning disabilities, extreme aggressiveness, runaways, and those with severe self-esteem problems fall into this group. Level III represents the detection of a psychiatric disorder of sufficient severity to require assessment and intervention by mental health professionals.

The authors also propose a theoretical model of suicidal behavior consisting of five overlapping "risk domains" or groups of risk factors for suicide. Used together with the three

detection awareness levels, the overlap model of suicide risk may be usefully applied to treatment, clinical investigation, education, and clinical intervention. The five risk domains are:

1. Psychiatric diagnosis of a patient.

2. Personality traits that relate to suicide such as aggression, impulsiveness, hopelessness, and borderline personality disorder.

3. Psychosocial factors, such as the strength of a person's social supports, number of negative life events, and presence of chronic medical illness.

4. Genetic and family factors that predispose an individual to suicide.

5. Neurochemical and biochemical variables which may indicate a biological vulnerability to suicide.

The authors stress that physicians--pediatricians, internists, obstetricians, and others outside the mental health field--need to be aware of, recognize, and document suicidal risk behavior and psychosocial stresses. While health care professionals deal with stressful health issues such as chronic diseases or unwanted pregnancies, they often are unaware of the additional risk imposed by other factors in the model. Clinicians, therefore, should be educated to diagnose psychiatric syndromes and suicidal behavior, and to intervene and refer when appropriate.

Treatment of adolescent suicide attempters

Suicide attempters often have a number of coexisting problems--mood and conduct disturbances, drug and alcohol abuse, aggression--which are similar to those of other psychiatric patients. Suicide attempters are a very diverse group and it is difficult to know which problems will improve in therapy, but in general, suicidal behavior may not change in the long run.

In his review of treatment strategies for suicide attempters, Dr. Trautman (see paper,

this volume) found that no specific treatment approaches--behavioral, psychotherapeutic, or psychopharamocologic--are superior to some other treatment or to no treatment at all. Or, are there specific treatments that are applicable only to suicide attempters?

Once in the mental health service system after a suicide attempt, adolescents are difficult to manage and retain in treatment. Most drop out early in the course of therapy. Dr. Trautman estimates that 40 percent of adolescent suicide attempters do not have a psychological evaluation and only 20 percent complete a brief therapy program of three months. In addition, parents are often resistant to their child's therapy, may deny the need for continuing treatment, and refuse to participate in the child's treatment themselves.

Many suicide attempters have immediate problems of a brief nature which are often quickly resolved. Therefore, brief, crisis-oriented treatment and followup, on an outpatient basis, makes sense for many patients. Longer treatment is necessary for more severely disturbed patients. Good therapy for adolescents is active, explanatory, teaches problem solving and other social and behavioral skills, and uses outside resources (cognitive-behavioral therapy meets these needs). Because parent-child conflict is the most common immediate precipitating factor of suicidal behavior, family involvement, with the goals of decreasing destructive family interactions and increasing communication among family members, is an essential component of successful management of suicidal adolescents. New approaches, however, need to be developed to educate families about the therapy process, reach out to those who will not or cannot come to a treatment setting, and attract minority and low-income families to come for needed therapy.

SCHOOL-BASED PROGRAMS FOR SUICIDE PREVENTION

School-based intervention programs are becoming increasingly common, primarily because schools offer a good opportunity for reaching the largest number of young people. Schools are the most accessible place to make an early identification of troubled, or potentially suicidal youth. Many school initiatives in suicide were instituted in response to local legislation or community pressure following a wave of suicides within a particular school or school district.

The types of programs offered in schools and the populations they serve vary greatly. Dr. Garfinkel's review of school programs (see paper, this volume) emphasizes that successful school programs should integrate an understanding of risk factors for youth suicide, behavioral characteristics and clinical symptoms of suicidal individuals, and various psychosocial stressors experienced by suicidal adolescents. He proposes several components that he believes are critical in developing effective school-based prevention programs:

- Early identification and screening by teachers and other school personnel, which includes recognizing certain behavior patterns and stressful life events that suicidal adolescents experience.

- Comprehensive psychological testing and psychiatric assessment of students identified as needing further evaluation.

- Crisis intervention and management. Other individuals--for example, coaches, clergy, social workers--who may be able to provide help, should collaborate in therapy as part of a suicide prevention team, which should be present in every school. The team should act as an advocate for any youngster suspected of being at risk for suicide.

- Programs immediately following a suicide of a young person in the community. These efforts aim at preventing imitation and deemphasizing feelings of guilt, responsibility and anger from overwhelming the survivors.

- Educational programs for students, teachers, and administrative school per-

sonnel to develop sensitivity and awareness of youth suicide. School programs that deal with raising awareness of the student body to suicide and its prevention include discussions led by trained professionals that encourage students to discuss suicidal thoughts, talk about feelings for friends lost to suicide, and discuss how friends can help when a troubled youngster is identified.

Many school programs do not deal directly with suicide, but are designed to help youth function better in their environment by developing skills to cope with stressful life events, communicate more clearly, recognize depression in themselves and their peers, and feel better about themselves.

• Community linkage and networking. Any given school's suicide prevention team should link with other school districts and community social service and mental health resources in order to provide information or special resources in facilitating referrals for treatment and followup for young people at risk, or after a crisis or suicide attempt. Networking further includes coordinating community needs for education programs, and resolving media issues dealing with public coverage of suicides.

No one has been able to demonstrate that school programs directed to students or school personnel are effective in reducing suicide. In fact, school suicide prevention programs have generated controversy in some communities. Some parents fear that open discussion will introduce the idea of suicide to teenagers who were not suicidal, and some school officials believe that the many demands on the school system and limited funding for special initiatives preclude suicide prevention programs.

Others, however, believe that numerous beneficial effects are possible. For example, open discussion of suicide might facilitate disclosure of some student's preoccupations with suicide, which in turn will lead to inter-

ventions to reduce the risk of suicide. Improving coping skills might aid in raising self-esteem, reducing school failure, and reducing depression and self-destructive behaviors, thereby generating better mental health even among persons at low risk for suicide.

In the long run, we must work toward the rigorous evaluation of in-school suicide prevention programs on a large enough scale to provide statistically significant results of their effectiveness.

RISK REDUCTION

The cost of suicide in terms of mortality, the effects on lives saved, and the costs of health care are great. The numerous factors associated with suicide are far reaching and deeply rooted in the problems of society, family, and the biological makeup of the individual. Each of these issues suggests a specific set of interventions. Dr. Cantor (see paper, this volume) discusses a variety of interventions aimed at reducing risk of suicide through changing the environment in which young people function. She concludes that the interventions most likely to have the greatest impact on youth suicide are: decreasing the cultural pervasiveness of violence; limiting the availability of lethal agents such as firearms, medications, and drugs and alcohol; and instituting educational programs for youth, parents, and the public. Training others who come into contact with young people--school personnel, primary care health professionals, youth group leaders--to be aware of the warning signs of a disturbed youngster offers a way to bring young people into the helping system early enough to avoid feelings of hopelessness which can precede suicidal behavior.

Suicides are rare events that are difficult to predict, and effective interventions have not been identified even for the groups at highest risk--suicide attempters and psychiatric patients. Screening large high-risk populations is very expensive and catches relatively few suicides. Limiting screening to smaller high-risk groups yields even fewer suicides

such that the overall reduction in suicide is minimal. Introducing risk reduction measures enables young people at highest risk to be identified so that intensive and specific therapeutic interventions may be provided.

CONCLUDING NOTE

A considerable amount of energy and goodwill, human sensitivity and kindness has gone into suicide prevention activities. The costs are, for the most part, very high and little evidence demonstrates their effectiveness. Even though full knowledge of the etiology of suicide is not in our grasp and research on preventive strategies is not yet complete, the time for action is now. To postpone attempts at preventive interventions until answers are provided by experimental programs would be to ignore common sense and clinical experience. We must continue with new ideas and fresh strategies, trying new approaches until evaluative studies point the way. Further, interventions must integrate the diverse interests in the field, public and private, and involve a wide variety of support systems within the youngster's environment--family, school, business and industry, health care professionals, and social and religious institutions. As new data emerge, the strength of the scientific base of suicide prevention will expand.

The following major topics were convened in the papers presented at the conference on prevention and interventions:

1. Better statistical data on suicide and suicide attempts by persons between ages 15 and 24. Suicide, to an unknown extent, is universally understated as a cause of death in vital statistics. This underreporting results from difficulties in establishing suicidal intent, practical considerations (such as the loss of insurance benefits), and the social stigma associated with suicide. Problems with determining ethnicity of a decedent may cause underreporting of deaths in minority groups.

2. Epidemiologic analysis of suicide patterns to facilitate identification of risk factors, high risk groups, and trends in suicide. Epidemiologic and empirical evidence is needed to lay the groundwork for a scientific understanding of youth suicide. Research should focus on the nature, extent, and consequences of drug and alcohol abuse among youth, as well as the influence of mental illnesses such as depression, on risk and as precursors of suicide.

3. New strategies for primary prevention and treatment. There are few specific models of primary prevention programs and little or no information on the effectiveness of such programs on suicide. Development of new techniques in primary prevention should be encouraged and tested appropriately. Treatment techniques similar to those used to treat depression in adults are not, in general, applicable to young people. The mental health community must develop ways of identifying the early signs and behaviors related to suicidal intent and design specific interventions for those at varying degrees of risk. The appropriateness and effectiveness of individual and group therapy must be better understood.

4. Research into community level intervention efforts. While the nonmedical community has responded to suicides by establishing crisis services, such as telephone hotlines or drop-in clinics, more research is needed to investigate whether these approaches are effective and how they may be made more effective. These services need to be publicized in such a way that teenagers can identify an appropriate community agency (or suicide prevention hotline) to assist in coping with a stressful situation. Specialized training in suicide prevention should be provided to persons who give help to young people at risk for suicide.

5. Understanding the special conditions of minorities. Attention needs to be given to the unique needs of gay, lesbian, black, Hispanic, Native American, and Asian

youth, who may perceive a different and sometimes hostile world.

6. Education of the public. The general public and especially those who are in contact with youngsters, such as parents, teachers, and other gatekeepers (including the broadcast and print media) should become aware of the warning signs and circumstances that may lead to suicide. Young people should become aware that they can receive help in dealing with their problems. Special care must be taken to ensure that discussion of suicide does not become a stimulus rather than a deterrent.

7. School-based programs for prevention. Schools are one place for identifying youth at risk. School personnel, working with, or being trained by professionals, should develop screening methods for identifying children who may be experiencing stresses and personal problems. Prevention and intervention techniques and curricula for educating and counseling young people at risk and their peers are also needed. Although effectiveness has not been proved, teaching youngsters psychological strategies such as skills for coping with stressful life events, problemsolving, decisionmaking, confrontational skills, communication skills, and building self-esteem can be helpful for all young people. Schools should develop networks with community and professional groups such that teenagers with problems can be referred appropriately for treatment.

8. Developing services to detect and treat potentially suicidal young persons. Better methods of detection (triage techniques) in hospital emergency rooms should be developed to detect whether self-inflicted injuries are indeed suicide attempts. Protocols should be developed that provide for consistent diagnosis and treatment of young people suspected of having made a suicide attempt. In addition, methods should be developed to retain young people at high risk for suicide in a treatment regimen. Primary care physicians should take careful histories related to personal stress, substance abuse and psychological coping skills.

COMMISSIONED
PAPERS

PRIMARY PREVENTION: A CONSIDERATION OF GENERAL PRINCIPLES AND FINDINGS FOR THE PREVENTION OF YOUTH SUICIDE

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The task that we were asked to address is one that we found both daunting and important: to provide a brief overview of the current state of knowledge in the area of primary prevention, discuss what we know about current research strategies, and link it to what we know about adolescent suicide, with a particular emphasis on the implications for future interventions and research. To begin, we need a common definition of primary prevention and then, what we mean by primary prevention of suicide among children and adolescents. The essential components of the most widely agreed upon definition of primary prevention are:

1. Primary prevention seeks to reduce the incidence of new cases of a disorder in a population, as well as the prevalence of that disorder;

2. A key distinguishing feature of primary prevention, when contrasted to secondary or tertiary prevention, is the timing of the intervention. That is, primary prevention efforts are by definition "before the fact" in their application, i.e., before signs of the disorder are present; and

3. Primary prevention activities are "intentional" and based in sound generative and executive knowledge bases (Cowen, 1983).

We have learned these principles from prior intervention efforts and well articulated conceptual frameworks or theoretical models. Now let us see what happens when we apply these issues to youth suicide.

Being less certain of our expertise regarding suicide, per se, than we were about adolescence and prevention generally, we turned to the work of some colleagues, particularly those who, by their inclusion on this program, we could identify as experts in the area of suicide. Our first hope was that their work would tell us just when we could first identify/ categorize someone as suicidal (so we would know whom to target and if we prevented it). We also hoped the work of others would provide us with a thoughtful perspective on the current state of our knowledge concerning the causes of suicide so that we could then tie all this up in a neat set of suggestions for prevention. What we found was a field where the "answers", to our questions were highly ambiguous and, indeed, the data and models available to support whatever tentative answers at which we might arrive, was often in the formative stages of development. The state of the knowledge base specific to suicide is well articulated by Dr. Maris; he summarizes the literature thusly: "the fact remains--and this may come as a surprise to

most readers,--that few interdisciplinary surveys of suicidal behavior based on systematic samples have ever been done...thus one of the major problems in understanding self-destructive behaviors is that the data base for [generating] such potential explanations is conspicuously absent" (Maris, 1981, p. 6). He goes on to note the lack of sophistication in the designs employed even in those studies that have been carried out (e.g., lack of adequate comparison groups). Although this volume is dated 1981, our own reading of the research which has occurred in the intervening time seems to indicate that little has changed. While there have been several notable exceptions--for example, the data reported by Dr. Maris in his volume and elsewhere (Maris, 1985), and efforts by Drs. Motto and Garfinkel (Motto, 1985; Motto, Heilbron & Juster, 1985; Garfinkel, Froese & Hood, 1982) that focus more generally on "risk" factors--the cumulative weight of evidence necessary to address our concerns seemed lacking. Indeed, if one thing seems clear it is that whatever we knew about suicide in general, we knew somewhat less about youth suicide specifically.

Confronted by this state of affairs, it did not seem that we could make specific recommendations about the primary prevention of youth suicide because two of the basic requirements, i.e., an adequate generative and executive knowledge base and the presence of sound conceptual models, did not seem to be met.

We soon realized there were certain issues, such as the three identified earlier, that are basic to the mounting of all prevention programs and might be extremely helpful in moving us toward developing adequate ways of thinking about the prevention of youth suicide from the perspective of a "preventionist." Given the current state of the literature and debate about suicide, its causes, and its prevention, this literature does not allow us to answer several basic questions which need addressing if we are to mount effective prevention efforts. These include:

1. When are efforts aimed at the prevention of youth suicide primary prevention rather than secondary or tertiary prevention?

2. Who are the groups to whom interventions should be targeted?

3. Where do we intervene, i.e., at the system or individual level?

4. What are we trying to prevent?

As shall become clear, all of these issues interlock. Thus, conceptual or empirical slippage in one area may have a snowball effect. Let us turn to these issues now in the context of the youth suicide literature.

The question, "when is an effort termed primary prevention?" seems to be one which, by the focus of the suicide literature, if not attended to, could become a source of unintended conceptual confusion and dead-end efforts. A careful examination of the suicide literature reveals that an incredibly broad array of factors are seen as placing youth and others "at risk" for self-destruction. Maris (1982, p. 5) tells us that "under the best of conditions life is short, periodically painful, fickle, often lonely and anxiety generating" .... "only if the human condition were dramatically changed would suicide change much" (ibid., p. 6) and, finally, "suicide derives from one's inability or refusal to accept the terms of the human condition" (ibid., p. 8). The general point is that each of us may be more or less vulnerable to the stresses and strains of daily life and, under certain conditions of heightened vulnerability, may choose a suicidal alternative as the solution for adapting to these human conditions. By contrast, a number of other authors, including Drs. Garfinkel and Motto, as well as Dr. Maris in some of his other work, point to more specific factors such as parental divorce, a family history of mental illness, increased stress and alienation among the young, being other than heterosexual in sexual orientation, the presence of depressive symptoms or substance abuse, prior psychiatric hospitalization, parental employment history, the occurrence of non-lethal

attempts or a "suicidal career pattern", and the availability of lethal means, as all being risk or etiologic factors, most of these being empirically derived from epidemiological survey research (Garfinkel, Froese, & Hood, 1982; Greuling & DeBlassie, 1980; Maris, 1981; Maris, 1985; Motto, 1980; Motto, Heilbron, & Juster, 1985; Peck & Litman, 1973).

What becomes immediately apparent from this non-comprehensive set of risk factors is that, depending on which ones you elect to include on your list or to emphasize, the answers to: "To whom do we target our preventive efforts?" "What should be the focus of the intervention?" and "When should it occur?" are all quite different. The next step is to ask whether conceptual models or issues existed in the prevention literature which could help us think about these issues as they pertain to youth suicide. Having thus redefined the questions for ourselves, we can now answer these questions a bit more clearly.

Assuming that primary prevention is targeted toward people who are not yet showing signs of disorder, the range of risk factors identified by suicidologists coupled with questions yet to be resolved, such as whether unsuccessful attempts are at all comparable to lethal ones (Garfinkel, et al. 1982), present real problems for the design of preventive interventions.

Inherent in deciding the target of an intervention is that the timing of prevention is critical. Given the risk factors noted and a literal interpretation of the "before the fact" nature of primary prevention, it could be argued that any intervention to reduce the possibility of suicide by an adolescent who has not yet successfully taken his/her own life would qualify as primary prevention. Here, the reasoning goes, since one has not yet committed suicide one does not yet have the disorder. This position may seem a bit extreme and certainly a caricature of what a good prevention definition would be but for the fact that it is a position reflected in much of the risk instrument development research

(Maris, 1981; Motto, et al. 1985). In these works, there is much talk of how a suicidal career, prior suicide attempts, or major symptoms of depression and psychiatric disorder may be "risk" factors. It is clear that what we are really talking about is **identifying predictors** of a future lethal attempt, not precursors of suicide that are truly discontinuous with the disorder. The former is, of course, an important goal. However, identifying too many risk factors may be more paralytic than enabling for prevention efforts--particularly for the development of conceptual clarity to guide us in establishing a sound knowledge base for the prevention of youth suicide.

At this point, a key debate in the prevention literature becomes salient if we are to decide how and when to move from "risk factors" to programs. We need to be clear on how we answer the questions: a) Do we attempt to tailor primary prevention programs to the prevention of a specific disorder, or b) do we develop programs which are effective in alleviating a number of conditions that are antecedent to a range of emotional and physical problems, including, but not limited to the target problem?

The "specific disorder prevention" model rests heavily in a classic medical-public health paradigm which views diseases as caused by specific conditions that interact with individual vulnerabilities, again, specifiable. In contrast, the antecedent condition model argues that at least for a wide range of emotional and behavioral disorders, particularly those related to stress and other elements of the normal life-course, the specific etiology model is not appropriate (Goldstein, 1985).

Since many of the conditions that seem to predict youth suicide (for example, early trauma, sexual deviance, drug and alcohol problems, and negative social interactions (Maris, 1985), predict other predictors of lethal attempts (such as depression and non-lethal "gestures"), and are themselves predicted by these latter predictors, we see that a "specific etiology" strategy for prevention may not fit the problem. On the other

hand, as Maris (1985) has pointed out, the overwhelming majority of adolescents do not kill themselves. Further, we note that the overwhelming majority of those adolescents and youth who display the previously identified predictors and others like them, do not kill themselves. When viewed this way, it appears that a specific etiology strategy may be more relevant. To be sure, a research strategy that focuses on factors relating to differential vulnerabilities appears appropriate to both strategies. Resolving this dilemma at the program implementation level is more difficult. To some extent "they are both right--and also wrong." This is an issue that the working groups and the conference must resolve if we are to progress. We do have some suggestions, however, as to directions that may be helpful in structuring the discussion.

We need to distinguish between predisposing conditions, precipitating conditions, necessary circumstances, and causal factors. Let us work backwards from the simplest issue, causal factors.

As should be clear by now, the causes and pathways to youth suicide are multifactorial- a set of conditions on which my colleagues will elaborate further, and to which we will return shortly. Hence, to search for a specific etiology or specific set of causal factors seems somewhat futile and based more on our desire to emulate medical treatment of disease than on our understanding of the phenomena with which we are concerned. Indeed, even the medical establishment has embraced the concept of health promotion targeted at alleviating broadband risk factors as a major weapon. For us to include such a strategy under the rubric of prevention is neither inappropriate nor incorrect. To the extent that specific causal factors can be identified, we are generally able to do so only on a case-by-case basis. But, by this time, we believe we are far past anything that may be construed as primary prevention. Although we may intervene in specific causal factors and call this effort prevention, in that it may result in the individual's retreating from a

lethal attempt, in every other sense the intervention would be labelled by the medical establishment as heroic care and late intervention. Further, if we wait until specific causal or predictive factors are clearly present, the timing and targeting of the interventions can be determined only at the level of the individual case. That is not to say that such efforts are not critical to reducing youth suicide, but they are not primary prevention and attempting to label them as such will simply make the already murky conceptual waters even less penetrable.

Necessary conditions also seem easy to deal with. The youth needs both the means and the opportunity to engage in a lethal attempt. The availability of firearms, access to motor vehicles, "inviting" high places, and certain drugs may increase the probability of a successful attempt. At this point, we should also recognize that just as a knowledge of what dosage, height, or weapon is required for a lethal attempt, a lack of such knowledge frequently may move what was meant to be an attention- seeking gesture into the realm of a lethal attempt. Education and access are critical, at both the individual level, e.g., in the home, and through policy efforts, such as gun control and efforts to reduce teenage drinking or substance abuse and driving. We hope our working groups will attend to these issues in developing their recommendations.

In attempting to deal with the more general antecedents of youth suicide--predisposing conditions and precipitating conditions-- there appear to be more opportunities for true primary prevention, at least when contrasted to the specific etiology approach. As noted above, we may be required to decide first whether youth suicide is a specific phenomenon or part of more general behavioral or emotional problems such as depression, acting-out problems, risk-taking behaviors, and other self-injurious behaviors such as alcohol and substance abuse. It may be that we decide that suicide is both, i.e., that it has a large degree of shared variance with these other conditions as well as its own unique attributes, especially the intentional

use of lethal methods. Certainly, any clinician who has spent more than a few hours with adolescent clients and has seen their depression and sadness following the break-up with a boyfriend or girlfriend, or after a fight with their parents, knows the frequency with which they voice the wish to die out of revenge or for dramatic effect, is not low. Thus, if we find that the antecedents of some youth suicides are much the same as conditions predisposing to depression or acting-out behaviors, it should not surprise us. Indeed, one only has to remember adolescence and the verbalizations or judgments of our own friends to be surprised that more youth do not actually kill themselves. These observations make us realize that we should focus more attention on why more youth do not engage in suicidal behaviors, i.e., what conditions make them less vulnerable. To direct our inquiry and develop a greater understanding of the antecedents to youth suicide requires a perspective on prevention that will guide the questions we ask and will systematize the answers we obtain.

Elsewhere (Felner, Farber, & Primavera, 1983; Felner, Ginter, & Primavera, 1982; Felner & Lorion, 1985), the senior author of this paper and his colleagues as well as others (e.g., Lorion, 1983; Seidman, 1986) have begun to elaborate a model that we believe helps to meet these needs and is especially appropriate for the prevention of youth suicide given what we have discussed thus far. The model defines preventive interventions within a developmental framework and will allow us to view the full range of levels of preventive interventions for youth suicide. Within this model, a preventive intervention involves systematically altering the processes related to 1) the development of adaptation and well-being and 2) the evolution of dysfunction. The goals, quite clearly, enhance the former processes and reduce the latter processes that are experienced by children and adolescents. Further, given the emphasis accorded to the processes underlying the evolution of a specific disorder or set of adaptive difficulties, a developmental model that is transactional in nature (such as that of

Sameroff and Chandler, 1975), and that emphasizes the necessity of understanding the ecological context in which the child or adolescent is attempting to adapt, is clearly the paradigm of choice for moving toward more specific variables of concern. Such a transactional-ecological perspective emphasizes that dynamic transactions between individual and environmental factors lead to health or disorder, and specifying "a path" is not an outcome we should seek. Rather, specifying ways of understanding the relevant processes are of paramount importance. Moreover, to paraphrase Sarason and Doris (1979), it is worth emphasizing from a transactional perspective, that the individual and his environment can never be understood separately...from a transactional perspective the direction of the developmental influences is always reciprocal.

A brief example of how this approach may be combined with our notions of predisposing and precipitating factors to understand youth suicide may be helpful here. One of the "hot" media issues of the past few years has been "cluster" suicides among youths in the same school or town. The predisposing conditions for the youths who follow the first suicide may be depression or other psychiatric problems, low family support and/or a high degree of alienation from friends and family. All of these conditions both contribute to and are contributed by the emotional problems present. Children's feelings of not belonging in school or having a restricted future because of doing poorly in school may have similar impact. These latter conditions might result from the social climate of the school, its structure, or recent school transitions imposed by the system. Thus, individual, family system, and broader social system (e.g., peer/school) factors may all contribute to predisposing the adolescent to be vulnerable at this time. Nonetheless, these adolescents in general, have not yet considered suicide seriously or attempted it as a solution to their adaptive difficulties. Indeed, they may have attained relative equilibrium, however unsatisfactory, in their coping efforts.

Into this pot we put not only the model of another adolescent demonstrating that suicide may be an alternative coping strategy, but the response of the social system to that event. For a lonely, highly stressed adolescent, with the particularly strong needs for identity and acceptance that characterize this age, the overwhelming attention and grief that the system and other persons pay to the suicide, may be sufficiently attractive and satisfying to many of the adolescent's immediate needs at a level that results in disequilibrium and, in turn, precipitates an attempt. It is this change in equilibrium which seems to discriminate between those who make a lethal attempt from those who do not, and for whom it is so difficult to specify a distal causal pathway. In this situation, more proximal factors seem more salient. If access to lethal means is relatively easy (e.g., if guns and ammunition are available in the home), the probability increases that a momentary, impulsive act may occur. Similarly, anything which enhances the attractiveness of suicide as a coping strategy may also tip the scales (e.g., another incident with resulting publicity, a fight with one's parents or significant other, etc.). That environmental factors may contribute here is obvious from the pattern that seems to indicate that cluster suicides tend to be less common in large systems (e.g., schools, towns) where anonymity is greater, where there may be less publicity, and the possible pay-off, in terms of the adolescent's own developmental issues, seems less certain or clear. This example illustrates the very complex interplay of developmental and environmental circumstances and the individual's own limited range of coping ability. Further, we see that: (1) both predisposing and/or precipitating conditions may be necessary for many youth suicides to occur and; (2) even when both sets of conditions are present, in most instances, suicide does not occur. Perhaps even more ironic is that children experiencing these conditions may be more "at risk" in systems in which we might assume lower risk, i.e., small, cohesive ones. Similar examples may be developed for the high rate of suicides among

children who seem to be doing very well academically or socially (Maris, 1985) as well as those who are more obvious risks for the full array of psychological and self-injurious difficulties that plague adolescents.

The above may make it seem as if primary prevention programs targeted to youth suicide will have little pay-off and that broad scope suicide prevention programs may actually influence the actions of only a small group of children. We would like to argue that such views are short-sighted but, given base rates, perhaps natural conclusions will result from specific etiology or specific outcome-targeted prevention programs. What we mean is, if we develop broad-based prevention programs for the prevention of youth suicide, with our only goal being the reduction of actual cases of suicide, the very limited resources available for medical and mental health programs may force us to conclude that what little funding is directed toward prevention of youth suicide may be better spent.

What strikes us as particularly ironic is that although other federal agencies such as the Department of Defense and NASA take pains to convince us that we get far more for our dollar, especially our R & D dollar, than the targeted "product", we in human services, at least at this time, are going the other way. We fail to see the harm in reducing the incidence of school failure, adolescent depression, non-lethal suicide attempts, and the rest of the range of health-risk behaviors that adolescents engage in, while we also attempt to reduce the suicide rate. Indeed, if we follow the model we have advanced above, such multiple-outcome effects seem expected and, if the programs are effective, unavoidable. Documenting the positive as well as negative, but unintended or "ancillary" consequences of suicide prevention programs should not be discouraged. Indeed, studying the full range of outcomes associated with such programs may provide important clues on how to maximize our effectiveness in the prevention of youth suicide *per se*.

If one implements the preceding transactional model with the goal of reducing antecedent or predisposing conditions and influencing the individual's threshold of vulnerability to these conditions in addition to preventing youth suicide per se, then the lack of information specific to the effective prevention of youth suicide becomes less of a barrier to action. Programs which represent both levels of primary prevention, as outlined by Cowen (1985), may be effective as well as essential for dealing with youth suicide. The first level is system-focused with the emphasis on understanding and modifying the multiple social systems that affect the mental health and well-being of individuals in ways that reduce stress and increase life opportunities. Examples that have been powerful influences on the general mental health and well-being of adolescents are a) policy interventions which increase the sense of control youth feel they have over their futures, b) modifications of major ecosystems in which adolescents must function, such as schools, and/or c) efforts at grass-roots level interventions, such as the much publicized group of New York city students receiving free college educations from an alumnus of their grade school.

Similarly, second-level primary prevention programs, which are more person-focused, may also be effective in achieving our goals. Rather than influencing the individual's threshold of vulnerability by making systems to which a person must adapt less difficult or reducing the levels of challenge that the environment poses so that the adolescent's pre-existing competencies may ensure well-being, second-level programs seek to enhance the problem-solving and coping skills of the individual more directly. Education programs, skill-building curricula, and resource/support networks may accomplish these goals.

Both strategies may be applied to either general populations of youth or youth in specific high-risk circumstances, e.g., school transitions, parental divorce, households with a parent with serious emotional disturbance. The elaboration of the specific systems, competencies and vulnerabilities that need addressing, and the definition of the predisposing and/or precipitating conditions that may be appropriately "co-targeted" with youth suicide, we leave to our colleagues.

For the general purposes of prevention, if we adopt a developmental-transactional-ecological perspective, several points need to be addressed further:

1. When and how do we identify a child or adolescent who is the appropriate concern of a primary prevention program for youth suicide?

2. Are antecedent conditions the appropriate and/or necessary targets of such programs? Are adolescent suicide and the search for specific etiologies the only conditions with which we should concern ourselves?

3. If we choose broad-based preventive approaches, as we propose, how can we draw on our understanding of general developmental data and models, as well as prevention programs that have been developed for less focused outcomes, such as as the problem-solving approach of Spivak and Shure and the senior author's own transition program efforts, to implement and evaluate effective primary prevention efforts.

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A CRITICAL REVIEW OF PREVENTIVE INTERVENTION EFFORTS IN SUICIDE, WITH PARTICULAR REFERENCE TO YOUTH SUICIDE

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INTRODUCTION

The Purpose of this Review

The principal goal of this review is to identify studies which have used reasonable methodologies to evaluate the success, or otherwise, of prevention activities in youth suicide. We have, however, identified no such studies. Given the quantity of preventive activity that is being conducted, this is a matter of concern. Rather than simply concluding that the lack of research is critical in this area, we have extended this inquiry to summarize what is known about the value of suicide prevention activities for other age groups. Many activities intended for adults may also be appropriate for teenagers; we hope this review will provide some guidelines for those concerned with preventing teen suicide.

General reviews of the suicide prevention literature which the reader may find valuable, include Motto et al., 1974; McGee, 1974; Stelmachers, 1976; Auerbach and Kilmann, 1977; Stein and Lambert, 1984.

Defining Prevention

The classification of suicide prevention follows the classification of suicidal behaviors.

If suicidal thoughts, attempts, and completions are on a psychological or behavioral continuum, as common sense would suggest, then primary prevention efforts should be broadly directed, aiming to reduce all suicide morbidity including threats and attempts, for all are signs of suicide potential. On the other hand if attempts and completions are separate but overlapping entities as has been by proposed by Stengel and Cook (1958), Neuringer (1962) and others, and if only a minority of those who attempt or threaten suicide really want to die, then the focus of "primary prevention" should be that subgroup of attempters or threateners who bear a "high risk" profile for later completion.

This question is sufficiently important that it is worth considering the evidence for the continuous versus the separate theories of suicide and attempted suicide.

Demographic Differences Between Suicide and Attempted Suicide.

The case for the two disorder hypothesis relies on both the manifest ambivalence of many survivors and the marked demographic differences between suicide attempters and

completers which have been shown in most studies (Dublin, 1963; Sainsbury, 1955; Kennedy et al., 1974). Suicide attempts are more common in females than in males whereas suicide, especially in the young is more common in males than females. In our current New York study, the ratio of males to females for under 19 year olds is approximately 4:1 for completed suicides. National statistics for 1981 reveal a male:female ratio of 4.35:1 among 15-24 year olds, and 3.6:1 for the total population of all ages. Although these statistics rely upon medical examiners' determinations, there is evidence that more aggressive case finding methods do not materially alter the ratio (Kennedy et al., 1974).

Another demographic index which is believed to discriminate between attempts and completions is AGE. Studies undertaken 2 to 3 decades ago indicated that the incidence of suicide attempts peaked in the teens and early twenties (Kennedy et al., 1974) and then declined, whereas completed suicide became increasingly common with advancing age. This age discrepancy has now diminished, at least for males, as completed suicide is now more common in younger than in older males and no evidence suggests that the previously identified pattern of high incidence of suicide attempts among the young has changed.

While the epidemiological data are undoubtedly accurate, one cannot infer from them that the outcome of suicidal behavior, i.e., whether it is successful or unsuccessful, defines two different conditions. This is because both age and sex are related to method preference which in turn, is closely tied to outcome.

Age-related method preference is not well documented, but what evidence exists suggests younger children and teenagers overdose with less lethal drugs than adults. Morgan et al. (1975) found that teens most commonly overdosed with over-the-counter analgesics, whereas older patients favored more dangerous psychoactive drugs (usually

obtained by legitimate prescription from a physician). This difference might be expected to result in a smaller proportion of suicides attributable to overdoses in the young, which is precisely what is found (Centers for Disease Control, 1985).

Females are more likely to take an overdose (Weissman, 1974), males to use firearms or to hang themselves. Given current medical skills, overdose is generally an ineffective way to commit suicide. It could be argued (and usually is) that these differences in method preference arise because suicidal females are less motivated to die and knowingly choose less lethal methods. The difference in lethal intention is cited as further evidence of a two disorder hypothesis.

It may be, however, that the sexes are similar in their (generally ambivalent) motivation to die, and that choice of method is a sex-related behavior. That is, the sex differences between completed and attempted suicide may not reflect different degrees of intention, but rather that when the sexes feel suicidal they do different things about it. These different things, at least in North America and Western Europe, have a high probability of leading to death in boys and a low one in girls. Interestingly, a report of consecutive suicides in India (Sathyavati, 1975) shows no sex differential, suicides being as common in teenage girls as in boys. One could speculate that this occurs because resuscitation methods are less effective in that country.

The gender association of method could be a sex-specific behavior preference without psychopathological significance; or, it could be mediated by difference in psychopathology in suicidal males and females. Some evidence supports this. In our New York study we find high rates of aggressive and antisocial behavior and relatively low rates of pure major depressive disorder in boys who have suicided, but the reverse in girls. One cannot infer from this difference, however, that intention to die is different in the two conditions.

Direct Evidence for Continuity Between Suicidal Thoughts and Behaviors.

Paykel et al. (1974) in their New Haven study of a household probability sample of adults, posed questions about different degrees of suicidal ideation and behavior. These were strongly interrelated in a hierarchical fashion. Almost all subjects with more severe symptoms had experienced those that were less severe. More interesting for the present argument is that the correlates of different levels of severity were similar. Individuals who wished they were dead resembled those who had actually made a suicide attempt (the two extremes of the continuum) with respect to both demographics and associated symptoms. Pfeffer et al. (1984) reports similar findings in school children. Those who had thought of dying were as deviant as those who had made a suicide attempt and showed a similar profile of associated symptoms.

There is also evidence for overlap between suicide attempts and completions. Most retrospective psychological autopsy studies show prior attempt rates of between 30 percent and 50 percent (Shaffer, 1974; Kennedy et al., 1974; Robins et al., 1959; Dorpat & Ripley, 1960; Barraclough et al., 1970). Conversely, followup studies of attempters show suicide rates 50-60 times that in the general population.

Poor Predictive Specificity of Attempter Characteristics.

If attempters and completers are drawn from the same population, we would expect difficulty in predicting future completions among suicide attempters. Although not extensively studied, the evidence supports this prediction. Motto's (1984) 5 to 15 year followup of teenagers admitted to hospitals after an attempt or with serious depression showed that although certain factors were proportionally more common in those who would go on to suicide, the same factors were numerically many times more common in at-tempters who would not, i.e., the base rate in non-completers was high and there were no pathognomonic features for later completions.

The same has been found in followup studies of adults where, not only demographic characteristics, but the extent to which the suicide attempt could be judged to be serious (i.e., isolation during the commission of the attempt and its medical seriousness) were not predictive of later death (Greer and Lee, 1967). Discriminant function studies which identify differentiating characteristics in suicides and attempters (Pallis et al., 1982) draw upon different population bases, and it is not clear whether the apparent independence is a function of different conditions or different population frames.

Suicide Accelerators Affect Both Deaths and Attempts.

We cite evidence below (Gould and Shaffer, 1986) that certain television programs which dramatize the plight of the suicidal teenager serve to increase both suicidal deaths and suicide attempts.

COMMENTS: Given these uncertainties it seems wisest to adopt a conservative approach and regard any suicidal behavior as presaging completion. Primary prevention would prevent the initial occurrence of suicidal ideation or behavior; secondary prevention would prevent non-lethal suicidal behavior from progressing to death.

We have adopted this approach in organizing this paper and have grouped as **primary preventions:**

1. Altering the set towards suicide in unaffected individuals by, for example, providing information on suicide behaviors in classes to normal non-disturbed schoolchildren, or in special services for survivors.

2. Early identification and treatment of conditions which are known to predispose towards suicidal behavior, before suicide is contemplated.

Secondary preventions should reduce the potential for completion among those who have already threatened or attempted suicide, through:

1. Removal of the means for committing suicide.

2. Emergency crisis interventions at times of maximal distress.

3. Ongoing treatment after the crisis has passed.

PRIMARY PREVENTION

Preventing Suicidal Behavior in Vulnerable Groups

General Psychiatric Care

We have argued above that the feature most likely to be shared by suicides is a history of mental illness. It follows, other things being equal, that the introduction of psychiatric services to a community should reduce the burden of mental illness and with it the suicide rate. This has not been found to be the case.

Neilson and Videbech (1973) examined the impact on suicide rates (all ages) of the introduction of a psychiatric service to the island of Samso off the coast of Denmark. There were no differences in suicide rates during the 5 years before and after the introduction of the service. Similarly Walk (1967) examined suicide rates in the county of Sussex in Great Britain before and after the introduction of a community service and found no effect on suicide rates.

COMMENTS: These studies are often cited as evidence that psychiatric treatment does not reduce suicide morbidity. However, neither of the studies had a control and so it is possible that apparently stable rates were occurring at a time of a more general rate increase. This is unlikely to be true in the Walk study however, because at the time, suicide rates were declining in Great Britain. More importantly the studies were conducted before the widespread use of antidepressants and lithium and therefore, do not reflect the impact of current effective antidepressant therapies.

High Risk Groups

Prevention would be most efficient if we could identify individuals who have both a high probability of later suicide and some common characteristics which allow them to be centrally identified and taken into prevention programs.

If we believe that suicide arises because of a set of social circumstances or life conditions, and that to commit suicide is in any way a "reasonable" response to untenable life conditions, then the high risk group would most likely be accessible to social rather than mental health agencies. However, there is good evidence that no matter how understandable a suicide may be to an outsider, it is almost always a sign of psychopathology. Primary prevention is, therefore, most appropriately an activity for the mental health professional. Brown (1979) summarized this view succinctly "...although psychiatric disorder may not be sufficient cause for suicide in current Western cultures, it is a necessary one...". The evidence derives from a number of sources:

a. Psychological autopsy studies on representative groups of suicides (Dorpat and Ripley, 1960; Robins, 1959; Barraclough et al., 1974; Shaffer, 1974) have found very few suicides to be free of psychiatric symptoms.

b. There have been similar findings among suicide attempters (Morgan et al., 1975; Birtchnell and Alarcon, 1971; Silver et al., 1971).

c. A majority of suicides have had contact with a mental health professional before their death.

d. Followup studies of formerly hospitalized psychiatric patients indicate that they have significantly higher suicide rates than nonpatients (Temoche, 1964; Pokorny, 1964, 1983).

e. Super-normal control groups, created by screening out individuals with psychopathology have very low suicide rates (Winokur and Tsuang, 1975).

It follows that the most appropriate group for preventive interventions are individuals with current or previous psychiatric disorders--a dauntingly large group. However psychological autopsy studies carried out on adults have found that a rather narrow range of associated psychiatric disorders (affective disorder and alcoholism) account for most suicides.

Similarly, diagnostic analyses of child and teenage suicides carry the promise of defining more specific groups. Shaffer (1974) found that a small proportion of suicides (predominantly girls) are depressed and that a large group show a combination of affective and antisocial behaviors. The epidemiologically-based study we are currently carrying out in the New York metropolitan area will provide detailed DSM III related diagnostic information on approximately 150 teenage and child suicides and will, we suspect, confirm the findings of the other studies. We also hope that it will allow us to define the suicide group more precisely by seeing whether other characteristics such as a family history of suicide, and specific family constellations and social circumstances, are more common in suicides. The highest risk group, however, appears to be individuals, who have made a prior suicide attempt.

Suicide Attempters or Depressives

It is generally assumed that the diagnostic group with the highest risk for later suicide are individuals suffering from an affective disorder. Lists of warning signs generally include the symptoms of depression and findings are generally consistent in adults relating suicide to depression. Temoche et al. (1964) and Pokorny et al. (1964) both found that suicide was significantly more common in previously hospitalized patients who had received a psychiatric diagnosis of depressive psychosis. Robins (1959), reviewing studies which mainly dated from before the

widespread use of lithium and antidepressants computed an overall 15 percent suicide rate for manic depressives. However, our work with adolescents (Shaffer, 1974) suggests that only a minority of suicides show a picture of uncomplicated depression and that the largest diagnostic group comprises youngsters with both aggressive and antisocial symptoms and depression.

Depression may not be a very specific group for later suicide. Major Depressive Disorder (MDD) has an estimated one year prevalence of 2,000/100,000 in adolescence (Anderson et al., 1985; Weissman et al., 1985; Kashani et al., 1983). In our current New York study we have found that only 25 percent of suicides meet criteria for Major Depressive Disorder giving a one year incidence of 3/100,000. In one year the ratio of depressed teenagers to depressed suicides would be approximately 660:1 (higher for females). This high risk group would not only identify many false positives, but also nonspecific in failing to identify approximately 75 percent of suicidal deaths.

Attempted suicide would seem to be a better bet, although not strictly within the domain of primary prevention. We have already referred to studies that found that a significant proportion of suicides made a previous known suicide attempt, i.e., the attributable risk among suicides for prior attempted suicides is high. The relative risk among attempted suicides for later suicide is, perhaps, a more important statistic. If there is an effective way of aborting the natural history of suicide attempters which terminates in suicide, this ratio will indicate the magnitude of the task.

One way of finding this out is to examine the relative frequency of suicide and suicide attempts in an unselected population. We have found no studies which have generated age and sex-specific attempt and suicide rates for the same area. Rough and ready calculations can be done and we have tabulated data from studies into the incidence of suicide attempts. Paykel (1974) found a one-year prevalence of suicide attempts of

600/100,000 (The prevalence of suicidal ideation was 9000/100,000). Johnson et al. (1973), in a survey in London, Ontario found an attempt rate of 750 to 1,500/100,000. Given an overall suicide rate of 12/100,000 in adolescents this would put the ratio of attempts to deaths at 50 to 120:1. These figures are not corrected for age or multiple attempts and it is expected that the ratio would vary in different age and sex groups, being higher in teenage girls. Nevertheless these ratios are a good deal lower than those for major depressive disorder (MDD).

A better strategy is to identify all of the known attempts within a given geographical area. Studies approaching this goal, which have included studies of non-accidental drug overdoses by Morgan et al. (1975) in the British city of Bristol and Daly et al. (1986) in the Irish city of Cork, generated age-specific attempt rates. Neither study evaluated suicide attempts treated by non-clinic based general practitioners and both confined their study to overdoses. The rates are therefore likely to be an underestimate of the true rate.

However, if the same attempt rates prevailed in the United States it might appear that between 30 and 50 attempts at suicide for every completed male suicide, and between 150 and 300 suicide attempts for every completed female suicide. These would provide quite reasonable rates for focusing on an at-risk population.

Suicides, however, are not drawn uniquely from the pool of known suicide attempters. Studies in different age groups and in different countries are surprisingly consistent in showing that only between 25 and 40 percent of suicides have made a previously known suicide attempt. These rates were found by Shaffer both in his British study of children under age 15 (1974) and in his U.S. study of predominantly older teenagers. Similar rates were reported for adult suicides in the U.S. (Dorpat and Ripley, 1960; Robins et al., 1959) in England (Barraclough et al., 1974) and in Scotland (Kennedy et al., 1974). (There is as yet no information about whether the proportion of deaths attributable to prior attempts varies with sex or ethnicity.)

The ratios of attempts to completions should, therefore, be modified and minimum estimates would range from around 60:1 for older male teenagers to approximately 600:1 for younger female teenagers. These are formidable ratios and certainly indicate that if we can find out how best to treat these patients we should put most emphasis on male adolescents generally and older ones most specifically.

Case Finding

Effective prevention requires that vulnerable groups be identified and apprised of the preventive intervention. Although many adult suicides are known to be in contact with a treating physician shortly before their death (see below), this finding may not apply to children and teenagers. Preventive efforts for this age group have characteristically concentrated on identifying potentially vulnerable cases in schools or through the public media.

Case Finding Through Physicians

It appears that many adult suicides contact their physicians shortly before their death, suggesting that preventive identification channeled through primary health providers may be effective.

Barraclough et al. (1974), in their British study of 100 consecutive suicide completers found that just under 50 percent had visited their physician during the week before their suicide. Murphy et al. (1975) and Motto and Greene (1958), in their study of previously hospitalized suicide attempters and depressives found that a high proportion of suicides (all ages, predominantly adult) had visited a physician shortly before their suicide, 17 percent in the month before death. The difference could be due to the ex-patients' insight into the psychiatric nature of their condition, or to the different nature of the health services in Britain (with minimal charges and universal enrollment with a primary

physician) compared to the United States.

The same is true in the case of attempted suicides. Motto and Greene (1958) reported that 60 percent of suicide attempters had consulted a physician during the 6 months before their death. Johnson et al. (1973), in a followup of 878 attempter cases, found that 55 percent had seen their physician during the month before their death. Morgan et al. (1975) found that 21 percent of a sample of consecutive suicide attempts seen at an emergency room in Bristol had contacted their physician during the week before their attempt and more than half had done so within three months of their death.

Studies are also consistent in showing that the physicians contacted are not aware of their patient's suicide potential. In Murphy's series, two-thirds of the suicides had a prior history of suicide threats or attempts, yet only 40 percent of their physicians knew this. A high proportion of the attempters in Johnson's study had made a previous suicide attempt, but again, only 20 percent of the affected physicians knew of this.

Motto (1969) has suggested that physicians' own anxiety about suicide or about handling a potentially suicidal situation inhibit them from making appropriate inquiries. Johnson suggested that physicians tend to view suicide attempts in the same light as alcoholism, as a repetitive self-induced disorder for which they can do little in the face of absence of motivation by the patient.

We do not know if the same is true for teenagers, but clearly it would be advisable for physicians to inquire routinely whether any depressed or suicidal patient has made a previous attempt, has ever been hospitalized for a psychiatric condition, or is a heavy user of alcohol or drugs, all factors which appear to increase the probability of suicide.

Case Finding Through School-based Programs

Description of School Programs

School-based intervention programs are becoming increasingly common, often being es-

tablished by local or State legislation, as a result of community pressure, following a wave of suicides. Most aim to:

a. Increase the sensitivity of responsible individuals within the school to the features of the suicide-prone child. Methods include lectures, videotaped interviews with teenagers who have made a previous suicide attempt, small discussion groups, and the distribution of lists of "early warning signs".

b. Provide information about special resources where pupils suspected of being at risk may be referred for treatment or help.

c. Provide some training in the behavioral skills that teachers, counsellors or other pupils can use when they identify a child at risk. The goal is to establish a relationship of trust and support with the child at risk, encourage open communication of troubling thoughts, and make it easier for the child at risk to accept a referral to a specialist resource.

d. Lower the constraints children and teenagers have about discussing suicidal thoughts and preoccupations, thus encouraging self disclosure. This may be done by raising the subject in open group discussions, sometimes with known disturbed youngsters in attendance (Ross and Motto, 1984). These discussions may take place in large assemblies, in smaller groups of 10 to 20 students, or in the context of a regular class.

Such programs are variously addressed to groups of school personnel, parents, and/or students. Some school districts have expressed reluctance to offer "suicide education" to students and have, instead, developed programs or curricula dealing with the more general topic of adolescent stress.

Evaluation of School Programs

One of the most striking features of this review is the almost complete absence of any systematic evaluation of in-school programs.

Ottens (1984) describes responses to a questionaire distributed before and after a 4 hour

course to 31 college counselors and students. Post-course scores on questions about appropriate responses to a hypothetical crisis situation more closely approximated the responses that were taught in the class. Correlations are described but no statistics are presented and there is no evidence that the paper and pencil responses are in any way representative of real skills. In fact, this seems unlikely as student responses were apparently similar to those of experienced therapists.

Descriptive material prepared by the program in Fairfax County, Virginia, notes that during its first year of operation there were 5 deaths and during the second year only 3. It acknowledges that this change could be due to coincidence. The publication states that the administrators believed the program was going well and stated, anecdotally, that since it started, school-based counselors had experienced an increase in referrals and school staff had become more sophisticated in identifying pupils in trouble. However, as Stein and Lambert (1984) have demonstrated, counselors' self-evaluations (Apsler and Hoople, 1976; Getz et al., 1975) of their own usefulness and efficacy tend to be optimistic, are prone to bias, and cannot be accepted as reasonable evidence of efficacy.

Ross (1980), describing the San Mateo county program, reports (anecdotally) that the introduction of the program led to an increase in referrals to a suicide prevention program. Workers in this field often comment on the absence of systematic evaluations, but they usually state, with some justification, that staff who are excellent at intervening may not have the necessary skills to do a sound evaluation. Others comment that the problem is too urgent to await the results of any research evaluation.

Comments on School Programs

Given the dearth of systematic evaluation of these important programs it is reasonable to comment from general principles.

a. Early warning signs: Most are brief lists which emphasize the features of a recent onset of depression, i.e., changes in mood, decreasing sociability, decline of school performance, increasing irritability, and some specific behaviors such as making suicide threats and giving away possessions. They have presumably been based on either the collective experience of professionals who have investigated individual cases of suicide, or on stereotypes. They are not derived empirically from representative samples, quite simply because no systematic descriptions of the natural history of changes prior to death exist for teenagers.

We hope that when the New York study has been completed that we will be able to provide this type of information. However, at first sight, the traditional warning signs do not fit the large number of cases we have seen who have longstanding behavior and academic problems and were often frequent users of drugs and alcohol. Only a minority present a picture of recent onset of a major depressive disorder.

Given that lists of signs which do not emphasize the chronically disturbed youngster may be ineffective because they do not identify the cases at greatest risk, might the lists be harmful? As stated above, epidemiological studies indicate a one year prevalence of depression in teenagers of 1 to 3 percent (Weissman et al., 1985; Anderson, 1985; Kashani et al., 1983). The one year incidence of teen suicide is around 12/100,000, i.e. in one year, depression affects 1,000 to 3,000 times more teenagers than suicide. Linking the common problem of depression to the uncommon one of suicide may serve to expedite referrals and increase compliance with treatment, but it may also introduce the notion of suicide as an appropriate response to teenagers who were not suicidal. We emphasize that there is no evidence either way on this point, but we believe it is an important question that needs to be answered.

b. Promoting discussion of suicide in class: Enough evidence suggests that young people imitate actual and fantasized suicide to warrant concern about this technique. The

evidence includes:

1. Phillips' (1979) demonstration that prominent display of the news of a suicide leads to an increase in suicidal deaths during the period immediately following the display. (Only two weeks ago we participated in a case conference on an eight year old child who attempted to stab his abdomen with a kitchen knife, the day after a prominent politician committed suicide in this way.) In a recent communication Phillips indicated that most of the excess suicides which occur in this context are of younger people.

2. Gould and Shaffer's study of television docudramas (see below) has demonstrated that these broadcasts have the effect of increasing teen suicide attempts and deaths.

3. Kreitman's (1970) observation that young attempters had many more close contacts with those who had made a suicide attempt than non-suicidal psychiatric controls.

4. The occurrence of suicide clusters which are very probably the result of imitation.

This evidence raises the possibility that classroom discussions will, as intended, raise awareness of the topic and introduce, de novo, suicide in the range of contemplated behaviors for the teenage pupil, i.e., that it will "put ideas in their head". This risk must be weighed against the intended benefit, i.e., that it will facilitate disclosure of some pupils' pre-existing suicidal preoccupations and that this will, in turn, lead to intervention which will reduce the risk of suicide. This important issue remains unanswered. It is clearly a matter of some urgency that quality research be undertaken to determine whether the effects are benign or beneficial.

Case Finding by Television

Attempts have been made to harness the impact of television to promote awareness of suicidal situations and to encourage appropriate referral. Holding (1974; 1975) examined the impact in Edinburgh of an 11-part weekly television series, "The Befrienders," which illustrated the predicament of a suicidal individual who was then helped by the Samaritans. During the calender year in which the programs were shown, referrals to the Samaritans increased 140 percent. However there was no change in the number of attempted suicides treated by hospitals in the city.

The effect on suicide deaths was examined by tabulating both suicides and undetermined deaths (a group usually considered to consist largely of suicides (Holding and Barraclough; 1978)) during the ten weeks after and the ten weeks prior to the series and for the same period of time in 4 previous years. In each of the previous years the number of suicides had declined during those weeks. However, during the year under examination the rate remained stable. There was no reduction in the number of suicides during the broadcast of the television series.

Gould and Shaffer (1986) have examined the impact of dramatized television presentations of suicide on a youthful audience. Over a period of approximately 4 months, the major U.S. networks broadcast 4 dramatizations of either a young person's suicide or the reaction to a suicide in a parent. The programs were broadcast with advance publicity clearly stating that they were intended to make the public aware of the problem of youth suicide. To a varying degree they were coordinated with community programs. In some cases this took the form of advance distribution of informational material indicating where treatment for the suicidal adolescent was available or material for teachers, parents, and teens outlining the clinical features which may be present in the teenager who may try suicide. In some cases the local affiliate arranged for a hotline number to be flashed onto the screen at varying times during the program.

The incidence of completed suicides among teenagers aged 19 or under was examined in the States of Connecticut, New Jersey and part of New York State in 14 day blocks during the 4 months when the programs were shown, and for two one-month periods

before the first program and after the last. Comparisons were made between the death rate during the 14 days before and after each program, and between an overall expected rate and observed rate after each show. Similar comparisons were made of the number of attempted suicides treated at 6 large hospitals in the New York City area.

Suicidal deaths increased significantly during the ten days following three of the programs but there were no deaths after one of them. A similar effect was noted on attempted suicides.

It seemed unlikely that the increased number of referrals for suicide attempts was due solely to increased awareness or a decreased referral threshold for parents or teenagers (which might have been expected to increase the proportion of minor attempts during the after period) because the severity of attempts after the programs was similar to those before the programs and because the effect was on both attempts and suicides.

It also seemed unlikely that the increased number of deaths was due to a bringing forward of suicides which might have occurred anyway. If this had been the case, one would have expected to note a reduction in the frequency of deaths at some point after the program, but this was not seen.

COMMENTS: Television programs are effective in publicizing the availability of services. However, they do not reduce the number of suicide attempts and may, in fact, increase them. They also appear to have a provocative effect on suicide deaths. The discrepant findings from one of the programs studied by Gould and Shaffer, while not statistically significant, is intriguing because it holds out the possibility that the dramitazation may have special features which prevent it from having an unwanted effect and which might even have a preventive effect. These features could lie in the associated community work or in some of the contents of the dramatization; this is clearly an important area for future research. Finally, the fact that the "Befrienders" series resulted in an in-

creased number of referrals to a crisis service without reducing suicide morbidity, suggests that crisis services on the model of the Samaritans are ineffective in reducing suicide morbidity.

Interventions after a Suicide

Parent Survivor Groups

After a teen's suicide, the surviving parents and siblings experience significant distress and dysfunction. There is also evidence of increased suicidal morbidity in the surviving families (Murphy et al., 1964; Augenbraum and Neuringer, 1972), so that postvention with survivors may have a preventive function. The effects on subsequent suicides may be difficult to assess. In the only prospective study we know--a five year followup of the families of 100 successful suicides--Shepherd and Barraclough (1974) found no examples of suicidal behavior.

In practice, "postvention" and prevention activities are frequently carried out by the same units. Survivors of suicides are an important source of manpower for suicide prevention projects and may initiate or give other support to these activities.

We found no studies which specifically set out to examine the impact of survivors' groups on the subsequent suicidal behavior of survivors. In a series of publications, Videka-Sherman (1982a; 1982b; Videka-Sherman and Leiberman, 1985) examined changes in coping responses and mood in recently bereaved parents who attended meetings organized by "Compassionate Friends," a self-help group which provides support to parents who have lost a child by any type of sudden death. The number of losses through suicide, if any, is not indicated. However, in the absence of other data, the findings of the study are reported:

2,422 parents on the register of several chapters of Compassionate Friends were surveyed by mail on two occasions to ascertain coping responses to their child's death and to elicit depressive and other psychiatric symptoms. The response rate was low; only

667 (28%) answered the first survey and only 391 of these (17% of the original sample) provided additional followup information. The social demographic distribution of the responders indicated that they were predominantly white and upper middle class.

There was no bereaved non-referred control group and comparisons were made between those who attended several meetings and those who either did not choose to attend or who dropped out of the program at an early stage. Depression scores were not influenced by attendance, dropping equally in both those who attended and who dropped out of group sessions. The coping style most likely to be associated with high depression scores was an obsessive preoccupation with the memory of the child. The coping styles associated with best adaptation were immersing oneself in another activity, or having a replacement child. Attendance at the group did not influence the development of either of these styles but did enhance altruistic activity which regardless of its beneficial effects for society did not, in itself, appear therapeutic.

Rogers et al. (1982) reported an uncontrolled study of a Survivors Support Program coordinated professionally but administered by volunteers. Groups met in 8 sequential 2 hour didactic sessions followed by 4 biweekly discussion groups. The attendees were divided evenly between spouses of suicides and parents of young suicides. When asked to identify their current problems almost all indicated that they felt guilty, detached from the event, and abandoned. Many idealized the deceased. They scored high on the somatization, phobic, and obsessive compulsive scales of the SCL-90. At followup several weeks after terminating the program, 33/37 cases were contacted. Most of the participants reported that the program had been helpful and showed a decline in SCL-90 scores.

COMMENTS: Only limited conclusions can be drawn from these studies. Without a control group it is not possible to know whether the improvement in SCL-90 scores reflects the natural history of mourning or the effects of intervention. Videka-Sherman's studies did not specifically examine suicide survivors. It examined a self-selected population and did not randomly assign eligible survivors to group or no group conditions. It therefore suffers from all of the drawbacks of any inference about the effects of an intervention that is based on a comparison between compliers and non-compliers.

SECONDARY PREVENTION

Reducing the Lethality of Suicidal Behaviors

With the sole exception of suicide by hanging, which in 1981 accounted for 40 percent of all suicides among U.S. boys under age 14, but for only about 20 percent of male suicides in older age groups, the methods used by young children and adolescents are very similar to those used by older individuals of the same sex (CDC, 1985). Preferred methods also vary in different countries and appear to be generally stable across time. It is, therefore, reasonable to expect that an attempt to reduce accessibility to, or to improve the treatment of the outcome of any common method, should reduce the suicide rate in general and have impact on teenagers.

The British experience is an example of how reducing access to the means of suicide can have a significant effect on reducing the suicide rate. Starting in 1957, the mean carbon monoxide content of domestic gas was reduced from 12 percent to 2 percent through the introduction of natural gas and modifications in the conversion process from coal. The process was completed by 1970. Prior to these changes, self asphyxiation with domestic cooking gas accounted for more than 40 percent of all British suicides and for an even higher proportion of male suicides (Hassall and Trethowan, 1972; Kreitman, 1976).

During the period of gas content change, British suicide rates from carbon monoxide asphyxiation declined precipitously, accounting for fewer than 10 percent of all suicides

by 1971. Furthermore, the overall suicide rate declined by 26 percent and analysis of death by different methods showed that almost all of this reduction could by attributed to a fall in deaths from domestic gas asphyxiation.

What appears to have happened was that the suicidal population, denied access to a universally available, non-deforming, non-violent method, did not then turn to other more violent (and more lethal) methods, but instead chose another non-violent method which was similarly, readily available--self-poisoning. The incidence of suicide attempts from overdoses increases markedly during this period (Johns, 1977). The impact of this change of method on suicide deaths appears to have been dampened because over the same period self-poisoning became progressively less lethal, in part because of the substitution of the less dangerous benzodiazepine drugs for the highly toxic barbiturates, and in part because of improved methods of resuscitation. Most significantly, however, British rates, in contrast to those in all other countries, have remained at the new lower level (Farberow, 1985).

The detoxification of domestic cooking gas also occurred in other countries in Europe, specifically the Netherlands, where it was not associated with any reduction in rate. In these other countries, however, the base rate of self asphyxiation from domestic gas before its composition had been changed, was not considerably lower than it had been in Britain, (%) and the expected impact was proportionately less.

COMMENTS: Prevention methods that do not require the active participation of the public have traditionally been the most effective (e.g., changing the water supply in South London at the time of the great London cholera epidemics). It appears to have good potential for prevention in suicide as well. The importance of improved methods for treating suicide attempts may be the reason for the sex-specific changes in the suicide rate in the United States. Suicides have been increasing only for males. It may be that at a

time when suicide morbidity (i.e., the number of suicidal behaviors including both attempts and completions) is increasing in both sexes (Weissman, 1974; O'Brien, 1977), the impact has only been felt by males who favor methods for which treatments have not improved. The increase in female attempts is compensated for by improved treatment methods for self-poisoning, the preferred method.

Care During a Crisis

Individuals who have already attempted suicide or expressed suicidal thoughts or wishes, seem to be an optimal target for suicide prevention efforts.

1. They are at high risk. Most post-mortem studies show that between 30 percent and 50 percent of suicides have made a prior attempt; the suicide rate in followup studies varies from just under 1 percent to nearly 10 percent, over 100 times the risk carried by the general population.

2. They are potentially easy to identify for it seems that most visit an emergency room after their attempt (Kennedy, Kreitman and Ovenstone, 1974), and many will be admitted to a hospital.

3. Directing a preventive effort to individuals who have already demonstrated suicidal behavior avoids concerns that the "idea" of suicide will be introduced to a naive listener.

A preferred intervention with the suicidal individual has long been the crisis center. The rationale for suicide crisis care has been articulated by Schneidman and Farberow (1957) viz;

1. suicidal behavior is often associated with a crisis;

2. suicide is contemplated with psychological ambivalence--wishes to die exist simultaneously with wishes to be rescued and saved;

3. humans have a basic need to express them-

selves and to communicate with others;

4. the suicidal individual's ambivalence about dying stems from a psychiatric illness in which the suicide represents a partially unsatisfactory means of achieving "fantasies of....surcease, revenge, atonement, ecstasy, rescue and rebirth..." This confusion leads to an oblique communication or signal or "cry for help" which is best identified by those with special training (Litman et al., 1965).

In practice, telephone crisis services offer several advantages. They are convenient and accessible and thus offer an individual in crisis the opportunity for discussion and support without having to travel or wait for an appointment. Their anonymity may be reassuring and may allow callers to say shocking or embarrassing things which they could not otherwise do in a face-to-face interview.

The first crisis center, "The Antisuicide Bureau," was started in 1906 in London by the Salvation Army. In the same year, the National Save a Life League was established in New York City. Shortly after World War II, the Neuropsychiatric Institute in Vienna established a counseling center run by volunteers. Six years later in London, the Samaritans was started by the Reverend Chad Varah (Varah, 1973 and Fox, 1976). Twenty-two years after its establishment, the Samaritans had 165 branches in Great Britain alone and received over 1 million calls a year. It is staffed by volunteer "listeners" and insists on strict confidentiality. Its interactions, characterized as acts of "befriending", are predominantly non-directive.

The influential Los Angeles Suicide Prevention Center (LASPC) was established in 1958, initially concerned with evaluation and rehabilitation of hospitalized survivors of suicide attempts (Litman et al., 1961). In 1961, it broadened its activities to include community outreach, and a short while later, a 24-hour telephone hotline, thus becoming the prototype of American crisis centers. It has regularly sponsored research projects, many of which are referred to in this review.

Its early goals and operations have been described by Helig et al. (1968) and Litman et al. (1971).

There was a rapid proliferation of crisis services modelled on this program during the late 1960's and the early 1970's. By 1974, nearly all metropolitan areas in the United States had such a center and many had two or more (Miller et al., 1979).

Differences and Similarities Between Crisis Centers

Telephone crisis services have certain characteristics in common; they have the capacity to offer immediate emotional support; they are available outside of usual office hours; they provide the opportunity for anonymity; they tend to be staffed by volunteers; the assistance they offer is often problem rather than "diagnosis" specific and help is always short term.

Within these similarities there exist differences in emphasis. Some function predominantly as information or referral services, rapidly ascertaining the problem and then referring the caller to an appropriate treatment center. This service sometimes extends to the volunteer making the appointment and checking that it has been kept. Sometimes this type of case management is offered by multi-service agencies which link the caller with the most appropriate unit of the service. When appropriate, calls may be passed directly to a duty psychiatrist or social worker. At the extreme of the intervention spectrum, there are crisis services which primarily offers a psychological environment which the person in crisis may find supportive and which encourages callers to drop in (particularly true of the Samaritans).

Centers vary in the stress they place on confidentiality. The Samaritans generally offer total confidentiality (Hirsch, 1981), whereas, many services in the United States are willing to intervene very actively (including summoning the police) in order to avert a suicide.

The "befriending" process of the Samaritans has been likened to Rogerian psychotherapy

with its emphasis on acceptance and warmth. This is shared by many Centers in the United States. Ross (1980), a leader in the suicide prevention movement, states that the "most important objective in responding to suicidal youth is to open the lines of communication...accomplished by showing concern, interest and understanding in a non-judgmental manner". It has been suggested that the anonymity centers provide may be especially helpful to callers who find a discussion of their problems embarrassing. Additionally, patients who are concerned with issues of control and power may be more comfortable with telephone counseling as they have the option of hanging up.

Volunteers are usually, but not always, supervised by social workers or other mental health professionals. These mental health professionals are also available for consultation. This would generally not be the case with Samaritan services.

A number of programs target a specific population such as college students (Ottens, 1984) and at least one (Glatt et al., 1986) has a telephone situated on a bridge that is renowned as a place for fatal suicide leaps.

The differences between centers are sometimes subtle and are implicit rather than stated. This makes research difficult and requires that rather general operational criteria be adopted by researchers. For example, Bridge et al. (1977) designated any entity a suicide prevention center if: a) there was an identifiable person in the community responsible for the service; b) if it provided 24-hour telephone or emergency service coverage; and, c) if it advertised its existence.

Impact of Crisis Centers on Mortality

A number of cross sectional studies have compared the rates in areas with and without crisis centers, or in areas before and after the introduction of a crisis center.

Two early studies (Litman and Farberow, 1969; Ringel, 1969) reported a drop in the suicide rate in Los Angeles and Vienna respectively, after a service was introduced at

a time when the rates in California and in the rest of Austria were reported to be increasing.

However, suicide rates vary with the demographic composition of a population. Rates are associated with sex, age and ethnicity. The demographic profile of a given area, and hence its potential suicide rate, are all susceptible to change and simple correlational studies of this kind are inadequate. Account of these factors must be taken and appropriate control areas need to be studied. It should be said here that with one exception (Bagley, see below), no methodologically adequate study has been able to demonstrate an impact of suicide prevention centers on the number of deaths from suicide.

One of the first studies to use a control population, was carried out by Weiner (1969) to assess the impact of the LASPC. Comparisons were made between the suicide rate during the 6 years prior to the introduction of the hotline services at the LASPC and the 6 years afterwards and between two major California metropolitan areas that had services (Los Angeles and San Francisco) and two that did not (San Diego and San Bernardino county). However, changes in these rates were not corrected for demographic differences between the cities studied. The study noted that there was a significant **increase** in the suicide rate after the introduction of the hotline service in Los Angeles, but this increase does not seem to have been systematically related to the presence of suicide prevention centers, for there were similar increases in San Francisco which had a service and San Diego which did not, and a fall in San Bernardino county, which did not have a service. These fluctuations in rate are common and cannot be interpreted without corrections for changing socio-demographic profiles. An additional confounding factor in this study was that the study period covered the development of a close collaboration between the Center and the medical examiner and this may have resulted in a broader definition of suicide (Litman and Farberow, 1969) and with it, an increase in coroner's

determinations.

Lester (1973), examined the suicide rate in a number of major metropolitan areas in the United States, comparing rates in cities before 1967 and after 1969. He compared cities where a suicide prevention center had been established with rates in cities where no center existed. An analysis of covariance was used to control for the size of the city. No differences were found, but the study did not control for changes in reporting procedure or for differences in demographic make-up. The sample of cities was small and the duration of surveillance short, given the low incidence of suicide.

In a methodologically rigorous study, Bridge and colleagues at Duke University (1977) compared the incidence of suicide in counties with and without suicide prevention centers in all 100 counties of North Carolina. They used a multivariate approach to account for a number of possibly confounding variables at the same time. These included duration of existence of a center, and a large number of socio-demographic variables. The mean duration of existence of a center was 2.8 years. No changes in reporting procedures occurred during the time under study. The highest incidence of suicide was in communities characterized by a high proportion of older, white, married persons; suicide centers were more often located in areas with different demographic characteristics. Their results suggested that compared to the influence of demographic variables, suicide centers have a minimal effect on rate. They also found only trivial interactions between the presence of a center and community characteristics such as age distribution, type of "cause of death" determining system, and population density of an area, i.e., there was no evidence that hotlines were more effective in certain communities than in others.

The British study by Bagley (1968) is the one that was most widely quoted as supporting the efficacy of suicide prevention centers. It was noted that suicide rates in that country were in decline and that the period of decline coincided with the growth of the Samaritan movement. In fact this was not accurate: the decline in British suicide rates (which was almost certainly due to the introduction of non-lethal domestic cooking gas to substitute for coal gas--see above) halted in 1971 although the number of Samaritan branches and clients continued to rise until 1975 (Brown, 1979). In this study, Bagley used both empirical and a priori techniques to identify control communities. The empirical match was based on the two most important factors derived from a principal components analysis. The a priori match was for population over age 65, percentage of females, and social class index. (These factors accounted for 35 percent of the variance.) He compared cities with and without centers matching those with centers to control cities identified through the two methods.

Bagley found that 15 Samaritan boroughs experienced a fall of 6 percent whereas control boroughs experienced a rise of 20 percent (empirical) or 7 percent (a priori). Research scientists from the Medical Research Council Suicide Research Unit attempted to replicate Bagley's findings (Barraclough et al., 1977; Jennings et al., 1978). They employed methodological improvements including using a wider variety of matches, examining more geographical areas, and using matches which accounted for more of the suicide rate variance. On the same target boroughs, they used 4 coordinates to do the empirical matching instead of 2, thus accounting for 65 percent of the variance instead of Bagley's 43 percent. Further, they broadened the search for matchable boroughs and used a different predictive rate match. To accomplish this, they choose boroughs with similar rates before the establishment of a Samaritan center and also matched for proportion of single person households. Both of these methods accounted for significantly more of the variance than those adopted by Bagley. They examined suicide rates for 6 years prior to the establishment of a center and 6 years after its opening. It was not possible to replicate Bagley's findings; no difference was found between Samaritan and control towns. They

also noted that the rates of suicide decrease did not parallel the increase in Samaritan usage (Barraclough et al., 1977). Bagley (1977) responded to this critical exercise by stating that the difficulties in evaluating the impact of services were too great and that there was no reasonable way to demonstrate their efficacy.

In the United States, Miller et al. (1984) elaborated on the effects of suicide prevention services on suicide rates. The period of study began in 1968, when most cities did NOT have suicide prevention centers and ran until 1973 when most cities **did** have such centers. During this 6-year period, they examined the effects of suicide prevention services on age-, race-, and sex-specific population groups. After going through a lengthy series of procedures to verify the date of a center's introduction, they compared suicide rates in 25 locations that had no center prior to 1979 but which then introduced and maintained one until at least 1973, with 50 counties which experienced no change in the number of crisis centers during that time. Age-, race-, and sex-specific rates were examined for all years for all centers. Difference scores were calculated by covarying on the base rate. It was reasoned that if crisis centers serve predominantly younger women, then, any impact of a service could be expected among that group. They found a small but significant reduction in suicide rate (1.75/100,000) in white females after the introduction of a service, but no evidence of an impact in other population groups. Their examination was repeated on a second set of data at a different time period and their findings were replicated.

A variant to the crisis service provision method of studying this problem can be seen in the study by Chowdhury et al. (1973), who randomly assigned suicide attempt repeaters to routine out-patient care or to an enhanced service which also provided an emergency telephone service and a walk-in facility. The latter group received home visits if they failed to keep an appointment. The groups did not differ in reattempt rates nor on any measure of mental state at the end of a six month followup period.

COMMENTS: The disappointing impact of crisis centers on suicide mortality needs to be explained. To explore this question further, we have further analyzed the literature on who uses and does not use centers, whether they are suicidal and whether any particular types of cases seem resistant to their impact.

Who Uses Crisis Centers?

Descriptions of adult callers (Sawyer, 1972; Murphy et al., 1969) and teenage counseling services (King, 1977; Slem and Cotler, 1973; Morgan and King, 1975) indicate that U.S. suicide prevention centers are predominantly used by females. A disproportionate number are under age 30 and they show the same ethnic distribution of the area in which the center is based. They do not, therefore, reflect the special demographics of suicide completion in which males predominate and blacks are underrepresented.

It also seems that many, non-suicidal individuals in crisis use these services. They may be lonely, isolated people. This is not in itself incompatible with the goals of a suicide service unless it diverts resources from suicidal callers.

Hirsch (1981) monitored 100 calls each at the LASPC and at the London branch of the Samaritans. About 40 percent of the Los Angeles center's calls did not concern suicide. The incidence of non-suicide related calls is higher in Europe. In Helsinki, Aalberg (1971) found that only 25 percent of calls concerned suicidal ideation or suicidality. The same proportion of suicidal calls was found among callers to the Samaritans (Hirsch, 1981). A considerable proportion of non-suicidal calls to the Samaritans were characterized as "sex" calls.

Studies of Teenagers

Very little published work evaluates the impact of hotline or crisis services on teenagers. This section will identify teenage usage rates of general hotline services and review the

findings of the single evaluation study of a hotline service designed specifically for teenagers.

In an early report of 1,607 consecutive telephone callers to the LASPC (Litman et al., 1965), 5 percent of the callers were under age 20. Greer and Anderson (1979) interviewed 90 percent of 364 consecutive cases of attempted suicide in a busy hospital in South London of whom 19 percent were under age 19. More than 70 percent of the total group had knowledge of the Samaritans, but that proportion was far smaller among teenagers. King (1977) surveyed 3,000 college students who had passed their freshman year and reported that 3 percent had called a service, two-thirds of these were for personal counseling rather than to report disturbing behavior in others. This 3 percent utilization rate compared favorably with the proportion of students who used the student mental health service. Only 8 percent of the surveyed callers were currently in some form of therapy, indicating that the hotline was reaching a population not served by other community agencies.

Slem and Cotler (1973) studied the impact of a hotline service for teenagers (not specifically oriented towards suicide prevention) in an upper middle class community in suburban Detroit. The service had been introduced through advertising in newspapers and on school and community bulletin boards, and widely distributed business cards. At an unspecified later time, 1763 students in a local high school were surveyed to find out whether they knew of, or had used, the service. The answers indicated that the hotline was acknowledged as a community service of which they were aware with the same frequency as the YMCA and high school counselling services. 98 percent recognized the name of the service from a list of community services and 5.6 percent had used it. When asked to rank preferred sources of help for problems, users ranked the service higher than non-users. Both groups listed friends as being the most important source of help. Not very much information was available about the users except that approximately two-thirds were female and that users ranked help from parents as being potentially less valuable than non-users, perhaps indicating a less satisfactory home background. There was a relatively low response rate among former hotline users about whether they had found the service useful, but two-thirds of the responders confirmed that their contact had been useful.

These studies, while indicating that a hotline service can obtain satisfactory community recognition, are inadequate for our purpose because neither specify the proportion of calls that pertained to suicide and neither examined the impact on psychiatric morbidity generally, or suicide morbidity specifically.

Studies of Adults

—Suicide and Crisis Service Users; What Proportion of Callers Are Suicidal?

Litman et al. (1965), in an early report from the LASPC, noted the following: 45 percent of the callers were either currently receiving or had previously received psychiatric treatment. 50 percent talked about suicide during their call; 40 percent had made a previous suicide attempt of which 22 percent were within the preceding week. Only 10 percent of calls were unrelated to "suicide potentiality" (a rather loosely defined concept). Usage patterns may have changed because Hirsch (1981) in a survey of 100 calls at the LASPC noted that 40 were not related to suicide.

Evidence for the suicide potential of hotline users has been gathered from studies which have looked at the subsequent suicide rates in callers. In interpreting studies of this kind it should be remembered that several factors tend to lead to an underestimate of later suicides among users. These include:

a. Many studies match callers' names with death certificate data collected from the same administrative area (e.g. county) as the service, and will miss people who have died in other locations.

b. A sizable proportion of calls are made anonymously and cannot be linked to death certificates or clinic records. There is some evidence (Tabachnik and Klugman, 1965; Nelson et al., 1975) that anonymous callers are more likely to be living on their own, which would place them in an especially high risk group.

It is also important to note that subsequent suicides among crisis center callers cannot be used to infer information about the efficacy of a center because no comparison can be made with the suicidal individuals who do not call the center. Given those caveats, the studies that are available tend to confirm that crisis center users are deviant and carry a much higher risk of later suicide than a normal control population.

In uncontrolled, followup studies of a random sample of LASCP callers, Litman (1970) and Wold and Litman, (1973) noted that between 1 percent and 2 percent of callers had committed suicide within 2 years of their initial contact.

Sawyer et al. (1972) reported a study which drew comparisons with the rate in the same geographic area but which did not correct for age and sex. They found that 0.6 percent of the approximately 11,000 callers to the Cleveland Suicide Prevention Center had committed suicide within 4 years of their call. This figure represents a rate of 288/100,000 or approximately 25 times the expected death rate (uncorrected for age and sex). Three-quarters of the suicides had been referred to the center by others, compared with one-quarter of the group overall. The median interval between time of contact and suicide was 4 months. Only 6 percent of all suicides in the city of Cleveland had been in touch with the Suicide Prevention Center at some time before death. In the absence of age- and sex-matched controls, these rates are difficult to interpret but appear somewhat lower than the 2.5 percent to 5 percent suicide rate noted by Greer and Lee (1967) in their 2.5 year followup of serious suicide attempters treated in general hospitals. The lower death rate found in such crude com-

parisons cannot be used to infer the efficacy of the prevention centers; it may simply reflect different demographic composition of callers to different centers.

Barraclough and Shea (1970) found death (suicide and other causes) rates, corrected for age, sex, location of call, and death, of individuals who had called the Samaritans in six British counties to be 32 times the expected rate during the first year after the call. This rate fell to 7 times the expected rate 3 years after the call. 30 percent of the deaths occurred within the first month, 71 percent within a year and 90 percent within 2 years after the call. The death rates were intermediate between that of former mental hospital patients and currently depressed patients, but were considerably less than those among former psychiatric in-patients who had been admitted following a previous suicide attempt (Temoche et al., 1964). There were marked differences between different centers, some having a lower than expected death rate, others a lower initial (first year) rate, but a comparable or higher second year rate (suggesting that suicide had been deferred). These differences could have reflected the quality of interventions or a different clinical base.

COMMENTS: Suicide crisis centers attract potentially suicidal individuals.

—Who Will Go On To Suicide?

Several studies (Ovenstone and Kreitman, 1974; Wold and Litman, 1973; Wilkins, 1970; McKenna et al., 1975) have found that suicidal patients who make use of crisis telephone services fall into two groups: a chronically suicidal group and an acutely stressed group without a history of prior attempts. Litman et al. (1965) predicted that crisis centers would be most helpful to the suicidal individual who is isolated and friendless or one who has suffered the loss of an important person through death or rejection. Crisis centers were predicted to be least helpful to suicidal individuals with chronically disorganized behavior, or long standing dysphoric or psychotic states.

This is, in fact, what was found by Wold and Litman (1973) in their detailed followup of a random 1 out of 10 sample of suicide prevention center callers. Among those who subsequently committed suicide, most had a chronic history of psychiatric disturbance and several previous episodes of suicidal behavior. The crises which had led to their original call were different from those which ultimately preceded their death. They had gone on to experience, and in all likelihood, generate, additional crises.

These findings were supported by Wilkins (1970) in a death certificate match of approximately 1,300 callers. Suicides were more likely than non-suiciders to be unmarried, to have made a previous attempt, and to have received previous psychiatric treatment.

COMMENTS: There is evidence that chronically disturbed callers who have made previous attempts and had previous psychiatric treatment are an especially high-risk group for later suicide and that crisis management is inappropriate for them.

—How Suicidal Users Compare To
 Suicidal Non-Users

Differences between attempters who have used hotlines previously and those who have not, have been reported in several studies.

Barraclough and Shea (1970) found that 4 percent of a consecutive series of adult suicides had used the Samaritans. Wold (1970) compared the characteristics of 26,000 LASPC contacters with a group of 42 suicides and noted that 75 percent of the center contacters were women, compared with 36 percent of the completers. Center contacters were, on the average, 9 years younger than completers. A disproportionate number of center contacters were less than age 30.

Motto (1971), who studied 575 individuals consecutively admitted to a psychiatric inpatient unit for treatment of either a depressive or a suicidal state, found that 11 percent had used suicide prevention centers. More

than 50 percent of these felt that they had been helped by the contact, 10 percent said they had been made worse. The most commonly stated reason for not calling was that they had been unaware of the centers' existence. Greer and Anderson (1979) interviewed 90 percent of 364 consecutive cases of attempted suicide in a busy hospital in South London, 19 percent of whom were under age 19. Approximately 14 percent of these attempters had had some contact with the Samaritans in the past, but very few had done so just prior to their recent suicide attempt. Overall, just over 70 percent of the group had knowledge of the Samaritans; that proportion was far smaller among teenagers. Among those of all ages who knew of the crisis service, the most commonly stated reasons for not calling were:

a. it did not occur to the caller,

b. they wanted relief from their distress or wanted to die,

c. they thought that the crisis center would be unable to help.

 Half of the group that felt that the Samaritans could not help had prior contact with the Samaritans.

Greer and Weinstein (1979) studied suicidal patients who were receiving mental health treatment, comparing those who had first contacted a hotline with those who were identified by a mobile emergency team which made outreach endeavors to families or individuals in crisis. Hotline patients had a lower suicide potential score on certain standard measures and were less likely to require admission after being seen. The findings from this study may tell us as much about the seriousness of cases identified by a mobile team as they do about the mildness of disorders seen in patients who call hotlines.

COMMENTS: In general, this is a sparse literature but an important one. There is a lot of evidence that hotlines do not have impact on a community's suicide rates (see below). It is clear that their utilization rate by suicide attempters is low (the highest rate

in the studies cited being 14%) and although in Greer and Anderson's study there were a proportion of attempters who reported having been disappointed at the intervention they had received previously, most of those who did not call did not think about it or did not know of the hotline's existence. Lack of knowledge is a special problem with teenagers.

Other Problems With Crisis Service Techniques

Low Compliance Rates After Triage

A number of studies document the low rate of compliance with care after emergency room triage interventions have been provided to suicide attempters or to hotline callers. Only one study has been carried out with adolescents. Litt et al. (1983) studied 27 adolescents seen in an emergency room. All were offered further appointments but only 33 percent kept them. Failure to keep an appointment was similar in groups referred from an emergency room or from an inpatient ward, but was more common in those who had made a previous attempt. The numbers in this study were too small to permit adequate statistical analysis to which a variety of interrelated factors might have contributed. Additionally, there was no adequate examination of the clinicians' technique which has been shown to be important in studies among adult attempters.

A similar low "show" rate has been reported for adults. Chameides et al. (1973) found a compliance rate of 35 percent, and Paykel et al. (1974) reported a compliance rate of 44 percent with out-patient referrals made in the emergency room. Compliers with the out-patient referral did not differ from non-compliers with respect to clinical characteristics. Furthermore, many of those who do keep their first, or first few, assigned appointments will fail to maintain contact with the center to which they are referred, and will drop out of their treatment program prematurely (Kogan, 1957b; Jacobsen et al., 1965).

Factors contributing to referral failure have been studied by Knesper (1982) in nearly 300

emergency room cases managed by 15 different clinicians. Failure was found to be independent of patient characteristics, at least so far as suicide intentionality was concerned, but an "outlier analysis" showed significant clinician variation. The fact that some clinicians can persuade most of their patients to attend a later appointment while others can persuade very few, suggests that clinician behavior is important. The fact that referral failure is not an index of seriousness of disorder was found specifically by Paykel et al. (1974) who noted that attempters who complied with their referral and attempters who did not comply with a referral did not differ in clinical characteristics including the seriousness of their attempt. Chameides and Yamamoto (1973) found that many of those who fail to comply will see some other mental health professional during the year after their attempt.

The same appears to hold true for other referral situations. In a study of the failure of hotline callers to comply with suggested appointments, Lester (1970) found that the percentage of shows after a telephone call to a crisis service ranged from 29 to 56 percent with some seasonal variation and considerable variation with individual volunteers. Approximately half of the 20 different personnel involved had a success rate of less than 40 percent, whereas the other half had a success rate of between 50 percent and 80 percent.

What contributes to clinician/volunteer failure? Knesper (1982) noted that a clinician who would spring the question of admission on a patient suddenly and without warning at the end of an examination had a very low rate of success in making referrals to an in-patient unit.

Slaiku et al. (1975) found no significant correlations between compliance and the hotline volunteer's conversational characteristics in particular, whether they made specific reference to words like suicide or instead used euphemisms in referring to such matters. They noted a higher show rate when attendance for an appointment was initiated

by the caller.

Several studies suggest that compliance can be improved if the volunteer or clinician makes an actual appointment for the patient/caller rather than simply providing them with a name and number to call. Kogan (1975a) recorded a 37 percent compliance rate for attempters seen in an emergency room when the patient was provided a name and telephone number compared with 82 percent when an appointment was made during triage.

Rogawski and Edmundson (1971), using a more stringent index of compliance (2 kept appointments), found that only 30 percent of those given a name and telephone number kept their appointment, but that 55 percent did so when an appointment was made for them. However, neither were random assignment studies and there may have been other selection factors which contributed to being chosen for the more active intervention and to later compliance.

There is also some evidence that compliance may be improved if referral is made to a specific clinical service rather than to a local generic service. Welu (1977) contrasted compliance to a specific, new outreach program with 57 cases seen before the establishment of the new program who had been referred to their community mental health service. He found that 90 percent of the cases attended the new program compared with only 54 percent of the cases referred to the original program. No details are given about whether elements other than the novelty of the program played any part in attaining this unusually high compliance rate. Those who attended the novel program made significantly fewer attempts.

Sudak et al. (1977) reported compliance rates at the Cleveland Suicide Prevention Center. Approximately two-thirds of the referrals to this center are females. A center professional routinely makes an appointment for the individual who has been triaged and will then followup to see if the appointment has been kept. The overall compliance rate was 60 percent with higher rates being reported for patients who were already in treatment with another therapist. Similar rates were reported for those who had made a recent suicide attempt as for those who called for other reasons.

COMMENTS: Low compliance with recommendations is clearly a pervasive problem and should be monitored routinely by any crisis service. Some variation with helpers will occur, but evidence is sufficient that active procedures result in a significantly improved compliance; they should become standard and expected.

Conveying Inappropriate Information

Bleach and Claiborn (1974) and Apsler and Hodas (1975) simulated real callers and found that about 15 of 96 volunteer-answered calls generated inappropriate information from the volunteer. Volunteers tended to give callers a range of referral sites without doing any editing or attempting to find a best fit for the callers' problems.

Interference With Other Treatments

It has been argued that the existence of readily accessible crisis services could complicate other therapeutic interventions. Certainly many callers are receiving treatment elsewhere. King (1977), in a study of college student crisis service users, found that 8 percent of callers, were currently in some form of therapy. Litman et al. (1965) noted that about 20 percent of 1,607 consecutive callers to the LASPC were currently in some form of therapy. Hirsch (1981) noted that many of the calls to the LASPC dealt with complaints about therapists.

COMMENTS: The undermining of other effective forms of treatment is likely to be a problem if a center has a strong theoretical bias, but there is no evidence of a negative impact through this mechanism.

Popularity With Users

Slem and Cotler (1973) in their assessment of high school users, reported that 68 percent had had a good experience with crisis ser-

vices. The findings of this study must be interpreted cautiously because the followup rate was relatively low (58%) and the number of suicidal users was not specified.

King's (1977) study of college student users indicated that the majority of girls found the counseling services helpful, but fewer than half of the male students did so. The difference between the sexes was statistically significant. However, between 20 and 33 percent of males and between 10 and 20 percent of females reported that the experience of hotline usage made their problem worse. Satisfaction among users who called because of suicidal ideation or attempt was markedly less for males than it was for females. Females who received counseling from a male listener on the whole reported greater satisfaction with the help received. Similarly, males who received help from a female listener reported more satisfaction than males who spoke to male listeners.

Getz et al. (1975) found that patients with like problems, e.g., problems with their parents, felt more positively about the crisis intervention than callers who had serious mental illness or drug problems.

COMMENTS: It is difficult to know whether the reports listed above are parochial, i.e. apply only to the center which has been studied, or have a more general application. Judging from the number of repeat calls reported by most centers, there must be a reasonable level of satisfaction, but this may not in itself be related to efficacy.

Volunteers vs. Professionals; The Impact of Training

Bleach and Claiborn (1974) and Genthner (1974) used students to simulate clients and rated empathy of volunteers working in crisis centers. Using standardized rating scales, both found that most volunteers were functioning at low levels of warmth and empathy.

Hirsch (1981), in an essentially anecdotal comparison of volunteers and professionals, suggests that volunteers show more warmth,

empathy and patience but are less skilled than professionals in eliciting relevant past history and in being able to integrate information from the volunteer. This has been at least partly confirmed by comparisons between trained and untrained volunteers. Knickerbocker and McGee, (1973) found greater warmth and empathy in untrained volunteers. It was not clear, however, whether the more experienced volunteers had received specific training in empathy and warmth and where this has been the case--training in empathetic response--improvements appear to occur over time (France, 1975; Kalafat et al., 1979). Differences in trained and untrained workers in these skills may be moot because the literature on psychotherapy outcome shows only poor agreement between therapist characteristics and good outcome (see Stein and Lambert for details).

Another relevant dimension is that of permissive vs. directive. Knowles (1979) and Mcarthy and Berman (1979) noted a tendency for untrained volunteers to be very directive and to offer advice, often prematurely and on the basis of inadequate information.

Ottens (1984) developed a program initially used to train key faculty, residence hall coordinators, and other staff at Cornell University. The program focuses on how to take a proactive, and directive approach to crisis management, familiarity with available resources and how to use the resources, and how to interact with the crisis victim. The program was evaluated by designing a set of situational vignettes with multiple choice answers designed to depict possible intervenor actions. The validation criteria were established by obtaining responses on the same questions from Crisis Center staff. Although it is stated that there were changes in the rank ordering of several of the different items, data are not provided. Statistical values are not given nor are the statistical procedures described.

Elkins and Cohen (1982) found little improvement in hotline volunteers after 5 months of training, but those who received

pre-job training did appreciably better than others. The less dogmatic, the more sensitive and skilled the person was likely to be.

The relationship between knowledge of suicide lethality and ability to deal with suicidal individuals was examined in a group of nursing students by Inman et al. (1984). There seemed to be little relationship between the lethality knowledge and skill required for effective management of suicidal patients.

COMMENTS: Suicide crisis services are used by seriously ill individuals who have a high suicide potential. Despite their high usage rates and the high proportion of calls which pertain to suicide, an overwhelming majority of attempters do not call these services. The literature does not allow us to conclude whether their failure to effect death rates--except marginally on young white women--(See Miller, 1984) is due to the failure of their technique to meet the needs of a residual suicidal population or to their failure to attract an appropriate population. On the one hand, information on the nature of callers who suicide suggests a mismatch of technique with recurrent suicide attempters. Data from studies which compared users and non-users suggest low utilization rates. However the evidence is drawn from a variety of studies of different populations at different times in different countries. The issue remains an important one and should, perhaps, be a specific focus for further research.

It is important to determine whether the findings relating suicide repetitions can be applied to adolescents. Despite their youth, teenagers frequently have a history of repeated attempts and attempt repetition has been found in at least one study to be a predictor of later suicide (Otto et al., 1972).

It seems that a fruitful exercise for the future would be to investigate how best to increase and sustain knowledge about the availability of a hotline service to a vulnerable population group. This can be done (see Slem and Cotler's work demonstrating a high rate of recognition in their suburban community). It may also be true that the skills of telephone answerers in a crisis service decay when the service is used predominantly by non-suicidal callers. Research is needed to see whether more narrowly demarcating the caller population improves the quality of advice or information that volunteers give.

Finally, there is evidence that hotline volunteers may have defective mastery of information, may be deficient in empathy and may use inappropriate techniques to ensure compliance with referral recommendations. Research indicates that, although experience does not ameliorate these problems, training may. Clearly, regular evaluation of these elements of a crisis intervention service, using techniques that have already been developed, should be a routine for established centers.

After the Crisis

There have been no satisfactory studies in which suicidal teenagers have been randomly assigned to differing systematic treatments with outcomes observed in a controlled fashion. (See Trautman and Shaffer, 1984) The bulk of this section, therefore, relates to studies of adults.

Clearly, the expected efficacy of any psychiatric intervention is dependent on its success in attracting disturbed patients, on their compliance with treatment being recommended and on the effectiveness of the treatment recommended. The literature contains relatively few adequately designed studies for this purpose. Most are quasi-naturalistic studies in which individuals who comply with treatment recommendations are compared with those who do not, or in which outcome for those who were treated routinely before a new program was instituted are compared with those who enter a new program. Such studies present considerable problems in interpretation. There is no control over the type of treatment that is offered. It will vary in type and quality with different practitioners. Non-compliers are a poor control group because they may be either more

(i.e., don't adhere to schedules, etc.) or less (i.e., not severely disturbed so don't see the need to attend) deviant than compliers. Differences between compliers and non-compliers may either negate or enhance the apparent effects of treatment. Before and after studies may also present difficulties because the opening of a new service will tend to attract a different category of patients than those served before the existence of a new program.

Naturalistic Studies

Greer and Bagley (1971) contrasted suicide attempters who, due to staff oversight, had been discharged from an emergency room without a further appointment, and those who were given and complied with an appointment to attend a psychiatric clinic. Non-referred cases had significantly higher suicide treatment rates than those who were seen by a psychiatrist. There were intermediate findings when those who had had more than 2 treatment visits were compared with those who had made only one visit. The seriousness of the initial attempt did not predict reattempt.

These findings have not been replicated and it is not clear whether the non-attenders were denied additional appointments or whether they also included some cases who were given a telephone number to call and who failed to do so and were thus classified as non-compliers. If the untreated control group did include cases of this sort then the poor results might reflect some selection factor which was predictive of both non-compliance and repetition. On the other hand, if they were all systematically excluded, then the findings would suggest an effect. Other things being equal, oversight would more likely occur with less seriously disturbed patients.

Ettlinger (1975), in Denmark, instituted a new service for suicide attempters which encouraged unfettered access to mental health professionals, daytime hotline and walk-in clinics, frequent home visits made at the patients request, close consultation with other hospitals to which the patient might be admitted, and proactive outreach for a one-year period. The subsequent five/six year suicide rate for 670 consecutive admissions was examined and compared with the death rate for 681 attempters who had been admitted to the hospital before the service had been started. The new service appears to have been popular and was used freely. Despite this, no differences were found in subsequent suicide rates or social adjustment between the two groups. The study is somewhat flawed by the low retrieval rate for the control group but that would not have been expected to effect knowledge about later suicides.

Welu (1977) contrasted suicide repetitions among 63 patients seen in an innovative outreach program with 57 cases seen before the new program was introduced and who had been referred to a local community mental health center. Cases assigned to the new program were more likely to attend and made significantly fewer attempts during the 4-month followup period.

Kennedy (1972) reports differences in repetition rates of 204 suicide attempters: 142 were selected for short-term admission to a suicide crisis unit, 672 were referred to a psychiatrist for out-patient after care, and 56 received no after-care. Repetition rates were significantly lower for those who were admitted for a short-term stay, but there were no differences in reattempt rates between the group that received long-term psychiatric treatment (which was often started several weeks after the attempt) and those who received no treatment. These findings persisted even after corrections were made to account for previous suicide attempts, a factor which is thought to be a strong predictor of further repetition. The authors inferred from these findings that crisis management is important.

Random Assignment Studies

Chowdhury and Kreitman (1973) randomly assigned repeat attempters to routine out-patient care or an enhanced service which included emergency telephone access and a

walk-in facility. Patients also received home visits if they failed to keep an appointment. The groups did not differ in their reattempt rates or on any measure of mental state. However, the experimental group experienced fewer social problems (housing difficulties, unemployment, collection of benefits, etc.) at the end of the evaluation period than the controls. One cannot argue from this study that psychiatric care was not helpful as it was received by both groups.

Motto (1976) and Motto et al. (1981) identified a sample of 3005 hospitalized patients at "high risk" for suicide. All were offered after care. Of these, 862 declined. These were then randomly assigned to a group which received intermittent telephone contact at decreasing intervals over a 5-year period, or to a group which received no further contact. During the first 2 years, suicide rates were twice as common in the non-contacted group as in those who received contact. During the remainder of the followup period the rates converged. This study is difficult to interpret because of the way that non-compliance with treatment is handled. There was a relatively poor followup rate among those selected to receive contact (243/417 contact subjects either refused to receive contact or else could not be contacted). It would have been interesting to know what their death rate was, but in the study descriptions which have thus far appeared in print, they are not differentiated from the remainder of the contact group.

Gibbons (1978) and Gibbons et al. (1980) randomly assigned 200 cases each to a course of intensive, but time-limited (3 months), task-centered case work, and to routine treatment (some cases were followed up by a psychiatrist, others by a general practitioner, etc.). Cases with high suicide intent were precluded from the random assignment and were all designated to receive the intensive approach. No differences were found between the two experimental groups but the high risk "excluded" group had a significantly higher repetition rate. There were a significant number of drop outs from the treatment groups and the report does not specify the repetition rates for the partially treated groups.

Only one random assignment study has been identified which assigned patients to different types of psychological treatment. Liberman and Eckman (1981) randomly assigned a small group of attempters to either 32 hours of behavior therapy (social skills training, anxiety management, and contingency contracting) or to insight-oriented psychotherapy. The groups did not differ with respect to repetition of suicide attempts but the behavior therapy groups were generally less symptomatic and less preoccupied with suicidal ideation and threats.

COMMENTS: Although none of the studies are adequate methodologically, none present clear and consistent evidence that suicide repetitions can be prevented by whatever array of interventions may have been offered in these different settings. The very high relapse rate of patients with a history of chronic personality disturbance and previous suicide attempts in Chowdhury and Kreitman's study, even though they were provided with optimal and varied management, is particularly relevant in the light of Litman's observations that this is the group of crisis service contacters who are most prone to ultimately commit suicide. The absence of psychopharmacological studies is especially striking and highlights a research priority area.

CONCLUSIONS

The prediction of rare events from common ones is a dispiriting process which has been commented on by several reviewers (Rosen, 1954). Predictions are plagued with low specificity (high false positive rates) which might be acceptable if the interventions were either inexpensive or efficacious or both. That is far from the case, however, in suicide. The general wisdom is that preventive interventions should focus on suicide attempters or on depressed patients.

With respect to the latter, Temoche et al.

(1964) undertook a rather dispiriting analysis of what the impact might be of an optimally efficient prevention scheme focusing on patients with a serious psychiatric illness which had required hospitalization. Using Massachusetts data, they matched psychiatric hospitalization records with suicidal death notifications. Suicide rates were low during the patients stay in hospital, but were very high in comparison with the general population after their discharge. Most deaths occurred during the first year after discharge and the group with the highest suicide rates were those that had received an in-patient diagnosis of depressive psychosis. Assuming that optimal protection (which might involve prolonged institutional care) was provided for the highest risk group for the period of maximum risk (one year after discharge) the (very expensive) intervention would only reduce the suicide rate by 4 percent. They conclude that any more effective program would have to broaden the net of patients taken into care (thus radically increasing the cost), or would have to improve the efficiency of any predictors so that a smaller but more specific high risk group could be identified. This exercise did not take account of the very low compliance rate for treatment in this group of patients.

Prevention based on the effective treatment of suicide attempters has not been subject to the same analysis, but given the lower ratio of attempts to completions we would expect that it would be more cost-effective than the management of depression if we could identify an effective intervention. While the literature which deals predominantly with psycho-social interventions fails to provide us with any indication that these interventions are effective, we cannot conclude from this that suicide attempts are untreatable. The literature, at least as we have surveyed it, is strikingly deficient in the area of psychopharmacology which, given its efficacy in the general area of affective illness, is surely the area where most hope should be directed and which is most deserving of research support.

Recent work on biological predictors of suicide repetition and completion (Asberg et al., 1976; Stanley, 1984) has not been discussed in this review but it offers the prospect of increasing the specificity and thus reducing the cost of preventive interventions.

A considerable amount of energy and goodwill, human sensitivity, and kindness has gone into the conventional suicide prevention activities but there is little evidence that they have been effective. Can we accept the bitter logic of research or should the findings be qualified with the customary apology that not all benefits can be researched? Certainly there is room for more research on the benefits of hotline calls and crisis centers for problems other than suicide, but there is precious little encouragement for the suicide preventer. We all want crisis services to work, but if they do not, we should have the fortitude to discontinue them.

To postpone attempts until answers are provided by experimental programs would be to ignore the evidence of common sense and clinical experiences (Rogers et al., 1982).

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OVERVIEW OF PREVENTION EFFORTS IN ADOLESCENT SUICIDE

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SUMMARY

The development of general suicide prevention efforts in the United States and beyond is reviewed, with emphasis on the paucity of attention to youth suicide until recent years. Training programs are reviewed, again with few found specific to youth. A current survey of prevention and intervention programs in the United States is introduced, detailing the types of programs which could be identified. Special therapy needs of adolescents are considered, and recommendations for future programs are detailed.

INTRODUCTION

Suicide stands out among major causes of death when accounting for deaths which might have been prevented by an act of will. Prevention efforts in communicable diseases and in disorders with parameters influenced by human choice, such as lung cancer and smoking, are considered relatively effective; suicide, however, is the choice not to live and it can be prevented only by a change in choice. As a result, prevention efforts have held the attention of those concerned with suicide for as long as suicide has been approached as a public health problem. During the past decade the dilemma of increasing rates of suicide by American youth has brought into focus the waste of life involved when the very young choose to take their lives. The purpose of this paper is to review what has been done in suicide prevention in the past and to summarize the types of suicide prevention efforts currently occurring in American communities, with specific reference to youth.

HISTORICAL REVIEW

The suicide prevention movement had its origins in the mid-1960s; there was little attention paid to suicide before that time. The authors studying suicide most often quoted in earlier years were Freud (1), and Durkheim (2). Freud believed that suicide was the ultimate example of introjected rage and self punishment; he also speculated on the existence of a separately operating, biologically established death instinct. Durkheim's early studies of sociological factors associated with suicide are best remembered for his elaboration of the anomie of the suicidal individual.

Of particular interest in the context of youth suicide was the 1910 meeting of the Vienna

Psychoanalytic Society, reported in *OnSuicide* (3). The meeting was planned because of the suicide death of a school boy and focused on harmful influences affecting young people. Actually, suicide as a problem was well established long before the work of these two giants. Goethe, another literary giant, brought attention to romantic suicide in his book, *The Sorrows of Young Werther*. It is said that after Goethe's love-struck Werther's story was popularized (4), a number of imitative suicides occurred among German youths. The romanticization of suicide may have accounted for other clusters of youth suicides over the years, although this phenomenon was not actively studied until very recent times when alarm over the increase in absolute numbers of youth suicides stimulated research.

It was not suicide among the young that stimulated the beginning of the suicide prevention movement. During the 1960s, suicide prevention centers came into being in a number of different locations. The earliest centers generally developed out of the interest of mental health professionals and, for the most part, consisted of telephone answering services staffed by trained volunteers offering crisis intervention counseling anonymously.

Impetus was given to suicidology as a field of study by legislation enacted in the 1960s by the United States Congress. Early advocates for suicide as a deserving and needed field of study included Dr. Edwin Shneidman, Dr. Robert Litman, Dr. Norman Farberow, Dr. Harvey Resnik, Dr. Seymour Perlin, and others. The legislation established a Center for Studies of Suicide Prevention within the National Institute of Mental Health (NIMH). This center, headed first by Dr. Shneidman, and later by Dr. Resnick, provided a focus for suicide efforts over a number of years.

Beginning in 1968, the center published the Bulletin of Suicidology. Research money distributed through its grant program gave major impetus to investigations throughout the nation.

During and preceding this period in the United States, several organizations in other countries became involved in suicide prevention activities. The Samaritans organization originated in England and spread worldwide. Their activities are detailed in another paper in this volume. A parallel effort by Contact Teleministries world-wide accounted for many additional telephone answering, crisis intervention services.

By 1968, sufficient interest in the field of suicide prevention had developed in the United States and a sufficient number of workers existed in the field to warrant a national meeting. The first meeting was organized in Chicago, Illinois under the sponsorship of the University of Chicago and became the formative meeting for the American Association of Suicidology (A.A.S.). Suicidology was a new term introduced by a charter member and original leader of the association, Dr. Edwin Shneidman, and indicated the scope of the new organization, that is, the study of suicide and its psychological, sociological, and clinical manifestations. Despite the academic focus indicated by the title and expressed by the early members, an immediate division developed within the organization between those who were primarily invested in suicide prevention (especially the volunteers) and those who were academicians. Over the years this divergence of interests has persisted within the organization, nevertheless, the intent of the original organizers has been honored in that the A.A.S. has not been divided. It remains a multidisciplinary organization where research and application reinforce one another. Through an annual national meeting, the organization has fostered research and reporting on varied aspects of suicide. One of its most important contributions has been the development of standards by which suicide prevention centers can be judged and certified. The organization's scientific journal and newsletter have had the desired effect of stimulating continuously increasing interest in the area.

Youth suicide was a special focus among the early students of suicide. Review of the annual programs of the A.A.S. indicates that an increase in suicide among youth was noted as early as 1974, although the increase at that point was not marked enough to allow firm conclusions about the dimensions of the problem. In the decade from 1974 to 1984, the very clear increase in youth suicide was documented and led, not only to an increase in the number of publications and specialized programs in suicide prevention for youth, but also to specific federal responses. In 1979, the U.S. Public Health Service promulgated the 1990 Objectives for the Nation; among them were a number of objectives related to control of stress and violent behavior. NIMH created a staff position relating to suicide issues, announced a programmatic goal of a 10 percent reduction in youth suicide in the next decade, and aimed for identification of crisis telephone services by 60 percent of youth. Specific legislation at the State level, first in California and subsequently in other States, was introduced for dealing with suicide prevention programs for youth. In 1985, the Secretary of Health and Human Services established the Secretary's Task Force on Youth Suicide. A series of meetings and reports have been generated by this task force.

During the approximately two decades when suicide prevention was a specific focus of professionals in the United States, the number of suicide prevention programs steadily grew throughout the country. Since 1981, new programs dealing with primary prevention efforts in schools have been developed. Currently in the U.S. about 1,000 suicide prevention or crisis programs have been identified exclusive of community mental health programs. Generally these programs were organized with goals broader than suicide prevention. Their names often reflect the broader crisis intervention purpose, such as Crisis Center, Telephone Hotline, etc. Some, but by no means the majority, of these programs have established components specifically related to adolescent suicide. School programs have become

quite widespread, generally having been initiated only after a suicide involving a student has brought the issue of youth suicide strongly into focus. In some instances, school programs are provided by outside experts, in others educational psychologists employed in school systems have developed training programs for student bodies. An ongoing component of these programs is the task of dealing with students directly affected when a close friend has died from suicide.

In the late 1960s and early 1970s a number of crisis programs were organized specifically for the youth population and were advertised as such. They tended to use youthful volunteers as telephone respondents. Typically, these programs were organized by young people, training was less rigorous than for the more general suicide prevention programs, and, for the most part, these programs have disappeared from American cities. There is some appeal to the notion that a young person in crisis might prefer to talk to a willing peer volunteering in a telephone response service; nevertheless, the relative lack of survival of these programs might suggest otherwise. In any case, the appropriate and adequate training of youthful volunteers remains problematic and has not been attempted by most established services.

Other suicide prevention efforts have developed in connection with the emergence of emergency psychiatry as a sub-specialty. General and psychiatric hospitals have installed discrete programs for dealing with emergencies brought to hospitals and with psychiatric aspects of medical treatment in general hospital emergency rooms. These programs encounter a large number of patients who have taken overdoses, and, especially in training hospitals around the country, have developed program components specific to suicide. Recognition of the need for ongoing care after emergency interventions with suicidal patients have led to the establishment of outpatient programs for suicidal patients. Several centers provide ongoing care through therapy groups homogeneous for suicide ideation. Many of

these are located in public outpatient clinics associated with teaching hospitals, in community mental health programs, and as walk-in services in a few suicide prevention centers. The author maintained a therapy group for several years for adolescent suicide attempters treated in a general hospital emergency room. Yet another type of suicide-related effort involves therapy groups for survivors of a suicide. Typically, these attract the parents of young people who killed themselves. Such groups exist as free-standing services staffed by mental health professionals. Many have developed as walk-in services in suicide prevention centers.

AFFILIATIONS IN OTHER COUNTRIES

Thus far, we have focused primarily on programs within the United States. In fact, the suicide prevention movement was active in Europe earlier than in the United States. In 1960, the first international suicide prevention meeting was held and the International Association for Suicide Prevention was formed with central offices in Vienna. The name of the organization was later changed to indicate the broader interests shared by member organizations. It continues today as the International

Association for Suicide Prevention and Crisis Intervention. This group, like the A.A.S., holds plenary and regional meetings and publishes a scientific journal. The 25th anniversary meeting was held in Vienna in 1985. The A.A.S. has functioned as a national member of the international association since A.A.S. was formed.

SUICIDE PREVENTION TRAINING

Training for mental health professionals in the area of suicide prevention has increased steadily in recent years as the visibility of suicide, especially among adolescents and youth increased. Schools of social work, nursing, psychology, and psychiatry have par-

ticipated in and expanded their emphasis on training. There remains, however, a substantial lack of uniformity among programs across the country; some refer to suicide prevention in single lectures and case reviews, and others provide discrete curriculum segments containing many hours of both didactic teaching and case experience in suicide prevention. The scope of instruction in professional schools generally covers the identification of populations at risk, individual case assessment techniques with respect to suicide risk, techniques in crisis intervention relevant to suicidal persons, and special care needs of particularly high-risk populations. Specific attention to adolescent suicide may not go beyond acknowledging that suicide in this group has shown recent increases. The dilemma for professional schools is that a well-defined body of knowledge about adolescent suicide does not yet exist and few individuals have specific experience or training in this area to be able to teach it well.

Several specialized training programs deserve mention. The National Institute of Mental Health provided funding since 1967 for a fellowship program in suicidology at the Johns Hopkins University School of Medicine. One outcome of this program, headed by Dr. Seymour Perlin, was a handbook (5) which provided an important resource for other training programs (4). Of interest, this volume published in 1975, did not index adolescents or youth or teens, an accurate reflection that special concern for youth had not yet emerged. Many of the current leaders in the field were trained in that program. After the close of the Johns Hopkins program, there was no specific training opportunity for individuals motivated for an academic career in suicidology. Recently Dr. Ronald Maris developed a new fellowship program at the University of South Carolina which offers promise of renewed leadership in the field.

It seems to be the general case that programs for physician's assistants and on-site interveners such as emergency medical tech-

nicians (EMTs) and policemen are relatively unsophisticated in suicide prevention treatment. Model curricula have been developed for these groups and have been promulgated by the American Psychiatric Association's Task Force on Emergency Psychiatry Care Issues (6).

The situation for volunteers in suicide prevention centers is relatively better defined than that for mental health professionals. Training curricula for volunteers have been developed (7) and widely promoted and standards and criteria for training of volunteers has improved the uniformity of training around the country. The scope of training for center volunteers includes didactic instruction in crisis intervention techniques, experiential involvement through role-playing, and supervised participation in crisis work on telephone lines. Volunteers often become extremely proficient in dealing with people in crisis and may have more training for this task than do mental health professionals. It remains the case however, that specific training in dealing with adolescents is not separately addressed in most programs.

Textbooks devoted in whole or in part to suicide prevention inevitably lag a number of years behind the current state of knowledge in the field. It is not surprising that the recent books offer relatively little in the area of adolescent suicide prevention. Several books, in the past two years, do address this area and include *Youth Suicide*, (Peck, et al. 8).

Two scientific journals are devoted to suicide-related topics: *Suicide and Life Threatening Behavior*, the journal of the A.A.S., and *Suicide*, the journal of the International Association of Suicide Prevention and Crisis Intervention. An earlier publication, *Bulletin of Suicidology* was published by NIMH during the years of the Center for Studies of Suicide Prevention.

There have been some efforts to develop model curricula in suicide prevention. Dr. James Lomax has written curriculum recom-

mendations for psychiatry residency programs which were accepted by the organization of heads of psychiatric training programs and is available from them (9,10). Dr. Alan Berman, in heading an educational committee for the American Association of Suicidology, collected curricula from training programs around the country and developed specific professional training recommendations.

The most effective way to upgrade educational emphasis in an area is to influence the accreditation examinations in that area. Efforts have been made, for example, to increase the number of questions about suicide and its prevention in the examinations of the American Board of Psychiatry and Neurology. These examination questions have not yet focused directly on adolescent suicide, but it is hoped that they will do so in the future.

The development of standards in suicide prevention efforts has been a uniquely thorny problem. Standards of care are needed both in specific suicide prevention programs and in any program offering mental health services. Workers have been reluctant to delineate highly specific standards because of the likelihood of related litigation in the event of a completed suicide. A.A.S. has considerable experience with standards developed more than a decade ago for suicide prevention centers (11). These were organized as minimal standards of competence for programs and have been used as the basis for a certification process for suicide prevention centers. This has been an outstanding effort in that it has had obvious and gratifying impact on the quality of services developed within programs and has not induced troublesome litigation.

In contrast, the experience of hospitals in establishing suicide prevention standards has been very mixed. Tremendous lack of uniformity exists among hospitals around the nation in policies directed to suicide prevention. Some hospitals have very strict requirements whereas others have decided to do nothing in order to avoid the problems of

diversity in care (12). A.A.S. has worked for a number of years in surveying hospital practices and currently is developing a set of recommendations for consideration by the Joint Commission on Accreditation of Hospitals. The latter group has been reluctant to establish standards for care of suicidal individuals although it does require documentation of risk assessment. In contrast, a major care provider, the Veteran's Administration (V.A.), has had a set of nursing regulations and a manual on suicidal and violent patients for several years. These standards are far more specific than are those encountered in the private sector. It is unclear whether these have substantially raised the awareness and sensitivity of V.A. staff members to suicide issues compared to professionals in the private sector. As expected, the V.A. standards did not address youth suicide as a special problem. Since adolescents requiring psychiatric hospitalization generally are segregated from the adult population, it seems likely that a professional group such as the American Society for Adolescent Psychiatry may become involved in development of specialized standards of care for this group.

SUICIDE PREVENTION EFFICACY

One of the most troublesome aspects for planners in the area of suicide prevention for adolescents is the lack of substantial and convincing data about the efficacy of existing programs. Outcome research is made difficult by the mobility of the young population, the lack of adequate and accurate reporting of suicide deaths, and ethical dilemmas encountered when specific intervention programs are to be compared to a control population deemed equally at risk; that is, withholding intervention from populations at risk cannot be sanctioned. A few outcome studies have been greeted with enthusiasm but also with considerable methodological criticism. One study involved the comparison of similar towns in England where the Samaritans were and

were not active, with a favorable decline in the suicide rate in the town where the Samaritans intervened through a program of befriending those identified as being at risk (13). Another piece of evidence involved the cessation of carbon-monoxide-producing coal oil as a cooking fuel in Great Britain with a corresponding drop in the suicide rate (14). These data have been particularly interesting to advocates of firearms control in the United States because they suggest that the control of a popular means of suicide may indeed influence the overall frequency of death. Lester has reported a correlation across States between handgun control and suicide (15) and most important, has extended his analysis to show fewer adolescent deaths in States with stricter controls (16). No convincing studies, as yet, in adolescent suicide show that specific kinds of intervention other than gun control absolutely decrease the suicide rate. The shifts in the suicide rate over time are confounding variables. It appears, for example, that the alarming rise during the past 15 years in adolescent suicide is now reaching a plateau and we may be experiencing the beginning of a gratifying drop in these deaths. The stated goal of the Department of Health and Human Services to achieve a 10 percent drop in adolescent suicide may have been fortuitously timed. That, of course, does not guarantee that anything efficacious has been done. The task of identifying suitable comparison groups and discretely defined intervention strategies remains for researchers in the future.

PUBLIC AWARENESS

In the absence of interventions of proven efficacy, suicide prevention planners intuitively have assumed that factual information serves the public well and that increased sensitivity to adolescent suicide may decrease its occurrence. This area of concern has been enjoying considerable popularity in recent years as evidenced by a number of television documentaries treating the problem of adolescent suicide in some depth. The human interest potential for such program-

ming is very high and, in general, the quality of media productions has been considered high. The national media, when airing such documentaries, have taken responsibility for alerting community service providers and for developing expert commentary on the content of such programs, particularly with the goal of guarding against suicide by suggestion to viewers and listeners. One network distributed elaborate and high quality school curriculum materials in advance of airing a youth suicide documentary (17).

Local school districts have become alerted to the problems of adolescent suicide and have responded with a great variety of suicide prevention programs in schools. Most of these include educational efforts to heighten the awareness within the student body of the possibility of intervention by friends when a troubled youth is identified. School curriculum planning is very active in this area at the present time. In various locales, depending on school personnel, educational psychologists and guidance counselors make classroom presentations or invite outside professionals to teach about youth suicide. Charlotte Ross in California was a pioneer in the latter type (18). Schools also have stimulated parent-teacher organizations to attend to this area and presentations in their annual programming are becoming very frequent. A.A.S. is currently collecting suicide prevention materials developed for schools and will develop specific recommendations and models for school awareness programs. In a closely related development, A.A.S. and other groups are giving attention to plans for school intervention programs when suicides occur or are threatened.

PROBLEMS IN SUICIDE PREVENTION

One of the major difficulties in planning for suicide prevention programs is that parameters for identifying the population at risk are so non-specific that inevitably a very large population must be dealt with. Interventions focusing on public awareness obviously do not suffer from this problem and

this may account for the great amount of energy directed toward that effort. George Murphy (19) has clearly defined the dilemma of overinclusiveness of risk measures. For example, very high risk groups, such as suicidal manic depressive and schizophrenic patients are underrepresented in the adolescent population. For groups in which suicide risk can be identified by individual behavior, such as suicide attempt or threat, the actual risk is only about 5 percent and all cases identified in advance account only for about 20 percent of the eventual fatalities (20). Prevention efforts, then, must be rather broadly directed and must approach individual dynamic issues which in the future may be found to be associated with suicidal impulses in youth.

A further problem in implementing suicide prevention efforts arises from the conflicting need to control the behavior of an identified potentially suicidal individual on the one hand, and the need to promote growth and personal responsibility on the other hand. Every therapist is or should be aware of this conflict in every situation of intervention with potentially suicidal youth. There seems to be great variation among therapists in the way this is addressed. Some go to great lengths to prevent the possibility of death, even though this provides considerable interference in the progress of therapy. Others reason that some suicidal deaths inevitably will occur even in therapy and that the greater preservation of life and quality of life is assured by promoting personal responsibility on the part of suicidal individuals. With so much disagreement among therapists it seems unlikely that clear standards for intervention techniques can be developed.

There is a further conflict in the intervention models endorsed for suicide prevention efforts. Historically, major emphasis has been given to the crisis model where suicide is seen as a time-limited crisis in the life of an individual whose pre- and post-crisis ego functions are at a reliable level. The task addressed in the crisis model is that of

restraining destructive acts by the individual until the crisis is passed. This seems a defensible model with considerable support from existing crisis intervention services, even in the absence of rigorous research validation. In contrast, a number of suicidologists see suicide as an end-point in a suicidal life style. Both Edwin Shneidman (21) and Ronald Maris (22) have written extensively on this point of view.

Indeed, most clinicians from time to time have had experience with a chronically suicidal individual. Such experiences discourage adherence to the crisis model. It is possible, of course, for an individual therapist working with an individual client to accomplish some combination of these viewpoints, paying attention equally to the meaning over time of self destructive patterns in the individual and to the crisis which occurs when a suicide impulse is active. In program planning, however, such individualized attention may be neglected. Suicide interventions tend to be very time-limited with relative neglect of the important areas of referral and long-term followup.

Longer term treatment of suicidal youth appropriately expands beyond the issue of the self-destructive behavior which typically is the cause for initiating therapy, and which is often referred to as a cry for help. Review of the dynamics of youth self-destruction inevitably becomes a review of the multiple psychological tasks required in the passage into adulthood and of the psychopathology specific to this age group. For the purpose of this overview paper, only a few points will be made.

In satisfactory maturation, the adolescent or young adult reworks, in a definitive way, the conflict between the wish to gain security from the care provided by others and the wish to gain independence and self reliance. Under the best of circumstances this conflict produces trial solutions and failures, disappointments, and changes of direction. The extraordinary grandiosity of mid-adolescence, when anything seems possible and confidence may outreach wisdom, must be revised in the light of limitations in personal abilities, social resources, and the exclusions required by progress in a particular direction. Major changes in interpersonal relationships occur, especially in families; and investments in relationships outside the family become crucial. This is the interval when, if development is satisfactory, self concept reaches a relatively stable form, including such important aspects as body image, self esteem, self motivation, and differentiation from others. Failures in this stabilization of self concept have far-reaching consequences.

Youth suicide in general terms can be understood as a reaction to living with such failures. The compelling question in the context of recent increases in youth suicide is "why now?" The compelling need in intervention in youth suicide, in the absence of useful answers to that question, is for individualized work with individuals in distress. Crisis interventions, at best, can keep a young person alive during a period of very high risk and can facilitate entry into longer-term therapy. It is mainly in the course of longer work that the individual life course can be altered.

Crisis events at times are referred to as growth opportunities, and this idea has merit both in the sense that crisis-anxiety promotes development of new coping skills and in the sense that failing character defenses become rather transparent during crisis, making it relatively easy to grasp underlying dynamics. It must be remembered, however, that a protective boost through a crisis interval also may reinforce a young person's sense of incompetence. The quality of work done in crisis resolution is critical to the final impact of the crisis, and that work may require an extended therapy interval.

With respect to adolescent suicide there exists a troublesome lack of convincing data on the outcome of intervention techniques, on the means by which suicide ideation and urges seem to be contagious in groups of young people, and on the importance of major sociological variables such as family mobility, divorce in the family, changes in academic standards in schools, lack of youth

optimism about future employment, etc. There is immediate need for research in all of these areas.

TYPES OF PREVENTION PROGRAMS

In preparation for the National Conference on Prevention and Intervention in Youth Suicide, a research task force in Houston surveyed programs throughout the United States which may provide services to suicidal youth. Details of the methodology and summary results are presented in a separate paper (23), and a survey analyzing characteristics of programs, by program type, are presented in another paper (24). For the survey, programs were classified as crisis phone lines, walk-in crisis clinics, hospital-based emergency programs, mental health centers with crisis components, school intervention programs, free standing crisis stabilization units with beds, and combination programs. It is noteworthy that these programs consistently identified a combination of prevention and intervention goals. They seem generally to subscribe to a crisis model of intervention, although most programs described extensive referral linkage in their communities. Neither their titles nor their services defined them as being organized specifically to respond to youth clients. Probably the single outstanding result of this survey was to learn that adolescent suicide has not, as yet, had direct impact on community agencies except for schools.

In yet another paper, the responses of communities where youth suicide has had special visibility are discussed (25). Clusters of adolescent suicides are special and alarming events. They have been reported from many regions of the country, from small communities and large but common characteristics that might identify communities at risk have not emerged. Current research will contribute better understanding of this phenomenon. Interventions in youth suicide clusters generally have provided emergency training for school personnel, awareness education for students, rapid reinforcement

of the treatment community by referral networks, and organizing professional volunteer services. As yet, no systematic examination of the effectiveness of such efforts has been performed, and no natural history of a cluster has been defined. It is not known whether the interventions undertaken have decreased or increased the suicides, although it seems that they have been effective in ending the clusters. Detailed case studies are needed, with particular attention to the role of the media.

ADOLESCENT SUICIDE PREVENTION NEEDS

In evaluating the planning for expansion of the services available in any community for the prevention of youth suicide, the following considerations seem important.

First, programs within the community need to be especially visible to young people. This can be accomplished through public service announcements of entry sites, especially for suicide prevention programs. At least two types of crisis services are needed: those available by telephone contacts and those available for individuals identified in hospitals as suicidal youth. To this may be added crisis services for individuals identified in schools where the intervention needs go beyond the capability of school personnel. For all of these entry categories, a strong referral network is needed.

Second, there is unfortunately, substantial loss of individuals who have undergone some treatment in the course of a suicidal crisis and been referred for on-going therapy. The referral network needs to be well understood within the community and should include the following components: 1) Therapists experienced in family therapy, especially family therapy involving adolescents. 2) Specialized support groups of peers. (Experience shows that the old-fashioned adage against dealing with suicidal people together in a group is unwarranted--such therapy seems to work.) 3) Social work assistance needs to be available to troubled youth to at-

tend to specialized needs, including residential placement, educational needs, and legal help. 4) Long term psychotherapy needs to be available. This is especially true in the public sector where it often may be difficult to obtain. 5) Both hospital and partial hospital programs need to be available with staffs trained specifically in dealing with suicidal youth. Partial hospital programs are especially attractive for the large number of individuals who have survived through a suicide crisis, have no immediate suicide intent, and can both remain in contact with school and family and simultaneously can have the advantage of daily part-time hospital treatment.

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ACKNOWLEDGMENT ·····················

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COMMUNITY RESPONSE TO ADOLESCENT SUICIDE CLUSTERS

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SUMMARY

The typical community reactions to disaster, as identified from the literature, parallel individual reactions, including death–preoccupation, guilt, psychic numbing, rage, and a search for explanations. Adolescent suicide clusters are examples of disasters of limited scope but nevertheless generate fear responses because of their uncertain duration and extent, and their implication that something is wrong with community quality of life. A cluster of suicides in Clear Lake, Texas is reported as a case study, and recommendations for community planning are suggested.

INTRODUCTION

Youth suicide is increasing; knowing that it is increasing invokes many questions. Is there something about the quality of community life in recent times that accounts for the increase? What is the role of the family as an institution? Is the growing instability of families and the frequency of divorce directly connected with the increased incidence of adolescent suicide? What are the roles of other institutions in our communities: churches, schools, the justice system, the media, and mental health service providers? Are these institutions failing our young people in some crucial way or ways that connect directly with the increase in adolescent suicide? How have communities responded to adolescent suicides? How should they respond?

A significant literature exists on community responses to natural and to man-made disasters from which much can be learned about the after-effects of crisis on survivors and about responses of individuals and community groups not directly involved in the disasters (1). How these experiences and data obtained from them can be applied to adolescent suicide has hardly been studied.

The suicide death of a young person is a remarkably personal and private event, but it has powerful impact on many others who knew the dead youth. Since the network of acquaintances of a young person tends to be large through school contacts, and because a young person's death is so unexpected, youth suicide generates complex bereavement patterns and invites comparison with the bereavement tasks following a disaster. When a cluster of adolescent suicides occurs and is reported in the media, many more comparisons are invited. Lifton (2,3) has identified five survivor reactions after a disaster: death-preoccupation, guilt, psychic

numbing, poorly focused rage, and a search for meaning or explanation. These seem easily transferable to the situation following adolescent suicide clusters.

Green (4) reviewed studies of psychological sequelae of disasters and emphasizes the importance of the geographic centrality of events as determinants of outcome. For example, a plane crash does not affect the support network of survivors, and is considered a peripheral disaster. A natural disaster, however, may cause death, property loss, and residential displacement within a community, and thus is a central disaster. Erickson (5) focused on the community response to disasters, studying the Buffalo Creek flood where whole communities were destroyed. He suggests that the availability of pre-existing community support is a critical factor in the severity of disaster sequelae. These observations seem relevant to planning community responses to suicides. Suicide clusters are relatively central events in communities, although they do not involve property loss or residential displacement. Applying a typology developed by Berren et al. (6), a suicide cluster is a man-made crisis, which has a slow onset, affects the community widely but has relatively few individuals directly at risk, has a worrisome potential for reoccurrence, and has limited possibilities for control over its future impact. The impact of a suicide can be prolonged and fosters widespread fear in the community. Because it is difficult to know when the impact has ended, uncertainty tends to heighten anxiety.

EMOTIONAL REACTIONS TO SUICIDE

Cluster suicides evoke many more emotional reactions within communities than do individual suicides. In general, these reactions follow patterns common to other kinds of crisis events within communities. What are referred to as community emotional reactions are not, in fact, very different from individual reactions in an individual crisis. They include: initial disbelief or denial of any

direct impact of the crisis, followed by an interval of questioning: "Why our community?" "What is wrong here?" Fear develops in the community. In the case of adolescent suicide, the fear is related directly to concern that the cluster of suicides may not have ended. A mentality develops in the community of waiting for the next bad news to arrive. Collective fear extends beyond the concern for the lives of individuals and the effects of suicide deaths; it is also fear that something mysterious, poorly understood, and obviously lethal is afoot in the community. A subsequent reaction may be one of outrage. "Too much is being made of this!" "Why don't people just leave us alone?", etc.

Following the painful reactions of confusion, fear, and outrage, a number of pathological defenses can be identified. Obviously, different individuals in the community react in different ways and labeling reactions as pathological defenses does not imply that a community is "sick"; but the defensive nature of these reactions and their connection with shared, painful emotions seem clear. Defensive reactions include efforts to place blame; for example, people may believe the fault is with the school or family instability, or that drug abuse is ruining the lives of our young people. The message behind any blaming effort is "we are not to blame", that is, an effort to dispel a sense of guilt which a community attaches to the suicide crisis. A different defense reaction is isolation. Communities turn inward in a crisis and become curiously resistant to interventions from elsewhere. A third defensive posture is detachment. "This does not involve us;" "Yes, I guess there is something going on over there somewhere-- we do not know anything about it."

The final or resolution phase of crisis reactions, when viewed from a community perspective, may range from acceptance of an ongoing stigmatization in relation to the crisis, to a gradual restoration of the status existing before the crisis. Various efforts may be made to address the causes of the crisis and possible preventive actions and long-term efforts to deal with the aftermath

of the crisis. In the specific instance of a suicide cluster generating a community crisis, the tendency is certainly toward return to the status quo, although many preventive efforts seem appropriate.

Of all the community reactions to a suicide crisis, probably the one most troublesome and most deserving of attention is the fear response. It seems to be precisely because the phenomenon of cluster suicides is so poorly understood, that in the course of such suicides a sense of great fear develops. A remarkably different course is easy to imagine if, in fact, the causes of suicide clusters were well understood, if interventions had been researched, and the most effective interventions identified. In such a situation communities would marshall efforts with the confidence that they were doing something appropriate and that the situation would be contained.

That clusters of suicides are a distinct phenomenon has been appreciated only recently even though they have been reported for many decades. It is understood that not every suicide cluster is like every other. When faced with multiple suicides, communities must wonder within the context of their specific community what is going on and what can be done. The way is open for all sorts of fantasies and worst-case accounts. Fear of a lethal phenomenon which is not understood is a normal and predictable response. In my estimation, fear contributes very substantially to what can be identified as community reactions in cluster suicide.

CLEAR LAKE TEXAS AS A CASE STUDY

The Clear Lake area in southeast Texas is a circle of towns around Clear Lake, the best known of these being the city of Clear Lake, where NASA's Johnson Space Center is located. The population center is about 70 miles from the center of Houston.

In October 1984, residents of Clear Lake, Houston, and the surrounding communities became aware that they were experiencing a cluster of adolescent suicides. A sense of emergency developed and a great deal of activity was generated in an effort to identify, understand, and intervene appropriately to put a stop to the youths' deaths.

Two former students of the Clear Creek Independent School District, both age 19, killed themselves in August and in September 1984. Because they were not connected directly with the student body at the time and because the deaths were separated by more than a month, no significance was attached at the time to these two deaths, other than that attached to any suicide--that is, grief for the families and sadness among those who knew of the deaths. Later, on September 28th, a very popular high school student died in an auto/bicycle accident. It was stated that his death was "mourned throughout the school district" because of the prominence of the student and the considerable sense of tragedy associated with his death. Six days later, on October 4, another former student, also 19 years old, killed himself. No crisis was sensed at this time, but within a week of that death, on the 5th, 9th, and 11th of October, three high school students killed themselves, making four adolescent suicides in the community in one week and a total of six suicides in a two-month period. By the fourth suicide, the school district was convinced that there was problem; and by the time of the sixth suicide the entire community had been alerted by the media. A very considerable sense of dread developed.

Following the acknowledgment by the school district and the media-generated publicity of the cluster of suicides, a great many community actions occurred. The Clear Creek Independent School District called in two professionals from Houston, who had previous experience in suicide, as consultants. They also contracted with the Houston Psychiatric Society to intervene with the families of the dead students and former students. The school district administration organized, publicized, and held a public meeting specifically for parents of all students to review what had happened and what

was being done. The school district held a press conference which was attended by representatives of the major national news services as well as by the local media. The school district established an in-school intervention process which included meetings, by grades, with all junior and senior high school students led by a group of clinical and educational psychologists, some of whom were hired on a temporary basis. Meetings were held between the psychologists and all the teachers and guidance counselors. An internal system was established for identifying children who seemed at risk for suicide on any basis, for counseling those children, and for facilitating referrals for treatment if that was deemed appropriate. The school district consultants organized a treatment referral network through professional organizations related to psychotherapy. Hospital beds and professionals offering treatment were identified and agreements were made to provide no-cost or low-cost therapy whenever it was indicated for children referred by the school district. Referrals, of course, were possible only when parents cooperated with them. Dozens of volunteer professionals participated in evaluating students and in establishing therapeutic interventions. In addition to these efforts, a number of organizations providing mental health services announced special services available in the Clear Lake area. These included teams from Houston International Hospital; the Family Emergency Intervention Team from the Houston Child Guidance Center, and special services provided by the Bay Area Crisis Hotline. The Houston Crisis Intervention Service, which is linked organizationally with the Crisis Hotline, provided major leadership and provided many volunteers to deal with calls from distressed residents of the community. The Houston Psychiatric Society established teams of its members who intervened directly with the families and friends of those who had killed themselves. Community leaders, drawn from the Clear Lake area and from Houston, organized a series of planning meetings with leadership from the Mental Health Association and the Houston Crisis Intervention Service, and sponsored a public forum on adolescent suicide. In Houston, a research group of representatives from the major academic institutions was organized to try to reach better understanding of the phenomenon in the Clear Lake area and to develop other research efforts related to adolescent suicide.

A number of problems were encountered in the course of all of these activities. It seems most fitting to discuss the things that did not go well.

Residents in the Clear Lake area felt considerably intruded upon by the flurry of activities resulting from the cluster of adolescent suicides. Some expressed concern that they felt indicted by the suggestion that there was something wrong in the community.

Second, a number of mental health professionals in the community felt disregarded when their offers to provide assistance were not accepted. No mechanism was in place for identifying the individuals who had relevant experience and expertise in suicide beyond the usual training and experience of every mental health professional. Every mental health professional considers himself of herself an expert in suicide, because this is a problem encountered from time to time in almost any work setting. In the Clear Lake situation, it was considered desirable to identify those professionals most qualified in specific suicide-related experience. A number of children were referred to Galveston and Houston for treatment. As a result, the professionals in the Clear Lake area felt that their turf had been intruded upon.

A third problem involved the lack of clarity about roles and responsibilities for the many agencies that were mandated to respond to any community crisis. Agency representatives came to Clear Lake from three counties and seven municipalities with a high level of interest and motivation to provide services. Regrettably, no clear network was established with the Clear Lake community by which the services could be administered.

A fourth problem, related to the third, had to do with unclear community leadership. The school district responded rapidly in establishing a case-finding and referral network which seemed to function relatively well. The school administration was very clear, however, in stating that it was not a treatment entity and that it wanted more appropriate community agencies to take over that responsibility whenever possible. Clear leadership for this task actually did not emerge. In a series of planning meetings, community leaders attempted to organize themselves; these meetings for the most part were orderly and congenial but they involved the kind of status-seeking group process and jockeying for position that is inevitable when people come together who have no structure for working together.

A fifth problem, related to the previous two, involved the need perceived by almost everyone for an orderly transfer of initiative from outsiders temporarily coming to the community to the community agencies and leadership already in place. Despite general agreement that this should happen, no clear plan ever was worked out by which it would happen; as a result, a number of plans initially greeted with energy and enthusiasm in fact floundered; and, to my knowledge, no long-term plans have emerged for community activity centered on adolescent suicide.

A sixth problem involved the media. There seems to be general agreement that media personnel in the Clear Lake suicides, in general, behaved responsibly and recorded events accurately. Nevertheless, some intrusions were problematic. In the first week, the school grounds adjacent to the administration building were encircled by reporters waiting for students to leave the grounds, the reporters having been barred from school property. Students were assailed by cameras, microphones, and the associated people, and were asked rapid-fire questions: "Do you know anyone who has committed suicide? Are you thinking about killing yourself? Do you know anybody who is going to kill himself? What would you do

if it were a friend of yours?" etc. It is doubtful that anyone could answer graciously or even sensibly to such a barrage of questions. The media continued to be problematic because of the possibility of suggestion received by vulnerable or at-risk individuals.

A seventh problem identified in Clear Lake was defining how extensive the problem was. The suicides occurred in a defined community served by one school district. A considerable number of volunteers and media and civic planners who flowed into this area focused on the identified problem and problem area. Simultaneously, a number of other youth suicides were reported in neighboring areas. Overall, these received far less attention than did the Clear Lake group simply because they were in outlying geographic areas. There was no equally coordinated effort to deal with the so-called "outliers" which, in fact, may have been related, in some as yet undefined way, to the Clear Lake cluster.

The eighth problem, already referred to briefly, has to do with geographical divisions and community organization. The Clear Lake area in fact involves so many governmental groups that coordinated planning in a community crisis was extremely difficult. Parts of three counties were involved, and 7 different police departments were involved in one way or another from 7 different municipalities. Part of the area received public mental health services administered from Austin and other parts received mental health services administered from community programs. The Clear Lake area certainly is not unique in having so many adjacent community organizations. In such an organizationally complicated area the need for a preplanned mental health response is especially clear.

On the positive side, a number of good things happened in the Clear Lake experience. At the top of the list, of course, is that no further suicides occurred after the week with the four suicides. In addition, appropriate interventions were made and a number of at-risk children were successfully referred and es-

tablished in needed therapy. A third positive outcome of the experience is that a more careful look at community response and problem identification was made possible.

COMMUNITY BEHAVIOR IN CRISIS

In reviewing the Clear Lake suicide cluster as a case study, a number of issues about group behavior present themselves. Often the same vocabulary and the same ideas are applied to individual and to group psychology; however, some comments about the similarities and differences are in order.

It is the case that groups experience shared emotions. Groups are made up of individuals with memories in common and frequently prevailing or unifying ideas and behavior can be identified. On the other hand, these common themes within groups are less stable than are parallel emotions and ideas and behavior in individuals. This is true particularly because the participants vary over time and groups are not themselves stably constituted. In referring to whole communities as groups, it is especially true that there is not the kind of strict connection between past and present experience that is encountered in individuals. For example, in the Clear Lake area there are sub-communities which have had remarkably stable populations where parents and grandparents have been in the same homes and the shared memories and sense of community past are very strong. Other areas within the community involve a very mobile population, many members of which have very short histories in the community and cannot share in the sense of longer-term memory and stability.

When a crisis occurs, shock and disbelief are normal individual _and_ group reactions. There tends to be an early effort to grasp the dimensions of what has happened. This may vary from wild over-estimation in a rather sensational way to problematic under-estimation in the form of denial that anything very serious is going on. Specific negative reactions to crisis discussed earlier include fear, resentment, guilt, blaming, isolation, and opposition to interventions. Community planning for intervention in a suicide crisis certainly needs to take into account the presence of these reactions. The shock and disbelief and misassessment of the situation are best dealt with by the availability of factual information, and for this the media serve a very needed and appreciated role. The group negative reactions may be under-estimated. Unless these are taken into account, ventilated adequately, and addressed in specific ways when they generate interferences, then appropriate interventions will be stalled.

One would predict that in the long term, communities as groups would be sensitized to a trauma experienced previously and would retain some continuing anxiety about that sort of trauma. Communities generally seem to be restored to pre-crisis functioning relatively well; however, just as in individuals we know that crisis often is the occasion for human growth, similarly, communities in crisis might be thought of as seeking a resolution level where new strengths are added rather than having the community return to the status quo. In this sense, it is particularly important to try to retain focus on what happens to the community initiatives which stall out after a crisis interval has passed.

LESSONS FROM THE CLEAR LAKE EXPERIENCE

In the immediate aftermath of the Clear Lake suicide cluster several research initiatives were taken. These have continued although at present none is complete. Within Houston, a task force was established which outlined a series of studies which were deemed desirable. Funding was obtained immediately from the Texas Department of Mental Health and Mental Retardation. Subsequently, a research contract was negotiated with the U.S. Public Health Service for studying the families both in Clear Lake and in Plano, Texas where adolescent suicide clusters occurred. A data tape covering 10 years of suicide experience throughout

the State of Texas was obtained and funding is being sought for its analysis, with particular interest in correlating media coverage with suicide clusters.

There is of course a high level of local interest in what has been learned about the specific situations in the Clear Lake suicides. General conclusions will be drawn from the analysis of data which we are editing. Preliminary observations indicate that the series of suicides seems to have occurred in individuals where the death was determined mainly on the basis of the individual story of the adolescent. A search for connecting links revealed some interconnections among the individuals but nothing with the strength to explain why so many deaths occurred in so short a time. Similarly there has not been any identification of social factors in the Clear Lake area which could be thought of as responsible for the suicide cluster. It seems unreasonable to identify this as a toxic community. Perhaps in the future, more detailed correlations between adolescent suicide clusters and the quality of community life will reveal important connections.

One thing learned in the Clear Lake experience is that in spite of the problems, a great deal of positive response was accomplished in a remarkably short time. One special point that was raised in two of the public meetings was of interest and occasioned some alarm. Several individuals in Clear Lake were concerned with the stigma of mental illness in the family, not in terms of its effect on social status, but in terms of its effect on employment. There was remarkable assent in the audience when one individual stated that having a suicidal adolescent might cost him his job. The perception in this group was that the employers, meaning government directly and government subcontractors, deal very unsympathetically with mental illness; families, therefore, are drawn into a system of denial when things are wrong.

Learning more about media impact on cluster suicides seems especially important because the search for influences on con-

tagion of suicide ideation focus naturally on the media. Cluster suicides are being studied as a recent phenomenon. In fact, they have been reported for many decades and a few have been reported over several centuries. From the existing reports, it is clear that not all cluster suicides are the same and it would be wrong to make generalizations about media involvement in reporting these suicides. The cluster of suicides in Clear Lake must have been a very different phenomenon from the cluster of suicides, for example, which surrounded the publication and popularization of *The Sorrows of Young Werther* by Goethe (7). This fictional account of a young man who died for love is said to have incited many young men to kill themselves. A related phenomenon is seen when there is extensive media coverage of the death by suicide, or presumed suicide, of very well known figures, such as those of Marilyn Monroe, Janis Joplin, Freddy Prinz, and John Belushi (8). Nothing of this sort was going on at the time of the Clear Lake suicides or at the time of the Plano suicides. In both instances, it is probably important to note that a well-loved member of the school population died a tragic accidental death. Since the media did not deal with the accidental death, the media may be exonerated from any involvement in a grief-related contagion phenomenon. (The Clear Lake accident received considerable media coverage after the suicide cluster and in connection with a campaign against drunk driving.) It remains an issue of concern that vulnerable, at-risk individuals may have their ideas about suicide made more concrete by the high level of attention paid to the deaths of school mates. Suggestion may play an important role in adolescent suicide, therefore, the media has a weighty responsibility both to report the news that needs to be reported, and if possible to guard against the phenomenon that that news can become suicidogenic. Since public awareness of the death may be a specific goal of a suicide, there is no avoiding the bind placed on the media. The best indirect solution is the conscientious effort on the part of reporters to deal

with the ambivalence felt by suicidal individuals, and to underscore alternatives available in the lives of people who are in emotional crisis.

RECOMMENDATIONS

A number of recommendations follow from the Clear Lake experience:

1. A pre-developed plan for community Response to adolescent suicide clusters is needed.

2. The crisis plan should cover much more than the mental health crisis of adolescent suicide. Every community would be wise to have such a plan for any crisis with mental health implications. Such a plan should be developed through existing community structures utilizing the available community leadership, with a part of the plan defining ways in which others from outside the community can be useful.

3. A great deal of attention can be appropriately devoted to public education. This education should prepare the public to expect difficult emotional tasks in the event of a crisis. Individuals should be prepared in advance to resist blaming and guilt and the whole range of problems associated with stigmatization associated with a crisis. Specifically, with respect to adolescent suicide and family stigmatization associated with mental illness, public education should extend to employers to ameliorate the fears of employees that getting help might jeopardize their jobs.

4. Media education is a major consideration. The importance of suggestion in cluster contagion is unknown; but many are concerned that the role of suggestion may be of major importance. Media personnel who, in the future, may cover issues of adolescent suicide, need to be trained in crisis psychology. They must recognize that when individuals are overwhelmed and may, indeed, be suicidal in the course of a crisis, there is potential not only for healing, but for growth in such experiences. This more positive aspect needs to be stressed during reporting.

5. Adolescents need to be educated. The preparation of the population at risk is most critical. Adolescents are very responsive to preventive mental health initiatives. They are able to understand the importance of recognizing signs of trouble both in themselves and in their friends and they can be taught ways to seek and find help in the event of suicidal ideation.

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ACKNOWLEDGMENT

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PREVENTION/INTERVENTION PROGRAMS FOR SUICIDAL ADOLESCENTS

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SUMMARY

This study describes current efforts in adolescent suicide prevention and intervention. Using mail questionnaires, a variety of programs that serve suicidal adolescents were surveyed: crisis telephone services, walk-in clinics, hospital-based emergency programs, mental health centers with crisis components, school-based suicide intervention programs, non-hospital-based crisis stabilization units, and others such as support groups for survivors of suicide, counseling agencies, and networks.

This paper describes the methodology and analyzes the findings from 396 programs. Topics investigated include: visibility of programs, reasons for program start and age of program, funding sources, services, availability and linkage to other community resources, client statistics, program problems and needs, community needs, and certification status.

Services for suicidal adolescents are not centralized, but are found in numerous community agencies with little networking among services. Many programs do not keep adequate records to assess service outcome and utilization by suicidal adolescents. Programs responding to the survey identified community education, school programs, staff and funding, specialized training regarding adolescent issues, and residential facilities as the program and community features most needed to serve suicidal adolescents better. Other major problems were the low visibility of programs, lack of certification and lack of written standards for suicide-related services.

INTRODUCTION

The research subcommittee of the Houston Task Force on Adolescent Suicide was asked by the Secretary's Task Force on Youth Suicide to identify and describe programs throughout the country which provide suicide-related services for youth. Our goal was to describe what is currently available for suicidal adolescents and to delineate programming gaps and problems. It was immediately obvious that services to suicidal adolescents were not necessarily found in programs neatly labeled as "adolescent suicide programs." Rather, services to suicidal adolescents were available through a variety of crisis intervention programs such as crisis telephones, walk-in crisis clinics, and emergency programs administered through

community mental health agencies. Other kinds of programs addressed adolescent suicide through non-crisis services. These programs included school-based educational programs, grief support groups, and task forces that coordinated services for suicidal adolescents.

Adolescent suicide is not an isolated event. Rather, it occurs in a social-psychological environment in which elements that influence the environment, indirectly at least, affect suicidal behavior. Using this line of reasoning, programs that seek to improve the self-esteem or problem-solving skills of adolescents are in some way primary prevention services. For the purpose of this survey, however, we limited the kinds of programs to those that would directly intervene with suicidal adolescents or were school-based educational/intervention programs. In short, we sought programs in which the prevention of, or intervention with, suicidal adolescents was a direct service goal.

METHODOLOGY

The project was conducted in two phases. The first was to identify programs to be included in the survey and the second was the fielding and analysis of the survey.

Program Identification

To identify programs for the survey, we first asked the 42 State mental health associations (MHAs) to provide us with directories of local MHAs. The local MHAs were, in turn, sent a project identification form asking them to identify and furnish addresses of programs that served suicidal adolescents in their communities. Although directories identified many community mental health centers, hotlines, and crisis services, they did not cover the full range of programs in which we were interested. We also asked local community-resource people to identify programs in their communities that provided services to suicidal adolescents. As such, we were able to identify the programs on which local communities currently rely.

We also sent the project identification form to 264 programs listed in the 1984 Directory of Information and Referral Services (I&R) in the U.S. and Canada. If two or more I&R services in a single community were found, one was randomly selected to receive the project identification form. In cases of community duplication between local MHA centers and I&R services, we sent the project identification form only to the I&R service; in large cities, we contacted both resources. One section of the project identification form asked respondents to identify others who could help us find the kinds of programs for which we were looking. These people, if in other communities, were sent the project identification form. A total of 523 forms were mailed. Five percent (n=24) were "returned to sender." Forty-six percent returned usable forms. Almost all listed at least one program; a few said their communities had no such services.

Survey questionnaires were then sent to identified programs. They were also sent to all programs listed in the 1982 Directory of Suicide Prevention and Crisis Intervention Agencies (The American Association of Suicidology). Finally, a systematic random sample was drawn from the 1981 Directory of Federally Funded Community Mental Health Centers (DHHS). In all, 1,181 questionnaires were mailed; 396 (34%) were returned in time to be included in this analysis.

Community Characteristics

A wide variety of communities were represented in the survey. Thirty-seven percent of the programs were located in cities with populations of 100,000 or more, 41 percent of them were in cities with populations of 15,000 to 100,000, and 16 percent were in cities with less than 25,000. Four percent were in the suburbs of large cities and 3 percent said they were located in two or more places throughout the county.

The size of program catchment areas ranged from 1,000 to 8 million. Half the programs had catchment area populations of 235,000

or less while 8 percent (n=31) had catchment areas of 1 million or more.

Half of the programs were serving populations with special characteristics. Twenty-four percent were in areas with unusual racial or ethnic distributions. Table 1, Distribution of Programs with Unusual Racial/Ethnic Distributions, summarizes the distribution. As shown, catchment areas that had heavy concentrations of whites, blacks, Hispanics, and multi-ethnicities were found in our sample.

Twenty-seven of the catchment areas had large populations of young people while another 27 areas had large aged or retiree populations. Those with young populations were usually college towns.

An unusual income distribution was the most often mentioned special characteristic of catchment populations. A full 14 percent (n=55) of the programs were in areas of high poverty and/or unemployment. On the other hand, 13 programs reported high concentrations of wealthy people. Another 13 programs said their populations had high concentrations of both wealthy and poor.

Twenty-seven programs were in counties with military bases and six were in areas where the State or Federal Government was a large employer. Many other programs were also in areas characterized by special occupations. Six areas had either a paper mill or other single factory. Ten were in high technology areas. Twenty-nine were in predominantly mining, agricultural, gaming, lumber, or fishing areas, and 7 programs had to cope with high levels of tourism. Another 12 programs responded with other special occupational characteristics. Finally, 33 programs served rural or geographically isolated populations.

RESULTS

Age of Program

Suicide services were, for the most part, provided by well-established programs. Forty-one percent of the programs in the survey began between 1970 and 1975, the years of the greatest program development. Only 25 percent (n=98) began in the 1980s. Clearly, the recent resurgence of interest and concern in adolescent suicide has not sparked a rash of new programs. However, all of the programs specific for teen suicide began since 1980.

It is interesting to note that 41 percent of the 39 programs identified as having suicide components by their titles, began in 1970 or before. Even though many programs developed between 1970 and 1975, their titles did not reveal a suicide-specific component. After 1970, seven years passed before another program in our sample, had such a title. Then, in 1984 and 1985 the remaining 16 (41 percent of all programs with "suicide" in their titles) began. In short, during the 1970s when social programs were rapidly increas-

Distribution of Programs with Unusual Racial/Ethnic Distribution		
Characteristic	Number of Programs	% of All Programs
Hispanic	20	5.0
Black	13	3.3
Native American/ Alaska native	7	1.8
Appalachian	3	.8
White	24	6.1
Multi-ethnic	18	4.5
Other	8	2.0
Total	93	23.5

Table 1.

ing, suicide-specific programs were not forthcoming. Instead, more general programs that included suicide related services along with other crisis and non-crisis services were beginning. These programs established in the 1970s, are still the major providers of suicide services to adolescents.

Program Visibility

To whom does a suicidal adolescent turn? As anyone who has tried to find a particular agency in the phone directory has experienced, the title of an agency is usually needed in order to contact it. Because we were curious about how helpful titles were for "finding" a program, we analyzed program titles in terms of their key words.

Incredibly few programs (n=8) had the words "teen," "youth," or "adolescent suicide" in their titles. Only 33 other programs (8%) had the word "teen" without the word "suicide." This is a critical shortcoming given that adolescents tend not to contact general services. Rather, as the child sexual abuse hotline in Knox County, Tennessee contended, adolescents are much more likely to contact a program that is advertised specifically for them. Thus, much needs to be done to make programs more attractive to teens to encourage them to use these programs more frequently.

Even titles containing the key word "suicide" were not common. Only 31 (8%) programs fell into this category. Instead, program titles reflected an orientation to general problems, as opposed to specific ones, and to broad populations rather than special groups.

A large number of programs had "crisis" or "emergency" in their title. Almost 1/4 (n=88) of the programs had "crisis" while 6 percent (n=24) had "emergency" in their titles. Another 39 programs (10%) were called Helpline, Hotline, or Hopeline.

A relatively large number of programs (19%, n=75) were titled "mental health" or "counseling" programs. At least one program commented that the term "mental health" was

seen as a stigma deterring teenage utilization.

Finally, 32 programs (8%) were called "CONTACT" and 66 programs (17 percent) had titles which did not convey crisis, emergency, suicide, or even helpline services. These programs had titles such as "Center for Human Services" and "Gateway."

The visibility of a program is largely dependent on its advertising and 46 percent of the programs in the sample did not advertise to reach adolescents specifically.

Reasons for Program Development

Almost 40 percent of the programs in the sample began because of a particular interest in suicide services; in 11 percent of the cases, a specific suicide incident was the impetus. A few programs (2%), mentioned a high suicide rate in their communities. For 29 percent of the programs, however, issues other than suicide were the reason for starting the program. These included: perceived need in community for general crisis services (22%), response to drug abuse (6%), and response to street youth (1%). The latter emerged not only to assist runaways, but also to address problems spawned by the deinstitutionalization of status offenders. (See Table 2, Distribution of Reasons for Program Development.)

Funding

Because of differences among organizations, we were not able to obtain budget information solely for suicide components for all programs. Only 75 programs (19%) reported the amount spent solely on suicide services, 174 (44%) provided the amount for all crisis and referral services, and 45 (11%) provided a total agency budget that included more than crisis services.

As shown in Table 3, Description of Program Funding by Budget Type, the average budget for a suicide component of an agency is $63,667. On the average, the 1986 budgets were $10,000 higher than for 1985. Between fiscal years 1984-85 and 1985-86, funding

devoted solely to suicide services increased proportionately higher than funding for both total crisis services and total agency services. The ratios of the average 1985-86 budget compared to the average 1984-85 budget was 1.22. The corresponding ratio for total crisis budgets was 1.12 and for total agency budgets it was 1.06.

Funding Sources

The majority of programs did not receive federal funding, nor did they receive funding only from one source. Rather, they obtained funds from the State (58%) and a variety of local sources such as fundraising, donations, and United Way. When programs seek funds outside government sources (n=174) they look to fundraising (34%), United Way (27%), a combination of United Way and

fundraising (16%), churches (4%), insurance and other third party payers (10%), and trainer/speaker fees (9%).

Services

The most prevalent service offered by programs was a crisis telephone, usually staffed 24-hours a day. Eighty-eight percent had this service component. Usually, even if an agency did not provide a crisis telephone service, another agency in the community did. Only 2 programs stated that a crisis telephone service was not provided in their communities. More than 6 percent of the programs also offered a walk-in crisis service while 6 percent said it was not available at all.

Education and public awareness were usually provided by programs; very few com-

Distribution of Reasons for Program Development

		N	%
1.	Specific suicide incident	45	11.39
2.	Federal mandate for community mental health emergency components	103	26.08
3.	Professional interest in suicide services	146	36.96
4.	Non-professional concern with suicide	8	2.02
5.	Perceived need in community for crisis services in general	88	22.02
6.	Expansion of existing agency services	20	5.05
7.	Response to drug abuse	22	5.56
8.	Response to street youth	5	1.26
9.	High suicide	8	2.02

Table 2.

Description of Program Funding by Budget Type, 1985-1986 (in dollars)

	Number of Programs	Average Funding	Mean Change 84/85 to 85/86	Mean Change 83/84 to 84/85
Suicide Only	75	63,667	+10,033	+6,875
Total Crisis	174	132,374	+15,907	+10,221
Total Agency	37	1,150,817	+93,686	+99,294

Table 3.

munities had no such service. In spite of the high proportion (85%) of agencies participating in educational activities, half of them stated that their communities needed more education and awareness of suicide or better knowledge of resources.

Grief counseling, either face to face or via telephone, was available in most communities. Sixty-two percent of the programs offered the service, but only 12 programs specifically mentioned an SOS (Survivors of Suicide) group. Presumably, grief counseling is still provided through more traditional formats such as individual and other group counseling.

Followup therapy, including individual, group, or family was offered by less than half the programs in the survey sample. When crisis telephone programs were excluded from the data base, 70 percent of the remaining programs provided followup therapy. The rest reported that the service was available elsewhere in their community. Only 3 percent said it was not provided at all.

Nine percent of the programs claimed that school intervention, in any form, was not available in their communities. Neither they nor another agency provided the service. More than half of the programs furnished some form of school-based intervention, whether personnel training, crisis intervention, or student awareness training, and in the remaining cases, another agency provided at least one of these services. Crisis intervention was the most likely service to be offered, followed by student awareness training and training school personnel. School-based intervention was regarded as an important service for adolescents. Indeed, when asked what more their programs needed for adequate service to suicidal adolescents, a full third responded "school programs."

When another agency provided any of the above services, the program responding to the survey was unlikely to have any formal agreement with it. An agreement with a medical care facility was most common but only 21 percent of the programs had one.

Eleven percent had an agreement with an agency providing followup therapy and 8 percent had one with a walk-in crisis clinic. Clearly, there is little formal networking in communities among agencies providing services to suicidal adolescents.

Other Resources

Respondents were also asked about the availability of, and their relationship to, other resources typically involved in suicidal intervention: private therapists, mental health programs, police, ambulance services, medical emergency treatment, and psychiatric hospitalization. More than 25 percent of the programs reported that private therapists specifically interested in suicide were not available in their communities. Even when such therapists were available, only 6 percent of the programs had written transfer agreements with them and a few programs stated that it was program policy not to refer to private, for-profit, therapists. Linkage problems included: private therapists who would not accept clients who could not pay (n=10); insufficient number of private therapists (n=10); problematic client motivation and follow-through with such referrals (n=3); clients having to wait too long for an appointment (n=1); and inadequate communication or linkage between the program and the therapist (n=5). Three more programs mentioned other problems such as clients lacking transportation to get to a therapist's office.

Only 8 of the 396 programs claimed their communities had no mental health program. Twenty percent of the programs in the sample were, themselves, the mental health program. Of the remaining 316 programs, 41 percent had written transfer agreements with the mental health program in their community. The most frequent (n=17) complaint regarding linkage was the long waiting time before clients could be seen--up to six weeks in one case. Other problems included: clients unable to pay; a lack of after-hours crisis intervention care or outreach; communication problems between the mental

health program and the responding program regarding aftercare following crisis or hospitalization; and difficulty with client motivation and referral compliance. Several programs mentioned treatment barriers specific to adolescents, namely, the need to get parental consent or an agency policy not to serve anyone under 17 years old.

In a few communities (n=7) ambulance services were not available. For the vast majority of the remaining programs, getting to a helping resource was the client's responsibility, even when in crisis. Eighty-one percent of the programs had no formal agreement with an ambulance service. Four percent of the sample reported that clients in crisis also faced other problems with ambulance services. Ambulances were reluctant to transport if they were unsure of reimbursement, and in some communities, they responded only to medical needs. Thus, if a client was suicidal but had not yet attempted, ambulances would not transport that person to a crisis intervention facility.

The programs in our sample were unlikely to have formalized agreements with police-- only 13 percent did. The programs were even more critical of police than they were of ambulance services. Seven programs mentioned that police lacked suicide-intervention training and/or were reluctant to accept such training. Nine programs complained about the lack of police response to crises situations. One program mentioned that police were disillusioned about crisis intervention because of the State's deinstitutionalization laws. Other programs referred to the failure of police to use appropriate community resources and to operational problems such as difficulty in tracing calls. Another 5 percent of the sample acknowledged problems but did not specify what they were.

Less than one quarter of the programs had written agreements with hospital emergency medical care resources. Among the 353 programs with valid data, 9 percent had linkage problems with these resources. The most frequent problems mentioned involved

the actual referral process: the lack of clear guidelines for referral; the lack of a centralized reporting mechanism; being able to refer only with police intervention; and the unwillingness of medical care resources to handle clients with psychiatric problems, even when there were medical problems. For several programs, the lack of appropriate psychiatric staff within the medical care facility was a referral barrier.

Hospital psychiatric admission was available to 92 percent of the programs in the sample. Moreover, it was the resource with which programs were most likely to have written transfer agreements (36% of the 342 programs who furnished complete data). It is with this resource, however, that the programs in the sample also experienced the most problems. The lack of beds was frequently mentioned (n=18). Other programs referred to problems with the admission process, such as delayed admission, disagreement as to the appropriateness of certain referrals, refused admission to those who could not pay, and refused admission to clients with medical problems. Distance to nearest facility and other transportation issues posed complications for twelve programs. For some communities, the nearest facility, while available, was 50 to 100 miles away. Getting a client to these facilities was a problem, particularly for indigent clients lacking personal transportation.

Program Outcome Data

One section of the questionnaire asked for program outcome data, specifically: number of clients directly served in the past fiscal year; number of suicide-related clients and how many of these were adolescent; number of suicide-related clients who return to crisis within a year; and the number of documented client deaths. In responding to the question on number of suicidal clients, programs included not just attempters but also clients with suicidal thoughts and ideation.

Five percent of the programs could not give the number of clients served last year. Some programs, particularly the crisis telephone

programs, did not have records on the number of individual clients; their data reflected the total number of contacts. Thus, the data for crisis telephone programs reflected the number of calls although some clients called repeatedly. Even among similar programs, there is wide variation in the number of clients or client contacts. One telephone crisis program reported more than 103,000 calls; another had less than 2,000. One school-based program intervened in 8 cases; another intervened in 50 cases. The extreme variation among programs and between program types made any further generalization regarding total number of clients inappropriate.

The most striking observation about other outcome data was that programs frequently did not gather this kind of information. Twenty seven percent of the programs stated they were unable to give the number of suicide-related cases or simply left the question blank. Information on the number of adolescent suicide-related cases was even less frequently available. Forty-five percent

of the programs did not respond. Forty-two percent did not know how many suicidal clients returned in crisis within the year and another 22 percent left the question blank. Twenty-one percent of the programs did not know the number of documented client deaths from suicide last year while 18 percent did not answer at all.

Our analysis of outcome data included only those programs for which data were available. For a few, suicide-related cases occurred infrequently. Seven percent of the programs had ten or less such cases last year. Most programs (63%), however, handled 100 or more suicide-related clients. Among the 291 programs for which data was available, 12 percent had 1,500 or more suicidal contacts/clients. (See Table 4 for the distribution). Overall, 7 percent of all clients served were suicidal. The number of suicidal adolescents that programs served also varied widely not only between types of programs but also among similar programs. Some programs served no suicidal adolescents last year while others served more than 600.

Distribution of Number of Suicide–Related Cases		
Number of Suicide-Related Cases	Number of Programs	% of All Programs with Valid Data (n=291)
1-99	120	41
100-199	27	9
200-299	36	12
300-399	14	5
400-499	15	5
500-599	14	5
600-699	7	2
700-799	4	1
800-899	1	1
900-999	4	1
1000-1999	23	8
2000-2999	11	4
3000+	15	5
Don't know	43	N/A
Missing	62	N/A
Total	**396**	**100%**

Table 4.

Across all programs in the sample, 13 percent of the suicide-related clients were adolescents.

Table 5 presents the distribution of the number of documented suicides among clients. Very few of each program's clientele actually committed suicide. More than half (59%) of the programs that furnished data reported no client deaths from suicide last year. Thirteen percent had only 1 client suicide and 18 percent had two or three. The remaining 14 percent had four or more. Overall, there were 297 suicides per 100,000 suicide-related clients served.

Problems

Using a combination of closed and open-ended questions, we asked respondents to identify specific program problems, especially those that affected service delivery to suicidal adolescents. We also asked respondents what more their communities needed for adequate services to this special popula-

tion. Table 6 presents the distribution of the responses to close-ended questions.

Staffing and Professional Issues

Staff shortage was the major complaint of 54 percent of the programs. This problem was reiterated when respondents were asked what more their programs needed for adequate service. Twenty seven percent again replied "staff and money."

Not only the number but the quality of staff was of some concern. Of all persons employed by the programs in the sample, more than half (57%) were volunteers. When crisis telephone programs are excluded from the analysis, 33 percent of all employees are volunteers. Problems with troubled volunteers was not a major issue but 10 percent of respondents stated that their staff needed more training, particularly regarding adolescent issues.

More than a third of the respondents claimed

Distribution of Client Deaths From Suicide		
Number of Documented Client Deaths	**Number of Programs**	**% of Programs with Valid Data (n = 239)**
0	142	59.4
1	32	13.4
2	28	11.7
3	14	5.8
4	10	4.2
5	4	1.7
6	1	.4
7	1	.4
8	1	.4
10	1	.4
12	1	.4
13	1	.4
20+	3	1.2
Don't know	81	N/A
Missing	76	N/A
Total	396	100%

Table 5.

that various staff and professional issues hampered their ability to serve suicidal adolescents. In addition to more staff and training, they wanted more time to work with adolescents and better networking with other professionals. Similar concerns were stated regarding community needs: better networking and case followup, better trained professionals, more professional resources in general, and more professional commitment to the problem.

Community Education

Programs wanted to do more community education activities but were hampered by the lack of funds and staff. In fact, 20 percent of them said this was a major need in their communities. Their concern particularly centered around the need for greater recognition and awareness that teen suicide exists and is a viable problem.

School Programs

Respondents considered schools to be critical intervention arenas. Many programs were already doing some form of school intervention; 11 percent thought this was what their programs should be doing but were not, and 16 percent replied that this was a major community need. In many communities, school systems were reluctant to have suicide-specific educational programs. One

objection was the belief that talking about suicide would give teenagers "wrong ideas." Some programs also suggested that school personnel be trained regarding indices and intervention techniques. Not only the lack of qualified school personnel, but also the availability of school staff to teenagers, were problems. Often, school counselors were tied up with helping students schedule courses and had little time to talk with troubled students.

Specific Adolescent Programs

Sixteen percent of respondents listed specific adolescent services which they believed would enhance their program's effectiveness in serving suicidal adolescents. Those most often mentioned, in order of frequency, included: residential/in-patient treatment support groups for both attempters and survivors of victims, safe-houses and other non-hospital residential services, peer counseling, and family involvement in treatment.

Many of these services were listed again under additional services communities needed to serve suicidal adolescents adequately. Almost 25 percent of respondents listed services specially attuned to adolescent needs such as: in-patient beds and residential facilities, teen community centers and drop-in clinics, peer counseling, prevention programs, support groups, and long-term,

Distribution of Problems Encountered by Programs

	Yes		No		Missing	
	# of Programs	%	N	%	N	%
Inadequate physical facility	123	31.1	225	56.8	48	12.1
Staff shortage	215	54.3	134	33.8	47	11.9
Inadequate staff training	60	15.1	288	72.7	48	12.1
Funding instability	165	41.7	183	46.2	48	12.1
Funding deficiency	171	43.2	177	44.7	48	12.1
Troubled volunteers	27	6.8	321	81.1	48	12.1
Inadequate referral resources	73	18.4	274	69.2	49	12.4

(Responses to Questions — column headers)

Table 6.

family-oriented treatment. Another concern was the need for more leverage to work with adolescents when parents refused counseling or help for their adolescents or when adolescents needed to be separated from the parent.

Certification Standards and Qualifications

The certification of programs and qualifications of professionals is of some concern. Only 9 percent of the programs with valid data (n=367) were certified by the American Association of Suicidology and one quarter of the programs (26%) did not have written standards for suicide-related procedures.

Twenty nine percent of all professional staff working directly with clients (i.e., excluding volunteers, administrative, coordinative, and secretarial staff) had undergraduate degrees or less. The lack of advanced education coupled with programs' own requests for staff better trained in adolescent issues suggests that attention be given to the qualifications of persons who are working with suicidal adolescents.

A similar concern was repeated regarding "helping" individuals outside a program's auspices. Several respondents expressed dismay that self-proclaimed "experts" in suicide may do more harm than good. They gave specific examples of trainers and other persons who were obviously uninformed and unprepared to deal with suicide. Illinois is one State that is attempting to establish certification standards for individuals as well as for programs.

Suicide-Specific Programs: A Subanalysis

From the first 271 questionnaires returned, we analyzed separately 27 intervention/prevention programs exclusively or predominantly devoted to suicide, as determined by their titles. None were located in small towns of populations under 15,000, but neither were they solely a product of densely populated areas. They were as likely to be found in cities of 15,000 to 100,000 as in larger ones. As reasons for program development, most listed professional interest in suicide (70%) followed by a specific suicide incident (37%). Only 11 percent listed "response to high suicide rate."

These programs were not overwhelmingly multi-service agencies. No more than 60 percent had a crisis telephone service and only 15 percent had a walk-in crisis service. The most common activity was education and public awareness (93%), followed by student awareness (67%), and direct crisis intervention in the school (63%). These agencies usually did not offer followup therapy--only 22 percent did--and when it was offered, it was most likely to be individual therapy, not family or group.

Even these specialized groups were not formally linked to (i.e., have written agreements with) other traditional resources in the community such as police, ambulance services, and private therapists. The resource most often linked with the suicide-related program was a mental health program. One quarter (26%) of the programs had written agreements with a mental health agency and reported no problems in working with this resource. On the other hand, while only 11 percent had written agreements with hospital psychiatric resources, almost a fourth reported problems, particularly, too few beds, and clients being refused admission for financial and other reasons.

Funding for these programs came primarily from the State, United Way, and donations/fundraising. Budgets were not large. Thirty percent of the programs operated on $7,000 or less. Another third had budgets between $29,000 and $100,000. Only one program had a budget greater than $250,000.

The programs varied greatly in the number of clients served. One reported 30, while several reported more than 25,000. It was not surprising that among these programs, suicidal clients comprised a larger proportion of all clients served than among other programs (13% vs. 7%).

On the other hand, suicide-specific programs did not attract adolescents as well as the other programs. Only 7 percent of all suicidal clients were adolescents compared to 12 percent for the entire sample. The client death-rate, however, is smaller--245 vs. 304 per 100,000 suicidal clients.

Twenty-two percent of these programs listed more community education and school programs as needed components to their services. More training, more funding, or more time to work with adolescents were program needs for more than half the sample. Very few (n=3) wished to add a specific adolescent service to their program, but 25 percent did want to have such services developed within their communities.

These programs were more likely than other programs to advertise specifically to adolescents (70% vs. 43%). Still, 22 percent of them did not. Also, more than 80 percent of them were not certified by the American Association of Suicidology and 22 percent did not have written standards for suicide-related procedures.

DISCUSSION

Suicide prevention/intervention services for adolescents are generally not provided by agencies established solely for that purpose. Specializing in suicidal adolescents is the exception rather than the rule. Services are usually available through general crisis programs, with suicide being just one type of crisis handled. Yet, there seems to be a growing recognition that working with adolescent suicide requires a level of staff expertise that is currently lacking. Many of the programs in the sample want more staff training and indicated a need for staff trained in adolescent development and issues. They see this as a need not only for their own programs but also for other programs in their communities. For example, a respondent for a crisis telephone program indicated the need for the mental health clinic in the community to have a specialist in adolescence.

Most communities included in our sample have not addressed adolescent suicide as a separate issue. Agencies, or even programs within agencies, do not specialize in suicide. For many communities the lack of specialization is partly fostered by the belief that adolescent suicide is not a problem or does not exist and survey respondents often expressed dismay over the extent of community unawareness. Program personnel consider community education as a priority issue in improving service to suicidal adolescents.

Addressing adolescent suicide as a separate issue is difficult because it is often accompanied by a wide variety of other problems such as drug and alcohol abuse, depression, family conflict, running away, and even satanic worship. Clearly, for a community to develop a comprehensive service system for suicidal adolescents, it must be able to handle these other problems as well. In many communities it is not the lack of services for accompanying problems that lessens effective interaction but, rather, the lack of networking among programs in a community. The absence of networking was felt on two levels: case coordination and service delivery. We found instances of ambulances refusing to transport patients if there were no physical injury, psychiatric wards refusing to admit if there were physical injuries, and medical programs reluctant to treat if there were psychiatric/ psychological problems. Perhaps community coordination by someone trained in adolescent issues would encourage these programs to be receptive to adolescents in crisis.

To serve suicidal adolescents better, survey respondents recommend a combination of strengthening services already in operation through funding, staffing, training, and networking as well as the development of teen-specialized services such as teen community centers, peer counseling, and safehouses. Still, the existence of a service does not mean that teenagers will automatically use it. Several mental health agencies specifically mentioned that teenagers were unlikely to use their services. Current programs need to consider factors affecting service utilization

by teenagers and to make special efforts to advertise their programs directly to this population.

The issue of allowing suicide prevention/education programs in schools remains unsettled. Respondents felt that these programs are important for reaching adolescents adequately, yet many school systems oppose such efforts. Some programs have developed school intervention curricula, are training students and personnel, and are providing crisis intervention. Other programs and schools might benefit by observing the strategies in schools in which programs are already developed.

Parents, too, are sometimes obstacles to helping suicidal adolescents. Several programs have problems in obtaining parental permission to counsel adolescents. To strengthen the accessibility of services by adolescents, changes in consent laws must be addressed. The problem is compounded when parents themselves, are primary contributing factors to a troubled adolescent. Respondents to the survey urged communities not wishing to provide a comprehensive system of service, to provide for separation of parent and adolescent and to find alternative ways to involve parents in treatment.

Another dilemma that must be addressed in serving suicidal adolescents is the availability of residential treatment beds, when needed. In many communities, the need for such beds is relatively infrequent so that none are reserved for such emergencies. Thus, a suicidal adolescent may need inpatient treatment when a bed is not available. Survey respondents recommend that such beds be established and held in reserve, to be used when needed, regardless of frequency of use. The same concern was stated in a somewhat different form when one program director wrote that, on the basis of prevalence, other mental health problems such as schizophrenia took staffing and funding priority over adolescent suicide. In short, decision makers will have to examine priorities and prevalence issues when debat-

ing program development for adolescent suicide services at the community level.

The lack of certain services for adolescents, particularly in-patient/residential treatment space, must be addressed if a more effective system for serving suicidal adolescents is to be established. These developments will probably take money; certainly, they will require agency policy changes. Professionals in communities do not have to wait, however, for such major problems to be resolved. Many services are already available and their coordination would be a beginning of an improved delivery system for suicidal adolescents.

ACKNOWLEDGMENT

CHARACTERISTICS OF SUICIDE PREVENTION/INTERVENTION PROGRAMS: ANALYSIS OF A SURVEY

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SUMMARY

This paper reports the results of a survey of 395 suicide prevention/ intervention programs in the United States. Included in the sample are 152 crisis telephone services, 9 walk-in clinics, 24 hospital-based emergency programs, 142 mental health centers with a crisis component, 17 school-based suicide intervention programs, 8 non-hospital-based crisis stabilization units, 22 combinations of two of the above, and 21 other programs such as survivors of suicide, counseling agencies, and networks. Crisis telephone services and mental health clinics make up 74 percent of the organizations that responded to the survey.

Each type of program is described in terms of location, special characteristics of the catchment population, services provided, number of clients served, number of suicide-related cases served, number of suicide-related adolescent cases served, number of documented suicides, available resources, budgets, funding sources, and problems encountered by the programs.

Most of the programs were developed in response to professional interest in suicide services. Although program labels were often misleading, a surprisingly large number of programs offered comprehensive services directed toward suicide prevention/intervention. The services most often offered were education and public awareness efforts, and crisis telephones. Medical care for suicide attempters was least likely to be provided.

Budgets ranged from under $20,000 to well over $1,000,000 and almost all programs reported multiple funding sources. Staff shortages, funding deficiencies and the instability of funding were problems encountered most often by the 395 programs in our survey. Other than more funds and more staff, most programs had the resources they need to serve suicidal adolescents in the community.

The average number of suicide-related adolescents served last year by programs in our survey was 76, ranging from 26 served by school-based intervention programs to 375

suicide-related adolescents served by mental health centers. The highest rate of suicide per 1,000 suicide-related clients was 38.2 in school-based intervention programs and the lowest was in non-hospital-based programs with .29.

INTRODUCTION

While the community response to the increasing rates of adolescent suicide is thought to be massive, very little is known about the actual programs that have developed, where they are located, why they began, what services they offer, what resources are available to them, what their annual budgets and funding sources are, how many clients they serve, and what their problems are.

To address these issues, we first asked the local programs of the Mental Health Association and the programs listed in the 1984 Directory of Information and Referral Programs in the United States and Canada to identify suicide prevention/intervention programs known to them. All programs listed in the Directory of the American Association of Suicidology and a random selection from the 1981 Directory of Community Mental Health Centers in the United States were added for a total of 1,181 programs. Methodological details of the survey are discussed elsewhere (Simmons, Comstock, and

Franklin). This paper describes the 395 programs which returned usable survey forms to us.

PROGRAM CHARACTERISTICS

Table 1 summarizes the types of suicide prevention/intervention programs responding to the survey. Of the 395 programs, 38 percent (152) describe themselves as crisis telephone services, 2 percent (9) as walk-in crisis clinics; 6 percent (24) as hospital-based emergency programs; 36 percent (142) as mental health centers with a crisis component which includes suicide intervention; 4 percent (17) as school-based suicide intervention programs; and 2 percent (8) as non-hospital-based crisis stabilization units, city-sponsored community crisis services, general intervention services or comprehensive general crisis agencies. Six percent (22) of the programs are combinations of two of the programs listed above and 5 percent (21) of the programs describe themselves as survivors of suicide, community mental health clinics with no emergency service, community-based education and support groups, counseling agencies and networks. For discussion purposes, these programs are labeled Other.

Population

Thirty-three percent of the 395 programs are

Types of Suicide Prevention/Intervention Programs Responding to Survey		
Type of Program	Number	Percent of All Programs
1. Crisis telephone service (CTS)	152	38
2. Walk-in crisis clinic (WIC)	9	2
3. Hospital-based emergency service (HBES)	24	6
4. Mental health center with crisis component (MHC)	142	36
5. School-based intervention program (SBIP)	17	4
6. Non-hospital-based program (NHBP)	8	2
7. Combinations (Comb)	22	6
8. Other (Other)	21	5
Total	**395**	

Table 1.

located in central cities with populations of more than 100,000; 41 percent in cities with populations of 15,000 to 100,000; 16 percent are located in small towns with populations less than 15,000; and 7 percent are located in other areas. Table 2 summarizes the populations served by the programs surveyed.

Special Characteristics

Fifty-three percent of the 395 programs consider their catchment population "special." (Table 3) Twenty-four percent list unusual racial/ethnic distributions, 18 percent report unusual age distributions and 21 percent consider the distribution of income unusual.

Eight percent list sex distribution as unusual, 18 percent report than their catchment population has an unusual occupational distribution such as a single industry town, and 20 percent report other characteristics, such as geographic isolation, which make their catchment population unusual.

Walk-in clinics were the most likely to consider their population unusual (67%), closely followed by mental health centers (66%), hospital- based emergency services (63%), non-hospital-based programs (56%), combinations (50%), crisis telephone services (44%), school-based intervention programs (35%), and other programs (33%).

Populations Served by Various Types of Programs				
Type of Program	Over 100,000(%)	15,000- 100,000(%)	15,000(%)	Other(%)
All Programs Combined	37	41	16	7
CTS	45	42	9	4
WIC	11	67	22	--
HBES	75	21	4	--
MHC	19	45	30	6
SBIP	36	24	24	16
NHBP	56	22	11	11
Comb	36	64	--	--
Other	62	24	5	10

Table 2.

Special Characteristics Reported by Programs Responding to Survey							
Percent Reporting Special Characteristics of Catchment Population							
Type of Program	%	Racial/ ethnic	Age	Income	Sex	Occupation	Other
All Programs Combined	53	24	18	21	8	18	20
CTS	44	20	18	17	11	20	16
WIC	67	22	11	33	--	22	45
HBES	63	33	25	21	4	--	8
MHC	66	27	17	26	7	22	22
SBIP	35	17	11	29	--	11	17
NHBP	56	22	--	45	11	11	22
Comb	50	32	23	5	9	9	18
Other	33	9	24	19	--	5	9

Table 3.

Initiation of Program

Table 4 summarizes the reasons for establishing the service programs surveyed. Eleven percent of the 395 programs began in response to a specific suicide incident. But the most often listed reasons for developing programs were professional interest in suicide services with no specific incident (37%), federal mandate for community mental health center emergency component (26%), and perceived need in the community for general services (24%).

Services

Programs were asked to list their services in terms of those directly provided, those provided by another agency under formal agreement with the reporting agency, those provided by another agency in the community with no formal ties to the reporting agency, and those services not provided in the community.

A surprisingly large number of agencies provide a wide range of suicide prevention/intervention services. Community mental health centers are the most comprehensive: 90 percent provide crisis telephone services, 96 percent provide walk-in clinics, 90 percent provide grief counseling, and 96 percent provide family emergency therapy. They provide followup therapy for individuals (93%), groups (83%), and families (92%). Eighty-eight percent provide education and public awareness services and 70 percent provide school intervention services, including personnel training (54%), crisis intervention (75%), and student awareness training (46%).

Crisis telephone services provide the client with a wider range of services than expected. Twenty-three percent of the 152 crisis telephone services provide walk-in crisis services, 2 percent provide medical care for suicide attempters, 40 percent provide grief counseling, 12 percent provide family emergency therapy and followup therapy, 83 percent provide education/public awareness services and 44 percent provide school intervention services, including training personnel for school intervention (45%), providing crisis intervention to schools (41%), and providing awareness training for students (53%).

All walk-in crisis clinics provide direct crisis telephone services and family emergency therapy. Most provide education/public awareness services (89%), intervention for schools (67%), and grief counseling (67%). Forty-four percent of the walk-in crisis clinics also provide direct training for school intervention and (33%) student awareness training.

	Reasons for Initiating Programs Figures given in percent			
Type of Program	**Suicide Incident**	**Federal Mandate**	**Professional Interest**	**Perceived Need in Community**
All Programs Combined	11	26	37	24
CTS	13	6	39	39
WIC	17	44	22	11
HBES	--	38	33	12
MHC	5	53	32	8
SBIP	44	6	69	6
NHBP	--	11	11	33
Comb	14	5	50	14
Other	33	10	38	19

(Percentages do not add to 100 due to rounding and/or to missing data.)

Table 4.

Hospital-based emergency services tend to be comprehensive in that they provide crisis telephone services (79%); walk-in crisis services (79%); medical care for suicide attempters (42%); grief counseling (63%); family emergency therapy (96%); followup therapy (71%) to individuals (67%), groups (54%), and families (67%); education/public awareness services (75%); and school intervention services (63%), including personnel training (50%), crisis intervention (50%), and student awareness training (46%).

Only 2 (12%) of the school-based intervention programs provide crisis telephone services and none provide medical care for the suicide attempters. But they do provide walk-in crisis services (47%); grief counseling (53%); family emergency therapy (29%); followup therapy (29%) to individuals (47%), groups (29%), and families (24%); education/public awareness services (94%); and school intervention services (88%) including training (88%), crisis intervention (76%), and student awareness training (100%).

The non-hospital-based programs provide crisis telephone services (100%); walk-in crisis services (89%); grief counseling (44%); family emergency services (78%); followup therapy (33%) for individuals (33%), group (22%), and families (44%); education/public awareness services (78%) and school intervention services (67%) which includes personnel training (56%), crisis intervention (67%), and student awareness training (44%).

All combination programs provide crisis telephone services (100%); and some provide walk-in crisis services (82%); grief counseling (59%); family emergency therapy (41%); followup therapy (36%) to individuals (32%), groups (23%), and families (23%); education/public awareness services (91%); and school intervention (73%) which includes personnel training (68%), crisis intervention (68%), and student awareness training (86%).

Programs in the "other" category provide crisis telephone services (43%); walk-in

clinic services (52%); medical care for suicide attempts (5%); grief counseling (48%); family emergency therapy (41%); followup therapy (52%) to individuals (52%), groups (43%), and families (52%); education/public awareness services (81%); and school intervention (62%) which includes personnel training (67%), crisis intervention (52%), and student awareness training (57%).

As indicated by these statistics, programs do not differ greatly in terms of services that they provide directly to clients.

Of the services provided by the 395 programs, medical care for suicide attempters is the least likely, provided by only 7 percent of the programs (2% of the crisis telephone services, 42% of the hospital-based emergency clinics, 10% of the community mental health centers, and 5% of the programs in the "other" category). However, an additional 21 percent provide medical care for suicide attempters by formal agreement with another agency and more than half (54%) report that these services are provided by another agency which has no formal ties to the reporting program.

Community Resources

Programs report very few deficiencies with community resources. Private therapists who are interested in suicide are available to 69 percent of the programs; only 7 percent have written agreements with private therapists and only 9 percent report problems making referrals. Some of the problems associated with referrals include the client's inability to pay and therapists not being available at off hours.

Mental health services are available to 96 percent of the programs and 33 percent have written agreements which allow clients to be transferred between the reporting program and the mental health service. Eleven percent report problems linking clients with mental health services; the most often cited problems are long waiting lists and lack of staff at the mental health facility.

Almost all (96%) of the programs have an

ambulance service available to them. Only 9 percent have written agreements with ambulance services and only 4 percent report problems. Police are also available to most (97%) programs; 13 percent have written agreements with police and 10 percent report problems working with police, mostly due to lack of police training in the area of suicide.

Hospital emergency medical care is available to 97 percent of the 395 programs, 23 percent have written agreements and only 8 percent report problems linking clients to this resource. Ninety-two percent of the programs have psychiatric hospital services as an available resource and 36 percent have written agreements with a psychiatric facility. However, 19 percent of the programs report problems linking clients with a psychiatric facility such as insufficient number of beds, delays in admission, and reimbursement issues.

Availability of community resources is not related to program type and other than a general shortage of private therapists who are interested in suicide and who are available to the program, few programs report problems with the availability of resources.

Costs

Budget Breakdown

Ninety (23%) of the programs did not report budgets. Of the 305 that reported budgets, 21 percent have annual budgets of $20,000 or less, while 8 percent report budgets of more than 1 million dollars for fiscal years 1985-1986.

Crisis telephone services reported annual budgets of $20,000 or less (21%); $21,000 to $50,000 (29%); $51,000 to $75,000 (15%); $76,000 to $100,000 (10%); and $101,000 to $500,000 (24%). One program reported a budget of $501,000 to $1,000,000 and 11 percent of the crisis telephone service programs did not report budget information for fiscal year 1985-86.

Walk-in crisis clinics report annual budgets

of $21,000 to $50,000 (38%); $51,000 to $75,000 (13%); $76,000 to $100,000 (25%); $101,000 to $500,000 (13%); and $501,000 to $1,000,000 (13%). Eleven percent did not report budgets. One hospital-based emergency services program has a budget of $79,000, two have budgets of $200,000 and $335,000, one reports $523,000 and another reports $600,000. Seven percent have budgets of $501,000 to $1,000,000 and 21 percent report budgets in excess of 1 million dollars. Four (21%) programs did not report budget data.

Mental health centers report budgets in each of the seven categories: $20,000 or less (17%); $21,000 to $50,000 (9%); $51,000 to $75,000 (6%); $76,000 to $100,000 (4%); $101,000 to $500,000 (35%); $501,000 to $1,000,000 (7%); and more than $1,000,000 (18%). Thirty percent did not report budget data.

The school-based intervention programs are small--all but one (with a $220,000 budget) report annual budgets of $20,000 or less (41% did not report). Non-hospital-based emergency programs range from $76,000 to $100,000 (20%); $101,000 to $500,000 (60%); and $501,000 to $1,000,000 (20%) (56% did not report). Combination programs report budgets of $20,000 or less (11%); $21,000 to $50,000 (17%); $51,000 to $75,000 (6%); $76,000 to $100,000 (17%); $101,000 to $500,000 (44%); and over $1,000,000 (6%). Eight percent did not report budget data. Annual budgets of "other" programs include $20,000 or less (35%); $21,000 to $50,000 (18%); $51,000 to $75,000 (18%); $101,000 to $500,000 (6%); $501,000 to $1,000,000 (12%); and over $1,000,000 (12%). Nineteen percent did not report.

Funding Sources

Multiple funding sources characterize the 395 programs. The most often mentioned funding source was from local sources (66%), followed by State (58%), client fees (35%), federal (25%), and foundations (17%).

Crisis telephone services receive funding

from the following sources: local (66%), State (34%), foundations (28%), federal (17%), and client fees (5%). Walk-in clinics report funding from local sources (89%), State (89%), client fees (66%), federal (56%), and foundations (11%). Non-hospital- based crisis units receive funding from local sources (89%), State (57%), federal (44%), foundations (22%), and client fees (11%). Combination programs report funding from local sources (82%), State (68%), federal (32%), foundations (31%), and client fees (14%). "Other" programs include funding from local (38%), State (38%), client fees (19%), federal (14%), and foundation (14%) sources.

Whereas local funding was the most often mentioned source of funds for the programs listed above, State funding was cited most often by mental health centers. Funding sources of mental health centers include State (82%), local (71%), client fees (69%), federal (34%), and foundations (6%).

School-based intervention programs report funding from State (63%), local (63%), foundation (6%), federal (19%), and client fees (13%).

Hospital-based emergency programs receive funds from client fees (71%) and from State (58%), local (38%), federal (21%), and foundations (4%).

SERVICE DATA

In this section each program type is described in terms of:

- Number of clients served in the last fiscal year.

- Number of clients who were suicide-related.

- Number of the suicide-related cases who were adolescents.

- Number of suicide-related clients who returned in crisis within a year.

- Number of documented client deaths from suicide.

- Suicide rate per 1,000 suicide-related cases.

Although 395 programs returned usable surveys, only 287 reported both the number of clients served and the number of suicide--related clients served in the past fiscal year. Only 215 programs reported both the number of suicide- related clients and the number of adolescent suicide-related clients; and 147 programs reported both the number of suicide-related clients and the number of suicide-related clients that returned within a year. More than half--211 programs-- reported both the number of suicide-related cases served last fiscal year and the number of documented client deaths from suicide last year. The percentages and rates in the following discussion are conservative and, in all cases would be the same or larger if we included only programs that reported all data elements. Table 5 summarizes the data presented in the following section.

Crisis telephone services report serving 1,682,703 contacts during the past fiscal year. Six percent of the clients were suicide-related and 8 percent of the suicide-related contacts were adolescents. Only 5 percent of the suicide-related clients returned in crisis within a year and 137 deaths from suicide were documented during the last year. The rate of documented suicides was 1.3 per 1,000 suicide-related contact.

Walk-in clinics reported serving 18,059 clients during the last fiscal year. Eleven percent were suicide-related and 8 percent of the suicide-related cases were adolescents. About 20 percent of the suicide-related clients returned in crisis within a year and 9 of the suicide-related clients died from suicide last year. The rate of documented suicide was 4.7 per 1,000 suicide-related clients served.

Hospital-based emergency programs reported serving 81,372 clients in the past fiscal year. About 19 percent were suicide--related and 13 percent of the suicide-related cases were adolescents. Two percent of the suicide-related cases returned in crisis within

a year. Thirty-three deaths from suicide were documented during the year for a rate of 2.1 suicides per 1,000 suicide-related clients served.

Mental health centers reported serving 306,596 clients during the past fiscal year. Eight percent of the clients were suicide-related cases and 2 percent of the suicide-related cases were adolescents. About 12 percent of the suicide-related cases returned in crisis within a year and 143 suicides were recorded during the past year. The suicide rate was 5.9 per 1,000 suicide-related clients served.

School-based intervention programs reported serving 11,152 clients during the past fiscal year. One percent of those served were suicide-related and all of the suicide-related cases were adolescents, as expected. Eighteen percent of the suicide-related cases returned in crisis within a year and six suicides were recorded last year. The suicide rate was 38.2 per 1,000 suicide-related clients served during the year.

Non-hospital-based crisis programs served 138,300 clients during the past fiscal year. Three percent of the caseload were suicide-related clients and about 3 percent of the suicide-related clients were adolescents. Six

percent of the suicide-related clients returned in crisis within a year. Only 1 death from suicide was documented last year and the rate of suicide was .22 per 1,000 suicide-related clients served.

Combination programs served 135,169 clients last fiscal year. About 10 percent were suicide-related and 8 percent of the suicide-related clients were adolescents. Ten percent of the suicide-related cases returned in crisis within a year. Twenty-six suicides were recorded last year for a rate of 1.9 suicides per 1,000 suicide-related clients served.

Other programs reported 49,804 clients served during the past fiscal year. About 19 percent were suicide-related clients; 9 percent of the suicide-related clients returned in crisis within a year. Fourteen suicides were documented last year resulting in a rate of 1.5 suicides per 1,000 suicide-related clients served.

The 287 programs that reported data in this section of the survey served 2,423,155 clients during the past year. Seven percent were suicide-related cases and 9 percent of the suicide-related cases were adolescents. Six percent of the suicide-related clients returned in crisis within a year. The number

Service Data Provided by Survey Respondents

Numbers reported by programs for past fiscal year

	Clients Served	Suicide-Related Clients (S.R.C.)	Suicide Related Adol.	Suicide-Related Return	Suicide Deaths	Suicide Rate/ 1000 S.R.C.
CTS	1,682,703	106,116	8,891	4,732	137	1.29
WIC	18,059	1,903	159	383	9	4.73
HBES	81,372	15,392	2,017	296	33	2.14
MHC	306,596	24,340	2,999	2,887	143	5.88
SBIP	11,152	157	157	28	6	38.22
NHBP	138,300	4,608	141	271	1	.22
Comb	135,169	13,883	1,117	1,342	26	1.87
Other	49,804	9,275	852	120	14	1.51
Total	**2,423,155**	**175,674**	**16,333**	**10,059**	**369**	**2.10**

Table 5.

of documented suicides, 369, yields a rate of 2.1 suicides per 1,000 suicide-related cases served during the year.

Special Problem Areas

When asked to select all problems experienced by their program from a list of problems in the survey instrument, staff shortage was selected most frequently (54%), followed by funding deficiencies (43%), funding instability (42%), inadequate physical facilities (31%), inadequate referral sources (18%), inadequate staff training (15%), and troubled volunteers (7%).

Crisis telephone services selected staff shortages as the problem encountered most often, followed by funding instability, funding deficiency, inadequate physical facilities, inadequate referral resources, troubled volunteers, and inadequate staff training.

Walk-in crisis clinics selected problems of inadequate physical facility, funding instability and funding deficiency as most often encountered; followed by staff shortages and inadequate staff training, troubled volunteers and inadequate referral resources.

Hospital-based emergency services listed inadequate physical facility as the most frequently encountered problem, followed by inadequate referral resources, staff shortages, funding deficiency, inadequate staff training, funding instability and troubled volunteers.

Mental health centers face problems of staff shortages most often. Other problems in order of most frequently encountered include funding deficiency, funding instability, inadequate physical facility, inadequate staff training, inadequate referral resources, and troubled volunteers.

School-based intervention programs encountered funding instability most often, followed by staff shortages, funding deficiency, inadequate physical facility, inadequate staff training and inadequate referral resources.

Non-hospital-based services encountered funding instability most often, followed by funding deficiency, inadequate referral resources, staff shortages, inadequate staff training, and inadequate physical facility.

Combination programs listed the following problems in order of frequency: staff shortages, funding deficiency, funding instability, inadequate physical facility, inadequate referral resources, inadequate staff training, and troubled volunteers.

Programs in the "Other" category listed funding deficiency as the problem encountered most often, followed by staff shortages, funding instability, inadequate physical facility, short training, inadequate referral resources, and troubled volunteers.

Several programs (35) mentioned that they were unable to reach populations at risk due to inadequate funding, lack of outreach resources, successful suicides not as likely to use services as attempters, stigma of mental illness, and problems of getting parents involved.

Program Needs

When asked what more they needed to provide adequate services to suicidal adolescents, relatively few needs were identified by the 395 programs other than more funds and more staff. In the area of community/school-related needs, programs mentioned the need to provide programs in schools, more outreach programs, greater community awareness, more publicity for programs, and more advertisements directed toward adolescents.

The needs most often stated relating to professional issues were for more staff and more funds. Training of staff, networking, more space, and more staff time were also listed in that order, as problems.

Needs that are associated with specific services to adolescents include residential treatment facilities, support groups, safe houses, peer intervention services, and walk-in clinics, in that order.

Many more problems were identified by the 395 programs in response to the question, "What more does your community need for

adequate service to suicidal adolescents?" Leading the list was community education followed by more school programs, greater recognition of the problem, better cooperation of schools, more awareness in schools, better knowledge of available resources, and financial help.

Professional issues included more resources, better networking and better trained personnel. Specific services for adolescents that were mentioned as community needs were more beds and more services such as outpatient services, alternative methods of dealing with families when parents are problems, peer counseling, long-term family-oriented treatment, and support groups.

ACKNOWLEDGMENT ·······················

PSYCHOLOGICAL AUTOPSIES OF YOUTH SUICIDES

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SUMMARY

Psychological autopsies of youth suicides indicate that about half of them had a relatively recent contact with the mental health system viewed broadly to include various therapists and counselors. Mostly, the interactions were focused on evaluation and brief support. Families and therapists both tended to ignore and deny clues to suicide. Since the teenage subjects also use denial extensively, it takes special efforts to bring suicidal youngsters into the helping system and hold them there. Continuity of care is recommended. A team approach (as contrasted with one-on-one psychotherapy) might ease the therapeutic load of contending with complex and multi-dimensional pre-suicidal states.

Other features noted from psychological autopsies include:

- Adolescent drug abuse seems to be closely associated with adolescent suicide, especially in older (17-19) males.

- A suicide in the family is a major stress event, leaving survivors at risk for suicide themselves.

- Bereavement counseling is important in preventing further suicides.

- School problems and conduct disorders are common in pre-suicidal adolescents.

- School counseling was important in helping some control cases avoid self-destructive acts.

My task is to review reports of psychological autopsies of suicides among young people in order to clarify the possible role of prevention and/or treatment activities in these cases. Psychological autopsies are retrospective biographies of deceased persons based on interviews with family members, friends, teachers and physicians. The lifestyles, symptoms and behaviors, personal and occupational histories, and medical records are reviewed by a death investigation team.

As we reconstruct the lives of persons who are now deceased, we think of the subjects as having been in "pre-suicidal" states. The investigations reveal that these "pre-suicidal" subjects do not make up a homogeneous population. Instead, they tend to differ in various characteristics and behaviors, they represent different psychological and psychiatric diagnoses, and they have encountered different types of environmental stresses. A majority had communicated something about their discomfort to someone else, a peer, family member or professional person. Many of the subjects might have revealed further clues to suicide if they had been questioned specifically about suicidal thoughts.

Some of the pre-suicidal adolescents were diagnosed as "depressed." Others were described as having "conduct disorders." Some were high achievers and some were low achievers. Some were physically impaired, others were successful athletes. What all of them had in common were periods of hope-

lessness and thoughts of death as a solution to their problems.

I think of such "pre-suicidal" individuals as having existed in a psycho-social "suicide zone" which is populated by many people, of whom only a minority kill themselves. In a given period of time, say a year, only 1 percent of the people in the "suicide zone" actually commit suicide. That does not mean that the other 99 percent are "false positives" in the sense that treating them is unnecessary or a waste of resources. Probably, all of the pre-suicidal persons are in need of some preventive therapy, and, of course, some need more intense treatment efforts than others.

If we define "treatments" as human interactions in which there are some formal aspects or rules by which one set of persons (therapists) expend efforts to be helpful to other persons (the clients or subjects), it is apparent that treatment has a number of forms. For example, treatment may consist of an initial consultation or evaluation or a brief contact during a crisis giving immediate support. Depending on the needs of the subject, appropriate treatment might involve the family, a peer group, a prolonged drug rehabilitation program, hospitalization--with or without various medical drugs--or long-term out-patient psychotherapy. I have surveyed the major psychological autopsy studies for what they reveal about youthful suicides and the treatment that was available, offered and/or accepted.

Studies of adult suicides, using the psychological autopsy methodology, have clarified a number of suicide-related variables. For example, intention, communication of suicidal clues, stress factors, and the specific medical and psychiatric diagnoses. Studies of youth suicide based on reviews of records have been reported by Sanborn (1), Shaffer (2), Cosand, Bourque, and Kraus, (3) and others. All note that adolescent suicides are preceded by recognizable psychological maladjustment. In Shaffer's 1974 sample of children's suicide, (n=30), 30 percent were in treatment or were waiting to get into treat-

ment. Social withdrawal and friendlessness were common. Many children were recognized as having conduct disorders or emotional problems at school.

Sanborn reviewed the lives of ten adolescent suicides in New Hampshire. Five had some difficulty in school adjustment. Four had threatened suicide previously. All the families were intact, but only two families described themselves as being "happy" families. Most of the youth suicides appeared to be impulsive rather than planned.

Cosand and associates reviewed Sacramento coroner's data. They concluded that important stresses on youth who commit suicide were loss of love, family conflicts, and psychiatric disorders which impeded adjustment to adult roles. They found multiple predictors of suicide and recommended improved training for physicians, police, families, employers, and school personnel in recognizing pre-suicidal symptoms and in improving communication with young persons.

Only recently have investigators studied youth suicides in more adequate numbers using comparison or control groups. The largest research program has been under way for several years, directed by Dr. David Shaffer (4,5) in New York. In a project conducted by Dr. Mohammad Shafii (6,7) and his colleagues in Louisville, peers of the victim were used as controls. A third notable source of data are the reports beginning to come from the "San Diego Suicide Study" by Drs. Rich, Young, and Fowler (8). They compared suicides among persons under and over age 30. My own group in Los Angeles (9) published some pilot studies quite similar to Shafii's, and we are now engaged in investigating all youth suicides in California during a set study period. Finally, the Centers for Disease Control in Atlanta has been assembling information on youth suicide through psychological autopsies conducted in several different locations. All of the investigations have obtained a good deal of information about treatment and prevention, but these factors have not been consistently or carefully analyzed and interpreted, and at present

are considered to be quite obscure.

Shafii and associates investigated 25 cases of youth suicide occurring between January 1980 and June 1983. Their subjects were 95 percent white and 90 percent males. The same standardized interview form was used to secure information about a matched control, often the victim's closest friend. No statistically significant difference was found between the victims and the control subjects regarding such variables as "broken home", separation from parents, or birth order.

There were significant differences in **exposure to suicide** through suicidal siblings, friends, parents, or other relatives and differences in **previous expressions** of suicidal ideation, suicide threats, or suicide attempts. The frequent use of non-prescribed drugs or alcohol was associated with suicide, as was anti-social behavior, and "inhibited personality." There had been previous psychiatric treatment for 9 of 20 suicide victims and 4 of 17 control subjects. These investigators agree with Cosand, et al. that a close relationship exists between suicidal wishes, threats, attempts, and completed suicide. Successful prevention involves reducing exposure to suicidal images and thoughts and replacing these with more positive concepts.

Three cases were presented by Shafii in considerable detail. A 17-year old white male shot himself in his bedroom. A week before his death, his mother called the pediatrician's office and asked for help. "My son is depressed and moody", she said. "He has a hard time going to sleep. His personality has changed." A week later, the boy's father called the pediatrician and expressed fear for his son who seems to be incoherent and belligerent. "We are worried that he is taking drugs." There was a confrontation between son and father over this issue after which the son said, "You'll be sorry." The pediatrician suggested a psychiatric consultation, but the family felt it was not that serious, yet.

A second case involved an 18-year old male who was having school problems and injuries which took him out of athletics. He began to make suicide threats to his girl friend and other people and to search for his biological father who had long since dropped out of sight. Said the boy, "I'm like my real dad. I'm just crazy." The clinical course was one of progressive dissatisfaction. He was having problems with his friends. A few days before his death, his mother tried to make an appointment for him to see someone at a mental health clinic because of his withdrawal and his appearance of being spaced out with no plans for his life, but the victim expressed resentment and said he did not need help.

The emphasis for Shafii is on the failure to get these suicide victims into treatment and keep them there. His group strongly stresses the grief and guilt reactions in surviving family persons and believes that the postvention efforts of their suicide research team may have been effective suicide prevention for the survivors that they interviewed. It would be instructive to review the cases of the non-suicides for factors which were associated with survival.

By far the largest and most sophisticated study of youth suicide is being conducted by a group at the New York Psychiatric Institute led by David Shaffer. In a preliminary report, Shaffer stated that approximately half of the completed youth suicides had been in touch with the mental health system at some time. His findings indicate that slightly less than half of the victims were depressed and about the same number had a family history of suicide attempts. At least half of the male suicide victims had been in trouble because of impulsive behavior, learning difficulties and aggressive outbursts. Approximately half of the suicide victims had been using excessive amounts of drugs or alcohol. About a third had made a serious suicide attempt. These investigators believe, that in all likelihood, other, better defined high risk groups will emerge from the study once the data have been fully analyzed. According to Shaffer, he has not considered the role of treatment, but in personal communications, indicated that a major problem has been

keeping young people involved in a therapeutic contact.

In his preliminary report, Shaffer indicates that it may be premature to attempt to evaluate prevention or treatment programs. However, I interpret these findings to indicate a need for effective anti-depressant treatment of these adolescents who are depressed. The prevention and treatment of early delinquency and early drug abuse remain as key unsolved issues. One program has stressed serial interviews with young women who had made suicide attempts. These women are often deprecated by their families, have rather poor personal relationships, and suffer from low self esteem. The program's goal is to rebuild self esteem and self confidence through increased coping skills.

On the basis of his experience to date, Dr. Shaffer recommends improved mental health courses such as seminars or workshops to help students and parents identify significant psychiatric problems. In particular, they should have information about the major psychiatric illnesses, eating disorders, and should be able to identify for themselves abnormal degrees of anxiety and depression. As Dr. Shaffer points out, suicide is only one possible bad outcome from adolescent psychiatric disorders; identification and treatment of other aspects would prevent a good deal of misery and disability in general. Dr. Shaffer believes that routine school-based screening and treatment referral for teenagers with depressive symptoms, especially those who have fallen behind in school or who are getting into trouble, would be effective prevention. He stresses teaching psychological strategies, for example, coping and problem solving skills to troubled teenagers. First courses would dramatize how to say "no" when offered drugs, or how to communicate and negotiate with family members and peers.

Shaffer believes that better training for pediatric and psychiatric emergency room staffs is necessary to identify suicide attempters who are at especially high risk. It would be good to have more well-publicized hotlines and drop-in clinics so teenagers would know about them and use them.

Finally, Dr. Shaffer would like to see expanded insurance coverage for crisis situations which may be life-threatening through self-destructive behaviors.

Charles L. Rich, M.D. and his associates, Dr. Young and Dr. Fowler, have reported some of their investigations under the title "San Diego Suicide Study." They noted that when they compared completed suicides in people under 30 with completed suicides of people over age 30, there were many similarities and a few differences. In terms of psychiatric diagnoses, the younger group had significantly more drug abuse and anti-social personalities, significantly less alcohol abuse, fewer affective disorders and fewer organic syndromes. Often, in the younger group, a drug or alcohol use disorder was combined with some other psychiatric diagnosis.

Rich and his colleagues also noted that suicide is a particular problem of white males. They performed structured interviews on suicide cases in San Diego starting in 1981. They placed special emphasis on obtaining as complete a toxicology screening as possible. They tried to arrive at a consensus diagnosis based on DSM III criteria. They were surprised to discover that most of the people in the younger age group were not living alone. About half of their cases had some prior treatment and about a quarter appeared to be in treatment at the time of death. They remarked that these figures showed no change in rate in the past 25 years. "One might think that a quarter century of heightened awareness to the relationship between psychiatric illness and suicide would have led to a higher treatment rate in such an obviously ill population." Significantly, more young people than older people hang themselves, but as in previous U.S. studies, the use of firearms predominated. Rich emphasizes the frequency of alcohol and drug use disorder particularly in the younger group, and he concludes that drug use may be the most important single factor in the suicide rate in-

crease in youth in the United States.

Considering stressors, they found the younger group had more separations and rejections compared to the older group, where the subjects had more mental illnesses. Overall, they found that there was an extremely complex interplay of diagnostic categories.

My colleagues and I are now (Spring, 1986) investigating youth suicides in California. We have noted in our early cases that although almost half of the subjects were known to mental health personnel, the deaths came as a surprise and a shock to almost all of the involved counselor-therapists. The most conspicuous aspect of treatment failure revealed by psychological autopsies was that the adolescent was referred to therapy but did not make or keep the referral appointment. Or, the family did not cooperate.

The psychological autopsies underlined the warning of school problems and failures. We suggest exit counseling when students drop out. On a positive note, we feel that survival in our peer control group is related to the young person having at least one positive "role model", or stable older person who can be idealized.

In twelve cases described by Litman and Diller (9), there were four therapy contacts, two in the suicide cases and two in the controls. Our tentative interpretation is that crisis interviews were insufficient for the chronic and multiple problems of the suicide cases. One of the controls benefited greatly from school counseling that eventually became long term. The counseling, originally for learning and behavior problems, helped him academically and also helped him cope better in his personal life.

The cases dramatized the problems with confiding in a peer. While one person was led into effective counseling, another student confided to a friend that he was going to kill himself, but forbade the friend to tell anyone. After the suicide, the friend became suicidal himself, but was helped by the school counselor and a psychiatrist. In the older teenagers, alcohol and drug abuse contribute to the feeling of uselessness, failure, and confusion. "I just can't get it together."

Experience with suicidal alcoholics, especially the failure of a one-on-one volunteer counseling program (10), convinced me of the importance of a team approach to suicidal substance abusers. To get the young person into therapy and hold him, we need to involve family, friends, and peers--a group process.

The treatment experiences of most of the young persons who committed suicide could best be characterized as brief episodes of evaluative or supportive therapy. Both the families and the professional health workers tended to ignore and deny clues to suicide. Beyond that, the cases illustrate the diversity and multiplicity of the people and the problems.

Case Illustration 1.

J, age 19, was hospitalized at County Hospital for short periods, once for a PCP psychosis and once for alcohol abuse. He was unemployed, from a broken family, had no goals, just existed. The final stressor event occurred when his girl friend left to join the army telling J, "You'll never amount to anything." His out-patient therapist was shocked when J shot himself. "J often told me he wished he were dead, but he said suicide was a sin, and he would never do it." In retrospect, the doctor felt that the problems were too many and too overwhelming and the therapy too little and too late. What might have made more of a difference would have been a placement off the streets into a structured environment, such as a work camp, an in-house drug rehabilitation program, or even possibly, the armed forces.

Case Illustration 2.

Institutions don't always guarantee security. B was a 15-year old male who hanged himself

in his room at the juvenile detention facility. He had been in trouble in school, had stolen a bicycle, taken money from his mother's purse, smoked marijuana and was sent to detention (rather than bailed out) in order to "teach him a lesson." Three weeks earlier, he overdosed on aspirin. Two days before, he cut his wrist, causing a noticeable lesion although no important structures were severed. The admitting social worker asked B if he was suicidal. B said no, not now. Later, staff persons, noting the cut wrist and negative attitude of B, asked about suicide precautions and were told by the social worker not to worry. In retrospect, the evaluator said that he now understands that suicidal teenagers do not necessarily present themselves as "depressed."

Case Illustration 3.

C, an age 16 1/2 female, was seeing a counselor once a week at an anti-drug abuse oriented community center. C was hard looking, dressed punk, acted tough. She was also a talented musician and poet, struggling with a chaotic home life and her own confusing bisexuality. When she hanged herself, she left a three page note beginning, "to let you know I didn't want it to happen. Sorry. I just wanted to be accepted. Love you. So young, so brave, and yet so weak." The therapist was puzzled over the suicide. With some guilt, he admitted he had been seeing both C and her father separately and individually in treatment, and maybe this arrangement had been detrimental for C, since the therapist had considered the father to have the more important impairment.

Case Illustration 4.

The death of M, female, age 17, should have been prevented. She took an overdose of imipramine, a tricyclic anti-depressant, after being rejected by her boy friend. Her family took her to the hospital where she was observed briefly and discharged prematurely. At home, several hours later, she had a series of convulsive seizures and died.

M had been seen several times by a male social worker who thought the therapeutic interaction was excellent. She came from an intact and supportive family, was a high achiever, and had been admitted to Harvard University. The psychiatric consultant who prescribed the imipramine was also surprised. In retrospect, they recalled that although M was talented and artistic, she had a poor self image and was overly dependent on her boy friend. There had been a previous overdose with tylenol. This case raises the problem of how much anti-depressant to prescribe as take-home medication for persons who have recently taken an overdose of other less toxic medicines.

Other noted features include the following: Adolescent drug abuse seems to be closely associated with adolescent suicide, especially in older (17-19) males. A suicide in the family is a major stress event, leaving survivors at risk for suicide themselves; bereavement counseling is important in preventing further suicides. School problems and conduct disorders are common in pre-suicidal adolescents. School counseling was important in helping some control cases avoid self-destructive acts.

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GAY MALE AND LESBIAN YOUTH SUICIDE

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SUMMARY

Gay and lesbian youth belong to two groups at high risk of suicide: youth and homosexuals. A majority of suicide attempts by homosexuals occur during their youth, and gay youth are 2 to 3 times more likely to attempt suicide than other young people. They may comprise up to 30 percent of completed youth suicides annually. The earlier youth are aware of their orientation and identify themselves as gay, the greater the conflicts they have. Gay youth face problems in accepting themselves due to internalization of a negative self image and the lack of accurate information about homosexuality during adolescence. Gay youth face extreme physical and verbal abuse, rejection and isolation from family and peers. They often feel totally alone and socially withdrawn out of fear of adverse consequences. As a result of these pressures, lesbian and gay youth are more vulnerable than other youth to psychosocial problems including substance abuse, chronic depression, school failure, early relationship conflicts, being forced to leave their families, and having to survive on their own prematurely. Each of these problems presents a risk factor for suicidal feelings and behavior among gay, lesbian, bisexual and transsexual youth.

The root of the problem of gay youth suicide is a society that discriminates against and stigmatizes homosexuals while failing to recognize that a substantial number of its youth has a gay or lesbian orientation. Legislation should to guarantee homosexuals equal rights in our society. We need to make a conscious effort to promote a positive image of homosexuals at all levels of society that provides gay youth with a diversity of lesbian and gay male adult role models. We each need to take personal responsibility for revising homophobic attitudes and conduct. Families should be educated about the development and positive nature of homosexuality. They must be able to accept their child as gay or lesbian. Schools need to include information about homosexuality in their curriculum and protect gay youth from abuse by peers to ensure they receive an equal education. Helping professionals need to accept and support a homosexual orientation in youth. Social services need to be developed that are sensitive to and reflective of the needs of gay and lesbian youth.

INTRODUCTION

Suicide is the leading cause of death among gay male, lesbian, bisexual and transsexual youth.* They are part of two populations at serious risk of suicide: sexual minorities and the young. Agency statistics and coroner reports seldom reflect how suicidal behavior is related to sexual orientation or identity issues. The literature on youth suicide has virtually ignored the subject. Research in recent years, however, with homosexual young people and adults has revealed a serious problem with cause for alarm.

*The terms "gay youth" and "gay and lesbian youth" will frequently be used to describe this population in the paper. Transsexual youth are included here because their problems are similar to those experienced by youth who have a minority sexual orientation.

Statistical Profile

There is a high rate of suicidality among lesbians and gay men. Jay and Young found that 40 percent of gay males and 39 percent of lesbians surveyed had either attempted or seriously contemplated suicide (1). Bell and Weinberg similarly found that 35 percent of gay males and 38 percent of lesbians in their study had either seriously considered or attempted suicide (2). Homosexuals are far more likely to attempt suicide than are heterosexuals. A majority of these attempts take place in their youth. Bell and Weinberg found that 25 percent of lesbians and 20 percent of gay men had actually attempted suicide. Gay males were 6 times more likely to make an attempt then heterosexual males. Lesbians were more than twice as likely to try committing suicide than the heterosexual women in the study. A majority of the suicide attempts by homosexuals took place at age 20 or younger with nearly one-third occurring before age 17.

Suicidal behavior by gay and lesbian youth, however, occurs today within the broader context of an epidemic increase in suicide among all young people in our society. Between 1950 and 1980, there was an increase of more than 170 percent in suicides by youth between the ages of 15 and 24 (3). The suicide rate for all age groups rose only 20 percent during that time. At least 5,000 youth now take their lives each year with the number believed to be significantly higher if deliberate auto accidents, victim precipitated homicides, and inconclusive coroner reports are taken into account. The rate of suicide attempts to completions is much higher among young people than any other age group with as many as 500,000 attempts annually. This leads us to believe that many times a suicide attempt by a young person is really a cry for help.

Gay and lesbian youth have been a hidden population within the adolescent and young adult age group. Those programs and studies able to document suicidality in gay youth have found they have a high rate of suicidal feelings and behavior that places them at sub-

stantially greater risk of taking their own lives compared to other youth (See Appendix A). Statistics from the Institute for the Protection of Gay and Lesbian Youth in New York, the University of Minnesota Adolescent Health Program in Minneapolis, Roesler and Deisher in Seattle, and the Los Angeles Suicide Prevention Center consistently show that 20-35 percent of gay youth interviewed have made suicide attempts (4,5,6,7). Statistics from Minneapolis, Los Angeles and San Francisco find that more than 50 percent of gay youth experience suicidality including serious depression and suicidal feelings (5,7,8). The Larkin Street Youth Center in San Francisco found that among their client population of homeless youth, 65 percent of homosexual/bisexual youth compared to 19 percent of heterosexual youth reported ever being suicidal, and that gay youth had a rate of suicidality nearly 3.5 times greater than other youth (8). The Los Angeles Suicide Prevention Center in preliminary data from an unpublished study, found that the suicide attempt rate for gay youth is more than 3 times higher than that of heterosexual youth; their rate of suicidality is more than twice that of other youth (7).

Why are feelings of self-destructiveness and suicidal behavior so prevalent among gay and lesbian youth? How can we learn to recognize these youth better and help them more effectively in coping with the problems that often lead them to want to take their own lives? The rest of this paper attempts to address these issues by providing an overview of the tasks and problems facing gay youth, an understanding of who they are, factors that place gay youth at risk of suicide, and an approach for society as a whole and the individual helping professional in effectively helping these youth and preventing them from taking their lives.

Tasks of the Gay Adolescent

Gay youth face the double jeopardy of surviving adolescence and developing a positive identity as a lesbian, gay male, bisexual, or transsexual in what is frequently a hostile and

condemning environment. Contrary to popular belief, adolescence is not the time of our lives. It is a difficult and complex period of development filled with anxiety and few clear guidelines for helping youth resolve the problems they face, often for the first time, and making the transition to adulthood. Youth are going through physical changes, emotional changes, intellectual changes and sexual development all within the context of their particular culture, family, peer group, and capacity as individuals. They must accomplish several formidable tasks including separating from their families while retaining a core sense of belonging (individuation), learning to form relationships with other people while fitting in with a social structure (socialization), establishing an integrated, positive, individual identity (identity formation) and preparing themselves for the future in an increasingly complex and uncertain world (future orientation).

Problems in accomplishing these tasks play a critical role in the suicidal feelings of any youth but present special hardships for those who are gay or lesbian. First they must come to understand and accept themselves in a society that provides them with little positive information about who they are and negative reactions to their inquiries. Second, they must find support among significant others who frequently reject them. Finally, they must make a social adaptation to their gay or lesbian identity. They must find where they belong and how they fit in with a social structure that either offers no guidelines for doing so or tells them that they have no place.

With the advent of the sexual revolution and gay liberation movement of the past two · decades, gay and lesbian youth have been increasingly aware of their feelings and coming to terms with their orientation at an earlier age than ever before. This has placed them into direct conflict with all of the traditional childrearing institutions and support systems of our society. Increasingly, this occurs while the youngsters are still living at home with their family, attending public school and developing a sense of their own self worth in comparison with their peers and the expectations of society as a whole.

Problems Facing Gay Youth

Lesbian and gay youth are the most invisible and outcast group of young people with whom you will come into contact. If open about who they are, they may feel some sense of security within themselves but face tremendous external conflicts with family and peers. If closed about who they are, they may be able to "pass" as "straight" in their communities while facing a tremendous internal struggle to understand and accept themselves. Many gay youth choose to maintain a facade and hide their true feelings and identity, leading a double life, rather than confront situations too painful for them. They live in constant fear of being found out and recognized as gay. The reasons for their silence are good ones.

Gay youth are the only group of adolescents that face total rejection from their family unit with the prospect of no ongoing support. Many families are unable to reconcile their child's sexual identity with moral and religious values. Huckleberry House in San Francisco, a runaway shelter for adolescents, found that gay and lesbian youth reported a higher incidence of verbal and physical abuse from parents and siblings than other youth (9). They were more often forced to leave their homes as "pushaways" or "throwaways" rather than running away on their own. In a study of young gay males, Remafedi found that half had experienced negative parental response to their sexual orientation with 26 percent forced to leave home because of conflicts over their sexual identity (5).

Openly gay and lesbian youth or those "suspected" of being so can expect harassment and abuse in junior high and high schools. The National Gay Task Force, in a nationwide survey, found that 45 percent of gay males and nearly 20 percent of lesbians had experienced verbal or physical assault in secondary schools (10). The shame of ridicule and fear of attack makes school a fearful place to go resulting in frequent ab-

sences and sometimes academic failure. Remafedi reports 28 percent of his subjects were forced to drop out because of conflicts about their sexual orientation (5). Gay youth are the only group of adolescents with no peer group to identify with or receive support from. Many report extreme isolation and the loss of close friends.

Gay youth also face discrimination in contacts with the juvenile justice system and foster and group home placements.* Many families and group homes refuse to accept or keep an adolescent if they know he or she is gay. A report by the San Francisco Juvenile Justice Commission found that gay youth stay in detention longer than other youth awaiting placement because of a lack of appropriate program resources (11). Many programs are unable to address the concerns or affirm the identity of a gay adolescent. They can be subjected to verbal, physical, and even sexual abuse with little recourse. Even sympathetic staff often don't know how to relate to a gay youth or support them in conflicts with other residents. They frequently become isolated, ignored by youth and staff who feel uncomfortable with them. They are easy targets for being blamed and scapegoated as the "source" of the problem in efforts to force them to leave.

The result of this rejection and abuse in all areas of their lives is devastating for lesbian and gay youth and perhaps the most serious problems they face are emotional ones. When you have been told that you are sick, bad, and wrong for being who you are, you begin to believe it. Gay youth have frequently internalized a negative image of themselves. Those who hide their identity are surrounded by homophobic attitudes and remarks, often by unknowing family members and peers, that have a profound impact on them. Hank Wilson, founder of the Gay and Lesbian Teachers Coalition in San Fran-

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*It is my observation that youth are experiencing more frequent contact with the juvenile court due to 1) increased conflicts in their home communities because of their sexual orientation which require intervention and removal from the home and 2) being open about their sexual identity at an earlier age than before.

cisco, believes these youth constitute a large group who are silently scapegoated, especially vulnerable to being stigmatized, and who develop poor self esteem (12). Gay youth become fearful and withdrawn. More than other adolescents, they feel totally alone often suffering from chronic depression, despairing of life that will always be as painful and hard as the present one.

In response to these overwhelming pressures, gay youth will often use two coping mechanisms which only tend to make their situation worse: substance use and professional help. Lesbian and gay male youth belong to two groups at high risk for substance abuse: homosexuals and adolescents. Rofes found, in a review of the literature, that:

> Lesbians and gay men are at much higher risk than the heterosexual population for alcohol abuse. Approximately 30 percent of both the lesbian and gay male populations have problems with alcoholism (13).

Substance use often begins in early adolescence when youth first experience conflicts around their sexual orientation. It initially serves the functional purposes of (1) reducing the pain and anxiety of external conflicts and (2) reducing the internal inhibitions of homosexual feelings and behavior. Prolonged substance abuse, however, only contributes to the youth's problems and magnifies suicidal feelings.

Several studies have found that a majority of gay youth received professional help for conflicts usually related to their sexual identity (5,6). These interventions often worsen conditions for these youth because the therapist or social worker is unwilling to acknowledge or support an adolescent's homosexual identity. Many gay and lesbian youth are still encouraged to "change" their identities while being forced into therapy and mental hospitals under the guise of "treatment."

Those who seek help while hiding their identity often find the source of their conflicts is never resolved because the therapist is un-

able to approach the subject. This silence is taken as further repudiation of an "illness" that dare not speak its name.

A suicide attempt can be a final cry for help by gay youth in their home community. If the response is hostile or indifferent, they prepare to leave. Alone and frightened, they go to larger cities--hoping to find families and friends to replace the ones that did not want them or could not accept them. The English group "The Bronski Beat" describes the plight of the gay adolescent in their song "Smalltown Boy":

> Pushed around and kicked around,
>   always the lonely boy
> You were the one they talked about
> Around town as they put you down
> But as hard as they would try
>   just to make you cry
> You would never cry to them
>   —just to your soul
> Runaway, turnaway, runaway,
>   turnaway, runaway (14).

Gay male, lesbian, bisexual, and transsexual youth comprise as many as 25 percent of all youth living on the streets in this country. Here, they enter a further outcast status that presents serious dangers and an even greater risk of suicide. Without an adequate education or vocational training, many are forced to become involved in prostitution in order to survive. They face physical and sexual assaults on a daily basis and constant exposure to sexually transmitted diseases including AIDS. They often become involved with a small and unstable element of the gay community that offers them little hope for a better life. Their relationships are transitory and untrustworthy. For many street youth, their struggle for survival becomes the fulfillment of a "suicidal script" which sees them engaging in increasingly self-destructive behaviors including unsafe sexual activity and intravenous drug use. Overwhelmed by the complexities of street life and feeling they have reached the "wrong end of the rainbow" a suicide attempt may result.

While it has become easier in recent years to be a gay male or lesbian adult it may be harder than ever to be a gay youth. With all of the conflicts they face in accepting themselves, coming out to families and peers, establishing themselves prematurely in independent living and, for young gay males, confronting the haunting specter of AIDS, there is a growing danger that their lives are becoming a tragic nightmare with living only a small part of dying.

UNDERSTANDING GAY AND LESBIAN YOUTH

Lesbian and gay male youth are young people with a primary attraction to members of the same sex for sexual and intimate relationships. Bisexual youth have an attraction to members of both sexes for sexual and intimate relationships. We use the term orientation rather than preference to describe this attraction because we still do not know how it originates. We are not certain to what extent genetics, socialization factors or individual choice determines either a homosexual or heterosexual orientation. Transsexual youth are young people who believe they have a gender identity that is different from the sex they were born with. This includes young males who believe they are really females mistakenly born in a male body and young females who believe they are really males mistakenly born in a female body. Sexual orientation and gender identity are separate issues for each individual. Transsexuals may have a heterosexual, homosexual, or bisexual orientation. Homosexuals are rarely confused about their gender identity with lesbians believing they are women and gay males believing they are men.

There are indications that individuals may be predisposed to their sexual orientation from an early age. A gay or lesbian orientation in adolescence is not just a phase the youth is going through. Bell, Weinberg, and Hammersmith found that sexual orientation is likely to be formed by adolescence--even if the youth is not yet sexually active (15).

Childhood and adolescent homosexuality, especially pronounced homosexual feelings, can not be regarded as just a passing fancy...[it] seems to be relatively enduring and so deeply rooted that it is likely to continue as a lasting homosexual orientation in adult life.

Huckleberry House found that, when given a choice, adolescents demonstrate a greater degree of conviction than confusion in identifying their sexual orientation, with 75 percent self-reporting as heterosexual, 15 percent homosexual, 5 percent bisexual, and only 5 percent confused or undecided (9). Most youth who identify as heterosexuals and homosexuals will continue to do so as adults. Youth are more likely to underreport a homosexual orientation because of difficulties in accepting themselves and the fear of a hostile response. Jay and Young found that 56 percent of the lesbian respondents in their survey had previously identified as bisexual while only 16 percent currently did so (1). Forty-six percent of the gay males had previously identified as bisexual while only 20 percent currently did so.

Homosexuality is not a mental illness or disease. It is a natural and healthy expression of human sexuality. In 1935, Sigmund Freud wrote that "Homosexuality...is nothing to be ashamed of, no vice, no degradation, it can not be classified as an illness" (16). In 1973, the American Psychiatric Association removed homosexuality from the list of psychiatric disorders and, in 1975, the American Psychological Association urged all mental health professionals to remove the stigma of mental illness long associated with a homosexual orientation. In 1983, the American Academy of Pediatrics encouraged physicians to become involved in the care of homosexuals and other young people struggling with the problem of sexual expression (5). If homosexuality is not an illness or a disorder, it can not be regarded as such to the extent that it occurs in the young.

Gay and lesbian youth come from all ethnic backgrounds. The ethnicity of gay youth will reflect the ethnicity of youth in your community or seen by your agency. The Institute for the Protection of Gay and Lesbian Youth reports the ethnic breakdown of youth it served, matched the population of New York's public school system with 40 percent black, 35 percent white, 20 percent Hispanic, 2 percent Asian and 3 percent other (4). Huckleberry House in San Francisco found that more than half of their overall client population and gay youth seen by the program were ethnic minorities (9).

There are far more gay youth than you are presently aware of. Kinsey found a significant amount of homosexual behavior among adolescents surveyed with 28 percent of the males and 17 percent of the females reporting at least one homosexual experience (17,18). He also found that approximately 13 percent of adult males and 7 percent of adult females had engaged in predominantly homosexual behavior for at least three years prior to his survey. This is where the figure that 10 percent of the population is homosexual comes from. It is difficult to assess the prevalence of a homosexual orientation given our knowledge that sexual behavior actually occurs along a continuum of feelings and experiences. Prevalence is even more difficult to estimate among adolescents because of the complex identity issues with which they are struggling and the scarcity of research on the subject. It is apparent, however, that a substantial minority of youth--perhaps "One in Ten" as one book suggests--have a primary gay male, lesbian, or bisexual orientation. Given the higher rates of suicidal feelings and behavior among gay youth in comparison with other young people, this means that 20-30 percent of all youth suicides may involve gay youth. Parris believes that as many as 3000 gay and lesbian young people may be taking their lives each year (19).

Coming Out: The Early Stages

Coming out is the process through which a person comes to understand and accept his/her sexual identity and shares it with

others. This is seldom a conscious undertaking for heterosexual youth who find that being "straight" is a given status in our society. It is as automatic as attending school or getting a driver's license. However, identifying oneself as gay or lesbian is a long and painful process that only occurs gradually over an extended period of time. Stages in the coming out process are identified in Appendix B with the ages reflecting those of gay and lesbian youth whom I worked with at Huckleberry House (20,21). · This population represents the bias of self-identified gay youth seeking services at a runaway program. It is important to recognize, however, that this process begins for many lesbian and gay youth at an early age with an awareness of their orientation often developing by adolescence. It is then that they experience significant conflicts involving understanding of whom they are, handling negative reactions from others and making a social adaptation which can lead to suicidal feelings and behavior. These conflicts must be resolved before the youth can develop a positive identity as a gay male or lesbian.

The first stage in the development of a lesbian or gay identity is an awareness of being different. This often occurs several years prior to puberty with the youth seldom aware of what this feeling means or how it relates to their sexuality. Lewis, in describing this stage for young lesbians, notes that:

> Because our society and its process of socialization do not include a positive vocabulary for same-sex attractions (whether emotional or erotic), many girls experience only vague, undefinable feelings of "not fitting in" (22).

Bell, Weinberg, and Hammersmith looked at numerous factors (i.e., family relationships) in attempting to determine how individuals develop a homosexual or heterosexual orientation (15). They provide evidence that this awareness of being different is related to the social roles of the child. During latency age years, the family often reinforces those roles, behaviors, attributes, and interests that are stereotypically associated with being a male or a female in our society. For example, boys are expected to play outside more than girls and girls are expected to stay close to the house more than boys. Bell, et al. found that gay males and lesbians in their study tended to have atypical social roles in childhood that did not conform to gender expectations while heterosexuals tended to have typical social roles.

> Far fewer homosexual (11%) than heterosexual (70%) men reported having enjoyed boys' activities (e.g., baseball, football) very much.

> Fewer of the homosexual (13%) than heterosexual (55%) women said they enjoyed typical girls' activities (e.g., playing house, hopscotch) very much.

This finding held true for a range of variables involving stereotyped male and female roles with gender nonconformity being the single most accurate indicator in childhood of a future homosexual orientation (15). However, they add a strong point of clarification for those who would force gender conformity on a child in an effort to "prevent" homosexuality.

> Homosexuality is as deeply ingrained as heterosexuality, so that differences in behaviors or social experiences of pre-homosexual boys and girls and their pre-heterosexual counterparts reflect or express, rather than cause, their eventual homosexual (orientation).

This finding does not account for the substantial percentage of respondents giving answers that were atypical for their sexual orientation. Many children, however, who later identify as gay or lesbian begin to realize at this early age that they do not meet the social expectations of their families and other children.

The second stage of the coming out process is an awareness of being attracted to members of the same sex. This also commonly oc-

curs prior to puberty with many gay and lesbian youth reporting childhood crushes on other children and adults. Bell, et al. found these sexual feelings typically occurred three years or so before any homosexual experiences and appear to be the most crucial stage in the development of adult homosexuality (15). Most children are unaware of the meaning and implications of these attractions. However, for those who are able to make a connection between their "difference"--homosexual feelings and gay or lesbian identity--depression and suicidal feelings may already be present.

> I always knew that I was gay. When I was 8 or 9 I would steal my mother's Playgirl magazines and look at the pictures of men. I also remember seeing heterosexual couples and knowing I wasn't like that. I would get very depressed about not being like other kids. Many times I would take a kitchen knife and press it against my chest, wondering if I should push it all the way in (23).

Many adolescents experiencing conflicts related to their sexual orientation report having their first homosexual experience around puberty. Some youth, however, first act on their feelings during adolescence. Young lesbians tend to have their first experience at a later age than young gay males (1). Same-sex play and experimentation is relatively common prior to puberty with Kinsey reporting that 60 percent of preadolescent boys and 33 percent of preadolescent girls described homosexual play at the time they contributed to the study (16,17). Prehomosexual boys and girls often do not have a context in which to put their feelings and experiences. They have learned to hide sexual behavior from adults but have not developed an understanding of the stigma attached to homosexuality. Their initial experiences tend to confirm homosexual feelings. It is now, however, that a terrible thing happens to young people who will have a gay or lesbian orientation-- adolescence. Gay and lesbian youth will become distinguished from other youth involved in preadolescent same-sex play by their progress through the developmental stages here identified and the persistence of homosexual feelings and experiences in spite of negative consequences.

Adolescence

With adolescence, many gay and lesbian youth have their first contact with homosexuality and it is all bad. They are told it is no longer acceptable to engage in sexual behavior with members of the same sex and that those who do are sick. The only images of homosexuals that society provides them with are derisive stereotypes of lesbians who are like men and gay men who are like women. Many experience their first pervasive contact with the fear and hatred of homosexuality--homophobia.

Nowhere are these harshly negative attitudes towards homosexuality more pronounced than in junior high and high school. These institutions are the brutal training grounds where traditional social roles are rigidly reinforced. Boys are going to play sports and drink beer with the guys. Girls are going to start paying more attention to their physical appearance in the hopes of attracting boys. Adolescence will be the last stronghold of these stereotyped roles and behaviors because young people are looking for identity. Homosexuality and gender nonconformity are threats to many youth and an easy target for their fears and anxieties about being "normal."

Youth who have a growing awareness of a gay or lesbian orientation become painfully aware that they do not fit the "social script." They see the hostility directed towards homosexuals by others and hear taunts of "dyke" and "faggot" used indiscriminately by peers. They become alarmed and realize that they must make some social adaptation to the situation. Martin describes their predicament:

> In adolescence, young homosexually oriented persons are faced with the

growing awareness that they may be among the most despised...As this realization becomes more pressing, they are faced with three possible choices: they can hide, they can attempt to change the stigma, or they can accept it (24).

These three adaptations are not mutually exclusive and are often present in the same individual over time. Many youth initially try to deny a gay or lesbian orientation to both themselves and others. Those adolescents who understand and recognize they have a gay orientation will continue to hide their identity from family and peers for fear of adverse consequences. Finally, those who become open about their identity, confront those adverse consequences in an effort to win acceptance and support. Each adaptation contains specific problems which contribute to suicidal feelings and behavior.

Self Denial

All young people face tremendous pressures to desist from any homosexual behavior and develop a heterosexual orientation. It is easy to see why adolescents with predominantly homosexual feelings and experiences would try to deny a lesbian or gay identity. They have internalized an image of being a homosexual as wrong and dangerous to their physical and mental health. They have seen the stereotypes of lesbians and gay men and they don't like them. These youth who don't want to live like that decide they are going to conform to the social roles and start dating members of the opposite sex and become heterosexuals.

Many youth engage in heterosexual sexual behavior in an effort to change their orientation. This often turns out to be a losing battle. Jay and Young found that 83 percent of the lesbians and 66 percent of the gay men in their survey had previously engaged in heterosexual sex (1). Bell and Weinberg similarly found that 87 percent of lesbians and 68 percent of gay males interviewed had prior heterosexual experiences (2). Two studies with gay male youth found that at least 50 percent had prior heterosexual experiences (5,6). Jay and Young add that 55 percent of the lesbians and 46 percent of the gay males reported feeling negative about these experiences. Bell, et al. in their study on the development of sexual orientation conclude that:

> The homosexual men and women in our study were not particularly lacking in heterosexual experiences during their...adolescent years. They are distinguished from their heterosexual counterparts, however, in finding such experiences ungratifying (15).

The American Psychiatric Association notes in the 1980 edition of the Diagnostic and Statistical Manual of Mental disorders (DSM III) that "there is a general consensus that spontaneous development of a satisfactory heterosexual adjustment in individuals who previously had a sustained pattern of exclusively homosexual arousal is rare" (25). One potentially serious consequence of this heterosexual experimentation is pregnancy involving young lesbians or gay males that either occurs accidentally or in an effort to "prove" a heterosexual orientation.

Youth who try to change a homosexual orientation and are unable to do so are at high risk of emotional and behavioral problems. They often develop feelings of hatred and rage that can be turned against themselves or others. They may engage in self-destructive behaviors such as substance abuse as an unconscious expression of feelings too painful to face. Others become involved in verbal and physical attacks against other homosexuals as a way of defending against their own fears. Finally, when the youth comes to recognize for the first time that he/she have a primary homosexual orientation, overt suicidal behavior may result.

The DSM III includes a new disorder called "Ego-Dystonic Homosexuality" which describes many of the conflicts faced by youth engaged in denial of homosexual feelings

(25). It is characterized by "a desire to acquire or increase heterosexual arousal...and a sustained pattern of overt homosexual arousal...(that is) unwanted and a persistent source of distress." Associated features include guilt, loneliness, shame, anxiety and depression. Age of onset occurs in "early adolescence when the individual becomes aware that he or she is homosexually aroused and has already internalized negative feelings about homosexuality." The course of the illness indicates that "in time, many individuals...give up the yearning to become heterosexual and accept themselves as homosexuals...(with the help) of a supportive homosexual subculture." Remafedi notes that the usefulness of this term is still not known since distress is so prevalent among youth first recognizing a homosexual identity (5). However, it clearly identifies a phenomena in many young homosexuals that places them at a greater risk of taking their own lives.

Those Who Hide

Many youth are aware of their gay or lesbian identity but decide not to be open about it and try to pass as "straight" with their families and peers. They have seen the negative response to homosexuality from society and the brutal treatment of gays by their peers. Sometimes they have been the recipients of verbal or physical abuse as "suspected" homosexuals. Martin believes that hiding is the primary adaptation for gay and lesbian youth (24). He observes that many realize that their lives are based on a lie with "the socialization of the gay adolescent becoming a process of deception at all levels, with the ability to play a role." While remaining invisible to others, the pain and loneliness of hiding often causes these youth serious harm to their mental health and social development.

A serious consequence of this adaptation is that these youth suffer their fears and low self esteem in silence. They are unknown victims of scapegoating with every homophobic assault or remark they witness. They live in

perpetual fear that their secret will be discovered. Gay youth become increasingly afraid to associate with others and withdraw socially in an effort to avoid what they perceive as a growing number of dangerous situations. They spend more and more time alone. Aaron Fricke relates the problems of hiding a gay identity in his book *Reflections of a Rock Lobster: A Story About Growing Up Gay* (26). He describes his response to being victimized by a homophobic assault as he was about to begin high school.

> I began to believe that everyone looked down on me and when anyone looked at me I thought I saw their seething hatred of me coming through. When I entered high school I was completely isolated from the world. I had lost all concept of humanity; I had given up all hopes of ever finding love, warmth or tenderness. I did not lie to myself, but I did keep others from thinking I was homosexual. I could refuse to ever mention my real feelings. That way, I would never again suffer the consequences of being the individual I was. I retreated into my own world.

> The only goal left to me in life was to hide anything that could identify me as gay. I became neurotic about this. I once heard that gay people talked with a lisp. I was horrified when I discovered that I had a slight lisp, and it made me self-conscious about how I sounded every time I spoke. Self-doubt set in. I thought that anything I did might somehow reveal my homosexuality, and my morale sank even deeper. The more I tried to safeguard myself from the outside world, the more vulnerable I felt. I withdrew from everyone and slowly formed a shell around myself. Everyone could be a potential threat to me. I resembled a crustacean with no claws; I had my shell for protection yet I would never do anything to hurt someone else. Sitting on a rock

under thousands of pounds of pressure, surrounded by my enemies, the most I could hope for was that no one would cause me more harm than my shell could endure.

These youth suffer from chronic depression and are at high risk of attempting suicide when the pressure becomes too much to bear. They may run away from home with no one understanding why. A suicidal crisis may be precipitated by a minor event which serves as a "last straw" to the youth. A low grade may confirm for the youth that life is a failure. An unwitting homophobic remark by parents may be taken to mean that the youth is no longer loved by them.

Martin also believes this adaptation hinders the social development of gay and lesbian youth (24). There is an absence of social outlets for gay youth that makes it very difficult for them to meet others like themselves. They shy away from attachments to friends for fear of getting too involved or experiencing rejection. Open relationships or displays of affection with others of the same sex is not tolerated in the gay youth's home and social environment, making extreme secrecy a requirement in developing romantic attachments. (Indeed, these issues form the essence of discrimination against homosexuals in our society.) Consequently, lesbian and gay youth do not learn how to establish and maintain intimate relationships in the way heterosexual youth do.

Young gay males often experience their same-sex relationships as casual sexual contacts with strangers. Because of their age, many of these encounters occur in clandestine meeting places where gay males congregate. Roesler and Deisher found that 76 percent of their subjects had met sexual partners in parks, 62 percent in theaters, and 32 percent in restrooms (6). Remafedi found that 63 percent of young gay males he surveyed had met other males in gay bars; only 28 percent said they had known their partner for a week prior to having sex (5). Martin expresses concern that these encounters condition the young gay male to respond to other gay males on a sexual level only.

> He often has not had the opportunity to develop courting behaviors other than direct sexual contact. Heterosexual adolescents learn to date and go through a series of societally ordained procedures with sexual contact as a possible end result. The young gay male often learns to start with the end result, sexual behavior, and then attempts to develop the relationship (24).

Young gay males face the risk of mistaking sexual feelings for deeper bonds of love. They may despair of the difficulties in forming lasting relationships on the basis of fleeting sexual encounters. Suicidal feelings may follow the failure of casual sex to meet the youth's needs of intimacy and belonging.

Young lesbians are even more isolated than young gay males in their efforts to form intimate relationships. There are few meeting places for lesbians in our society and casual sexual contacts are a less frequent part of their development. Lewis writes that:

> Because women are socialized to have and maintain relationships, sexual exploration and experimentation often takes place within the context of a relationship (22).

With fewer social opportunities, however, young lesbians are often not able to form initial relationships with lovers until later adolescence or young adulthood. Suicidal feelings among young lesbians may be due to the extreme isolation they experience and the despair of being unable to meet others like themselves.

Openly Gay and Lesbian Youth

Those who accept their orientation and are open about it with others form a smaller but visible segment of the lesbian and gay male youth population. They learn that only part of developing an identity as a gay male or lesbian is coming to understand and accept your sexual orientation. Now they must find out

what their place is and where they belong within the confines of the traditional social structure available to them. There are few role models to emulate and society offers them little support in this process. Gay youth usually don't begin to be open about their orientation until middle to late adolescence.

Many of these youth will have an atypical social role that includes gender nonconformity. Bell, et al. found that 62 percent of lesbians surveyed described themselves as "very masculine" while growing up (15). Remafedi found more than half of young gay males interviewed saw themselves as "less masculine" than their peers (5). Gender nonconformity may be more pronounced in youth first openly identifying themselves as gay. Sometimes it is a natural and permanent expression of who they are and sometimes it is a transitional process youth go through in learning that they don't have to behave in any particular way to be gay. Weinberg and Williams found that younger gay males identified themselves as effeminate three times more frequently than did older gay males (27).

Gender nonconformity in gay youth may reflect natural qualities that do not fit cultural stereotypes (e.g., men who are gentle, women who are strong). Youth may have expressed these attributes since childhood and will continue to do so as adults. Gender nonconformity may also fit the expectations that society sets for gay and lesbian youth. Gay youth are especially susceptible to cultural stereotypes while struggling to find an appropriate identity. One young gay male told me that he literally thought that he had to be "like a girl" because he was gay. There is not a diversity of gay male and lesbian adult role models for gay youth to pattern themselves after. For many young lesbians and gay men, the earliest images of adults they thought were homosexuals were people who fit the traditional stereotypes.

> One young lesbian recalled when she was a child there was a "tough looking" woman with a slight moustache who drove a pick-up truck and lived on the edge of town by herself. This

woman was ostracized by the rest of the town and rumored to be a lesbian. The little girl both wondered and feared if she would grow up to be like her.

Martin maintains that discrimination prevents adults from being more open about their homosexuality thus denying "suitable role models to gay adolescents who could demonstrate by example, sharing, and teaching that existing prejudices are false" (24). This is especially true for gay adults who work with children and adolescents.

Gender nonconformity may finally be a conscious effort to reject traditional roles and establish a separate and viable identity. One young lesbian told me she threw away her dolls in disgust when she was a child. It is not unusual for individuals sharing a common identity to separate themselves from others by establishing particular behaviors, appearances, terminology and interests. Effeminacy in young gay males and masculinity in young lesbians is often a way for them to affirm a homosexual identity and assist them in finding each other. According to Wolf, culturally defined masculine attire is "more strongly assumed by young women who are newly aware of their lesbianism and looking for a community" (22).

Gay and lesbian youth take tremendous risks by being open about who they are. You have to respect their courage. They remain at high risk to suicidal feelings and behavior because of the pressures they face in conflicts with others about their homosexual orientation and the disappointments they experience at the initial hardships of an openly gay and lesbian lifestyle. Rofes warns that no myth is more dangerous to gay adolescents than the notion that "coming out" will insure them against feelings of self-destructiveness (19).

The immediate conflicts that openly gay youth face are with their peers and family. Openly homosexual youth are an affront to a society that would like to believe they don't exist. Our culture seems to have particular disdain for those gay youth who do not con-

form to gender expectations. Rejection or abuse can become so intense that suicidal feelings and behavior result. Openly gay youth are more likely to be forced to leave their schools and families and survive on their own.

Those gay youth forced to become self sufficient prematurely find that they face the discrimination of society against both youth and homosexuals in trying to do so. Often these youth have not had vocational training and some have not completed their secondary education. They are discriminated against in finding housing and employment because of their sexual orientation. Perhaps most disappointing, gay youth find they often cannot depend on help from adult gay males and lesbians in getting established because of the fears adult homosexuals have of being seen as "recruiting" young people. Gay youth often become involved with a small and unstable population of gay males and lesbians living on the streets. Here, they are at high risk at substance abuse, sexually transmitted diseases, and unstable relationships. The hardships of this lifestyle combined with the early rejection by family and peers may result in a suicide attempt.

> One young gay male involved in prostitution attempted suicide after receiving a "hate" letter from his parents. In it his mother said she was sorry she had not gotten an abortion before he was born and his father said that he only had half of a son. The young man completed suicide two years later.

A final area of difficulty for openly lesbian and gay male youth is in the forming and maintenance of intimate relationships with others. Having a lover is frequently a new experience for gay youth. Lewis writes:

> The lesbian's exploration of intimate experiences with other women is an emotionally turbulent process. It is, essentially, a second adolescence, complete with many of the symptoms common to the mainstream

heterosexual adolescent period (22).

The lack of experience that youth bring to these relationships is compounded by the need for secrecy and lack of social supports for dealing with conflicts so common in homosexual relationships. These first romantic involvements often assume a disproportionate importance in the youth's life. They serve to both affirm a lesbian or gay orientation and also fill unmet needs for love, caring, and friendship that have often been missing in the youth's life. When the relationship ends, gay youth sometimes feel no one cares and nothing is left to live for.

Ethnic Minority Gay Youth

Ethnic minority youth (i.e., Black, Hispanic, Asian, and American Indian) comprise a substantial number of youth who are gay, lesbian, bisexual, or transsexual. Ruth Hughes, Coordinator of Gay Youth Services at the Center for Special Problems in San Francisco, reports that these youth face more severe social and cultural oppression than other gay youth and far more serious problems than other adolescents (29). Bell and Weinberg found that black gay males and lesbians attempted or seriously considered suicide at a rate less than white homosexuals but greater than black heterosexuals (2). However, they found that a higher percentage of suicide attempts by black homosexuals took place during their youth. 36 percent of black lesbians compared to 21 percent of white lesbians and 32 percent of black gay males compared to 27 percent of white gay males attempted suicide before age 18. This indicates that black gay youth may face particular hardships during adolescence.

Ethnic minority gay youth face all of the problems that other gay and lesbian youth face growing up in a hostile and condemning society. They also face the same economic discrimination and prejudice confronted by other ethnic minority youth because of racism. Davis notes a dramatic increase in suicides among young blacks over the past two decades that has brought their suicide rate nearly equal to that of white youths (30).

Hendin, in his book, *Black Suicide*, offers an explanation:

> It does not seem surprising that suicide becomes a problem at such a relatively early age for the black person. A sense of despair, a feeling that life will never be satisfying, confronts many blacks at a far younger age than it does most whites (31).

Ethnic minority gay youth additionally face racial discrimination from white homosexuals that is a reflection of their treatment by the majority culture. Dutton writes that the gay liberation movement has often failed to consider the needs of ethnic minorities while ignoring their issues and concerns (32). Jones adds that:

Little has been written about Third World sexual minorities, and when generalities were made about our lifestyles, attitudes, and behaviors, they were often made in reference to white cultures--white cultures being the basis for Third World cultures to deviate from or strive for (33).

Finally, ethnic minority gay youth must contend with discrimination and special problems from their own ethnic group because of their sexual orientation. Hughes believes that ostracism and separation from their own ethnic group is particularly painful and difficult for these youth to cope with:

> They expect acceptance by those like themselves who understand and have experienced oppression. Too often, blacks don't want to face the issue and see homosexuality as a struggle for white gay males. Ethnic minority gay youth are seen as an "embarrassment" to their cultural group. There is more concern for daily survival issues than an increased understanding of homosexuality (29).

Jones adds that:

> Lesbians and gays growing up in Third World communities experience just as much, if not more, oppression as heterosexual minority youth do in non-Third World communities. Unfortunately, most of the negative attitudes and oppressions bestowed upon lesbians and gays in Third World cultures are reactions to the influence that mainstream white culture has on it (33).

Two issues that strongly effect ethnic minority gay youth are religion and the family.

Ethnic minority cultures have historically believed that homosexuality is a sin according to the faiths to which they predominantly belong. Parents frequently use religion as the standard to evaluate homosexuality. A homosexual orientation in their son or daughter becomes incompatible with religious beliefs. Ethnic minority gay youth often internalize these religious values and feel guilty for having homosexual feelings and experiences, fearing they are condemned to hell.

The family also plays a central role in the lives of these youth with strong expectations that they will fulfill social roles and perpetuate the extended family. A homosexual orientation is sometimes seen as a sign of disrespect to the family by the youth and a threat to the family's survival.

Ethnic minority gay youth have tremendous fears of losing their extended family and being alone in the world. This fear is made greater by the isolation they already face in our society as people of color. These ethnic minority gay youth who are rejected by families are at risk of suicide because of the tremendous pressures they face being gay and a person of color in a white homophobic society.

Transsexual Youth

Transsexual youth are perhaps the most outcast of all young people and face a grave risk of suicidal feelings and behavior. Huxdly and Brandon found that 53 percent of 72 transsexuals surveyed had made suicide attempts (34). Harry feels that "transsexuals may be at higher risk than homosexuals and

much higher risk than the general population" to suicidal behavior (35). Transsexual youth believe they have a gender identity different from the sex they were born with. They often manifest this belief beginning in childhood through an expressed desire to be a person of the opposite gender, repudiation of their genitalia, gender nonconformity and cross dressing (25). These behaviors may subside by adolescence due to extreme pressures to conform to social expectations. Some transsexual youth, however, try to "pass" in junior high and high school as a person of the opposite sex or engage in increasingly pronounced behaviors that do not conform to gender expectations. These adaptations present serious internal and external conflicts for these youth.

All transsexuals are vulnerable to internalizing an extremely negative image of themselves. They experience tremendous internal conflict between this image and their persistent desire to become the person they believe they are. Heller notes that suicidal transsexuals tend to feel hopelessly trapped in their situation (36). These feelings may be particularly pronounced in young transsexuals who are forced to hide their identity. While wanting to change their sex, they are seldom able to do so and feel condemned to a life they are convinced is a mistake. The DSM III notes that transsexuals frequently experience "considerable anxiety and depression, which the individual may attribute to inability to live in the role of the desired sex" (25). This depression combined with a poor self esteem can easily result in suicidal feelings and behavior in transsexual youth.

.Some transsexual youth, however, make increasingly braver attempts to live as a person of the opposite sex. They experience conflicts in making a social adaptation to their believed identity. Many young transsexuals will adapt the most stereotyped roles and behaviors traditionally associated with being a "male" and a "female" in our society. Like other youth, they are trying to define themselves by rigid adherence to these roles.

Sometimes transsexual youth experience problems similar to this:

> A young transsexual male was arrested for soliciting an undercover police officer while in drag. He was taken to juvenile hall where he experienced anxiety and confusion around his role in the unit with other boys. One time he reported it was his duty as the "only girl" to provide the other boys with sexual favors. Another time he broke down crying feeling as though he was being used and abused by the other males. A week later he made a suicide attempt.

Transsexual youth who are open about their identity face extreme abuse and rejection from families and peers. Many are forced to leave their home communities and survive on the streets. Their prognosis in our society is poor and they are at high risk of suicide. Gender dysphoria is a disorder that we have little understanding of and a great deal of repulsion for. The only known course of treatment is to help transsexuals to adjust to their believed gender identity and obtain sex-reassignment surgery. Most transsexual youth, however, are unable to obtain or afford the help they need in resolving their identity conflicts.

It is important to distinguish between transsexual youth and gay and lesbian youth who do not conform to gender expectations. Gender nonconformity is common among gay youth in both childhood and adolescence. Some gay and lesbian youth may experience gender identity confusion during adolescence in the coming out process because of the intense social pressures for gay males to be like women and lesbians to be like man. Gay youth may feel they actually have to be a person of the opposite gender to meet those expectations. Hughes, in her work with both homosexual and transsexual youth, emphasizes the importance of working with a young person over a period to time to determine if they are truly a transsexual (29). Gay and lesbian youth come to recognize that

they neither want to change their sex nor live as a person of the opposite gender.

RISK FACTORS IN GAY AND LESBIAN YOUTH SUICIDE

Gay young people face the same risk factors for suicidal behavior that effect other youth. These include family problems, breaking up with a lover, social isolation, school failure, and identity conflicts. However, these factors assume greater importance when the youth has a gay or lesbian orientation. Jay and Young found that 53 percent of gay males and 33 percent of lesbians surveyed believed their suicide attempts involved their homosexuality (1). Bell and Weinberg report that 58 percent of gay males and 39 percent of lesbians felt their first suicide attempts were related to the fact that they were homosexuals (2). Suicide attempts by gay and lesbian youth are even more likely to involve conflicts around their sexual orientation because of the overwhelming pressures they face in coming out at an early age.

General

Bell and Weinberg found that initial suicide attempts related to homosexuality more frequently involved acceptance of self and conflicts with others for gay males, while lesbians tended to cite problems with lovers as the reason (2). Self acceptance may be especially critical for young gay males who tend to have homosexual experiences and are aware of their orientation at a somewhat earlier age than lesbians (1,15). Conflicts with others may be more salient for young gay males "identified" as homosexuals. Gender nonconformity elicits a negative response from others for lesbian and gay male youth, but society seems to have particular disdain for effeminate young males. Young lesbians may experience more extreme social isolation, often reporting an absence of same-sex experiences or knowing others like them during adolescence. They also face stronger social pressures to fulfill the woman's traditional role of marrying and having children and may experience more depression related

to not meeting social expectations. Problems with lovers may be especially critical for young lesbians because their sexuality is often explored within the context of their early intimate relationships.

The earlier a youth is aware of a gay or lesbian orientation, the greater the problems they face and more likely the risk of suicidal feelings and behavior. Remafedi observes that:

> Younger gay adolescents may be at the highest risk for dysfunction because of emotional and physical immaturity, unfulfilled developmental needs for identification with a peer group, lack of experience, and dependence on parents unwilling or unable to provide emotional support (5).

He adds that younger gay adolescents are more likely to abuse substances, drop out of school, be in conflict with the law, undergo psychiatric hospitalization, run away from home, be involved in prostitution, and attempt suicide. The Los Angeles Suicide Prevention Center recently found that the strongest causative indicators of suicidal behavior among gay youth were awareness of their sexual orientation, depression and suicidal feelings, and substance abuse--all before age 14 (7). A 14 year old gay male interviewed for this paper confirms that profile:

> When I was 11, I started smoking dope, drinking alcohol, and snorting speed every day to make me feel better and forget I was gay. I would party with friends but get more and more depressed as the night would go on. They would always make anti-gay remarks and harass gay men while I would just stand there. Late at night, after they went home, I would go down to the river and dive in--hoping I would hit my head on a rock and drown (23).

Society

It is a sobering fact to realize that we are the greatest risk factors in gay youth suicide. No group of people are more strongly affected by the attitudes and conduct of society than are the young. Gay and lesbian youth are strongly affected by the negative attitudes and hostile responses of society to homosexuality. The resulting poor self-esteem, depression, and fear can be a fatal blow to a fragile identity. Two ways that society influences suicidal behavior by gay and lesbian youth are: 1) the ongoing discrimination against and oppression of homosexuals, and 2) the portrayal of homosexuals as being self-destructive.

It is the response of our society as a whole to homosexuality, and specifically those institutions and significant others responsible for their care, that pose the greatest risk to gay and lesbian youth. Gock believes that homophobia, the irrational fear and hatred of homosexuals, is the root of the problem (37). Gay males and lesbians are still routinely the victims of violence by others. In a recent survey of nearly 2,100 lesbians and gay men nationwide, the National Gay Task Force found that more than 90 percent had been victims of verbal and physical assault because of their sexual orientation (10). Tacit and explicit discrimination against homosexuals is still pervasive in virtually all areas of life. Half of the States still prohibit homosexual relationships between consenting adults (37). Homosexuals are not allowed to legally marry and form "legitimate" long-term relationships. The vast majority of States and municipalities still discriminate against lesbians and gay men in housing, employment and other areas. Gay and lesbian youth see this and take it to heart.

Rofes warns us against the myth that homosexuality, in and of itself, encourages suicide (13). There is nothing inherently self-destructive in homosexual feelings and relationships that could be a source of suicidal behavior. In his book, *I Thought People Like That Killed Themselves* Rofes maintains we have created a stereotyped image of the unhappy homosexual in literature and the media (e.g., *Boys in the Band*) for which suicide is the only appropriate resolution. This image is reinforced by the fact that homosexual characters in novels and films invariably kill themselves in the end. The myth is perpetuated by the absence of positive adult gay role models in our society where, historically, the only known homosexuals were those exposed by scandal and disgraced in their communities. Rofes maintains this creates a strong negative context for the early identity formation of young gay males and lesbians effectively socializing them into suicidal feelings and behavior. He sees a strong correlation between sexual orientation, social response to that sexual orientation, and subsequent suicidality in an individual.

Self Esteem

A predisposing factor in suicidal feelings among many adolescents is poor self esteem. This is especially true for gay adolescents who have internalized a harshly negative image of being bad and wrong from society, religion, family, and peers. For youth, a poor self-image contributes substantially to a lack of confidence in being able to cope with problems. The images of homosexuals as sick and self-destructive have impact on the coping skills of gay youth, rendering them helpless and unable to improve their situation. Gay youth who have internalized a message throughout their lives of being worthless and unable to cope from abusive and chaotic families are at even greater risk.

Youth with a poor self-esteem and poor coping skills are particularly vulnerable to suicidal feelings when confronting a problem for the first time. They really don't know how to resolve it or even if they can. Gay youth are highly susceptible to suicidal feelings during the "coming out" process when first facing their own homosexuality and the hostile response it evokes in others. They may attempt suicide when they first realize they have homosexual feelings or a gay orientation. Some youth deny their homosexual

feelings and engage in unconscious self-destructive behavior out of self hatred. Others try to "change" their orientation and make a suicide attempt when they recognize their homosexuality will not go away and is part of who they are.

Many youth realize they are gay or lesbian but attempt to hide their orientation from others. They suffer from chronic loneliness and depression. They may attempt suicide because they feel trapped in their situation and believe they do not deserve to live. A suicidal gesture may be a cry for help from these youth for others to recognize and understand their situation. Finally, those youth who are open about being gay, lesbian, or bisexual face continuous conflict with their environment. They remain vulnerable to suicide because they face these extreme pressures with a more fragile sense of self worth and ability to cope with life than other youth.

Family

Family problems are probably the most significant factor in youth suicide. Youth derive their core sense of being cared about and belonging from their families. Gay youth may make suicide attempts after being rejected by their families. For gay and lesbian youth forced to leave home, the loss of parental love and support remains a critical issue for them. Sometimes the youth's sexual orientation becomes a convenient excuse for parents to reject a son or daughter they did not want. Youth from abusive and dysfunctional families are at even greater risk. Wandrei found, in comparing suicide attempts by lesbians and heterosexual women, that lesbians were more likely to come from broken homes (39).

Gay and lesbian youth face more verbal and physical abuse from family members than do other youth. The National Gay Task Force found that more than 33 percent of gay males and lesbians reported verbal abuse from relatives because of their orientation and 7 percent reported physical abuse as well (10). These figures are substantially higher for youth open about their sexual orientation

while still living at home. Sometimes this harassment becomes too much to bear for gay youth and a suicide attempt results.

Gay and lesbian youth may feel suicidal because of a failure to meet family expectations. All youth need approval from their parents. Some youth report only feeling loved by parents when they are fulfilling their parents image of who they should be. Gay youth often feel they can not meet their parents standards and may attempt suicide after real or anticipated disappointment by their families that they will not fit the social script of heterosexual marriage and grandchildren. This pressure is particularly strong for lesbians. Gay youth fear they will not have families of their own and be alone as adults with no one to care for them.

Communication problems also play a serious role in family issues for gay youth. Many lesbian and gay youth hide their orientation from their parents out of fear of rejection. They have often seen a strong negative reaction to homosexuality by parents and siblings including homophobic remarks. The anticipated inevitable loss of love can precipitate a suicide attempt. Parris related a call to a suicide hotline in Washington, D.C.:

> The youth said that he was gay and wanted to talk with his parents about it but was afraid because they were very religious. A week later, a man called...to say his son had committed suicide. They were calling an unfamiliar number on their long distance phone bill. By matching the man's address...the tragic connection was made (19).

Religion

Religion presents another risk factor in gay youth suicide because of the depiction of homosexuality as a sin and the reliance of families on the church for understanding homosexuality. Many traditional (e.g., Catholicism) and fundamentalist (e.g., Baptist) faiths still portray homosexuality as

morally wrong or evil. Family religious beliefs can be a primary reason for parents forcing youth to leave home if a homosexual orientation is seen as incompatible with church teachings. These beliefs can also create unresolvable internal conflicts for gay youth who adhere to their faith but believe they will not change their sexual orientation. They may feel wicked and condemned to hell and attempt suicide in despair of ever obtaining redemption.

School

Many gay and lesbian youth feel trapped in school settings because of a compulsory obligation to attend and the inability to defend themselves against verbal and physical assaults. Schools do not adequately protect gay youth with teachers often reluctant to stop harassment or rebut homophobic remarks for fear of being seen as undesirable role models (19). Verbal and physical attacks against gay youth have increased in recent years as students become increasingly threatened by the presence and openness of peers with a lesbian or gay orientation. This abuse begins as early as late elementary school, becomes pronounced in junior high when youth are still immature, and continues into high school. The failure of schools to address this concern can be tragic:

> In Lebanon, Pennsylvania in 1977, a 16-year old boy fatally shot himself before entering the 10th grade. He left a suicide note explaining he could not return to school and sustain the abuse and ridicule about being gay from his classmates. A few friends at school supported (him) though they knew he was gay, but the majority ridiculed him without mercy. He skipped classes to avoid the torture and welcomed the summer vacation as a respite. But he was already taking pills to escape the reality of the approach of another school term, when he would have to move from junior high to the even more sharply defined roles of senior

high. On September 3 he shared that anxiety with a friend and on September 5 he shot and killed himself (40).

The failure of schools to educate youth about homosexuality presents another risk factor to gay and lesbian adolescents. By ignoring the subject in all curricula, including family life classes, the schools deny access to positive information about homosexuality that could improve the self esteem of gay youth. They also perpetuate myths and stereotypes that condemn homosexuality and deny youth access to positive adult lesbian and gay role models. This silence provides tacit support for homophobic attitudes and conduct by some students.

Social Isolation

Social isolation has been consistently identified as one of the most critical factors in suicide attempts by youth. The isolation and alienation young people experience in all aspects of their lives can be overwhelming. Those youth hiding their identity often withdraw from family and friends out of fear of being discovered. They feel there is no one they can talk to and no one who will understand. Tartagni, based on his experience teaching in public school, writes that "one of the loneliest people in any high school in America is the rejected and isolated gay adolescent" (41). This isolation may be more extreme for young lesbians who often report a total lack of contact with others like themselves during high school. Joanne, in One Teenager in Ten, describes her feelings after realizing her lesbianism in adolescence:

> In October, I realized my lesbianism and I did not have someone gay to talk with. I recall the anguish I suffered looking back over my journal during that time period. "Please. Help me. Oh shit, I have to talk with someone...I have to tell someone, ask someone. WHO??!! Dammit all, would someone please help me? Someone, anyone. Help me. I'm going to kill myself if they don't" (28).

Openly gay youth experience blatant rejection and isolation from others. One young gay male related that his parents refused to eat at the dinner table with him after they learned he was gay. Male peers cruelly separate themselves from young gay males with jokes about not wanting to get AIDS. Gay youth frequently do not have contact with other gay adolescents or adults for support. Parents often forbid them from associating with people they "suspect" or know to be homosexuals. Youth service workers often feel uncomfortable talking with gay young people because of their prejudices and lack of understanding for who they are. The Los Angeles Suicide Prevention Center, in their recent study on gay youth suicide, ironically found that gay young people rated social support as being very important to them while simultaneously experiencing people as being more rejecting of them than did other youth (7).

Substance Abuse

Some gay and lesbian young people cope with the many problems they face by using alcohol and drugs. The age of onset for substance use among all youth has become lower in recent years and in 1985 is estimated to be 11.9 years for boys and 12.7 years for girls (42). This coincides with the age that many youth are becoming aware of a gay or lesbian orientation. Rofes found that lesbians and gay men have a higher rate of substance abuse than heterosexuals and found this to be correlated with increased suicidal feelings and behavior (13).

Gay youth are especially susceptible to substance abuse in trying to cope with the conflicts of the coming out process. Remafedi believes there may be a higher rate of substance abuse among gay youth than among gay adults (5). He found that 58 percent of young gay males he interviewed could be classified as having a substance abuse disorder in the DSM III. Gay youth forced to live on the streets experience more severe drug problems. The Larkin Street Youth Center in San Francisco reported that more than 75 percent of their clients identified as gay had serious and chronic disorders (8). The Los Angeles Suicide Prevention Center found a strong correlation between substance abuse and suicide attempts among gay young people (7).

Professional Help

Perhaps no risk factor is as insidious or unique to the suicidal behavior of gay and lesbian youth than receiving professional help. The large number of gay youth who have had contact with mental health and social work services during their turbulent adolescent years would seem to be a positive indicator for improving their stability and future outlook. This is sadly not often the case. Many helping professionals still refuse to recognize or accept a homosexual orientation in youth despite growing evidence that sexual orientation is formed by adolescence (15). They refuse to support a homosexual orientation in youth despite the fact that homosexuality is no longer viewed as a mental disorder (25). They continue to insist that homosexual feelings are just a passing "phase", while making the goal of treatment arresting or changing those feelings and experiences. Martin pointedly describes this process:

> Pain and suffering are inflicted on the very young, whom society is supposedly protecting, under the guise of preventing the spread of homosexuality or of treating the individual (24).

He adds that some psychiatrists even advocate creating conflict, guilt and anxiety in adolescents concerned about homosexual feelings where none has previously existed.

Youth who deny their feelings and experience "ego-dystonic homosexuality" are especially vulnerable to this type of adverse treatment. Rather than helping these youth to accept and understand predominantly homosexual feelings and experiences, we see their denial as a "hopeful" sign that they can still develop a heterosexual orientation. When homosexual feelings persist after

treatment has attempted to change them, the youth despairs and is at potentially greater risk for suicide than if we tried to help him/her towards acceptance.

Youth who are aware of their lesbian or gay orientation but hide it from others, may seek help without identifying their concerns about their sexuality. We often do not recognize these youth because we don't acknowledge they exist. We are uncomfortable in discussing or addressing the issue and consequently are unable to identify or resolve the source of the youth's conflicts. A suicide attempt may be an effort by the youth to force the issue and bring it to our attention. It may also be an act of despair over a problem that they feel can not be addressed through professional help.

Even openly gay and lesbian youth are subjected to treatment with potentially adverse effects. Frequently, informing family and counselors that a youth is gay is the impetus for imposed treatment. We assume that the youth's gay orientation is the source of the problem rather than the response of others to his/her being lesbian or gay. Encouraging these youth to change can cause regression in the development of a healthy gay identity and reinforce traditional stereotypes of homosexuals as sick and self destructive. This, in turn, further weakens the youth's self-esteem and ability to cope with problems. Even those professionals who accept the youth as gay or lesbian are often unable to support the youngster in dealing with conflicts at home and in school.

Youth Programs

There is a critical lack of program resources for gay and lesbian youth. Many social and recreational programs for youth make no effort to incorporate gay young people into their services. Few programs will accept or support a gay adolescent in their sexual orientation. Agency policies tacitly or explicitly forbid the hiring of openly gay and lesbian staff, denying gay youth access to positive adult gay role models. Homophobic remarks and attitudes by youth and staff in

many of these programs go unrebutted. Consequently, gay youth do not use many of the youth service resources available to them or soon leave if they do. This increases their social isolation and alienation from their peers.

Other gay and lesbian youth who are wards of the juvenile court have little choice but to live in those placements to which they are referred. Here, they re-experience many of the problems they had in their home communities. Many foster families are rejecting of gay and lesbian youth, feeling less investment than a youth's natural family to keeping the youth in the home. Gay male and lesbian adults are prohibited in most States from being foster parents with gay youth again denied access to supportive adults who could serve as positive role models for them.

Group home placements present special hardships for gay youth because abusive peers often live in the same home with them. Those programs without an on-site school require gay youth to return to public school for their education. Program staff have seldom received training on issues and concerns related to homosexuality. They are frequently unable to understand or work with gay youth effectively. Group homes become a living hell of harassment, isolation, and conflicts with other staff and residents offering gay youth little support and no resolution. A suicide attempt may be an effort to force removal from the placement and find a different home. Many homes, however, will not accept gay youth and few offer specialized services to meet their needs.

Relationships with Lovers

We are all victims of the myth that our first love will be our one true love until death do us part (e.g., Romeo and Juliet). Young people are especially vulnerable to this misconception and breaking up with a lover is one of the most frequent reasons for their suicide attempts. The first romantic involvements of lesbian and gay male youth are a source of great joy to them in affirming their sexual identity, providing them with support, and assuring them that they too can ex- ·

perience love. However, society places extreme hardships on these relationships that make them difficult to establish and maintain. Bell and Weinberg found that relationship problems were the single most frequently cited reason for the initial suicide attempts of lesbians (62%) and gay males (42%)(2).

Intimate relationships are the primary focus of hostility and discrimination against homosexuals. Society severely restricts where homosexuals can meet, prevents public displays of affection between them, and does not allow legal marriages to be formed. Gay and lesbian youth suffer greater isolation than homosexual adults and far greater social deprivation than other adolescents. It is extremely difficult for them to meet other homosexuals and they frequently do not know anyone like themselves. Gay youth who hide their identity often form their first romantic attachments to unknowing friends, teachers, and peers. These are often cases of unrequited love with the youth never revealing their true feelings. Gay youth are fragile in these situations and may experience despair or suicidal feelings from never being able to fulfill their hopes for a relationship. Some gay youth bravely reveal their feelings and may attempt suicide after blatant rejection by a teacher or the loss of a close friend.

Young gay males often experience their first homosexual relationships as brief sexual encounters in clandestine meeting places (e.g., parks). The extreme need for secrecy and anonymous nature of these contacts seriously hinder their further development. The intensity of sexual feelings that accompany these encounters can easily be mistaken for romantic attachment by young gay males. They may feel suicidal at the failure of these experiences to meet intimacy needs and the inability to fulfill the social expectation of sustaining the relationship. Young lesbians experience greater isolation than young males. They are less likely to explore their sexuality or have relationships during adolescence. They may feel suicidal at the despair of ever finding love in relationships with other women.

Gay and lesbian youth develop intimate relationships at a later age than other youth and are unable to develop relationship skills in the manner of other adolescents. Their first romances are an emotionally turbulent trial and error process that resembles a second adolescence. Gay youth bring to these relationships extreme dependency needs resulting from the deprivation experienced in their relationships with family and peers. They also are still in the process of forming their identity and have unresolved issues of guilt and poor self-esteem. When conflicts arise in homosexual relationships there are few social supports available to assist them. This is compounded for gay youth by their frequent need for secrecy and the fact that they may not be open about their identity with family and friends.

Breaking up with a lover may confirm earlier negative experiences and concepts associated with being a homosexual. Young lesbians often explore and define their sexuality within the context of their first relationships. A relationship failure for them may be synonymous with problems in developing a positive lesbian identity. For some gay youth, relationships become a way of filling needs for love and belonging missing from family and peers. When the relationship ends, the youth feel as though they have lost everything. They fear that they will always be alone, that no one cares, and nothing is worth living for.

Independent Living

Gay and lesbian youth are more likely than other adolescents to be forced to leave home and become self sufficient prematurely. Some of these youth have been hiding their identities and can no longer stand the extreme isolation in their lives. Many others have been rejected by families and have dropped out of school, effectively forced out of their communities because of their sexual orientation. Gay youth come to large cities hoping to find others like themselves, legitimate employment, a lover and a new

"family." They soon become aware of the lack of opportunities available to them and become enmeshed in the problems of survival. Suicidal feelings emerge as the hope for a new and better life begins to pale.

Most gay youth are unprepared for the difficulties they encounter. They are discriminated against in finding employment and housing by virtue of being both young and homosexual. Many have no vocational training and some were not able to finish high school. They often find limited support from the lesbian and gay male adult community who fear involvement with youth. Many are forced to turn to the streets for survival. A recent study on adolescent male prostitution found that nearly 75 percent identified themselves as gay or bisexual, with family conflicts as the primary reason for leaving home (43). Many gay youth become homeless. Others depend on relationships with people they meet on the streets to obtain shelter and survival needs.

Gay youth living on the streets are at greater risk of suicide due to repeated exposure to chronic substance abuse, physical and sexual assault, and sexually transmitted diseases including AIDS. Their contact with the limited segment of gay adults involved in street life confirms a negative image of homosexuality and they remain unaware of the variety of positive adult gay lifestyles open to them. Their relationships are tenuous and complicated by dependence on their lovers for support. Some gay and lesbian youth engage in increasingly reckless and self-destructive behavior as an expression of the sadness and anger they feel because of the unresolved issues with their families and despair over their new life. A suicide attempt may result from a negative contact with their family, breaking up with a lover, or failure to make it on their own.

AIDS (Acquired Immune Deficiency Syndrome)

Gay and bisexual male youth again belong to two groups at high risk of contracting sexually transmitted diseases: gay/bisexual males and adolescents. Although the number of confirmed cases of AIDS and ARCs (AIDS Related Conditions) among adolescents is small, it is believed that cumulative exposure to the virus, beginning in adolescence, may result in a diagnosis or symptoms as a young adult. Gay and bisexual males have always been subject to a greater number of health problems through sexually transmitted diseases (STD). They comprise a substantial majority of confirmed cases of AIDS and more than 50 percent of adult gay males will contract Hepatitis Type B during their lifetime (44).

Young people are taught in our society that sex is a secretive and spontaneous activity. Adolescent males are not encouraged to take responsibility for their sexual behavior; the vast majority do not take precautions in their sex practices. They engage in impulsive and unplanned sexual activity with grave consequences. Young people contract several million cases of STDs every year (45). Gay and bisexual male youth are particularly vulnerable because of their need for secrecy in sexual contacts and the frequency with which they engage in unplanned sexual activity. Those gay and bisexual male youth living on the streets face a substantially greater risk of exposure to STDs because of repeated sexual contacts in their relationships and prostitution experiences. Street youth face additional exposure through intravenous drug use.

Sexual experiences are important to gay male youth as a way of exploring and affirming their sexual orientation. Many do not take precautions and share a feeling of invulnerability to future consequences that is common among all youth. Remafedi found, however, that 45 percent of young gay males interviewed had a history of STD's (5). The attitudes of young gay males towards exposure to AIDS ranges from denial to extreme fear to not caring. One young male said he was not concerned because "teenagers do not get AIDS." Another was convinced that a head cold he had developed was the first symptom of AIDS. Those who are at greatest risk may be those who simply

do not care whether they are exposed to the virus. Some gay youth have an uncaring approach to life that reflects a "suicidal script." They are more prone to self-destructive behavior because of the severity of the problems they have experienced throughout their lives and specifically in relation to their sexual orientation. Contracting AIDS becomes for them the fulfillment of a life of pain and suffering they no longer want to cope with. They feel that they deserve to die.

Future Outlook

A final risk factor for gay and lesbian youth suicide is a bleak outlook for the future. Young people have difficulty seeing a future life that is different from the present. Gay and lesbian youth fear their lives will always be as unhappy and hard as they presently are. They do not know that they will receive any more caring, acceptance, and support than they are getting now. The little information they have about homosexuality usually reinforces these mistaken beliefs. Gay youth do not understand what life could be like as a gay male or lesbian adult. They do not have accurate information about homosexuality, positive role models to pattern themselves after, or knowledge of gay and lesbian adult lifestyles and communities. Lesbian and gay youth frequently don't know that many lesbian and gay male adults lead stable, happy, and productive lives. They go through adolescence feeling lonely, afraid, and hopeless. Sometimes they take their own lives.

ENDING GAY AND LESBIAN YOUTH SUICIDE

We can substantially reduce the risk of suicide among gay and lesbian youth. The problem is clearly one of providing information, acceptance, and support to gay youth for coping with the pressures and conflicts they face growing up as homosexuals in our society. However, in addressing their concerns we confront two issues of greater magnitude: 1) the discrimination against and maltreatment of homosexuals by our society and 2) the inability of our society to recognize or accept the existence of homosexuality in the young. The homophobia experienced by gay youth in all parts of their lives is the primary reason for their suicidal feelings and behavior. Rofes notes that it is no longer difficult to document the violence, shame, and hatred by society with which lesbians and gay men have lived (13). This is the issue we must address to save the lives of gay males and lesbians who are young.

Society

The first step in ending gay youth suicide is to end the discrimination against and stigmatization of homosexuals in our society. We have tenaciously clung to lies and prejudices about homosexuals for far too long. Too many lives have been brutalized and lost. A growing body of research contradicts our negative biases and assumptions about gay males and lesbians. We do not, as a society, want to continue to hold the untenable position of senselessly hurting others--especially the young. Gay males and lesbians need to be accepted as equal partners in our society. Laws should safeguard their individual rights and not permit discrimination against them in housing, employment, and other areas. Laws prohibiting homosexual relationships between consenting adults should be repealed and marriages between homosexuals should be recognized. Special attention should be paid to the enforcement of laws that punish those who commit violence against homosexuals. Laws can help to establish the principle of equality for lesbians and gay men and define the conduct of others in their interactions with them.

It is an even more comprehensive task to address the negative attitudes about homosexuality held by so many people. A conscious effort must be made to dispel the destructive myths about homosexuality at all levels of society. We must promote a positive image of gay males and lesbians to reduce oppression against them and provide gay youth with role models to pattern themselves after. Massive education efforts need to take

place that would provide people with accurate information about homosexuality. These efforts especially need to be directed to those who have responsibility for the care of the young including families, clergy, teachers, and helping professionals. The media needs to take responsibility for promoting a positive image of homosexuals that presents a variety of gay male and lesbian lifestyles. We must also take personal responsibility for revising our own homophobic attitudes and behavior as an example to others in the same way that we have worked towards revising discriminatory racial attitudes and conduct. It is at the personal level that we have the greatest impact on the lives of those around us.

Third, we must directly address the issue of homosexuality in the young. Our society has historically denied the sexuality of young people. We must educate ourselves on the issues and problems related to sexual development in young people. Society needs to promote a positive image about sexuality and provide youth with accurate information on the subject. We need to recognize that youth are sexually active from an early age and that sexual orientation is frequently formed by adolescence. All youth need to be provided with positive information about homosexuality that presents it as a viable adaptation. We must accept a homosexual orientation in young people in the same manner we accept a heterosexual orientation. Finally, we need to assist gay and lesbian young people in the coming our process and support them in the many conflicts they presently face.

Family

Gay and lesbian youth need to receive acceptance and understanding from their families if we are to reduce their risk of suicide. Parents need to be educated as to the nature and development of homosexuality in individuals. They often feel guilty and ashamed upon first learning that their child is gay because they have been told that it is wrong and they are to blame. Parents should

know that homosexuality is a natural and healthy form of sexual expression. They do not need to feel bad about something that is good. Parents should also know that we still do not know the origins of a heterosexual or homosexual orientation. Research indicates a predisposition towards sexual orientation in children that limits the role of family in its development.

Families have a great deal of influence on how their children feel about their sexual orientation. Parents should be made aware of the potential negative impact homophobic remarks and behavior have on their child. Homophobic conduct can be taken as rejection by youth struggling with their sexual orientation or encouragement by other youth to victimize homosexuals as they grow older. Families need to take responsibility for presenting homosexuality in a positive context to their children. Parents need to accept and understand a son or daughter with a homosexual orientation. Those parents who have difficulty accepting their lesbian daughter or gay son should get more information on the subject and not try to "change" them. They should let the child know they are still loved and cared about as individuals regardless of their sexual orientation.

Ethnic minority families need to understand and accept their gay and lesbian children. Ethnic minority gay youth depend even more strongly on their extended family and culture for support because of the additional oppression they face as a racial minority within society as a whole and the homosexual community. Parents need to be educated as to the extent and diversity of lesbians and gay males within ethnic minority cultures. They need to understand that their child means no disrespect to the family and cannot be any different from whom they are.

Society needs to reinforce parental responsibilities for the care of their children, irrespective of sexual orientation, until they become adults. Parents need to be held accountable for the abuse of their children related to their homosexual orientation. We need to become more conscious of the extent

to which the abuse of gay adolescents occurs within their own families.

Religion

Religions need to reassess homosexuality in a positive context within their belief systems. They need to accept gay youth and make a place for them in the church and include them in the same activities as other youth. Religions should also take responsibility for providing their families and membership with positive information about homosexuality that discourages the oppression of lesbians and gay men. Faiths that condemn homosexuality should recognize how they contribute to the rejection of gay youth by their families and suicide among lesbian and gay male youth.

Schools

Public and private schools need to take responsibility for providing all students at the junior high and high school level with positive information about homosexuality. Curriculum materials should include information relevant to gay males and lesbians as it pertains to human sexuality, health, literature and social studies. Family life classes should present homosexuality as a natural and healthy form of sexual expression. Information on critical health issues such as AIDS should be presented to all students. Curricula should include values clarification around social roles to increase the respect for individual differences and reduce the stigma attached to gender nonconformity. A variety of gay male and lesbian adult lifestyles should be presented as positive and viable for youth. All youth should learn about prominent lesbians and gay males throughout history. Social studies courses should include issues relevant to gay male and lesbian concerns and provide youth with positive gay and lesbian adult role models in our society.

Schools need to take responsibility for protecting gay and lesbian youth from abuse by peers and providing them with a safe environment to receive an education. School staff need to receive training on how to work with gay youth and handle conflicts involving gay youth. Teachers should feel secure in being able to rebut homophobic remarks and defend gay youth against harassment. Strong disciplinary actions should be imposed on those who victimize gay and lesbian youth. It is important for schools to hire openly gay male and lesbian teachers to serve as role models and resource people for gay youth. Counseling services that are sensitive to the needs and concerns of gay youth should be available to them. Special educational programs may need to be developed for those youth who cannot be incorporated into existing school settings to ensure that young gay males and lesbians receive an equal education.

Social Support

Gay and lesbian youth need access to the same social supports and recreational activities that other youth have. This would reduce their isolation and enhance their positive social development. Communities need to develop social groups and activities (i.e., dances) specifically for gay and lesbian youth as a way of meeting others like themselves and developing relationship skills. Existing youth programs such as the Boy and Girl Scouts should incorporate gay youth into their activities. Youth programs such as Big Brothers and Sisters should enlist gay and lesbian adults to work with gay youth. It is very important for gay youth to see the potential of a happy and stable lifestyle as adults. Lesbians and gay men need to become more involved in supporting gay youth and being positive role models for them. This requires assurance for gay adults that they will not be harassed and accused of "recruiting" youth in doing so.

Professional Help

Lesbian and gay youth must have access to social services and professional counseling that is sensitive to their needs and able to address their concerns. This is critical to reducing their risk of suicide. Sexuality is one of the most important issues facing all young

people. We need to be open about sexuality and accepting of homosexuality in young people. All social service agencies and mental health professionals working with youth need specialized training on homosexuality and issues relevant to gay and lesbian youth. We also need to address issues of suicide and depression in young people. Suicidality needs to be explored with youth who have a gay, lesbian, bisexual or transsexual identity. Problems related to a homosexual orientation should be assessed as a possible reason for suicidal feelings. The goal of treatment should be to assist lesbian and gay youth in developing a positive identity and to support their sexual orientation in the conflicts they face with others. Additional counseling guidelines are provided in Appendix B.

Youth agencies need to provide outreach to gay and lesbian youth to make them aware of services and assure them that they are welcome. Gay youth are often afraid to seek help because of potential negative reactions from others. Programs should hire gay staff that reflect the population of gay youth under their care. Helping professionals should be prepared to offer referrals to gay-identified services and therapists if requested by the youth. It is an accepted premise in social services that individuals have access to programs and staff that reflect their cultural background. This principle is no less true for gay young people who often would prefer to talk about their problems with a lesbian or gay man.

Specialized services should be developed for gay and lesbian youth that reflect their particular needs. Health care programs aimed at preventing AIDS and other sexually-transmitted diseases need to be directed towards young gay males. Alcohol and substance abuse programs need to target gay and lesbian youth as a population at risk. Pregnancy-related services should not assume a heterosexual orientation in young women and be prepared to discuss lesbian concerns. Vocational training and independent living skills programs may need to address special problems gay youth face in becoming self sufficient and in being incorporated into an adult gay community.

Residential Programs

The juvenile justice system needs to take responsibility for ensuring that gay and lesbian youth receive fair treatment by the juvenile court and are placed in safe, nurturing, and supportive environments. Specialized training in working with and understanding gay youth should be provided to foster parents, group home personnel, treatment center staff, and juvenile hall counselors. Gay youth should be incorporated into placements, whenever possible, where the staff has been taught how to support gays in issues with other residents. It is critical for the juvenile court to show leadership in preventing discrimination against gay youth by prohibiting placements that refuse to accept them or that provide them with inferior care. The needs of some gay and lesbian youth might best be served in the immediate future by placement in a gay identified foster or group homes. Extremely few such placements presently exist. The juvenile court should facilitate the licensing of gay male and lesbian foster parents along with the development of residential programs specifically for those gay youth who cannot be incorporated into existing placements.

Research

The lack of information about gay and lesbian youth suicide is a reflection of the oppression of homosexuals by our society and the invisibility of large numbers of gay males and lesbians within the youth population. There is growing awareness that a serious problem exists but we have only started to break down the wall of silence surrounding the issue. Comprehensive research is needed to determine the extent and nature of suicide among young gay males, lesbians, bisexuals, and transsexuals. These studies need to ensure that the entire spectrum of gay youth is adequately represented including lesbians, homeless youth, and ethnic

minorities. This research can be the foundation for greater recognition of the problem and the allocation of resources designed to address it. Hopefully, the work done in recent years will serve as the beginning of the end of suicide among gay and lesbian youth.

APPENDIX A

RISK FACTORS IN GAY AND LESBIAN YOUTH SUICIDE

General

Awareness/identification of homosexual orientation at an early age
Self acceptance of homosexual orientation
Conflicts with others related to homosexual orientation
Problems in homosexual relationships

Society

Discrimination/oppression of homosexuals by society
Portrayal of homosexuals as self destructive by society

Poor Self Esteem

Internalization of image of homosexuals as sick and bad
Internalization of image of homosexuals as helpless and self destructive

Identity Conflicts

Denial of a homosexual orientation
Despair in recognition of a homosexual orientation

Family

Rejection of child due to homosexual orientation
Abuse/harassment of child due to homosexual orientation
Failure of child to meet parental/social expectation
Perceived rejection of child due to homosexual orientation

Religion

Child's homosexual orientation seen as incompatible with family religious beliefs
Youth feels sinful, condemned to hell due to homosexual orientation

School

Abuse/harassment of homosexual youth by peers
Lack of accurate information about homosexuality

Social Isolation

Rejection of homosexual youth by friends and peers
Social withdrawal of homosexual youth
Loneliness and inability to meet others like themselves

Substance Abuse

Substance use to relieve pain of oppression
Substance use to reduce inhibitions on homosexual feelings

Professional Help

Refusal to accept homosexual orientation of youth
Refusal to support homosexual orientation of youth
Involuntary treatment to change homosexual orientation of youth
Inability to discuss issues related to homosexuality

Residential Programs

Refusal to accept/support homosexual orientation of youth
Isolation of homosexual youth by staff and residents
Inability to support homosexual youth in conflicts with residents

Relationship Problems

Inability to develop relationship skills like heterosexual youth
Extreme dependency needs due to prior emotional deprivation
Absence of social supports in resolving relationship conflicts

Independent Living

Lack of support from family
Lack of support from adult gay community
Involvement with street life

AIDS (Acquired Immune Deficiency Syndrome)

Unsafe sexual practices
Secrecy/unplanned nature of early sexual experiences

Future Outlook

Despair of life as hard as the present
Absence of positive adult gay/lesbian role models

APPENDIX B

COUNSELING GAY AND LESBIAN YOUTH

Those of us who work with young people need to be able to identify gay and lesbian youth, accept them for whom they are and support them in resolving their problems. Many of these problems are directly related to their sexual orientation. If we can't identity these youth, we probably won't be able to help them. The first step is being able to talk about sexuality concerns with any youth under your care.

Sexuality Counseling

Don't be afraid to talk with youth about sexuality issues. You do not incur any liability for doing so. Initial interviews should include questions about the youth's sexuality just as they include other issues that affect their life (i.e., family, school, substance use, suicide, and depression). It is appropriate to do further sexuality counseling with a young person if you have a good relationship with him/her and necessary if you feel that sexuality conflicts are an important part of the situation. It is good to examine your own attitudes and minimize prejudices so that youth can feel free to convey their feelings and experiences to you. The principle of nonjudgmental therapeutic intervention is especially important in working with gay and lesbian youth. Feel comfortable with your own sexuality in order to keep tensions between you and your client to a minimum.

Sexual Orientation

Don't be afraid to ask youth directly about their sexual orientation. Sexual orientation should be routinely included in questions and discussions related to sexuality concerns. Some youth will volunteer the information that they have a gay or lesbian orientation. If you strongly feel that a youth is gay, the only way to find out may be simply to ask. This does not reflect negatively on you, and your intuition is often correct. Even if you are

wrong, it rarely hurts your rapport with the youth if approached in a sensitive way. If you are unable to broach the subject with them, it is most likely a reflection of your own discomfort with the issue. Remember that one of the greatest risk factors in the problem gay youth face is the wall of silence surrounding the subject. The silence needs to be broken if you are to enter the lonely place where many gay and lesbian youth reside. It may be good to let youth know in some way that you accept young people regardless of their sexual orientation before asking them. Be prepared to give youth accurate and positive information about homosexuality. Assure them it is a healthy and positive form of human expression. Gay youth will be listening closely.

Acceptance

Accept the youth's sexual orientation as they report it to you. Their sexual identity should be based on the self reporting of their feelings and experiences. Do not label a youth as heterosexual or homosexual based on your own assumptions. Assure gay youth it is not sick, bad or wrong for them to be the way they are and that you are not going to try and change them. Let them know you care about them just as much after the disclosure as before. They are used to being rejected by others who find out they are gay. Respect them for being open and honest with you. It was probably hard for them to do and shows that they trust you.

Sexual Orientation Confusion

Do not assume a youth is confused about their sexual orientation if they identify as gay or bisexual. Many people both gay and straight have trouble accepting that an individual is bisexual. It is important to validate bisexuality as a viable option for youth. However, some youth are genuinely confused about their sexual orientation. It is important for them to know that it is alright to be confused. They should not feel pressured

to label themselves one way or another. A useful method in helping them to clarify a confused or undecided orientation is the Kinsey Percentage Scale. This technique allows the youth to be any combination of homosexual and heterosexual feelings and experiences that adds up to 100 percent. They can be 85 percent straight and 15 percent gay. Or they can be 40 percent straight and 60 percent gay. It is important to let them know you will accept them no matter where they fall on this scale. The purpose of this method is to give youth a context that allows them to identify their orientation along a continuum. It is easy to move from here to discussing specific feelings and experiences with them.

Gender Identity

Assure effeminate young gay males and masculine young lesbians that it is alright for them to be that way. Gender nonconformity is common among gay youth and may be a way for them to affirm their identity. Some gay youth, however, become confused by cultural stereotypes that insist gay men be like women and lesbians be like men. They feel they actually have to be a person of the opposite gender in order to be gay. Be prepared to talk with them about their perceptions of what it is like being a young gay male or lesbian. Help them to separate social adaptation issues from whether they really believe they are a person of the opposite sex. Assure them they do not have to be any particular way in order to be gay. Transsexual youth will express a persistent desire to be a person of the opposite sex and live as that person over time. They will engage in frequent cross dressing and adapt the name of a person of the opposite sex. It is important for you to accept these youth for who they believe they are and call them by the name they want to be called. This is critical to establishing basic rapport with these youth and effectively addressing their concerns.

Self Esteem

Gay and lesbian youth frequently suffer from low self esteem. They have often received a disproportionate amount of negative attention because of their sexuality. Being gay has been the focus of problems and stigmatization for them. Assure them there is nothing wrong with being gay and that it is the response of others to homosexuals that is the source of the problem. Help them to develop pride in who they are and a positive identity as a gay male or lesbian. Sometimes they have had too much of their identity focused on their sexuality. It is easy for them to come to see themselves as sexual beings after becoming known as homosexuals. Assure them that sexuality is only part of who they are. Explore other areas of potential growth that give them a broader understanding of themselves as individuals. Know the potential of gay youth under your care and work with them in a way that allows them to achieve more success than failure. Give positive feedback whenever possible. Be confident and optimistic of their ability to improve their situation and lead stable and happy lives as gay male and lesbian adults.

Family

Gay and lesbian youth sometimes mistake their parents inability to accept their sexual orientation as a rejection of them as individuals. Frequently, parents still love their child but need time to come to understand and accept them as gay. Gay youth have trouble recognizing that an initial negative reaction by parents may change in the future. Help families to clarify their feelings for each other and encourage gay youth to be patient in gaining acceptance. Those gay and lesbian youth who have not come out to their parents should not be pressured to do so. It is a personal decision that they should make carefully. Finally, assure gay and lesbian youth that they too will have families as adults. While not the traditional family, their families will be comprised of those friends, lovers, and relatives who remain close with them over a long period of time. Their relationships can

be as rich and rewarding as those of other people. Being a gay male or lesbian does not mean that you are going to be alone.

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ISSUES FOR SURVIVORS

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SUMMARY

The harvest of dead youth is only a small part of the total damage caused by the current crisis in teenage suicide. For each teenager who dies, a phalanx of survivors is suddenly burdened by devastating reactions. Their lifestyles are altered, their futures scuttled, their minds and bodies attacked by infirmities. Many of them are so shaken that they require professional help.

Unfortunately, the plight of survivors has been almost totally unrecognized. Only a few observers have studied their needs and formulated suggestions for their rehabilitation. Their books on the subject offer useful insights and protocols for regaining a semblance of normalcy. Successful therapy depends largely on what happens during what is now called the grief recovery process.

A survivor himself, the author of this paper describes the steps taken by his family. Each step on the route to peace of mind, he warns, can also involve an emotional booby-trap that can defeat the entire process of liberation; it can also doom a griever to perpetual sorrow. Phases presenting unique difficulties include shock, denial, bargaining, anger, and guilt. Special danger exists, the author says, in the average survivor's confrontation with stigma. Regrettably, he relates, the discovery that the rights of female grievers are frequently denied under the guise of chivalrous "protection." This well-meant denial can sometimes leave a life-long trauma. It must be corrected, and it can be corrected when women survivors, despite their grief, assert their rights and challenge their masculine care-givers.

Under some circumstances, survivors require special help. Sources to be explored are named. So are procedures for self-help that may dissolve persistent grief fragments. Finally, aspects of community behavior are challenged. If these suggestions were followed, thousands of grievers who have been incapacitated might regain their lapsed roles as worthwhile and useful human beings.

INTRODUCTION

A strange new blight afflicts our earth. Its distemper infects thousands, perhaps millions of our citizens. Neither virus nor isotope distributes its mischief. Its pathogens are man-made and are transmitted by bullets and drugs and broken hearts.

Two examples.

Ken and Mary Whitman were happy Floridians using their combined salaries to put their three sons through college. Jock, the oldest, came home during spring break. One night, the Whitmans returned to their home following a late meeting and found his body swinging from a backyard tree.

Mary charged Ken, the father, with applying too much harsh discipline. He charged her with coddling the boy and countermanding his own orders. The two surviving sons took sides, one for each parent. The Whitmans

separated and fought bitterly over their divorce. Within months, that family had dissolved.

On the Pacific coast, Joan and Tom Miller arranged for their son and daughter to help celebrate their 20th wedding anniversary. On the afternoon of the party, daughter Barbara arrived home late from her job. Passing the garage, she smelled gasoline fumes. Her mother's lifeless body was sprawled over the steering wheel of her car. No suicide note could be found, nor any reason for the act. Family members became unhinged. Tom's social drinking exploded into alcoholism. Barbara became convinced she could have saved her mother's life if she had come home on time. Son Jim, 12, felt shut out and rejected. Acting out his rage, he stole a bike, destroyed school property, and was expelled. The State sent him to a foster home. Barbara attempted suicide, botched it, and was consigned to a treatment center. The father refused help for his alcoholism and was fired. The doomed family lasted less than a year.

Few observers will deny that an ancient and intractable malady seems to possess our spirits. Its infection spares neither nations nor continents. Its victims are a mob too large to count or comprehend. Their ailments fill a pharmacopoeia. Their depression spins off a spray of shattered families, bankrupted careers, and poisoned dreams.

The germ that spreads the plague is called suicide. The men, women, and children left behind are called survivors, and they are in trouble.

So what else is new?

Well, it's new that we are finally aware that our young people are committing suicide at an unprecedented rate. And that every one of those deaths sends up a mushroom cloud that drops a fallout of pain, guilt, and depression on the uncountable survivors left behind.

Daily, the media trumpet a warning. Famous lecturer-on-love, Leo Buscaglia, says "In the United States 14 people between the ages of 15 and 24 kill themselves every day." That's about 5,000 per year. The suicide rate for this age group has tripled over only three decades. Worse, for every death reported, there are an estimated 50 to 100 attempts.

Dr. Art Ulene, the TV pundit, says, "Nearly 60 Americans take their lives every day and ten times that number attempt suicide."

Paul Harvey, commentator and columnist, says that 13 school children are murdering themselves daily.

Newspaper stories confirm their tallies. In Woods County, Wisconsin, five young people shot themselves to death last winter. Ten others in the same community made the attempt and failed. In the suburbs north of New York City, 17 suicides were recorded in a brief time span. Clusters of death have erupted among teenagers in and near Plano, Texas, on Chicago's North Shore, in Lincoln, Nebraska, and in California. Neither sex is spared. More girls than boys attempt by a ratio of four to one. More boys than girls succeed by a ratio of about four to one.

One asks: are such figures accurate? The answer is **no**. No person on earth knows how many suicides take place in America. The figures are collected using an archaic system that is corrupted by indifference and cronyism. Assigned officials include not only coroners, physicians, and medical examiners, but in some places, deputy sheriffs, morticians, and justices of the peace. Underreporting is assured in many districts by the refusal of back-patting appointees to pin the stigma of suicide-in-the-family on a friend, a leading citizen, or an elected politician.

The result is a shambles that has been called "the great cover up." Covered up also is the fact that our country has become the killing ground not only for any army of young people who are sick of life, but also of a much greater mass of survivors whose roll call mounts annually into the hundreds of thousands, perhaps into the millions.

Who are they? We can tick them off on our fingers beginning at the family core and

counting the husbands, wives, parents, children, brothers, sisters, grandparents, uncles and aunts. Next, count their pastors, coaches, doctors, counselors, teachers, employers. Last, there are schoolmates, clubmates, and even filling stations attendants.

What do those survivors want from life? Researchers have studied them and named their stations of the cross. Their journey is called the grief process. Its elements include shock, denial, bargaining, stigma, contamination, isolation, fear of insanity, guilt, anger, rejection, ostracism, acceptance, and finally, deliverance.

Their problem is that they don't know what hit them. Nor has their life experience equipped them to cope well enough to stablilize their lives. In many ways, social workers report, they act and think like young babies.

In our culture, society assumes a responsibility for babies. But where does one start? Our courts of law and the practice of journalism offers one formula. Why not examine some witnesses?

An investigator to whom all professionals are indebted is Edwin Shneidman, formerly co-founder and co-director of the Los Angeles Suicide Prevention Center, now located at the University of California. In one of his books, *Voices of Death*, he suggested four initiatives that can help grief-stricken survivors.

> First, refuse to accept the stigma of suicide.
>
> Second, rid yourself of the notion that you, the survivor, might suffer a similar fate.
>
> Third, free your daytime thoughts and your night-time dreams of images of blood and violence.
>
> Fourth, restrain any obsession to learn the whys, the whats, and the if onlys.

To assist the recovery process, Shneidman published an essay entitled "Care of the Bereaved." Here is his advice, paraphrased.

> A counselor should begin to work with a survivor-victim as soon as possible.
>
> Be aware that your survivor client will probably welcome a chance to talk with a pro.
>
> Expect to encounter powerful negative emotions such as irritation, anger, envy, shame, guilt, and the like. All of them must be ventilated.
>
> Obtain a medical examination by a physician. It will give you a baseline for checking developments.
>
> Reject the temptation to act as a voice of conscience and offer instead, the soft voice of reason.
>
> Avoid all banalities.
>
> Expect a slow recovery punctuated by setbacks. Expect working through the process to take a long time. Healing is rarely achieved in less than a year. It may extend to the grave.
>
> Insist on a program of health care including suicide prevention, intervention if needed, and postvention as a safeguard.

Since Shneidman's first publication, the world has adopted many of his recommendations and the lot of survivors has improved. Hundreds of volumes now offer programs to prevent suicide. Only a handful are concerned about survivors. The latter are all worth reading, particularly a small volume titled *Suicide* by Jacques Charon, the American philosopher. His historical chapters provide valuable background, and his abstracts of what some of the world's greatest minds have thought of suicide are inspiring.

Or pick up *Suicide and Grief* by Howard W. Stone, a professional counselor. When he discusses pastoral care, his words are golden. His battle plan says:

> Keep active.
>
> Join group activities such as club, church, or charity.

Work hard at creating new friends.

Bring into the open whatever hostility still festers.

Rediscover hope.

Find a meaning for your life.

Living When a Loved One Has Died by Earl Grollman has earned its right to be called a classic.

The Ultimate Loss by Joan Bordow reports the death of a child. A survivor herself, she calls it the most devastating of all deaths, and "an affront to our attempt at immortality as well as our sense of fair play."

The Morning After Death by L.D. Johnson tells of a daughter's death by accident on an icy highway. Dr. Johnson, professor of religion at Furman University, has given us the story of a man's triumphant pilgrimage through tragedy. Don't miss the chapter called "The Nature and Uses of Death."

I liked what I found in *Suicide Assessment and Intervention*, a book of essays. Its fifth chapter by Barbara Bell Foglia directs attention to bereaved children. They have never known death and cannot understand it, she says. So when it happens, include them in family conferences. Exclusion makes them feel unworthy. Above all, do not lie. Daddy has not gone on a long, long journey. Mommy has not been called to be with God. Dead is dead is dead.

A motif that emerges from all these writings is a clear understanding of a survivor's suffering. Iris Bolton writes of its many faces in her book, *My Son...My Son...* when she quotes her clients as insisting:

"I am going crazy."

"I cannot live without my man."

"Nobody feels my anguish like I do, so how can anyone else understand my despair?"

"A doctor told me that suicide can be inherited and it frightens me that another person in my family may choose to die,

even me."

"People think we're a bad family, that I'm a bad mother. How can I face anyone again?"

"I can't stop reliving the moment I found the body and seeing the blood."

"If I let go, I'll explode."

But the record shows that unbearable pain can become bearable and that hopelessness can be converted into hope. I've seen it happen.

I saw it happen when Curtis Mitchell Bolton, age 20, my grandson, and the son of Iris and Jack Bolton, shot and killed himself. It takes only a split second to create a survivor, a family of survivors, or a town full of survivors. I shall not recite the bad aftermath. I shall name some of the good things because they became the solid rock on which we built recovery.

The first good thing was advice offered to the Boltons by a friend of the family who was also a psychiatrist. As Iris describes it, "That first visit, he took my husband and me and our three sons into a private room. His gaze locked my eyes to his. 'You will survive,' he declared firmly. 'You will survive, if you choose to do so.'"

Next he advised that all important decisions be made by the whole family. Huddling together, conferring together during those first days, they discovered comfort in consensus.

His third injunction was to look for some good to emerge from the horror of the moment. "Seek it," he urged. I thought, "What an absurdity." Nevertheless, we began to search.

Permit me to pause long enough to indulge in a personal reminiscence. When my grandson shot himself and when I first became the kind of strangulated survivor who usually emerges from this kind of experience, I endured a quality of pain previously unknown to me. It spread through the family, sparing no one. Because of it, I became a stu-

dent of pain and of the unique agony that is so often the result of a suicide. What I am reporting now extends far beyond my own experience. Indeed, I am indebted to many survivors and owe special thanks to the members of support groups and to the expressions of members of the caring organization called Compassionate Friends.

I must add this caveat. I can disclose no magic formula to anesthetize human suffering. No rule of thumb applies. The grief process is said to be a series of steps. These steps do not march in single file. Often, they behave like unruly children on a school bus. They change places. They roar and they whisper. In the midst of their grief, some survivors become so confused they literally cannot recall their ABCs. My own experience was a sort of free-fall into a bottomless black hole.

My concern for survivors is that some do not plunge as I did. Instead, they soar, some of them into a booby trap. Think of grief as a minefield strewn with explosives. Survivors are not ordinarily equipped with mine detectors. Nor are many consultants. Some of the latter say, "Just take your pills. You'll be all right." Don't believe it.

Consider this situation. A family has lived for months or years in misery, enslaved by the alcoholic tyranny of a father. His suicide suddenly liberates them. They think, "At last, I don't have to submit to abuse and humiliation." But second thoughts occur. Our moral code asserts that nobody should feel good because of another's death. So guilt takes over. Without help, it may last for years, through additional decades of enslavement.

Grief's second step is usually called denial. Defending itself from shock, the human psyche rejects reality and tries to find a refuge in fantasy. The experience is like being tossed about in a cement mixer. Our orderly world is overturned. So are our most valued precepts. We have believed that a religious faith and a loving heart guaranteed a good life. The bitter fact is that life is no longer good. A dear one's death has scuttled both our faith and future.

So the ego tries to escape the pain by denying the suicide. Circumstances are invented to "prove" the accident. Newspaper stories which repeat one's fancies authenticate their veracity. This is another booby trap. Deep down, one knows that the story is a lie and that pretending otherwise involves a lifetime of lying. What such a survivor does not know is that keeping a secret--any secret--absorbs a prodigious amount of energy. Lack of energy depletes the body and mind for as long as one lives. Presently, fear invades one's tissues, fear that the lie will be discovered. Close behind walks the monster called guilt. Ultimately, comes death.

Next, make way for anger. Let's face it. Anger elbows its way into grief in the majority of suicides. The deed is so surreptitious and so unfair. The brain protests, "Why wasn't I told that his staying alive had become unbearable? Now I'll never know."

Or "Surely I could have been given an hour to argue against his decision to die."

Or "It's so unfair that I'm faced with a future alone, and without even a chance to plan."

Yes, anger floods the mind, washing over all those near and dear. Nor does God escape. Which leads to another kind of ambush. Many survivors begin to play the game of "Who's to blame?" When an accident happens, we Americans are the world's fastest finger-pointers. "Who Done It" is a literary game. After a suicide, the question can become an obsession. A survivor usually learns the hard way that placing blame rarely solves a problem. To help overcome this hazard, a counselor requires steady thinking and affectionate guidance. In today's world, both qualities are in short supply.

Guilt provides another ambush. And guilt is almost inevitable. It comes bubbling out of one's collection of If Onlys: if only I had been a better friend or parent, if only I had spent more time at home, if only I had known what I now know about depression. Teeming with a host of such questions, in some of us, the mind turns to What Ifs.

What if I had shown how much love I could give? What if I had backed off instead of forcing a showdown? What if I had flushed those extra pills down the john, or buried that pistol, or burned that rope.

William A. Miller wrote a useful book a few years ago called *When Going to Pieces Holds You Together.* He tells of a married couple who saved their money all their lives for a round-the-world trip. At age 65, he retires and they buy their tickets. They go to the airport and check in. Their plane is announced, he suffers a heart attack, and dies.

Miller tells us that the wife lapsed at once into the If Only ritual, mumbling over and over:

> "If only we'd never thought of this trip."

> "If only I'd got him to the hospital sooner."

Another case. A father had twin sons of whom he was very proud. During a walk in the woods, the boys strayed into a pond and were drowned. The father sobbed, "If only I'd taught them to swim." He turned to alcohol for 12 miserable years, repeating daily his self-accusation. Finally, he killed himself.

Guilt spreads like a cancer, destroying self-esteem and sapping one's energy. Thus weakened, many minds think, "If suicide was the only way out for my loved one, then it was because I failed him. So I'm responsible for his death and I must be a terrible person." The thought persists, nourished by apathy, and another survivor is ambushed.

But there's more. Psychologists tell me that guilt often turns to shame, and that shame is a consequence of a perceived failure. Failure demeans the ego. The ego, fighting back however it can, sometimes suppresses the idea of failure and stores it in the mind's back alleys where it decays and stinks for a lifetime.

Some of us turn belligerent and aggressive.

Some of us seek revenge.

Some of us hit the bottle.

Not a pretty picture, is it? Nor is it what the person who committed suicide wanted. His quest in most cases was simply for peace or surcease of pain.

What I am saying is that each step of the grief process usually presents a potential pitfall. Survivors are dumped without warning into an emotional jungle. At first, they are like marionettes, reacting to the pull of forces they do not understand. They respond from the gut, as you counselors know. Those responses are really feelings. Let me repeat what some survivors said:

> "I feel utterly lost without the presence of the person who has left me."

> "I need the presence of someone to whom I can give my love."

> "My memory is missing. I've lost my brain."

> "I'm obsessed with that moment when I discovered the suicide and I relive it daily through all my five senses."

> "Driving my car, I must think carefully through each movement of my foot or hand. If I don't, I may forget to apply the brake or to turn the steering wheel when I drive into my garage."

> "I can't believe that I am alone. Once, I saw my wife standing at the foot of my bed."

> "When I catch myself laughing at a friend's joke, I feel guilty."

> "People treat me as if I'm contagious."

> "I just want to cut and run."

Can anyone doubt that many survivors need help?"

But there's more. In examining the grief process, let's look at what is perhaps the stickiest wicket of them all. Its name is stigma.

Stigma was once defined among the ancients as a sear left by a hot iron. I like that! Can you think of a hotter iron than suicide? Our modern definition says stigma is a stain or a

mark of shame. And I'll buy that. For suicide surely leaves a stain, a judgment which is applauded and endorsed by our society as an unalterable moral fact. Society's attitude, I believe, is a sorry commentary on what we call Christian civilization.

Trace it back a few thousand years. Mankind's primeval fear of evil spirits and voodoo gods gave it a start. It became a social monster about 400 years after the death of Christ when Saint Augustine, the Bishop of Hippo, proscribed suicide because of God's sixth commandment which said, "Thou shalt not kill." Thus, suicide became a sin.

What does its stigma do?

To put it bluntly, it paints innocent bystanders with tar and feathers. If killing is sin, then killing the self produces a sinner. For centuries now, the act has smirched, smeared, slurred and shamed millions of persons whose worst sin was loving another whose allocation of misery was too great to bear.

What does it do?

The telephone stops ringing.

Invitations to parties, birthday celebrations, Christmas tree burnings, fetes which one has attended for years, no longer crowd one's mailbox.

Social gatherings that are attended become stressful because old friends steer small talk away from the mention of death or the name of the dear one who has died.

Walking down the street, you see an old friend approaching. Your heart leaps with pleasure. The friend sees you and crosses to the other side. You know she is pretending. It happens.

This ostracism leads to isolation. One survivor reported, "I feel as if I'd been quarantined." Isolation turns thoughts inward, to apathy, to illness. Sometimes, it persuades one to build a shrine to one's lost love. Have you seen them? Bedrooms where every college pennant, every poster is in the exact spot where it was tacked a decade earlier. Or a dresser top bearing a half-smoked pipe, a golf

ball, and enough change for bus fare. Or a cradle holding a doll.

Often, the damage runs deeper, even into mental decline, a result of the absence of life-supporting relationships.

Quickly, I must catalog a handful of additional hazards that threaten recovery. For instance, the "I'm Going Crazy" syndrome. It strikes early. Your world blurs as if you are submerged. Life wobbles along in slow motion. Making a decision becomes difficult or impossible. Reaching the end of your tether, you conclude, "I'm going crazy." But you are not. Your are merely living through the painful process of recovery.

If you are a woman, almost certainly you will be afflicted with over-protection. Well-meaning and thick-headed males may take charge. Pastors and police are usually males. So are physicians, morticians, and cemetery lot salesmen. They want to be helpful but almost without exception they impose their own code of chivalry on mothers, wives, and daughters. One issue is a women's right to view the body of her loved one. Most males are biased to the contrary. Women are weak, unfitted for horrid sights. So they "protect" her. The men of the family are escorted to the mortuary. Not the woman. Recently, I read of a young mother whose need for a last look was denied by her menfolk. On the day of the funeral, she sat like a mad woman hugging the coffin in her arms until she was dragged away. Was her child really inside? We can be certain the question will haunt her all the days of her life.

All this must be changed. But only feminine survivors can change it. To take a last loving look is their right. The change is coming and I hope soon.

Another obstacle to deliverance from grief is what might be called Dangerous Days. Why dangerous? Because they bring to mind all the good things of one's past life. In a normal life, the best days are usually Mother's day, Christmas, birthdays, and anniversaries. In one's post-suicide life, one learns to avoid them. One of the worst days is the first an-

niversary. The mind says, "Exactly one year ago, it happened. Right here in this room. I remember every detail." And the pain returns. But gradually one learns to dodge and to cope, and then you hate yourself for diminishing the goodness of the life you mourn.

Occasionally, that self-hate thrusts you back into the abyss from which you have climbed and you feel doomed forever to eternal damnation. This too will pass. My daughter took the agony of her relapse to the same friend and guide who had counseled her in the beginning. Her attack was normal, he assured her. Almost certainly, it had originated in a remnant of her year-old grief. A remnant, he reminded her, was a fragment of something left over. She understood and her deliverance came quickly.

We have not discussed how long deliverance from grief takes. Sometimes it lasts so long that it becomes an issue. Even old friends tend to magnify its length and to resent its persistence. A flesh wound usually heals quickly. A broken bone takes a bit longer. But a broken heart is bound to no time span. Impatient friends offer encouraging advice. "Let's get it over, fella! We've got a job to do." Or "Come on kiddo! Stop your crying and pick up the pieces."

Lucky, indeed, is the survivor who has a friend who understands that everyone recuperates in a different way and at a different speed. Lucky, indeed, is the friend who can help a survivor to reach the peaceful plateau of understanding that one never gets over such a loss but that presently one will learn to live with it.

Along the way, many survivors wonder if they need help. For most, the answer is yes. Help may come from a professional or from a suicide survivor group. Hundreds of the latter exist. Ask your doctor or your pastor. If you prefer a one-on-one relationship, experts often recommend a trial run of three consecutive visits. Get to know each other, what goals he sets, what improvements he anticipates. If you prefer the caring companionship of persons who have escaped from their own personal black hole, find a survivor group and listen to it. If you are on the same wavelength, there is no better therapy.

The point I belabor is this: the casualties resulting from the suicide of a single teenager always extends far beyond his imagining. We know little about the path that he has chosen to follow but we know for certain that the territory he leaves behind is no Fun City.

Earlier, I intimated that survivors have been neglected long enough. And I asked what services do they need most. My experience tells me that they need to know how others have felt in the same situation. Specifically, they need to be forewarned (as does the whole public) of the storms others have survived and how able counselors have helped them to withstand the thunder and lightning. A perfect guidebook will never be written for every client. But our modern world which mobilizes religion, psychology, and medicine to make us more comfortable offers so many choices. Somewhere help is available. Often, it is within one's own body.

Patricia Sun, a California lecturer and healer, says this: "Every time you feel pain, every time you feel despair, every time you feel loss, every time you feel fear ... it is always your cutting edge."

Some survivors who learn about the grief process feel cheated unless they are conducted through every emotional swamp and sinkhole. They must learn that no ladder will ever help them to escape. A grieving youth who lost his mother spent months bouncing around until his life settled down. He reported, "You build your own grief process and you build your own recovery. It's not right or wrong or good or bad. It just is."

Once one emerges, one becomes a member of a special brotherhood. Sascha Wagner, herself a survivor, describes them: "Some of us get desperate and we don't make it through. Others manage to make it and there is a specialness to such persons. They have an inheritance and they kind of become

a kind of living memorial to their dead children. Those who survive--that's us-- make the difference that keeps the trees growing."

So what do we want? What beyond mere survival?

Here is my wish list:

That we not be castigated by the stigma of a suicide that we neither solicited nor approved.

That our loved ones, now dead, not be consigned to oblivion through talk that avoids their existence.

That our productivity as good citizens be accepted socially politically, and industrially.

That the patience of our peers will allow us, each in his own way, to gain the strength we need to balance and carry our life-long burdens.

That in due time we may be surprised by joy.

Finally, I would beg for survivor research that will help educate families in the grief process.

- Teach caregivers, educators, pastors and teenagers that liberation begins when isolation and depression and resentment are guided into productive channels.

- Teach that the swiftest healing comes to those who seek a blessing amid the debris of their messed up lives.

- Teach that suicide is no disgrace when it is chosen to meet a positive need, or even to challenge an incredible fantasy.

Surely, we live in a time of change for the better. Count the once-forbidden topics that have emerged from centuries of silence during our own generation. One can name women's rights, minority rights, abused children's rights, even Gay rights.

It is time, at last, for survivor's rights.

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ACKNOWLEDGMENTS

PREVENTION OF ADOLESCENT SUICIDE AMONG AMERICAN INDIAN AND ALASKAN NATIVE PEOPLES

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INTRODUCTION

In 1985 there was yet another round of media attention to the phenomenon of adolescent suicide in American Indian and Alaskan Native (hereafter, "Indian") communities. This has been a long-standing problem, and a topic which has been periodically "viewed with alarm" by the media. It is also a subset of a concern over similar recent trends in the majority population. Suicide, in combination with high rates for other self-destructive behaviors (e.g., homicide, accidents, substance abuse, unwed motherhood), has meant an ongoing destruction of Indian communities. It is appropriate, then, to talk about prevention of these self-destructive behaviors.

Indian suicide is a topic which has been periodically written about in the professional literature. I will not attempt to review that literature, or to repeat the work of such researchers as Shore (1) or Beiser (2) in epidemiology, or Berlin (3,4) Levy and Kunitz (5), and Ward (6) in suicide prevention. Rather, I will make some general comments about adolescent suicide among Indian people, its epidemiology, and approaches to its prevention. Some of these points have been made previously by the above and by other authors, but is important to review them.

Data Problems

There is an *a priori* assumption, often made in the press (and sometimes in the literature),

of an "epidemic" of suicide among adolescent Indians. Despite the importance of sound epidemiologic data to define whether indeed an "epidemic" exists, only a few articles have used epidemiologic methods to define the extent and shape of the problem of suicide among Indian adolescents. Such work is necessary as a basis for appropriate clinical and community action. Unfortunately, however, studies in the area of Indian suicide present a multitude of difficulties.

One problem is that suicide is a relatively rare event, especially in small populations such as Indian tribes. This is of concern because a very small change in raw numbers can look very large in terms of rates. These small changes (which result in large changes in rates) may be due to real changes in the prevalence in suicide, but can also result from problems in reporting suicide deaths. For example, different individuals from time to time may report and record suicide deaths in a community or county. They may or may not correctly identify Indians as Indians on death certificates. In addition, they bring to the process different attitudes about suicide, which affect their definition of suicide and their willingness to report it. Indian communities themselves may be reluctant to identify suicides as such for fear of adverse publicity, and this reluctance may wax and wane.

With regard to "epidemics" among Indian

people *per se,* it is not clear that suicide rates are higher in Indian communities than for the surrounding areas. To evaluate this, it is important to use contemporaneous data for comparison from the same general area as the Indian data before deciding that a problem is specifically an Indian problem. One frequent mistake is to compare the total U.S. suicide rate with the local Indian rate, or to compare both the total U.S. Indian and non-Indian rates.

Using data from one or a few tribes to generalize to all Indian people presents another difficulty. There are, depending on the definition used, more than 400 identifiable tribal groups in the United States, which are quite diverse with regard to size and culture. To assume that suicide rates, reasons for suicide, and potential solutions to suicide among tribes are identical, or even similar, is a serious mistake. For example, there are large differences in rates and patterns of suicide between Navajo and Hopi, the latter of whom is completely surrounded by the former. Such differences are easily "swamped" in reporting figures for large areas.

Related to the problem of tribal diversity is the paucity of the data on non-reservation Indians. Less than half of Indians live on reservations; the remainder live in urban or rural communities, often far from reservations. It would be a serious mistake to assume that the nature and extent of the problem is the same for all of these communities. Studies that attempt to group these communities together may present an erroneous picture.

Finally, there is a problem of what data are included by the various sources to determine suicide rates. For example, the Indian Health Service (IHS) areas have changed over time as have the definitions of an IHS "reservation state". Using IHS data to look at suicide trends, therefore, may present a problem.

Two Studies

Two examples of attempts to deal with the data problems follow.

Pam Thurman sought data on suicide in Cherokee County, Oklahoma and also talked with people who could fill the gaps in the data. (She herself is a member of the community, which allowed her access to such informal data sources.) She found that the suicide rate among Cherokees was not different from the white suicide rate in the county (7).

In the second study, Levy and Kunitz found that suicide rates varied widely within the Hopi tribe, that suicides were often clustered within particular families, and that the Hopi rates rose and fell with that of other rural counties of Arizona (8).

To understand the problem of adolescent Indian suicide better, we clearly need further epidemiologic and services research. We need to look more closely at small, homogeneous areas, using appropriate comparison groups (e.g., local rates for non-Indians). We need better methods for collecting vital statistics including working closely with the tribes in a way that doesn't penalize them for reporting suicides, e.g., providing the press with another sensational story. In addition, data need to be interpreted in light of the culture of the community and in light of its rural or urban character.

With regard to services, research is needed on how the presence or absence of particular services, treatment personnel, or treatment facilities affects suicide rates.

Finally, what "protects" some communities against suicide? This can be as revealing as learning about the communities with high rates. Here, we could and should study the similarities and differences between areas with high or low suicide rates.

Strategies for Improving the Situation

The first consideration in dealing with a problem is to be sure that it really is a problem. Suicide and other self-destructive

behaviors are always found in a population, and even one case is cause for concern. There also may be peaks from time to time in the baseline rates of suicide in a community, just as there are in diseases and other social maladies, and these certainly constitute a reason for specific response in that community. If an "epidemic" does occur, a more general response may be appropriate. Before responding, however, epidemiologic data should be obtained using methods which are congruent with the particular situation. To rely on news reports of a high suicide rate, or on national aggregate statistics as a rationale to move into a particular community or group of communities with large-scale plans to "fix" the problem may be grossly inappropriate, a waste of resources, and damaging to the community.

When going into a community, whether to collect data or mount a program, it is absolutely necessary to work with community representatives initially and throughout the project and to conform with the culture and beliefs of the particular community. This is true in any community, but especially in Indian communities, for Indian people have learned from long experience that when the white man wants to study them or help them with a new program, the outcome stands a very good chance of being negative. Finally, a solution in one community may be totally ineffective and inappropriate in another community, even if the communities are nearby or seem similar in many ways.

It is also very important to understand suicide as one of several self-destructive behaviors which are "end-stage" behaviors. It is seldom that someone dies a self-inflicted death without previous events or conditions which led to the final behavior. The specifics of these previous events or conditions are key to the prevention and treatment of self-destructive behaviors. Although "end-stage" services (such as suicide crisis centers) are useful, prevention and treatment must begin much earlier. To rely on interventions at the last stage is analogous to trying to prevent renal disease by providing services to people

ready for dialysis. We must also find ways to look more definitively at several causes of death which may have a common etiology instead of looking separately at suicide, alcoholism, homicide, and accident statistics.

Prevention

How, then, can we prevent suicide in Indian youth? Some foci include:

1. Improving socioeconomic conditions. This is not a direct concern of psychiatric and other health care personnel and programs, but must be included as one of the keys to influencing self-destructive behaviors. Specifically with regard to Indians, until there is a solid economic base on reservations and in other Indian communities, it will be very difficult to alter the rates of these negative behaviors. The effective involvement of qualified Indian people in the process of economic and political development is a "must" (although simply terminating all help, in the name of "self-determination", is very destructive).

2. Recognizing and treating underlying psychiatric disorders, providing services for Indian people which are adequate in number and quality, and coordinating with other health services. Clearly, many psychiatric disorders, mild and severe, are important risk factors for suicide and other self-destructive behaviors. Many of the disorders of youth which can lead to suicide are treatable. In spite of this, the mental health programs of the IHS have been chronically under-funded; mental health, alcoholism, drug abuse, and general health services are often separated administratively and functionally; and there are far too few qualified treatment professionals in the mental health, alcoholism, and drug abuse treatment programs. Also, because mental health services are so decentralized in the IHS, there is little development of national or even regional strategies for effective service delivery.

The majority of Indians are healthy, perhaps even healthier overall than at any time since the European invasion of the continent. But

a great prevention challenge remains in helping adolescents and parents who suffer from alcoholism, drug abuse, and other psychiatric disorders. Case-finding, effective service delivery, and improved services *per se* are essential in terms of early identification and treatment of pathology which leads self-destructive behaviors.

3. Coordinating health (including mental health, alcoholism, and drug abuse) services with other human services. It is important to work with schools, employers, tribal leadership, and families in dealing with self-destructive behaviors. A key actor is the primary care physician who is in an excellent position to recognize and deal with factors which may lead to violent behavior. This role may include treating the patient, referring to qualified psychiatric specialty care, and making connections between schools, families, etc., thereby building a care-giving network or system for the troubled youth. This means dealing with basic problems early, not waiting for the last stage behaviors.

4. Addressing culture conflicts among young people. There is often an enormous conflict between the white and Indian cultures, which profoundly influences youths who are forming their personal identities. Having meaningful cultural experiences, as well as helping youth to deal with white culture *vis a vis* their Indian culture, are important in the community, the family, and the schools. Some active treatment programs that address this conflict can be adopted as prevention models. These include the model boarding school on the Navajo reservation (9), and the Rainbow Lodge alcoholism treatment program in Canada (6).

We have spoken about primary prevention (prevention of self-destructive behavior, *per se*), and of secondary prevention (early recognition and treatment of conditions which may lead to self-destructive behavior). Equally important is tertiary prevention: providing appropriate followup services to Indian youth who have received active psychiatric treatment or who have actually engaged in self-destructive behavior. This must be done with a recognition that the alienation which Indian youths feel toward the care-giving system can be profound. Therefore, active outreach must be performed in a culturally sensitive way.

CONCLUSION

Suicide and other self-destructive behaviors in Indian youth are not new problems. At the present time we do not have the information to determine the extent and shape of the problem in a given Indian community at a given point in time. From time to time, awareness of problems surfaces outside of the Indian community, but this may not be so much discovery of "epidemic," but rather highlighting a particular community at a particular time. Prevention needs to be aimed not to the communities which have most recently made the press, but rather at communities which can be demonstrated by epidemiologic research to have a problem needing a specialized response. That response must be scaled to fit the nature and extent of the problem, not simply reacting with large scale initiatives when less expensive measures are called for. Both the gathering of data and the planning of responses should be done in conjunction with the tribes themselves, with unobstrusive measures and with cultural sensitivity. We should remember that the challenge is not just suicide, but all self-destructive behaviors, all of which are interwoven with one another. Finally, we should not be satisfied with prevention only at the "end stage", but work towards early recognition and treatment of conditions, social and psychiatric, which lead over time to self-destructive behaviors.

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ACKNOWLEDGMENTS ·····················-

SUICIDE AMONG ASIAN AMERICAN YOUTH

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Since the mid-1960s, the media have portrayed the positive stereotype of Asian American youth as a special population who work hard to pull themselves up by their bootstraps (*New York Times Magazine*, January 9, 1966; *U.S. News and World Report*, December 26, 1966; *Time* Magazine, March 28, 1983; *Sunday Chicago Sun-Times*, January 22, 1984; *Chicago Tribune*, January 15, 1986). Little attention, if any, was placed on the social problems faced by young Asian Americans in their struggle to excel and to establish themselves in the U.S. society. Similarly, research on suicide among Asian American minorities has not focused on the age group 15 to 24 years old, but have instead tended to highlight the problems of the elderly (e.g., Bourne, 1973; McIntosh and Santos, 1981).

OBJECTIVES

This paper fills the knowledge gap concerning Asian and white American youth suicide by examining the **national** suicide data for two time periods in the age range 15 to 24 years. Aside from the apparent need for a descriptive database, such a comparison serves four other objectives: (1) to determine the magnitude and direction of the ethnic differences in youth suicide between Asian and white Americans; (2) to examine the changes in the suicide rate over time between the different groups; and (3) to explore plausible factors for the observed ethnic differences in Asian American youth suicide; and (4) to discuss the implications of the research findings from a prevention perspective.

Many of the findings in this paper are based on data extracted from death certificate records and submitted by each of the 50 States to the National Center for Health Statistics (NCHS). Created in 1960, NCHS is mandated to collect, analyze, and disseminate statistical and epidemiologic data on the health of the nation. Because the size of the Asian American population has remained numerically insignificant until recently, national mortality data for this special population are difficult to analyze and interpret even though they have existed for some time at NCHS. Furthermore, since analyses of

such data require population denominators collected by the Bureau of the Census, the absence of intercensal estimates for Asian Americans in general and Chinese and Japanese in particular, has severely limited the use of these records for research purposes. For these reasons, meaningful calculation of suicide rates can be made only for the years 1970[1] and 1980.

Of the 40-some Asian American subgroups enumerated in the last census, only the suicide statistics for Chinese and Japanese Americans will be presented in this paper for reasons of availability of data and confidence in the quality of the data[2]. This decision should not be interpreted to mean that the statistics obtained for these two older Asian American groups in any way represent all Asian Americans. In the strictest sense, the term Asian Americans is a meaningful concept only insofar as it identifies the geographic origins of a group of people who are visibly and culturally different from the majority white population. However, the population itself is comprised of a number of diverse groups which, in many ways, are as different from one another as they are different from other races.

It should also be stated that mortality data in general, being collected primarily for legal purposes, have their inherent limitations. Reporting or classification errors are possible. The magnitude of errors may vary by State as well as by specific information (e.g., sex may be more accurately recorded than ethnicity). Although many studies assess the

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1. National mortality data prior to 1970 which contain information on Chinese and Japanese Americans have either been destroyed because they were not packed in tapes so as to be accessible for computer manipulation, or for those years in which they are available (e.g., 1968 and 1969), appropriate population denominators with detailed breakdowns by age and sex for Chinese and Japanese are not available from the Bureau of the Census.
2. Data for other groups, such as the Filipinos, are available but are of dubious quality because they produce death rates which are improbable. Likewise, data for the Pacific Islanders are extremely small, subject to severe fluctuations, and geographically confined to Hawaii and the West Coast. Consequently, a meaningful concept of national suicide statistics for the Pacific Islanders remains to be studied.

quality of medical recording in death certificates, such studies have not been targeted to a specific population such as the Asian Americans. We do not know, therefore, the extent of underreporting or misreporting of race or of cause of death for Asian Americans other than what Yu (1982) reviewed in her earlier work on infant mortality. This acknowledgement of the limitations of data must also be balanced by an appreciation of the fact that the United States probably has one of the better maintained vital registration systems of all modern nations, and mortality data extracted from death certificates are our only source of statistics on suicides. Thus, in the absence of alternative sources of statistics on suicide, we are forced to use the death certificate data. Caution, however, is clearly warranted in the interpretation of these statistics.

SOCIODEMOGRAPHIC PROFILE OF ASIAN AMERICAN YOUTH

Unpublished data based on 100 percent count of the U.S. Census show that there were only 89,342 Chinese Americans and 96,059 Japanese Americans between 15 and 24 years of age in 1970 (Liu and Yu, 1975). This age group represented 20.5 percent of the total Chinese American population and 16.2 percent of the total Japanese American population at the time (Table 1). (All tables appear at the end of this chapter.) By 1980, the number of 15 to 24 year olds increased by 63.5 percent (to 146,035) for Chinese Americans, and 25.4 percent (to 120,443) for Japanese Americans, compared to only 11.7 percent increase for white Americans.

Table 2 shows the school enrollment pattern of 15 to 24 year olds by nativity and sex, based on the 1980 Census. In every age group examined (15-24, 15-19, and 20-24 years), white Americans have the largest percentage **not** enrolled in school followed by Japanese Americans. Chinese Americans consistently have the lowest percentage not enrolled in school. Their rate, for the most part, is

roughly half that found for white Americans. This is true regardless of nativity and sex[3]. In the late teens (15-19 years of age), the percentage of Chinese not in school is only about one-third of that for white Americans. Since this is true for both foreign- and native-born, cultural transmission of values concerning the importance of education in the Asian American communities is probably far more important than selective immigration *per se* in explaining the differential rates of school enrollment between these ethnic groups.

The employment status of persons 15-24 years old who are not in school is shown in Table 3. Among foreign-born males not in school, the employment rate of white Americans is the highest of the three ethnic groups compared. About 82 percent of white Americans, 77 percent of Chinese Americans, and 73 percent of Japanese American youth who are not attending school are employed. Among foreign-born females, a larger percentage of Chinese and Japanese American youth (67 and 58 percent, respectively) are employed compared to white Americans (53 percent).

Among native-born males, the employment rate of white and Chinese Americans are similar (about 79 percent), both being somewhat lower than that found for Japanese Americans (85 percent). For native-born females, white American youth have the lowest employment rate (65 percent) compared to Chinese (84 percent) and Japanese Americans (81 percent). It appears that native-born Asian American women are shouldering the responsibility of productive employment at a young age, probably to support themselves as well as their parents and siblings.

An examination of the employment status of those who are in school shows that among the foreign born 15-24 year olds, Japanese have

the lowest percentage of persons who are working while going to school (Table 3). This is true for males (26 percent, compared to 30 percent for Chinese and 32 percent for white Americans) as well as females (28 percent, compared to 34 percent for Chinese and 31 percent for white Americans).

Among the U.S.-born youth, white Americans have the lowest percentage of persons who are working while going to school (36 percent for males and 35 percent for females), while Japanese Americans consistently have the highest percentage of persons who are both employed and in school (42 percent for males and 43 percent for females). Among foreign-born youth, the findings are just the opposite. Japanese American males and females have the lowest percentage of persons who are working and going to school, while the Chinese and white Americans have similar rates.

Household type information on the 15 to 24 year olds are shown in Table 4. Among U.S.-born youth, the percentage of persons living in a married couple household varies from 64.3 percent for Chinese Americans, 65.4 percent for Japanese Americans, to 67.5 percent for white Americans. However, the percentage of youth living alone, in group quarters, or in nonfamily households shows somewhat greater variability, with the Chinese having the largest percentage (25.6 percent) of the three groups living in these "other" type of households. No doubt this is due to the high percentage of Chinese native-born youth who are enrolled in school, compared with the other two groups.

For foreign-born youth, the data in Table 4 are broken down by year of immigration. A larger percentage of Asian Americans who were between the ages of 15 and 24 in 1980 and who immigrated to the United States in the 1970s are either living in group quarters or in nonfamily households. Again, this is most likely due to the large numbers of Asian Americans who are enrolled in school and living apart from their family. Japanese American youth who immigrated during the 1970s have a disproportionately large per-

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3. Tests of significance of differences in proportion were conducted for all the comparisons presented in Tables 2 to 4, inclusive. The differences between ethnic groups are statistically significant at the .05 level with one exception: the comparison of household type between white and Chinese Americans who immigrated before 1970 presented in Table 4.

centage (around 13 percent) living alone, compared with the other two groups (no more than 5 percent). Why this is so is far from clear.

AGE-SPECIFIC SUICIDE RATES: 1970 and 1980

Tables 5 and 6 show the average annual age-specific and age-adjusted suicide death rates for white, Chinese, and Japanese Americans in 1980 and 1970, respectively. Following the convention of the National Center for Health Statistics where these data are managed, the U.S. population in 1940 was used as the standard population for age adjustment.

Across time and for all ethnic groups in 1980, male suicide death rates in the 15 to 24 age range have exceeded female rates. With a suicide rate of 13.79 per 100,000 population in 1970, which increased to 21.91 per 100,000 in 1980, white American male youth have the highest suicide rates among the three ethnic groups compared. Overtime, there was a 58.9 percent increase in suicide rates among white males 15 to 24 years old. The Chinese American male suicide rate increased even more (by 122.3 percent) from 3.63 per 100,000 population in 1970 to 8.07 in 1980.

On the other hand, although Japanese American male suicide rates (11.97 per 100,000 in 1970 and 14.09 per 100,000 in 1980) have been higher than the Chinese rates, the rate of increase in suicide rates over time is not as dramatic as that found for Chinese Americans.

Given the population increases that each of the three ethnic groups have experienced over time (see Table 1), the question arises as to whether the increase in suicide rates between 1970 and 1980 may be a result of the population growth. A closer examination of the data show that the percent population increase is 13.7 percent for white male 15 to 24 year olds, 63.1 percent for Chinese American youth, and 30.6 percent for Japanese Americans. In short, the ratio of the rate of change in suicide rates to the rate of popula-

tion increase is highest for white American youth (4.3), lowest for Japanese Americans (1.7), and intermediate for Chinese Americans (1.9). This finding indicates that factors other than population growth explains the increase in suicide rate over time.

By comparison, suicide rates for white American females 15 to 24 years old have not changed significantly between the two census years. (4.21 per 100,000 in 1970 compared to 5.00 in 1980) even though the population within this age range has increased by about 10 percent. The suicide death rate for Chinese American females increased by 59.2 percent, which is less than the 63.8 percent increase in the population of females in the same age group, while the suicide death rates for Japanese American females dropped slightly from 5.51 per 100,000 in 1970 to 4.52 per 100,000 in 1980, during which time the population had actually increased by 20.3 percent.

On the basis of the age-specific death rates and the above ratios, some readers may conclude that suicide is not a major public health problem for Asian American youth, compared with white Americans. However, an examination of the proportional mortality statistics gives a different picture of the findings.

PROPORTIONAL MORTALITY FOR SELECTED DEATHS

While the age-specific rate for any cause of death is calculated using the population size of a given group as the denominator and the number of deaths from a specific cause for that particular group as the numerator; proportional mortality for any cause of death is obtained by using the total number of deaths for any given population as the denominator and the specific cause of death as the numerator. Because of the differences in the denominator, it is possible for these two rates to give apparently contradictory information.

Table 7 presents the proportional mortality rates for suicide deaths by ethnicity in 1970

compared with 1980. One notes that suicide accounts for a much larger proportion of deaths among Asian American youth in 1980 than among white Americans. Among males, for instance, suicide represents 21.3 percent of all deaths for Japanese Americans, 15.1 percent for Chinese Americans and only 12.9 percent for white Americans. Among females, it constitutes 20.8 percent of all deaths for Chinese Americans, 14 percent for Japanese Americans, and 8.8 percent for white Americans[4].

There is another way of examining the proportional mortality data in Table 7, that is, making within-group comparisons over time. In this case, the percentage change in average annual proportional mortality for Chinese American 15-24 year olds between 1969-71 and 1979-81 is striking (200 percent for both sexes) compared to white (53 percent) or Japanese Americans (33 percent).

However, it is important to stress that, to begin with, Japanese American proportional mortality rates had been very high in 1969-71, and they remained high in 1979-81, whereas the Chinese American rates were very low in 1969-71 and they increased dramatically in 1979-81. From a public health standpoint, this increase in proportional mortality rate over time for all three ethnic groups is cause for concern. It is therefore a serious misconception to rely solely upon the age-specific suicide rate of 15-24 year olds and conclude that Chinese American youth do not have a suicide problem. What is a "high" or "low" suicide rate depends on what group or what year is used as the reference point for comparison purposes.

The high proportional mortality rates among Chinese Americans relative to their low age-specific death rates are most likely a consequence of competing causes of death. As a

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4. Unfortunately, due to the exceedingly small denominators of Chinese and Japanese Americans in comparison with white Americans, application of statistical tests of significance fails to produce a p-value of .05 or less. Strictly speaking, then, no firm conclusions can be reached regarding the statistical significance of these different proportional mortality rates despite the fact that in some instances (e.g., Chinese female youth) the proportional death rate is more than two times that of the white female rate.

rule, deaths due to accidents has always been one of, if not **the,** major competing cause of death for persons in the age range of 15 to 24 years. So long as the proportional mortality rates for accidents remain very high, if not the highest, of all causes of death, the proportion of deaths from suicide can be expected to remain relatively low. This becomes apparent when one calculates the potential years of life lost for different causes of death, as shown below.

POTENTIAL YEARS OF LIFE LOST

Using the 10 leading causes of death for the United States, Table 8 represents the distribution of average-annual potential years of life lost before age 85 for Chinese and Japanese who die at age 15 or older. Potential years of life lost before age 85 are calculated by totaling the remaining years until age 85 for each person who committed suicide in his/her youth (i.e., in the age range between 15-24 years). For example, a person dying at age 20 would contribute 65 years to the total, while one who dies at age 70 contributes only 15 years. With this indicator it is possible to rank the different causes of death while including only deaths before age 85 and giving more weight to early deaths.

Of the 10 leading causes of death presented in Table 8, potential years of life lost can be calculated for only 6 of them. This suggests that for Chinese Americans, the remaining four leading causes of death (diabetes mellitus, Chronic Obstructive Pulmonary Disease, Cirrhosis of the Liver, and Arteriosclerosis) occur at such older ages that the potential years of life lost approaches, if not equals, zero.

In terms of selecting health promotion and prevention priorities, the ranking of causes of death according to potential years of life lost is more useful than ranking causes of death according to the total number of deaths. A death at the age of 20 or older has a different impact, at least to the family and to society at large, than a death at the age of

80 years.

Furthermore, because calculation of the potential years of life lost is affected by the population size as well as by the age-specific death rates, it is more interesting to compare the potential years of life lost between groups for each cause of death rather than to look at the absolute figures themselves. Table 8 shows that all three ethnic groups have similar rankings of the potential years of life lost at age 15 or older for the 10 leading causes of death in the United States. Accidents head the list, followed by suicide. Thus, suicide is a serious problem in the Asian American population just as it is in the white American population.

However, the groups differ greatly in the percentage of potential years of life lost due to a particular cause of death. Accidents, for example, account for 73 percent or nearly three-quarters of the average annual potential years of life lost for white Americans who die at the age of 15 or older during 1979-81, while they account for only 45 percent for Chinese Americans and 58 percent for Japanese Americans. On the other hand, suicide accounts for a much higher percentage of potential years of life lost for Chinese (28 percent) and Japanese (25 percent) Americans, compared to only 15 percent among white Americans.

Those concerned with the identification of major public health problems are well advised to examine the distribution of potential years of life lost, as a first step to defining priorities. As a second step, rates of potential years of life lost should be considered for identifying trends over time.

Table 9 shows the average annual potential years of life lost by 10 leading causes of death for ages 15 to 24 years in 1969-71. The data indicate a higher percentage of potential years of life lost due to suicide for Japanese youth (18 percent) compared to Chinese (8.1 percent) and white Americans (10 percent). By 1979-81, it is the Chinese youth who had the highest percentage of potential years of life lost to suicide (28 percent) compared to

Japanese (25 percent) and white Americans (15 percent).

THE NATIVITY FACTOR

Nativity, or the decedent's place of birth, is an important factor in Asian American mortality analysis. It is generally taken as a proxy measure for cultural upbringing and socioeconomic lifestyle, given the limited information available from the death certificate. In addition to age and sex, nativity is an important risk factor in the analysis of Asian American mortality data because among Chinese Americans 15-24 years of age, 60 percent are foreign-born, compared with 21.4 percent for Japanese Americans and 4.3 percent for white Americans. The variability in the proportion of foreign-born raises the question as to whether there are nativity differences in suicide mortality rates for Asian American youth compared with white Americans. Unfortunately, the nativity information is not available in the national mortality data tapes for 1969-71. Analysis of the variable is thus confined only to the 1980 data set.

Table 10 shows that at each age group, the suicide death rate for foreign-born youth is consistently higher than that found for the native-born. In the 15-24 age range, the rate for foreign-born Chinese is 7.1 per 100,000 population compared with 5.2 for native-born youth. For Japanese Americans, the nativity ratio is higher--the rate being 14.3 per 100,000 for the foreign-born youth compared with 8.1 for the native-born.

Clearly, suicide is a serious problem in the Asian American population, and more foreign-born youth are at risk than the native- born. Any prevention efforts should pay strong attention to the foreign born Asian American youth if we are to reduce effectively the overall suicide rates.

DISCUSSION

The study of suicide as a socio-cultural phenomenon is a classic one, dating as far

back as Durkheim's classic work (1897, translated by Spaulding and Simpson, 1951). His innovative approach to the study of suicide involves inter-societal comparisons of suicide statistics over time and among different segments of the population--an approach which emerged as a result of his concern over societal integration and the nature of group cohesion.

Insofar as research on Asian American suicide is concerned, the work has barely begun. This paper is perhaps one of the very first efforts at exploring the National Center for Health Statistics' archival death files to analyze the inter-ethnic differences in suicide rates among Asian American youth. Previous efforts had been targeted to specific local areas, such as San Francisco (Bourne, 1973) or Hawaii, or to age groups other than age 15 to 24. It is obvious that we have barely scratched the tip of the iceberg on Asian American suicide at the national level.

What we have learned is that making inter-ethnic comparisons at one point in time has distinct disadvantages in that when the suicide rates for the reference population (in this case, white American youth) are high, Asian American rates always appear low by contrast. If one were to examine the Asian American suicide rates over time, however, one quickly discovers that these rates have increased dramatically. The reasons for their increase are not yet clearly understood, much less studied.

We must admit that, theoretically, we have no adequate explanation, as yet for the lower age-specific suicide rates for Chinese and Japanese Americans as a group, compared to white Americans. One possibility is that overall rates for the 10 leading causes of death are lower for the two Asian American groups than for white Americans (Yu et al., 1985). Similarly, their age-specific suicide statistics are also lower than that found for white Americans. Thus, any Asian-white comparison of rates would always lead to the conclusion that the former appear to have few health or social problems.

Nonetheless, as we have demonstrated in this paper, whenever proportional mortality rates are used for purposes of comparison, a different picture emerges. Proportional suicide rates are higher for Asian Americans than for white Americans, and these rates have increased dramatically over a ten-year period.

An examination of the Census data indicates that Asian American youth are characterized by high enrollment in school, and State-level data indicate that they have low drop-out rates compared with white Americans (Yu, Doi, and Chang, 1985). The media have played an important role in highlighting the academic achievements of Asian American school-age children. What has not been emphasized is the psychological pressure and emotional scars that the young have endured in order to sustain the expectations of parents and school teachers alike.

Sociologically, it is important to realize that over the last twenty years, the United States has experienced an unprecedented influx of Asian immigrants whose educational levels and professional skills are at the highest levels compared to the earlier waves of Asian immigrants and European settlers. In the United States today, the proportion of Asian Americans with four years or more college is significantly higher than that of white Americans. Although the occupational return on education has not been as high for Asian Americans as one might expect had they been white Americans, large percentages of Chinese and Japanese Americans still hold high-prestige jobs compared with white Americans. This cohort of highly-educated professionals are concentrated in the 40-55 years age range, the age of parenthood with children in school.

In interview after interview with Asian American high achievers, the public learned from the media that the children explained their drive to excel in terms of the shame that can befall their parents should they fail, and the glory they bring to their parents when they succeed. It comes as no surprise that we have a cohort of high-achieving Asian

American parents who are putting tremendous pressure on their children to become even more successful then they are. The intensified pressure, and the sudden awareness of Asian American teenagers about their self-identity problems, are likely causes for the increased suicide rates among Asian Americans between 1970 and 1980. Native-born Chinese and Japanese in particular have a certain vulnerability in their self-concept in that most of them do not speak their parents' language but are still perceived by the society at large to be non-native Americans. However, the foreign-born Asian American youth faces perhaps even more inner turmoil because of the inevitable clash of values held by their immigrant parents and the larger society, especially their American peers. The most recent U.S. Census data presented earlier (see Table 4) also show that, at least among the foreign-born Japanese American youth, a significant number (60 percent) of those who immigrated in 1975-80 are living in households with no parents--that is, they either live alone, in group quarters, or in non-family households. The comparable figure for Chinese American youth who immigrated during that same period is 26 percent, which is also significantly higher than the rate for foreign-born white Americans (21 percent). Among those who immigrated in 1970-74, some 45 percent of the Japanese American youth and 16 percent of the Chinese youth are living in households without a parental figure, compared to only 6.5 percent of the white American youth. These findings suggest that a substantial percentage of Asian American youth are living without immediate familial support--a source of social support critical during the teenage years and early adulthood, especially for the uprooted (i.e., the foreign born). Much research remains to be conducted to examine the psychodynamics of the Asian American family, and the relationship between educational achievement and suicide among the young.

RECOMMENDATIONS

To date, the only source of information on Asian American suicide comes from the death certificate data submitted by each of the 50 States to the National Center for Health Statistics. Death registration is generally regulated by State laws which conform to a 1959 Model Act developed by the State registrars of vital records under the leadership of the National Office of Vital Statistics. Since disposing of a corpse without a permit is a serious violation, the registration of deaths in all but the most isolated areas is believed to be almost 100 percent. However, having a relative who commits suicide is a shameful experience for surviving relatives. Attempts to misreport suicide as an accident or as another type of death probably exist to an unknown degree among all ethnic groups. We do not know if such misreporting of the cause of death is greater for Asian Americans than for white Americans. If it is higher, such errors have not been accounted for in our statistical tables.

We believe that a far more serious problem lies not in the registration of death itself, but in the recording of the personal particulars about the deceased. A report prepared by the National Center for Health Statistics (Woolsey, 1968) indicates that such particulars are usually filled out by the funeral director, who obtains the information from a surviving relative. The funeral director also takes the certificate to the attending physician (or in the case of an unattended or violent death, to the medical examiner or coroner) for completion of what is known as the "medical certification of cause of death." This portion of the death certificate requires the signature of the physician or medical-legal officer. There is no built-in mechanism to check the accuracy of the funeral director's identification or recording of the race item on the death certificate. Strictly speaking, questions remain as to the accuracy of the information even when such information is obtained from a surviving relative. To what extent, for example, do the survivors of

a fourth-generation Japanese American identify the decedent as Japanese in response to the "race" item on the death certificate? Although we have no empirical data to verify the accuracy of race recording, we suspect that, if there were gross errors, the unintentional misreporting of race is probably greater among the native-born than among the foreign-born. The latter have a stronger ethnic identity than the former. Besides, the more monolingual native-born Asian Americans are, the more likely their "American-ness" will lead to their being classified as white. This is of course pure speculation emboldened by the absence of data.

Additionally, the National Center for Health Statistics issues to the 50 States model forms of the U.S. Standard Certificates each decade, and the States usually, but not always, adhere to these in printing their own forms. Therefore, **not all 50 States collect sufficiently specific race/ethnic information to allow for the systematic identification of Asian American subgroups such as Chinese, Japanese, Filipino, Korean, Vietnamese, Asian Indian, and others.**

Three recommendations can be made to ascertain the accuracy, if not to help minimize the misreporting of race or ethnic information on the death certificate. First, States which have not provided sufficiently detailed information on Asian American subgroups in their death certificates should be encouraged to do so. Increasingly, Asian Americans are no longer concentrated in just a few States. Perhaps the United States National Committee on Vital and Health Statistics can be encouraged to discuss this matter in their future meetings.

Second, a special study can be made to do a follow-back mortality survey of a probability sample of suicides occurring to white, black, and Asian Americans, in order to ascertain the accuracy of the race or ethnic coding. For reasons of cost containment, such a study can be limited to States with the largest concentration of Asian Americans: Hawaii, California, New York, Illinois, Texas and

Washington. The inclusion of States which are recently experiencing the growing presence of Asian Americans--such as Illinois, Washington, and Texas--is important since the accuracy of the race/ethnic code may well vary with the density of Asian American population in a given geographic area. Methodological studies on the quality of the death certificates have been conducted by the National Center for Health Statistics for other purposes (Gittelsohn, 1982; Harris, 1980), but not for verifying the accuracy of the coding of Asian American deaths. Given the expertise available at the National Center for Health Statistics, it should not be difficult for the agency to collaborate on such a methodological study with an advisory committee which includes Asian American researchers.

Third, in the next decade when the U.S. Standard Death Certificate will again be revised, serious thought should be given to allowing a separate identification of Asian Indians, Koreans, Vietnamese, Cambodians, and Laotians in the State vital registration forms. These immigrants have arrived in large numbers as a result of the Immigration Act of 1965. Within two decades, they have grown in size to come close to the number of Chinese and Japanese who arrived over a 100-year span. The explicit identification of these ethnic groups in vital registrations will provide future investigators with a rich source of data on Asian American mortality patterns in general, and suicide in particular, at a relatively low cost.

Additionally, a nation-wide suicide register can be established, with more detailed information about the decedent's demographic and socioeconomic background, including family history of suicide and other types of mental illness, occupation, and type of work. The information obtained from the death register will greatly augment the quantity and quality of the data on suicide that are presently only available from the use of death certificates. It will also be a useful tool for monitoring deaths due to suicide, both for research and for prevention purposes.

Special in-depth studies should be encouraged through the grants and contracts mechanism, including requests-for-proposals and supplemental grants to existing minority mental health research centers, by the Federal funding agencies such as the National Institute of Mental Health, the National Institute for Child Health and Development of the National Institutes for Health, and others. Such studies should specifically encourage the examination of ethnic differences in suicide, and within each group, the analysis of at least gender and nativity differences, if not other factors as well. From our work on the 1970 and 1980 data, it is clear that even among the Chinese and the Japanese youth, the increase in suicide varies by gender and by nativity. A thorough understanding of the cultural values and social structural factors which contribute to suicide would be most helpful in guiding the work of counselling and prevention programs. In short, we need to go beyond the limits of epidemiologic methods and venture into sociological, psychological, and anthropological studies of suicide. The subject deserves to be studied using an interdisciplinary approach, rather than just an epidemiologic one. By encouraging young investigators to work closely with seasoned researchers in existing minority mental health research centers, the costs of research can be kept to a minimum and the collaboration of an interdisciplinary team of researchers assured. Proceedings of the Secretary's Task Force on Youth Suicide and other research findings on suicide that are forthcoming should be disseminated widely not only to research and prevention centers in the country, but also to school teachers and counselors alike. The latter come in close daily contact with the population most at risk of suicide. Their informed knowledge of the early signs of suicidal behavior can go a long way towards the reduction, if not prevention, of a major public health problem in the United States.

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Total White, Chinese, and Japanese American Population and 15-24 Year Olds 1970[1] and 1980[2] Census

Age and Sex	White Americans			Chinese American			Japanese American		
	1970	1980	% Change	1970	1980	% Change	1970	1980	% Change
All Ages									
Both sexes	177,748,975	188,371,622	+6.0	435,062	806,040	+85.3	591,290	700,974	+18.5
Male	86,720,987	91,685,333	+5.7	228,565	407,544	+78.3	271,300	320,941	+18.3
Female	91,027,988	96,686,289	+6.2	206,497	398,496	+93.0	319,990	380,033	+18.8
15-24 Year Olds									
Both Sexes	30,652,187	34,250,876	+11.7	89,342	146,035	+63.5	96,059	120,443	+25.4
Male	15,232,090	17,317,434	+13.7	45,572	74,332	+63.1	47,078	61,498	+30.6
Female	15,420,097	16,933,442	+9.8	43,770	71,703	+63.8	48,981	58,945	+20.3

1. Data for 1970 are based on unpublished complete count (100 %) of the 1970 U.S. Census data prepared by the Bureau of the Census for the National Center for Health Statistics. They are more reliable than the figures reported in some published 1970 Census reports which are based on only 20% or 15% count.

2. Data for 1980 are based on 100% count of the 1980 U.S. Census data supplied by the Bureau of the Census to the Pacific/Asian American Mental Health Research Center.

Table 1.

School Enrollment of 15-24 Year Olds for White, Chinese, and Japanese Americans
By Nativity and Sex: 1980 Census

| | Foreign Born | | | | | | U.S. Born | | | | | |
| | Male | | | Female | | | Male | | | Female | | |
	White	Chinese	Japanese	White	Chinese	Japanese	White	Chinese	Japanese	White	Chinese	Japanese
15-24 Year Olds	(733)	(2224)	(662)	(742)	(2159)	(661)	(16484)	(1510)	(2411)	(16245)	(1397)	(2450)
Total, in percent	100.0	100.0*	100.0	100.0*	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Not enrolled	52.8	24.8	36.6	54.3	28.9	40.1	50.0	23.0	32.3	51.8	26.0	33.6
Enrolled in:												
public school	39.3	62.3	46.4	38.1	59.2	46.6	43.3	61.7	58.7	41.2	59.4	58.9
church-related sch.	3.7	4.1	7.5	4.0	4.6	6.3	3.9	5.0	4.4	4.3	5.9	2.8
other private sch.	4.2	8.7	9.5	3.5	7.3	7.0	2.8	10.3	4.6	2.7	8.7	4.7
15-19 Year Olds	(324)	(1027)	(203)	(323)	(885)	(219)	(8323)	(721)	(1155)	(7902)	(686)	(1145)
Total, in percent	100.0	100.0*	100.0	100.0	100.0	100.0*	100.0	100.0*	100.0*	100.0	100.0	100.0
Not enrolled	28.2	9.3	17.7	28.5	9.9	11.0	24.4	6.4	11.2	24.7	6.4	9.7
Enrolled in:												
public school	61.7	80.4	64.5	60.7	78.9	73.1	67.4	75.6	78.4	66.4	74.3	81.0
church-related sch.	4.9	5.5	9.4	6.2	5.1	9.6	5.4	8.0	6.6	6.1	8.5	4.1
other private sch.	5.3	4.9	8.4	4.6	6.1	6.4	2.8	9.0	3.9	2.8	10.8	5.2
20-24 Year Olds	(409)	(1197)	(459)	(419)	(1274)	(442)	(8161)	(789)	(1256)	(8343)	(711)	(1305)
Total, in percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0*	100.0	100.0	100.0	100.0	100.0
Not enrolled	72.4	38.2	44.9	74.2	42.0	54.5	76.2	38.1	51.8	77.5	44.9	54.5
Enrolled in:												
public school	21.5	46.8	38.3	20.8	45.6	33.5	18.7	48.2	40.7	17.4	45.0	39.6
church-related sch.	2.7	3.0	6.8	2.4	4.2	4.8	2.4	2.3	2.3	2.5	3.4	1.7
other private sch.	3.4	12.0	10.0	2.6	8.2	7.2	2.8	11.4	5.2	2.6	6.7	4.2

Source: Unpublished data from the 1980 Census tabulated by the authors. Data for Chinese and Japanese are based on the 5% Sample Microdata (A) tape, while data for white Americans are based on the .1% (B) sample tape.

*Percent do not add up to 100 because of rounding errors.

Table 2.

Schooling and Employment Status of White, Chinese, and Japanese Americans 15-24 Year Olds
By Nativity and Sex: 1980 Census

	Foreign Born						U.S. Born					
	Male			Female			Male			Female		
	White	Chinese	Japanese	White	Chinese	Japanese	White	Chinese	Japanese	White	Chinese	Japanese
Not in school, number	(387)	(552)	(242)	(403)	(623)	(265)	(8249)	(347)	(65)	(8418)	(363)	(124)
in percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Less than 16 years[1]	--	--	--	--	--	--	--	--	--	--	--	--
Employed	81.9	76.5	73.1	52.9	66.5	57.7	79.8	79.0	85.1	64.5	83.8	80.8
Unemployed	7.2	6.3	6.6	7.9	2.3	4.5	10.8	8.9	6.0	6.3	3.0	3.8
Not in labor force	10.3	16.5	20.3	39.2	30.7	37.4	8.9	11.5	8.3	28.6	12.7	15.1
In school, number	(346)	(1672)	(420)	(339)	(1536)	(396)	(8235)	(1163)	(1631)	(7827)	(1034)	(1628)
in percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Less than 16 years	16.8	10.0	6.2	18.3	10.1	10.3	18.8	12.7	12.8	18.5	14.6	12.5
Employed	31.5	30.2	25.7	31.0	34.4	28.3	36.2	38.8	41.9	35.2	37.7	43.4
Unemployed	2.3	2.3	1.9	2.6	1.9	1.3	3.5	2.2	2.3	3.4	1.8	2.4
Not in labor force	49.4	57.5	66.2	48.1	53.6	60.1	41.5	46.3	43.0	42.9	45.8	41.7

Source: Unpublished data from the 1980 Census tabulated by the authors. Data for Chinese and Japanese are based on the 5% Sample Microdata (A) tape, while data for white Americans are based on the .1% (B) sample tape.

1. Since data on employment status are asked only of persons 16 years or older, data on the employment status of those between 15 to 16 years of age are not available.

2. Percent do not add up to 100 because of rounding errors.

Table 3.

Household Type of 15-24 Year Olds for White, Chinese, and Japanese Americans By Nativity and Year of Immigration: 1980 Census

Household Type	Total	U.S. -Born	Foreign-Born by Year of Immigration				
			N.A.	1975-80	1970-74	1965-69	Prior to 1969
White, (number)	(34204)	(32729)	(357)	(394)	(218)	(210)	(296)
in percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Married couple	67.3	67.5	61.6	53.6	68.8	73.8	66.6
One spouse absent	13.8	13.5	18.2	25.6	24.8	15.7	11.5
Other							
Living alone	4.4	4.4	4.8	4.8	1.4	1.9	6.1
Group quarters	7.0	7.0	8.7	7.9	2.8	3.3	7.1
Nonfamily	7.6	7.7	6.7	8.1	2.3	5.2	8.8
Chinese, (number)	(7290)	(2907)	(72)	(2300)	(928)	(752)	(331)
in percent	100.0	100.0	100.0	100.0	100.0	100.0*	100.0*
Married couple	62.9	64.3	62.5	55.5	69.8	70.9	65.3
One spouse absent	13.7	10.1	12.5	18.8	13.8	12.4	12.4
Other							
Living alone	4.3	5.5	2.8	3.7	3.0	3.5	4.5
Group quarters	10.0	10.7	12.5	11.2	6.4	8.4	9.7
Nonfamily	9.0	9.4	9.7	10.8	7.0	4.9	8.2
Japanese, (number)	(6184)	(4861)	(294)	(585)	(108)	(81)	(255)
in percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Married couple	61.2	65.4	58.8	34.7	47.2	62.3	50.6
One spouse absent	11.7	12.1	16.0	5.3	8.3	8.6	16.1
Other							
Living alone	5.6	4.4	5.1	13.5	13.0	3.7	7.5
Group quarters	10.8	9.0	9.8	26.3	17.6	11.1	10.2
Nonfamily	10.7	9.1	12.2	20.2	13.9	13.6	15.7

Source: Unpublished data from the 1980 Census tabulated by the authors. Data for Chinese and Japanese are based on the 5% Sample Microdata (A) tape, while data for white Americans are based on the .1% (B) sample tape.

1. These are persons who cannot be said to have "immigrated" to the U.S. because they were born in U.S. Territories or possessions (and therefore not native-born). A small number of foreign-born persons for whom year of immigration information is missing may also be included in this category but the precise number cannot be ascertained.

*Percent do not add up to exactly 100 because of rounding errors.

Table 4.

Average Annual Age-specific[1] and Age-adjusted (1940 U.S. Standard) Death Rates[2] for Suicide, Per 100,000 Population, by Specified Race: United States, 1980

Age Group	White			Chinese American			Japanese American		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
All ages, crude	13.31	20.57	6.43	8.27	8.26	8.28	9.08	12.57	6.14
Age-adjusted	12.54	19.41	6.20	7.97	7.93	8.02	7.84	11.08	5.00
5 - 14 years	0.52	0.75	0.28	0.30	-----	0.61	0.86	1.69	-----
15 - 24 years	13.55	21.91	5.00	6.39	8.07	4.65	9.41	14.09	4.52
25 - 34 years	17.48	26.99	7.98	7.13	8.59	5.72	12.18	16.72	7.82
35 - 44 years	17.03	24.27	9.93	9.01	8.94	9.09	9.10	12.68	6.39
45 - 54 years	17.69	24.55	11.18	12.28	10.77	13.89	8.75	9.81	8.22
55 - 64 years	17.54	26.52	9.59	12.34	9.37	15.52	9.93	12.38	7.78
65 - 74 years	18.28	32.41	7.45	24.35	25.85	22.61	6.61	11.17	2.17
75 - 84 years	20.91	46.18	6.03	33.51	21.82	44.32	25.01	39.56	15.75
85 years & over	19.45	53.28	4.92	56.13	64.10	49.93	62.59	139.76	19.50

Source: Division of Vital Statistics, National Center for Health Statistics, unpublished data calculated by the authors.

1. The numerator consists of 1979-81 cumulative number of deaths, the denominator is based on the total enumerated of the 1980 United States Census.

2. Excludes deaths of nonresidents of the United States.

Table 5.

E. Yu: Suicide among Asian American Youth

Average Annual Age-specific[1] and Age-adjusted (1940 U.S. Standard) Death Rates[2] for Suicide, Per 100,000 Population, by Specified Race: United States, 1970

Age Group	White			Chinese American			Japanese American		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
All ages, crude	12.29	17.75	7.09	10.89	12.06	9.60	9.24	10.68	7.99
Age-adjusted	12.28	17.90	7.22	11.60	12.48	10.45	8.55	10.01	7.22
5 - 14 years	0.35	0.52	0.17	—	—	—	—	—	—
15 - 24 years	8.97	13.79	4.21	2.98	3.63	2.92	8.70	11.97	5.51
25 - 34 years	13.94	19.33	8.68	10.61	11.91	9.26	14.88	16.91	13.29
35 - 44 years	17.79	22.86	12.90	14.62	13.94	15.37	10.42	11.23	9.95
45 - 54 years	21.18	29.00	13.83	19.47	20.00	18.80	11.52	11.61	11.44
55 - 64 years	22.89	34.80	12.21	20.74	25.15	15.03	6.40	7.25	5.54
65 - 74 years	22.09	38.03	9.81	39.00	49.54	24.88	9.62	13.89	6.36
75 - 84 years	23.03	46.67	7.42	56.17	54.19	58.75	30.75	26.66	33.61
85 years & over	19.42	46.70	4.38	175.09	84.71	271.74	86.11	162.82	—

Source: Division of Vital Statistics, National Center for Health Statistics, unpublished data calculated by the authors.

1. The numerator consists of 1969-71 cumulative number of deaths, the denominator is based on the total enumerated of the 1980 United States Census.

2. Excludes deaths of nonresidents of the United States.

Table 6.

Proportional Mortality Rate for Suicide Among White, Chinese, and Japanese American 15-24 Year Olds, by Sex: 1970 and 1980

Race and Sex	1970	1980	% Change
White Americans			
Both Sexes	7.8	11.9	52.6
Male	8.1	12.9	59.3
Female	6.8	8.8	29.4
Chinese Americans			
Both Sexes	5.6	16.8	200.0
Male	4.9	15.1	208.2
Female	7.1	20.8	193.0
Japanese Americans			
Both Sexes	14.3	19.0	32.9
Male	14.2	21.3	50.0
Female	14.5	14.0	-3.4

Source: Unpublished data from the National Center for Health Statistics, calculated by the authors.

Table 7.

Average Annual Potential Years of Life Lost, in Percent and Rate Per 100,000 Population By 10 Leading Causes of Death at Ages 15-24 Years, 1979-81

10 Leading Causes	White			Chinese			Japanese		
	Number	Percent	Rate	Number	Percent	Rate	Number	Percent	Rate
10 Leading Causes, total	2,024,922	100.0		2,189	100.0		2,948	100.0	
Accidents	1,479,963	73.1	4321.0	975	44.5	667.6	1,712	58.1	1421.1
Suicide	301,708	14.9	880.9	607	27.7	415.4	737	25.0	611.6
Cancer	139,555	6.9	407.4	390	17.8	267.1	282	9.6	233.9
Heart Disease	51,090	2.5	149.2	152	6.9	103.9	65	2.2	54.0
Cerebrovascular Disease	18,633	0.9	54.4	43	2.0	29.7	65	2.2	54.0
Pneumonia and Influenza	16,553	0.8	48.3	22	1.0	14.8	43	1.5	36.0
Diabetes Mellitus	7,215	0.4	21.1	--	--	--	22	0.7	18.0
C.O.P.D.	5,655	0.3	16.5	--	--	--	22	0.7	18.0
Cirrhosis of the Liver	4,550	0.2	13.3	--	--	--	--	--	--
Arteriosclerosis	87	--	0.3	--	--	--	--	--	--

Source: Unpublished data from the National Center for Health Statistics, calculated by the authors.

Table 8.

Average Annual Potential Years of Life Lost, in Percent and Rate Per 100,000 Population By 10 Leading Causes of Death at Ages 15-24 Years, 1969-71

10 Leading Causes	White			Chinese			Japanese		
	Number	Percent	Rate	Number	Percent	Rate	Number	Percent	Rate
10 Leading Causes, total	1,858,698	100.0		2,145	100.0		2,948	100.0	
Accidents	1,372,497	73.8	4477.6	1,408	65.6	1576.3	1,625	54.8	1697.0
Suicide	178,642	9.6	582.8	173	8.1	194.0	542	18.3	565.7
Cancer	163,107	8.8	532.1	390	18.2	436.5	303	10.2	316.8
Heart Disease	48,252	2.6	157.4	65	3.0	72.8	130	4.4	135.8
Cerebrovascular Disease	29,055	1.6	94.8	65	3.0	72.8	173	5.8	181.0
Pneumonia and Influenza	41,557	2.2	135.6	22	1.0	24.3	108	3.8	113.1
Diabetes Mellitus	11,895	0.6	38.8	--	--	--	--	--	--
C.O.P.D.	6,782	0.4	22.1	--	--	--	65	2.2	67.9
Cirrhosis of the Liver	6,803	0.4	22.2	22	1.0	24.3	22	0.7	22.6
Arteriosclerosis	108		0.4	--	--	--	--	--	--

Source: Unpublished data from the National Center for Health Statistics, calculated by the authors.

Table 9.

Average Annual Age-Specific[1] and Age-Adjusted Deaths (1940 U.S. Standard Population) By Suicide, in Rate per 100,000, for Specified Asian American Groups, by Nativity: United States, 1980

Age in years	Chinese		Japanese	
	Native-born	Foreign-born	Native-born	Foreign-born
All ages, crude	2.9	11.2	5.5	17.1
Age-adjusted	3.5	9.5	5.2	14.0
0-4	--	--	--	--
5-14	0.5*	--	1.1*	--
15-24	5.2	7.1	8.1	14.3
25-34	5.9	7.5	7.9	18.7
35-44	4.1*	9.9	5.7	13.6
45-54	5.4*	14.2	5.5	13.6
55-64	2.4*	15.1	5.6	42.6
65-74	2.3*	37.3	5.4*	11.8*
75 and over	--	45.2	6.8*	41.5

Source: Division of Vital Statistics, National Center for Health Statistics, unpublished data calculated by the authors.

1. The numerator consists of 1979-81 cumulative number of deaths, the denominator is based on the total enumerated of the 1980 United States Census.

*The rates are obtained with numerators which consist of less than 5 persons.

Table 10.

BLACK YOUTH SUICIDE: LITERATURE REVIEW WITH A FOCUS ON PREVENTION

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ABSTRACT

The national rates of completed suicide in the black population between 1950 and 1981 are presented including age-adjusted rates. Specific studies of suicide attempts and completed suicides by blacks in several cities, e.g., New York, Philadelphia, Newark, Rochester (New York), and New Haven, are discussed. Methodological problems with existing studies and national suicide statistics are presented. Proposed theories of black suicide are reviewed. Based upon a summary of the characteristics of black suicide attempters reported in the literature, specific primary, secondary, and tertiary preventive strategies are suggested.

INTRODUCTION

Data from the National Center for Health Statistics (NCHS) have documented the increase in suicides by black Americans. Between 1950 and 1981 the suicide rates for black Americans increased: 114 percent for black males in the 15-24 age group and 33 percent for black females in the 15-24 age group (1). NCHS data also document the higher and increasing rates of suicide in white Americans (1). Other authors address this issue in another volume of the Report of the Secretary's Task Force on Youth Suicide (2). This author will focus only on black suicide attempters and completers in this paper.

By the 1980 census (3) blacks comprised 12 percent of the United States population with 41 percent of the black population between ages 16-39, the ages of highest risk for suicide among blacks (4,5,6). The increase in suicide by both black and white youth have resulted in the National Institute of Mental Health's establishing suicide as one of its priority areas for 1986.

But what specific information exists concerning the precipitating events, the psychosocial stressors, and interpersonal stressors that result in suicidal acts by black youth? Are there specific psychological theories which suggest etiology or mechanisms behind suicidal behavior in young Afro-Americans? To answer these questions and to identify specific primary, secondary, and tertiary preventive strategies, a literature review was conducted. The majority of the studies of black suicide attempters were completed in response to the work of Hendin (7) and the Black Revolution of the 1960s. The studies varied from theoretical papers which summarized mortality data and attempted to hypothesize an etiology for the observed increased rates of black suicide, through comparative studies of black and white suicide attempters in several cities. Only one case-control study was identified and only two studies conducted a longitudinal assessment of a population during a period of four or

more years. Although the majority of these studies are descriptive and I have some concerns with the methodological designs, I will review the known information in order to identify specific areas on which research should focus, as well as suggest various levels of preventive strategies.

UNITED STATES BLACK POPULATION IN 1980

To understand the magnitude of suicidal behavior within the black community, it is important to review the demographic characteristics of Afro-Americans in the United States in 1980. The inaccuracies of the United States Census have been attributed to the failure of black persons to respond to the census as well as to the enumerators' fear of urban neighborhoods. Acknowledging these imperfections, specific data are presented to provide a context for our discussion.

In 1980 (2) 12 percent of the United States population was black--26.5 million persons. Fifty-three percent of blacks were females and 47 percent were males. Forty-four percent of black females were in the child-bear-

ing years, between ages 15 and 44. The percentage Afro-Americans in each age category by sex is shown in Table 1. Forty-one percent of black males and 41 percent of black females are between ages 16 to 39. Although black males outnumber black females through age 19, the loss of black males begins in the 20 to 24 age group with a significant difference noted in the 40 to 49 age group. Causes of premature death in black males ages 16 to 39 include homicide, suicide, accidents, and substance abuse (8,9,10). In fact, homicide is the leading cause of death for black males of ages 15 to 44 (8). This sex difference is sustained throughout the latter years of the life cycle. Approximately 30 percent of the black population is below the poverty level compared to 9.4 percent of the total population. Table 2 shows the percentage of individuals below the poverty level by race and age group. The average number of persons per black family is 3.7 and in white families, 3.9. In the black population 1,568,417 households were headed by a female without a husband present, with their own children under age 18. For whites, 3,166,397 households were headed by a female without a husband present, with their own children under age 18.

DISTRIBUTION OF THE BLACK POPULATION BY AGE AND SEX

AGE	% of TOTAL BLACK MALES	% of TOTAL BLACK FEMALES	% of TOTAL BLACK POPULATION
0-4	9.81	8.64	9.19
5-11	14.26	12.57	13.36
12-15	8.90	7.90	8.37
16-19	9.50	8.58	9.02
20-24	10.39	10.19	10.28
25-29	8.66	8.85	8.76
30-39	12.25	12.97	12.63
40-49	8.64	9.39	9.04
50-59	7.76	8.55	8.17
60-64	3.08	3.48	3.29
65-74	4.52	5.54	5.02
75-84	1.82	2.57	2.22
85+	0.42	0.76	0.60

SOURCE: U.S. Census, 1980. Detailed Population Characteristics, U.S. Summary Section A.

Table 1.

NATIONAL STATISTICS ON COMPLETED SUICIDES

In *Health, United States, 1984* suicide rates were presented for blacks and whites by sex for the years 1950 through 1981 (11). Table 3 presents the rates per 100,000 population for ten year age groups. Figures 1-8 (Figures appear at end of chapter.) present graphic comparisons of white and black suicides by sex for each ten-year age group. In this 31-year period, suicides in white males increased 3.2 fold in the 15-24 age group and in the 25-34 year age groups they nearly doubled. In all age ranges white males continued to have a steady increase in completed suicide.

The increase in suicide by black males was also documented by national statistics. From 1950 to 1970, there was a 114 percent increase in the black male rate in the 15-24 age group and 106 percent increase in the 25-34 age group. By 1981, the suicide rate for black males showed a 134 percent increase in the 25-34 age group. During the thirty-one year period, 1950-1981, suicide declined sharply in black males beginning in the 35-44 age group and continued throughout the life cycle.

The suicide rates for black females remained low in comparison to white females. Suicide rates in black females increased 111 percent for the 15-24 age group between 1950 and 1970. By 1981, this rate had declined to 33 percent greater than the 1950 rate. For black females, the 25-34 and 35-44 age groups had the highest suicide rates during the 1950 through 1981 period with peak rates occurring in 1970, a 119 percent and 85 percent increase respectively. For this 31 year period, white female suicide rates peaked in 1970 in the 25-54 age groups. By 1981, the suicide rate for white females in the 45-55 age group peaked, but only by 6 percent above the 1950 rate. The rate for the 15-24 age group had increased 81 percent and for the 25-34 age group, 50 percent.

The Afro-American population of the United States is a younger population with a broader based population pyramid. The white population is older with a population pyramid that is more evenly distributed in all age groupings. Age-adjustment is a method that corrects for these age differences in the population of each race. Table 4 presents the age-adjusted suicide rates for the years 1950 to 1981. The age-adjusted rates (direct

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PERCENTAGE OF PERSONS BELOW THE U.S. POVERTY LEVEL BY RACE

Age Group	% Of Total Black Population	% Of Total White Population
under 16	38.6	11.6
16-21	33.1	12.0
22-24	26.9	11.1
25-34	22.0	7.5
35-44	20.5	6.4
45-54	20.5	5.5
55-59	23.1	6.6
60-64	27.4	8.4
65-69	31.0	9.5
70-74	35.4	12.0
75+	39.8	16.6

SOURCE: U.S. Census, 1980. Detailed Population Characteristics, U.S. Summary Section A.

Table 2.

SUICIDE RATES BY SEX AND AGE PER 100,000 RESIDENT POPULATION

| | 1950 | | 1960 | | 1970 | | 1979 | | 1980 | | 1981 | |
	White	Black	White	Black	White	Black	White	Black	White	Black	White	Black
MALES												
15-24	6.6	4.9	8.6	4.1	13.9	10.5	20.5	14.0	21.4	12.3	21.1	11.1
25-34	13.8	9.3	14.9	12.4	19.9	19.2	25.4	24.9	25.6	21.8	26.2	21.8
35-44	22.4	10.4	21.9	12.8	23.3	12.6	22.4	16.9	23.5	15.6	24.3	15.5
45-54	34.1	10.4	33.7	10.8	29.5	13.8	24.0	13.8	24.2	12.0	23.9	12.3
55-64	45.9	16.5	40.2	16.2	35.0	10.6	26.3	12.8	25.8	11.7	26.3	12.5
65-74	53.2	10.0	42.0	11.3	38.7	8.7	33.4	13.5	32.5	11.1	30.3	9.7
75-84	61.9	6.2	55.7	6.6	45.5	8.9	48.0	10.5	45.5	10.5	43.8	18.0
85+	61.9	6.2	61.3	6.9	50.3	10.3	50.2	15.4	52.8	18.9	53.6	12.7
FEMALES												
15-24	2.7	1.8	2.3	1.3	4.2	3.8	4.9	3.3	4.6	2.3	4.9	2.4
25-34	5.2	2.6	5.8	3.0	9.0	5.7	7.8	5.4	7.5	4.1	7.7	4.6
35-44	8.2	2.0	8.1	3.0	13.0	3.7	10.1	4.1	9.1	4.6	9.5	4.2
45-54	10.5	3.5	10.9	3.1	13.5	3.7	11.6	2.9	10.2	2.8	11.1	2.5
55-64	10.7	1.1	10.9	3.0	12.3	2.0	9.9	3.8	9.1	2.3	9.4	2.9
65-74	10.6	1.9	8.8	2.3	9.6	2.9	7.8	2.6	7.0	1.7	7.3	3.0
75-84	8.4	2.4	9.4	1.3	7.2	1.7	6.7	2.5	5.7	1.4	5.5	1.0
85+	8.9	2.4	6.1		6.1	3.2	5.0	1.0	5.8		3.7	1.8

SOURCE: National Center for Health Statistics: Health, United States, 1984.

Table 3.

method of adjustment using the 1940 United States population) show a 57 percent increase in completed suicide by black males, a 4 percent increase in white males, a 47 percent increase in black females, and a 13 percent increase in white females.

LITERATURE ON BLACK SUICIDE

In 1938, Prudhomme (12,13) addressed the issue of suicide among blacks in the United States population during the pre-World War II period at a time of black migration and legalized segregation. He emphasized restricted economic opportunities, rural living, and group solidarity facilitated by racism as factors contributing to the lower rates of suicide in blacks.

The Civil Rights movement began in 1954 and evolved into the Black Revolution of the 1960s. Several major national leaders were assassinated in the late 1960s including Dr. Martin Luther King, Jr. and Malcolm X. In 1969, Hendin (14) reported on his sample of 25 black suicide attempters in New York who were identified through hospitalization. He emphasized the role of tenement living and concluded that black suicide was precipitated by the frustrations of ghetto life, discrimination by whites, and aberrant black family patterns. In this psychoanalytic study Hendin discussed the attempters' families which

were characterized by absent, physically violent fathers and mothers who were brutal or left their children in the hands of others who were brutal to them. Self-hatred and intense rage characterized these suicide attempters, particularly the black males.

In 1978, Hendin (15) described the mixture of despair and violence that characterized the struggle of ghetto-residing black suicide attempters who represented the poorest socioeconomic group among the black population. Hendin looked at a sample of black college students who were part of a sample of black suicide attempters that he studied for five years. He found that although they lived with their parents, they were involved in a link of "emotional deadness" which bound them to their parents. These students were absorbed and preoccupied with their own extinction as an ongoing part of their adaptation and used work (dull, demanding mental labor) "as a way of maintaining a distanced, uninvolved state to conceal that they had no right to live." (16)

The high rates of homicide among black males and the increasing rates of suicide noted through the 1970s stimulated many comments and studies in the literature which attempted to explain these rates in the context of the Black revolution. Wolfgang (17) reviewed Philadelphia police records and concluded that there was a disproportionate-

AGE-ADJUSTED DEATH RATES FOR COMPLETED SUICIDE PER 100,000 U.S. RESIDENT POPULATION

	1950[1]	1960[1]	1970	1979	1980	1981
White males, all ages, age-adjusted[2]	18.1	17.5	18.2	18.6	18.9	18.9
Black males, all ages, age-adjusted[2]	7.0	7.8	9.9	12.5	11.1	11.0
White females, all ages, age-adjusted[2]	5.3	5.3	7.2	6.3	5.7	6.0
Black females, all ages, age-adjusted[2]	1.7	1.9	2.9	2.9	2.4	2.5

1. Includes deaths of nonresidents of the United States.

2. Age-adjusted by the direct method of the total population of the United States as enumerated in 1940, using 11 age groups.

SOURCE: National Center for Health Statistics: Health, United States, 1984.

Table 4.

ly high number of "victim-precipitated" homicides in "which the victims have acted in such way as to bring about their deaths at the hands of others, often by being the first to use or threaten physical violence."

In 1970, Seiden (18) reviewed the stresses on young, urban, black men: 1) excessive and consistent unemployment, 2) the resulting incapability to be useful to others and competent to make their own way, and 3) the potential for an increase in suicides as job opportunities open up in a period of rapid, forced, and unequal change (resulting from the impact of the Black Revolution upon society). Seiden suggested that the expectations and hopes created more rapidly than they could be fulfilled, resulted in intensified frustrations and despair.

Bagley and Greer (19) criticized the 1969 work of Seiden for its small sample size, the absence of controls, and commented that if patterns of suicide in blacks reflected black alienation, then black suicide rates in New York City should be higher than white rates for all ages. Although these authors identified 25 "black" suicide attempters from a medically treated, emergency room (ER) sample, their study was not comparable to any other studies completed in the United States. In addition to reporting a sample which mixed two cases of completed suicide with 23 cases of attempted suicide, these authors had a broad definition of "black" (economically disadvantaged and oppressed) and included Africans, Caribbean, Indians, Pakistanis, and persons from Cyprus in their "black" sample. All were recent immigrants to England. Although they used a control group of white suicide attempters matched for age, sex, and marital status, the applicability of their data to a black United States sample is questionable. Bagley and Greer found that 48 percent of "black" suicide attempters compared to 12 percent of white suicide attempters were diagnosed as an acute situational reaction. Only 8 percent of "black" cases compared to 24 percent of white controls had brain damage or were psychotic. Although none of the "black"

suicide attempters were diagnosed as sociopaths or addicted to drugs, 12 percent of white controls were. "Black" suicide attempters in this sample were younger than the white controls.

In 1973, Pederson, Awad, and Kindler (2) reported a sample of suicide attempters identified from the Monroe County Psychiatric Case Register. The Case Register recorded all psychiatric contacts including ER visits, public and private psychiatric hospitalizations, and visits to private psychiatrists. From 1964 through 1967, 1345 persons were seen as the result of a suicide attempt, an average of 336 suicide attempts per year representing 0.8 percent of all ER visits. Nonwhite (predominately black) and white attempters were compared.

Nonwhite attempters were younger; 47 percent of nonwhite attempters were of ages 15-24 compared to 36 percent of the white suicide attempters. In all age cohorts for this 1960s sample, the attempt rates for nonwhite females were higher than those of nonwhite males by an average of 4-5 percent. When nonwhite females were compared with white females, only in the 45 and older age groupings were the percentage of nonwhite attempts less (5%) than the white attempts (15%). The majority (84%) of nonwhite suicide attempters were in the lowest socioeconomic group. In this sample of suicide attempters, 67 percent of white females and 78 percent of white males had some prior psychiatric contact (not specified). This contrasted with 49 percent of nonwhite females and 50 percent of nonwhite males having some prior psychiatric contact (not specified). When marital status was assessed, 28 percent of nonwhite females were separated compared to 9 percent of white females. Fifty-four percent of the nonwhite males were single, significantly greater than any other group.

When the diagnoses of this Rochester, New York, sample of suicide attempters were reviewed, 25 percent of white male attempters and 13 percent of white female attempters were diagnosed as psychotic in

contrast to only 10 percent of nonwhite male and female attempters. Thirty-six percent of nonwhite male attempters in comparison to all other groups were diagnosed as having a neurosis. In this sample, the ratio of non-white male to nonwhite female attempters was 1:6 in contrast to a ratio of 1:3 among white suicide attempters. Only in this study were suicide attempters followed longitudinally from 1964 through 1968. Thirty-five attempters completed suicide by 1968; 31 were white and 4 were nonwhite. Of the white suicide attempters who completed suicide, 16 were male and 15 were female. In the nonwhite sample, 1 male and 3 female suicide attempters completed suicide. The white suicide rate for Monroe County (Rochester, New York) was calculated as 10.51 per 100,000 and for nonwhite as 8.98 per 100,000 per year.

In 1974, a case-control study of suicide attempters was published by Stein, Levy, and Glasberg (21). White and black suicide attempters were identified from psychiatric admissions to a large municipal hospital in New York City. White and black controls were matched for age (within 3 years), race, and the time of admission nearest to that of the suicide attempters. The controls were hospitalized, psychiatric patients who denied suicidal ideation and had no recent or past suicide attempts. The authors focused on the role of a history of separation from close figures in the individual's life as a risk factor for attempting suicide. They defined childhood separation as "a physical separation from a parent, parent surrogate, or sibling, of six months duration occurring from birth to 17 years of age." Early childhood separation was defined as a separation occurring from birth to 7 years of age. The 48 white female suicide attempters and controls, the 49 white male suicide attempters and controls, the 48 black female suicide attempters and controls, and the 20 black male suicide attempters and controls comprised the total sample of 330. Black male and female suicide attempters in this study were younger than white suicide attempters; the mean age for males was 24.1 and for female, 25.6. Using

education as an index of social class, all suicide attempters and controls in this study were of the same, lower social class. The authors found that only white male and white female suicide attempters had a greater number of childhood and antecedent separations than controls. Black male and black female suicide attempters had significantly more (p<.100) early childhood separations compared to black controls. In this sample, black female suicide attempters had significantly more (p<.001) separations between 7-17 years of age than the controls. Further, a history of antecedent separations was highest among white female suicide attempters followed by black female and black male suicide attempters, and, lastly, white male suicide attempters. When interaction between antecedent and childhood separation and suicide attempt was assessed, this study found no significant interaction. These authors suggested that the interaction between suicide attempts and antecedent and childhood separations may involve a variety of factors including type of separation experiences prior to and following separation, and the effect of threatened or psychological separations. Finally, the authors questioned whether childhood separation predisposed to maladaptive responses to separations in the adult. The role of the extended family (22) and the "adoption" mechanism of black families (23) were not addressed.

Monk and Warshauer (24) compared completed and attempted suicides in three ethnic groups in New York City for the years 1968 through 1970 for completed suicides and June 1971 through June 1972 for attempted suicides evaluated by the hospitals serving the target populations in East Harlem. Ninety-six suicides were completed between 1968 and 1970 and 359 suicide attempters were evaluated between 1971 and 1972.

When age-adjusted suicide rates were compiled for New York City for the 1960-1961 period, black males had a higher rate, 20.7 per 100,000 for persons age 15 and over, compared to a white rate of 17.1 per 100,000 for persons age 15 and over. Similar figures

for the period of 1967-1968 found a black, age-adjusted rate of 16.8 and a white age-adjusted rate of 18.5. The authors suggested that part of the difference in white and black suicide rates reported elsewhere could reflect differential reporting in the classification of deaths for the two groups.

Specific problems with suicide statistics were discussed by Warshauer and Monk in 1978 (25) in a subsequent paper based on this study. Data on deaths from four New York City Health Districts with a significant ethnic minority population were compared with the records of the Office of the Chief Medical examiner. Reports of suicidal deaths were received by the Health Department from the Office of the Chief Medical Examiner and were classified according to the International Classification of Disease (ICD) codes. The Office of the Chief Medical Examiner of New York City divided deaths into definite suicides and assigned suicides (deaths which could not be signed out as suicide) and deaths shown to be suicide upon investigation, but which were not signed out as such because no final determination was requested. As the unconfirmed black suicides in this sample used unusual methods twice as often as whites, blacks were classified as assigned suicides and did not appear in the Health Department statistics which were forwarded to the National Center for Health Statistics. Because of incomplete histories and less frequently used methods such as jumping, all black suicides were not classified in the definite suicide category. A further factor invalidating the New York City suicide figures was the impact of the change in the ICD coding which resulted in the failure to code deaths which had been classified as suicide before the change in ICD coding. The change differentially affected black suicides. Thus, these authors demonstrated how the statistics on completed suicides by blacks could be underreported, locally and nationally. As assigned suicides may not be finally categorized until the toxicology report was returned, these cases would be delayed and the correct figures would not be reported to the Health Department. The extent to which

these problems exist in other municipalities across the nation is unclear.

Lester and Beck (26) reported a sample of 124 white and 115 black suicide attempters admitted to a metropolitan Philadelphia hospital. Only subjects ages 40 and younger were included for comparison with the prior work of Hendin. Each suicide attempter was seen within 48 hours of admission by an experienced clinician to obtain a history, clinical evaluation, and to review the patient's state of mind. In a second interview a psychological technician obtained a detailed psychosocial history and administered the Beck Depression Inventory and the Generalized Expectancies Scale. When white and black suicide attempters were compared, five significant differences were identified from the 54 tests: black males were more likely to be Protestant, less likely to be living with others, more often had been separated from their fathers, scored lower on a test of vocabulary, and (if diagnosed as schizophrenic) were more likely to be diagnosed as paranoid. When white and black female suicide attempters were compared, significant differences were identified in 12 tests: black females had not completed as many grades, had more unofficial marital arrangements (cohabitation and separation versus marriage and divorce), had worse physical health, used more alcohol, had made fewer previous suicide attempts, were more often Protestant, lived more often in a low rent district, had experienced more separations from their fathers, and (if separated from their mothers) had experienced the separation at an earlier age. Black female attempters had poorer vocabulary scores, lower suicidal intent scores, and (if diagnosed as schizophrenic) were more likely to be diagnosed as paranoid. When black male and black female attempters were compared, black females were more often living with others, more often unemployed, more likely to attempt suicide at home, and were less psychiatrically disturbed. The authors noted that the lower educational level of blacks, the differences in religious affiliation, and the high incidence of absent fathers among black

suicide attempters was probably reflective of socioeconomic status. Lester Black concluded that they did not find evidence of black self-hatred and rage in the psychological measures that were used in their Philadelphia sample. The authors summarized their results as showing more similarities between black and white suicide attempters than differences.

In 1976, Kiev and Anumonye compared black suicide attempters in Newark, New Jersey with a sample of white suicide attempters in New York City (27). They reported a male to female ratio of 1:1, higher than ratios reported by studies in other settings. Although these authors commented about significant alcohol abuse by black suicide attempters in their sample, this was not quantified.

In 1977, Steele reported a sample of 275 suicide attempters who were identified from the ER of a general hospital in New Haven, Connecticut (28). Twenty-two percent (N=62) of these suicide attempters were black. Overall, this author found few differences between black and white attempters on 42 variables assessing mood, motivation, etc. Although white suicide attempters appeared to be more motivated to influence others by their suicide attempt, were more depressed, and tended to show more deliberation in their suicide attempts, the clinical significance of these statistical differences was questioned. Although white suicide attempters were found to be more deliberate in their attempts than black attempters, both groups were impulsive and the majority of both groups deliberated about their suicide attempt for only an hour or less. In view of these findings, Steele questioned whether a separate psychology was needed for black suicide attempters and stressed the need to review the belief in mental health circles that blacks were less likely to engage in suicidal behavior.

Baker (29) conducted a descriptive study of black suicide attempters evaluated in an ER setting in a New Haven general hospital which she contrasted with prior studies in this setting. Her 1980 sample of 56 black suicide attempters was compared with prior studies of suicide attempters in this setting by Steele, (28), Weissman, Pakal, and French (30), Weissman (31), and Fox and Weissman (32).

Previous studies in this ER setting described a population of suicide attempters who were predominantly white, single females who impulsively took an overdose in the context of an argument with a significant other. Although diagnoses were not reported in Weissman's three studies, the attempters studied had **no** prior psychiatric history. In 1980, blacks comprised 18 percent of the total suicide attempter population of 315. The 1980 sample of black suicide attempters was significantly different from those of previous studies. Sixty-four percent of the black female attempters had a prior psychiatric history; 54 percent had made a previous suicide attempt or gesture. Their primary diagnoses were 33 percent with affective illness and 31 percent with adjustment disorders with depressive features. Only 20 percent of black females had used alcohol prior to their attempt. In the 1980 New Haven sample, black male suicide attempters were markedly different from prior studies in this setting. Seventy-six percent had a previous psychiatric history, 35 percent had made a previous suicidal gesture or attempt, and 59 percent were diagnosed as psychotic (bipolar or schizophrenic). Twenty- nine percent of the back male suicide attempters had used alcohol prior to their attempt.

The primary method of attempt by the black suicide attempters in the 1980 study was drug overdose: 74 percent in black females and 71 percent in black males. The agents used had changed to include not only sedative-hypnotic medications (methaqualone) and anti-anxiety agents (diazepam and chlordiazepoxide), but also over-the-counter medications (Sominex, Mydal, Nytol, Humphrey's 11), and prescription medication (insulin, penicillin G procaine, furosemide). All attempters were in Hollingshead-Redlich social class IV and V, the lowest socioeconomic groupings. The male

to female ratio in this sample was 1:2.3.

In contrast to other studies of suicide attempters, Baker focused on the person who accompanied the attempter or came later to the ER. Sixty-four percent of black female and 35 percent of black male attempters were accompanied to the ER by a family member, usually the mother, a sibling or spouse, or children in declining order of frequency. In each case, the accompanying significant other was involved in or was aware of the psychosocial stressors that precipitated the suicidal act. Of the 31 patients referred to outpatient treatment, 22 percent entered treatment, 10 percent made one appointment and dropped out, and 55 percent did not followup on their referral. In a 1968 sample of New Haven suicide attempters, Paykel, Hallowell, and Dressler (33) reported that of 38 percent of their sample of white and nonwhite attempters who were referred for outpatient treatment, only 16 percent showed up for their appointment. Baker suggested that greater focus on couple or family crisis intervention in the ER with the attempter and the accompanying person(s) could have two important benefits. First, it could identify outpatient psychiatric resources that could be used for future conflict resolution so that the person would not have to attempt suicide to communicate distress. Second, involvement of the significant other(s) at the time of initial ER or crisis center contact could facilitate the entry of the attempter into outpatient treatment.

THEORIES OF BLACK SUICIDE

Before turning to a discussion of preventive strategies, let us review the various theories developed to explain black suicide. In 1897, (34) Durkheim discussed the sociological dimensions of suicide. He related the rising suicide rate in the civilized world to a functional failure of State, church, and community as the forces for social integration that they had been prior to the Industrial Revolution. Durkheim saw vulnerability to suicide as existing in people who were not integrated into any religious, communal, or family group. Even more vulnerable were individuals who suffered a disturbance in the balance of their social integration: the single, widowed, and divorced having higher suicide rates than the married.

Hendin (15) pointed out that Durkheim's theory did not explain the high rates of suicide in Austria, a Catholic country. Nor did it explain the strikingly high suicide rates in Denmark and Sweden compared to the low suicide rate in Norway. He emphasized the need for a psychosocial approach to understanding the differences in suicidal behavior across cultures. Hendin stated that the Freudian construct (35) which sees suicide as a response to loss or abandonment of a loved object as insufficient in itself. Psychodynamically, rebirth, return, or reunion fantasies with the lost object may be seen as an attempt to undo or deny loss. Freud's instinctual frame of reference did not lead him to be concerned with the psychological impact of the social institutions of particular cultures or with psychosocial questions such as why suicide was very high in one country and low in another. Hendin suggested that more than an amalgam of Freud and Durkheim was needed to understand the varying motivations for suicide in different cultures and subcultures, the differences between genders and different age groups, and differences in ways of coping with love and loss, life, and death.

More recent theories address the current context of black suicide attempters. Specific explanations of black suicide include: 1) urban stress, 2) the status-integration theory, 3) the black family deficit theory, and the 4) external restraint theory. The urban stress (frustration-aggression) hypothesis (Seiden, 16) proposes that compounded urban stresses associated with migration, poverty, unemployment, racism, poor housing, and poor education result in violence which often, though not always, takes the form of suicide. The status-integration theory suggests that as blacks work their way into the middle and upper-middle classes they inherit the economic, social, and psychological tensions

of their white counterparts. Davis (36) suggests that the more upwardly mobile blacks are, the more intense are the problems of adjustment and assimilation into the American mainstream. These tensions produce a corroding sense of internal alienation which may result in self-destruction. The absence of higher suicide rates in black females provides some evidence against this theory. But, the greater probability of private care for this population may prevent its identification from ER statistics. A further bias involving completed suicide in middle-class black persons may be a collusion to prevent a diagnosis of suicide by the medical examiners office. These are methodological concerns in all studies of suicide attempters.

The black family deficit theory presents the black family as being unable to meet the fundamental needs of its members for survival, socialization, and the transmission of a viable cultural heritage. Pinderhughes (37), in discussing the impact of poverty and racism on black families, described the result as the "victim system." The work of Lewis and Looney (38) illustrated that working-class black families, just above the poverty level, were well-functioning units. These authors suggest that sufficient economic insecurity can destablize and then perpetuate dysfunctional patterns of family function.

The external restraint theory of Henry and Short (39) suggested that suicide varied inversely with horizontal restraining factors (social relationships with others) and vertical restraining factors (social class and/or social status). These authors and Maris (40) suggested that the strength of the relational system of the individual defined by marital status, urban-rural residence, and ecological distribution serve as buffers; the stronger the relational system, the lower the number of suicides. Davis (36) viewed this external restraint theory as more relevant to black suicide. He questioned whether the decrease in overt racism and discrimination, which in the past had fostered group solidarity, as noted by Prudhomme (12,13), would decrease the strength of the relation-

al system for young black persons in the 1980s. If this did occur, family ties would be left as the major insulation against the psychosocial stressors of daily living for the urban resident black youth. By this theory, if the family was disorganized, over-stressed, and/or dysfuncitonal, the black youth would have no ameliorating or buffering factors and would become a higher risk for suicidal behavior.

SUMMARY OF THE LITERATURE

This review of the literature on black suicide has shown some divergent results across a variety of studies in several different cities. Several points of consensus as well as specific points of intervention follow.

1. Black suicide rates peak for both sexes between ages 25 and 44.

2. Black suicide rates decline in both sexes after age 45.

3. Black males have a "double risk of death" due to their high rates of death from homicide and suicide.

4. Rates of completed suicide have remained consistently low in black females in comparison to all other groups.

5. During a 31 year period the increase in the race-sex specific rates of completed suicide have been highest among black males (57% increase) and in black females (47% increase) in age-adjusted national statistics.

6. In **specific States** in **specific years,** suicide rates for black males exceed those for white males and white females in contrast to the overall national statistics.

7. Evidence of municipal and regional differences in the rates of black suicide attempts and completed suicides is provided by the Los Angeles data of Christian (41) and the data of Pederson et all. (20) from Rochester (NY), the only studies which reported higher rates of suicide attempts in black females compared with white females.

8. The accuracy of national suicide statistics may be flawed if black suicides are not coded as suicide due to administrative procedures, the use of alternative methods of suicide, and delayed reporting due to pending laboratory studies.

9. Only theories of suicide which have emphasized interpersonal conflicts, familiar discord, financial concerns, and the impact of poverty and racism upon the individual and the family, have stood the test of time and repeated observations in suggesting specific etiologies of suicide attempts and completed suicide by Afro-Americans.

10. Initiating crisis intervention techniques which **include** the person who accompanies the suicide attempter to the ER or crisis setting may: a) improve followup on referral to outpatient treatment and b) prevent future suicide attempts by making everyone in the attempter's network more sensitive to the cues of distress in the system and aware of the resources to use to seek help.

11. Although the literature suggests that suicide attempters and persons who complete suicide are different populations, there have been no published studies to date that have contrasted black suicide attempters and blacks who completed suicide in the **same** geographically defined area in the **same** defined time period.

12. The population of black suicide attempters evaluated in some ERs in 1980 appears to be changing: an increased proportion of attempters have a history of psychiatric treatment and a greater severity of psychiatric diagnoses.

PREVENTIVE STRATEGIES

Three levels of prevention are discussed in textbooks (42). Primary prevention involves actions which prevent disease as exemplified by vaccination. Secondary prevention focuses on the treatment of illness, e.g. hospitalization of a psychotically disorganized individual. Tertiary prevention focuses on the rehabilitation of an individual

to facilitate return to productive function, e.g. postventive work with the surviving family members of a person who has completed suicide.

Primary preventive strategies involving black suicidal youth should focus upon conflict resolution in the family and the clarification of expectations in various relationships. Helping black adolescents and youth to understand the factors that they can control and the factors which are controlled by society may aid in clarifying the sources of frustration in the 1980s. As noted by Davis (43), high "in-group" stress may result from an individual's family relationships, friendships, and personal relationships. The "extra group" stresses resulting from work relationships with other people and financial difficulties may be modified by support from the extended family and community groups such as churches or social clubs. Aiding black youth in sorting out the locus of stress and identifying effective action, should prevent a build-up of frustration to the point of impulsive action. These educational activities could be centered in schools, churches, and adolescent drop-in centers and could be sponsored by black church groups, black businesses, and black fraternal organizations.

Although New Haven represents only one study site, the population of suicide attempters has been studied over a 32-year period. With deinstitutionalization and the increased utilization of community mental health centers and general hospitals for inpatient psychiatric treatment, the population of psychiatric patients coming to the general hospital ER has included an increasing proportion of patients with prior psychiatric histories. Patients with affective illness (Tsuang, 44, Tsuang and Woolson, 45), schizophrenia (Roy, 46, Brier and Astrachan, 47), and substance abuse--particularly alcohol (Motto, 48, Murphy, Armstrong, and Hermele, 49) are at increased risk for attempting suicide. Informational programs organized for the families of patients with psychiatric illness are important primary preventive strategies. Improving the family's

knowledge of symptoms and behavioral changes characteristic of psychotic decompensation will enable the family to seek help before a frank psychotic episode occurs. The distressed and distraught youth can be brought to a crisis intervention setting for help before a suicide attempt signals that something is wrong.

Another primary preventive strategy involves the removal of all out-of-date and unnecessary medication from the home. As overdose remains a major method of suicide attempt for some black populations, removing medications from the home would decrease the availability of medications to a distraught individual making an impulsive act. Prescribing non-lethal amounts of medication to patients in active psychiatric treatment who have diagnoses associated with an increased risk of suicide would be helpful, also.

Secondary preventive strategies should focus upon the initial evaluation of the black suicide attempter, whether in the ER of a general hospital or the crisis unit of a community mental health center. As noted by Baker (29), the person who accompanies the suicide attempter or comes later to the ER is usually aware of **and** involved in the events which precipitated the suicidal act. By initiating family and/or couple crisis intervention at the time of initial evaluation, conflict resolution can be facilitated and the possibility of followup and entry into treatment can be improved. Further, the suicide attempter and his/her family can be provided with alternatives for help at a time of future crisis to prevent future suicide attempts through de-escalation of crises by the family seeking help and services at a crisis facility. Initially, the presistantly suicidal patient who presents repeatedly with suicidal gestures/attempts and does not follow through on referrals to treatment should be involuntarily hospitalized. Involuntary psychiatric hospitalization is recommended in order to break the cycle and initiate the treatment process.

Tertiary preventive strategies have focused on the surviving significant others of the attempter. Fortunately the literature in this area is increasing (50,51,52).

FUTURE RESEARCH DIRECTIONS

As described in the above literature review, various studies have looked at suicide attempters and at those who complete suicide, sometimes in the same study. Only one case-control study compared black and white suicide attempters and childhood separation and only one study looked at the precipitating events as well as the persons who accompanied the attempter to the hospital. In order to detect the possibility of changing patterns in black suicide attempters which are indicated by increased psychiatric history, increased severity of psychiatric diagnoses, and the presence of psychosocial stressors such as those existing in the 1980s, more carefully designed studies are needed.

Although studies of black suicide attempters and completers have been conducted in New York City, Rochester (NY), Los Angeles, Detroit, Philadelphia, and New Haven, they were conducted in different years, they assessed different populations of suicide attempters, and emphasized the collection of different data. I suggest that the research efforts include a multi-site, prospective, descriptive study of black suicide attempters in at least five cities with large black populations, to be completed in the same calendar year, with a sample selected by the same method in each site. The research protocol should collect data on: demographics, method of attempt, prior history of suicide attempt, history of prior ER contacts, history of prior psychiatric treatment, specific precipitating events, evidence of substance use, the person who accompanied the suicide attempter to the crisis setting, information about self-perception, family constellation, and the network of interpersonal and social relationships--particularly those changing or stressed in the period before the attempt. From this established data base, similarities and differences across the nation could be

identified. Subsequently, case-control studies using the identified sample of suicide attempters in the five cities could define specific risk factors and determine whether these risk factors varied in the five cities. Completed suicides in the same five cities could be reviewed for the same study period. Psychological autopsies as well as proxy interviews of the surviving next-of-kin to assess the precipitating events, current relationships, and self-image of the black persons who completed a suicide woud aid in clarifying the specific differences between the attempter and completer suicide populations. Where possible, an attempt should be made to identify suicide attempters and completers in **all** socioeconomic classes.

CONCLUSION

Specific strategies which can be implemented at the local/community level by societal institutions and through federal research initiatives have been suggested to address the national problem of black suicide. The implementation of these strategies has the potential to save lives and provide important data from which to develop future, more specific, preventive strategies.

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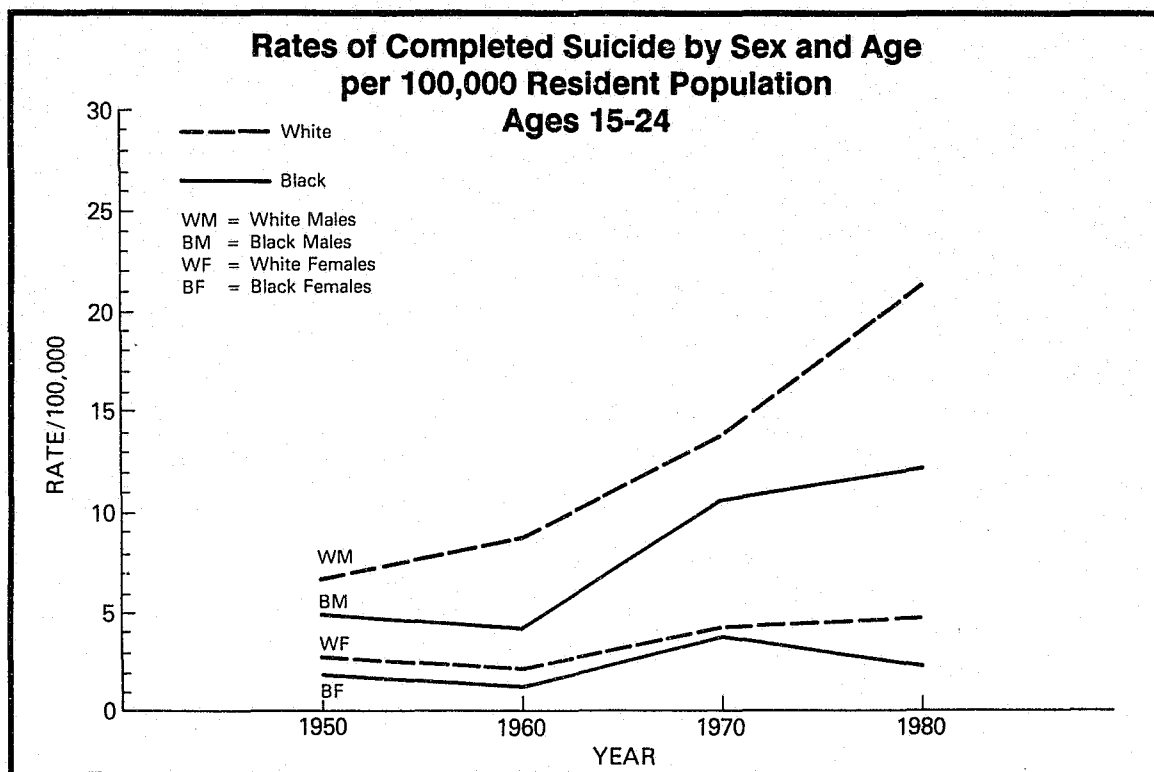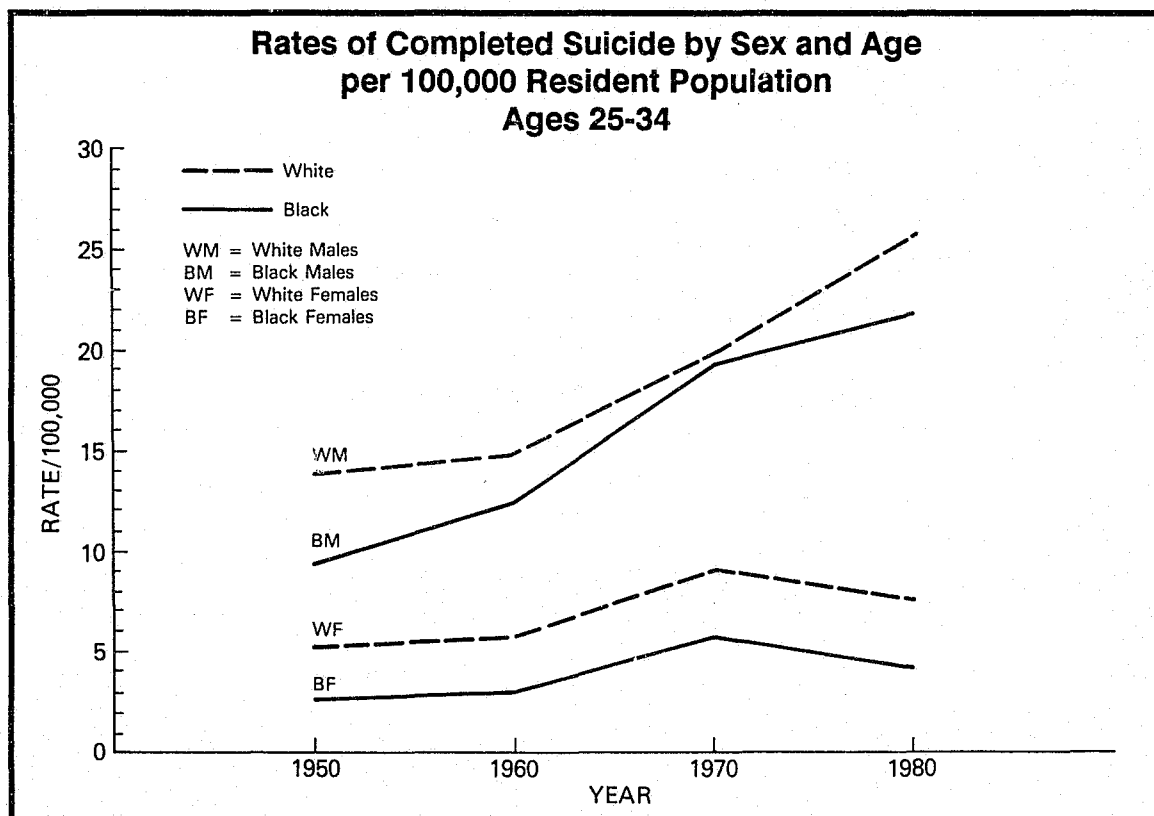52. Godney R.D. Survivor-victims and crisis care. Crisis 1985; Crisis 6:1-9.

**Rates of Completed Suicide by Sex and Age
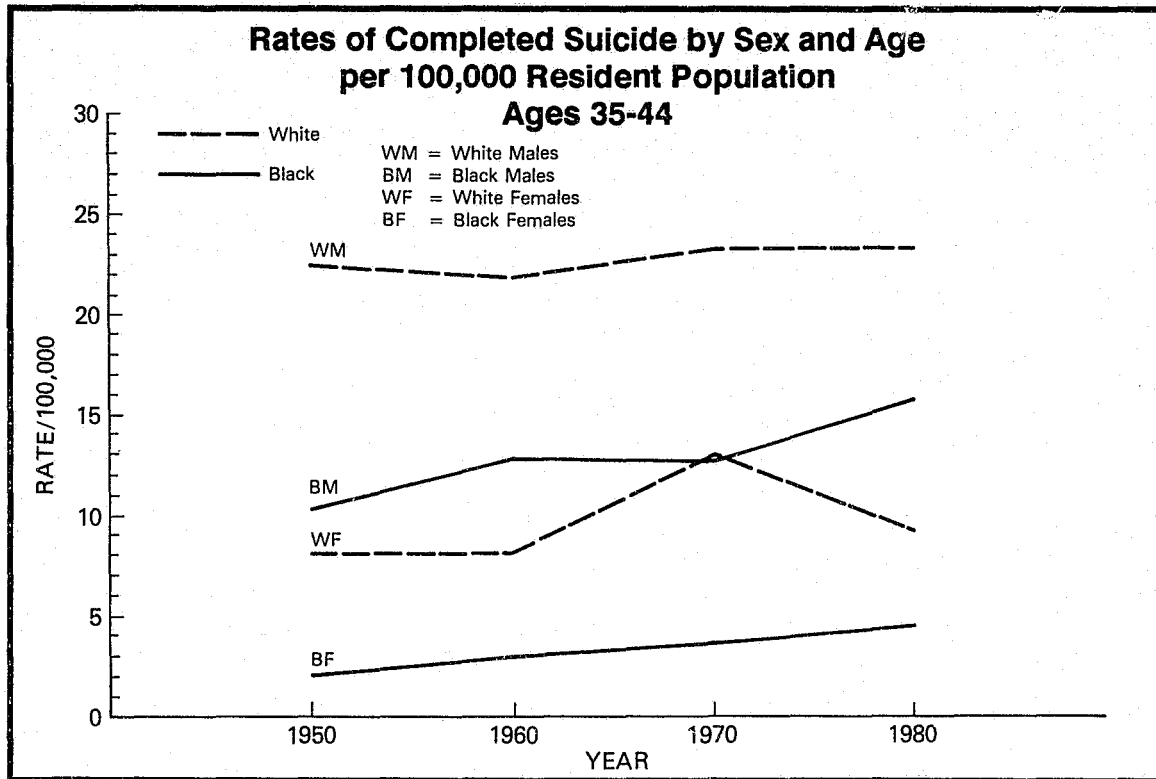per 100,000 Resident Population
Ages 15-24**

WM = White Males
BM = Black Males
WF = White Females
BF = Black Females

Figure 1.

**Rates of Completed Suicide by Sex and Age
per 100,000 Resident Population
Ages 25-34**

WM = White Males
BM = Black Males
WF = White Females
BF = Black Females

Figure 2.

3-192
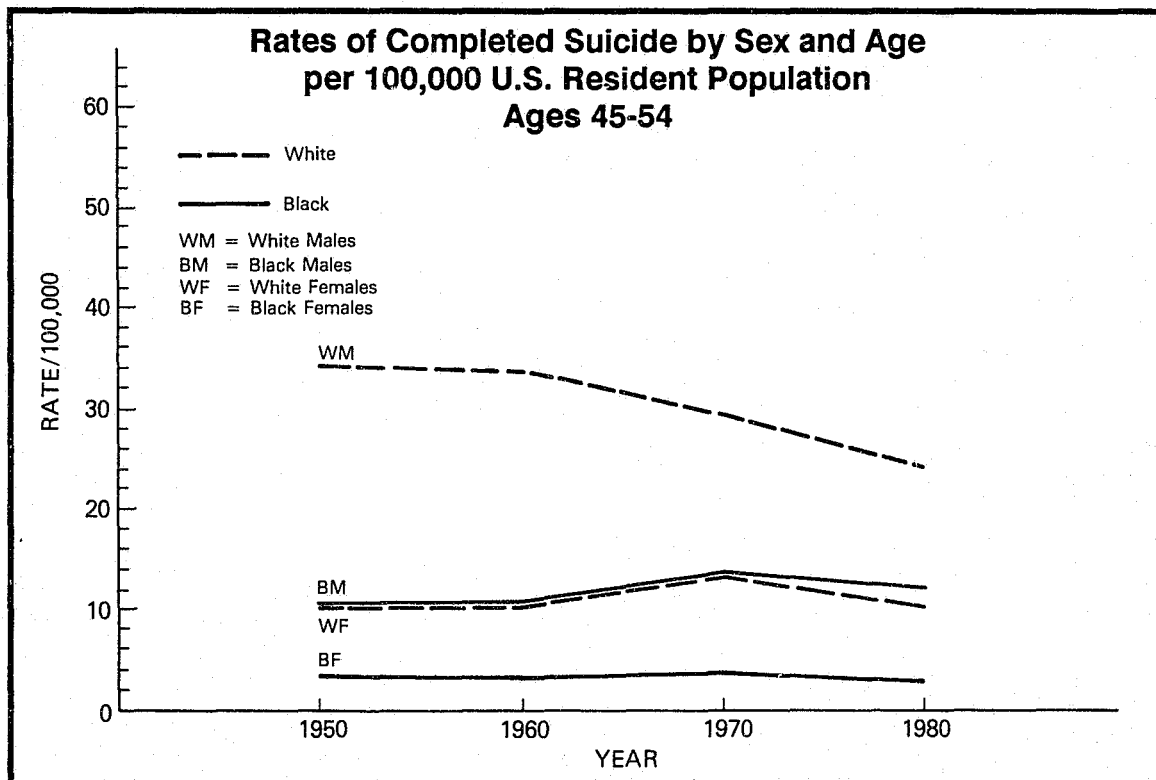
Figure 3.

Figure 4.

Figure 5.

Figure 6.

Rates of Completed Suicide by Sex and Age per 100,000 U.S. Resident Population Ages 75-84

WM = White Males
BM = Black Males
WF = White Females
BF = Black Females

RATE/100,000

YEAR

Figure 7.

Rates of Completed Suicide by Sex and Age per 100,000 U.S. Resident Population Ages 85 and over

WM = White Males
BM = Black Males
WF = White Females
BF = Black Females

RATE/100,000

YEAR
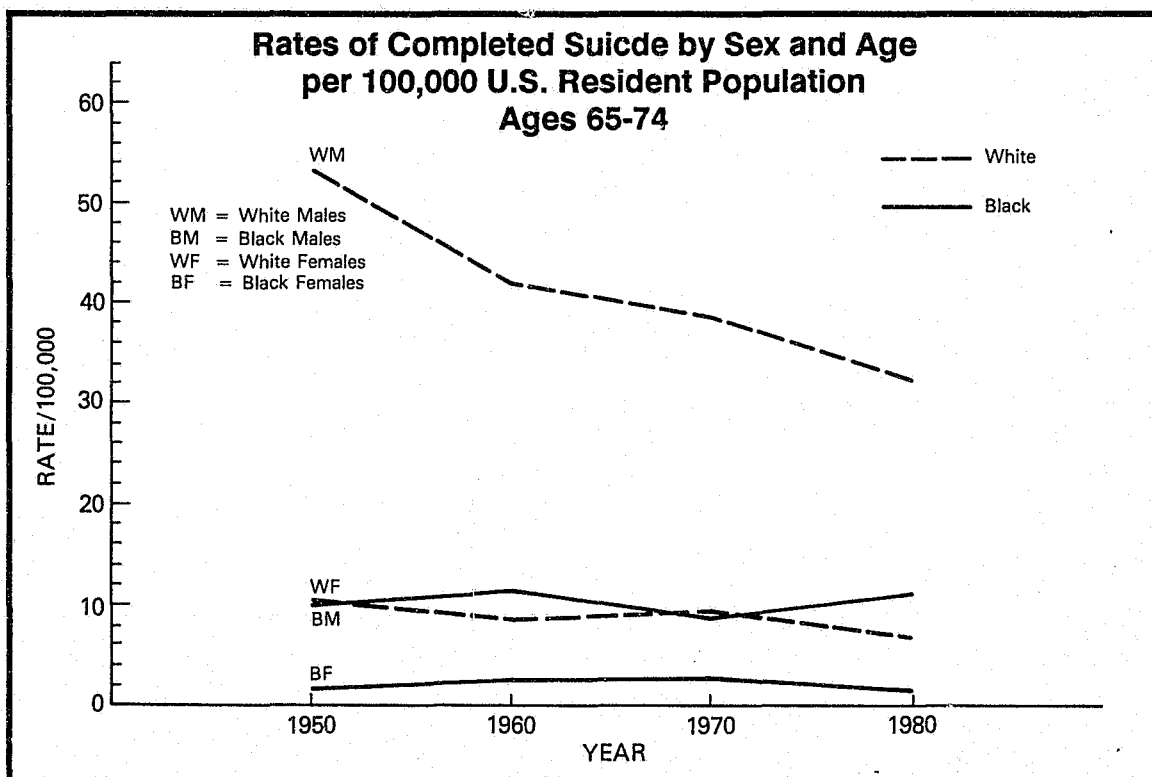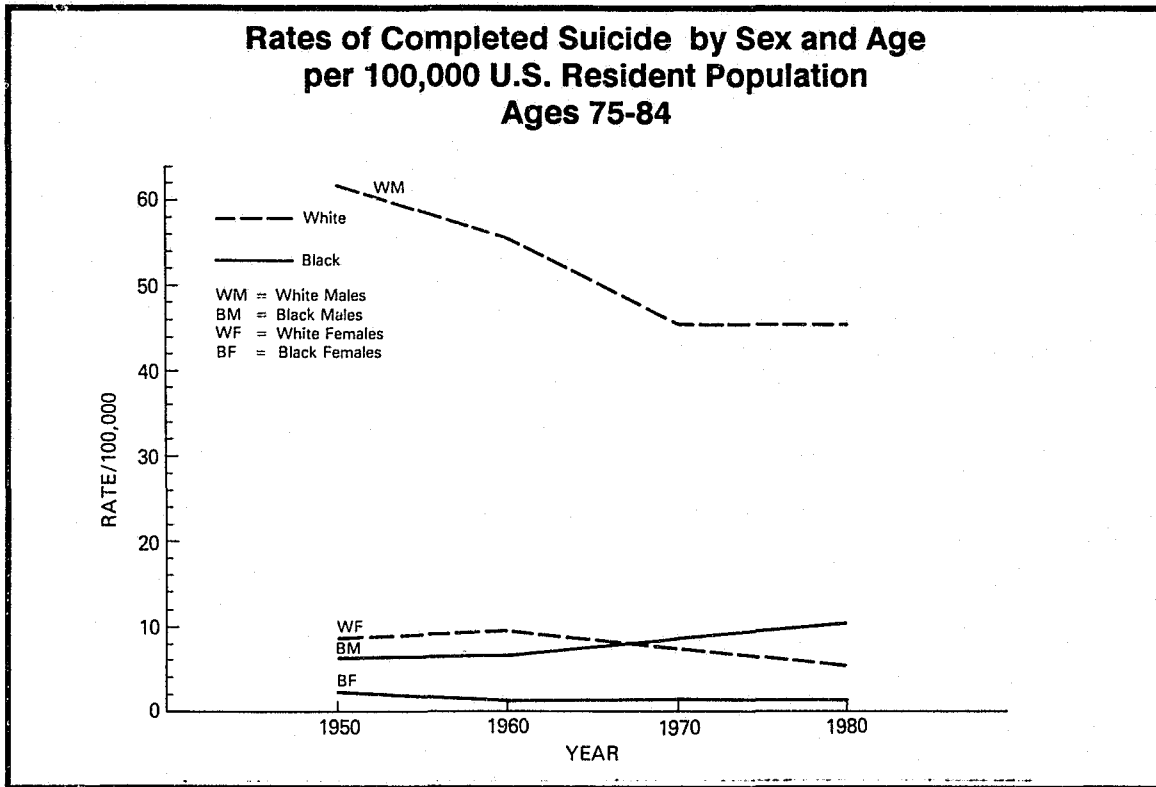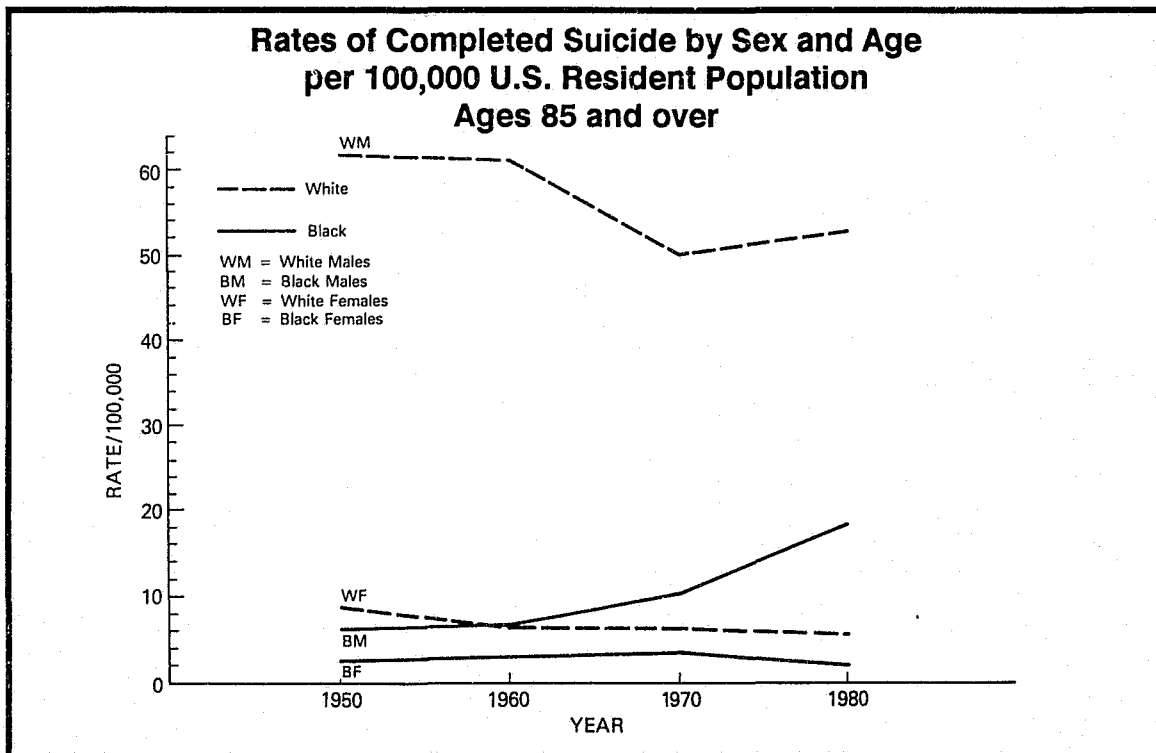
Figure 8.

HISPANIC SUICIDE IN THE SOUTHWEST, 1980-1982

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SUMMARY

Little is known about suicide among Hispanic Americans. We studied suicides among Hispanics of Mexican origin (Mexican Americans) in five southwestern States (Arizona, California, Colorado, New Mexico, and Texas) where more than 60 percent of all Hispanics in the United States reside (86% of whom are Mexican American). We obtained data on the number of suicide deaths in the white population with Hispanics and Anglos (white, non-Hispanic) identified separately. Suicides of Anglos were used as a comparison group. The suicide rate for whites in the five southwestern States was almost one-fourth higher than the rate for whites nationally. Suicide rates for the two ethnic groups, however, showed the rate for Hispanics to be less than the national rate for whites and one-half that of Anglos residing in the same area. The lower suicide rate for Hispanics relative to Anglos is seen for both males and females. The ratio of male to female suicides for Hispanics was greater than for Anglos (4.3 to 1 for Hispanics and 2.7 to 1 for Anglos). Proportionately more suicides occur among young Hispanics than among young Anglos.

More than one-third (34.6%) of Hispanic suicides occurred to persons less than 25 years of age compared to one-sixth (16.5%) of Anglo suicides. The 1990 health objective for the United States for suicide identifies young persons 15 to 24 years of age as the population on whom to focus national suicide prevention and intervention efforts. This objective is appropriate for the Hispanic population since, from our findings, the highest suicide rates for Hispanics are in the 20-24 year age group (17.1%).

INTRODUCTION

In 1978, suicide was the ninth leading cause of death for the white population in the United States with a rate of 13.4 deaths per 100,000 population (1). Although much suicide data for whites have been collected, analyzed, and reported in official publications and scientific literature (2,3,4), very few studies have examined suicides specifically among Hispanics, the largest ethnic subgroup within the white population (5,6,7,8). Furthermore, no study has compiled a large data set to analyze and compare suicide

among Hispanics of Mexican origin with Anglos (white, non-Hispanics) living in the same geographic area.

This paper updates data from a previously reported study (9) of suicide among Anglos and Hispanics in five southwestern States where more than 60 percent of the nation's Hispanics reside.

METHODS

The Hispanic population of the United States is composed of three major and culturally diverse subgroups: Mexican Americans, Puerto Ricans, and Cubans. We studied the incidence of Hispanic suicide in the largest of these subgroups, Mexican Americans.

Death certificates in each of the five southwestern States (Arizona, California, Colorado, New Mexico, and Texas) allow for identification of Anglos and Hispanics separately; 86 percent of Hispanics in the five-State area are Mexican American (10). However, the States vary in the amount of mortality data they produce and publish on racial and ethnic groups in their annual vital statistics summaries. No State published suicide data for Anglos and Hispanics by the variables used in our study, namely, age, sex, and method of suicide.

The Office of Vital Statistics of the respective State health departments cooperated in this study by providing the Centers for Disease Control (CDC) with either special tabulations or computer data tapes for all suicides of Anglos and Hispanics between 1977 through 1980. Classification of suicide as the cause of death was based on the Eighth Revision of the International Classification of Disease Adapted (ICDA-8) for 1977-1978 (11), and based on the Ninth Revision (ICD-9) for 1979-1982 (12). The titles for the cause-of-death category for suicide are identical under the Eighth and Ninth Revisions and the comparability ratio between the two revisions is near 1.0 (13). The classification of suicide by method was based on cause of death codes E950-E959 in the International Classification of Disease (11,12).

We produced population data for calculating suicide rates for Anglos and Hispanics in the five southwestern States by using computer tapes from the Current Population Survey (CPS) (14). The population statistics from CPS were estimates based on a weighted national sample. This sample was considered too small to provide reliable population estimates at the State level by ethnicity, age, and sex. Therefore, suicide rates were centered for the selected time periods 1977-1979 and 1980-1982 by using the mean number of suicides for each 3-year period as the numerator and the mean population according to CPS data for each 3-year period as the denominator.

Hispanic ethnicity from State health department suicide data in general is determined by the name of the decedent appearing on the death certificate. That is, if the decedent's surname corresponds to a name on a list of Spanish surnames used by the State Office of Vital Statistics, then that person is categorized in the State mortality statistics as Hispanic. Hispanic in the Current Population Survey data is defined as a person of Hispanic origin who reported himself/herself as Mexican American, Chicano, Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish origin (15). It is not possible to determine from State mortality data using Spanish surnames whether Hispanic suicide victims were Mexican American, Cuban, Puerto Rican, or of other Spanish origin. However, because population statistics (10) show that 86 percent of Hispanics in the five southwestern States are Mexican American, we may reasonably assume that the preponderance of Hispanics in our study who committed suicide were Mexican American. Less than 1 percent of persons in the five southwestern States who were self-identified as Hispanic in the CPS surveys were nonwhite.* Our study assumes that the number of persons of nonwhite races who were identified as Hispanics by having a Spanish surname is equally small. Anglo is defined as white, non-Hispanic.

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*Special CDC tabulations of CPS data

RESULTS

The suicide rate for whites in the five south-western States was higher than the national suicide rate for whites for both the 1977-1979 period and 1980-1982 period (Table 1). However, when we separated the suicide rate for whites in the five southwestern States into rates for Anglos and Hispanics, we see that the higher rate for whites for both time periods was a result of a high rate for Anglos-a rate that was approximately twice the rate for Hispanics. However, the difference between the rates for Anglos and Hispanics narrowed slightly between the two time periods. For the period 1977-1979 the rate for Anglos was 2.1 times higher than the rate for Hispanics compared with 2.0 times higher for the period 1980-1982.

In both ethnic groups, more males than females committed suicide (Table 2). However, the ratio of male to female suicides was higher for Hispanics than Anglos. This higher sex ratio for Hispanics was consistent for all age groups.

Suicides occurred at younger ages among Hispanics than among Anglos. Table 2 shows that 34.6 percent of all Hispanics who committed suicide were under age 25 compared with 16.5 percent of Anglos who committed suicide under age 25. More than half (52.1%) of Anglos who committed suicide were over age 40, while about one-fourth (26.2%) of Hispanics who committed suicide were over age 40. The data for males show an even more pronounced difference between the age of suicide for Anglos and Hispanics. More than half (53.5%) of the Hispanic men who committed suicide were under age 30. On the other hand, less than one-third (30.9%) of Anglo men who committed suicide were under age 30.

Three-year suicide rates for the period 1980-1982 show that the age-adjusted overall rate for Anglos is 1.7 times the rate for Hispanics (16.9 and 10.0, respectively) (Table 3). The age-adjusted suicide rate for Anglo men was more than one and a half times the suicide rate for Hispanic men (25.9 and 16.8, respectively), while the rate for Anglo women was more than twice the rate for Hispanic women (8.9 and 3.6, respectively). Suicide rates for Anglos were higher than rates for Hispanics in every age group, both male and female, with one exception--young Hispanic males (15-19 years of age) had a suicide rate slight-

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Three-Year Suicide Rates* for the Periods 1977-1979 and 1980-1982 by Race, Ethnicity and Geographic Area**

Time Period	United States[1]	Five Southwestern States[2]		
	White	White		
			Anglo	Hispanic
1977-79	13.8	17.4	19.4	9.2
1980-82	13.2	15.9	17.8	8.8

*Rates per 100,000 population

**Five Southwestern States: Arizona, California, Colorado, New Mexico and Texas

1. Source: Number of suicides from National Center for Health Statistics mortality tapes. Population from Current Population Survey data tapes.

2. Source: Number of suicides from State health departments' offices of vital statistics. Population from Current Population Survey data tapes.

Table 1.

ly higher than Anglo males in the comparable age group.

The pattern of suicide rates by age group is shown for Anglo men and Hispanic men in Figure 1. Clearly, Anglo males (with one exception) have the highest rate in all age groups, with almost uniform rates from the twenties through the sixties, then a marked increase to the peak rate in the 70+ year age group. Hispanic males have a somewhat different pattern: the rates peak in the 20-24 year age group and again, but lower in the oldest age group. The patterns for women in both ethnic groups have a somewhat similar unimodal curve with the lowest rates at the extremes of the age groups (Figure 2).

Number, Percentage Distribution and Sex Ratio of Suicides by Race/Ethnicity, Age Group, and Sex, in Five Southwestern States* 1980-1982

Ethnicity & Age Group	Male			Female			Total			Sex Ratio
	No.	%	Cum. %	No.	%	Cum. %	No.	%	Cum. %	
Anglo										
<15	69	0.6	0.6	24	0.6	0.6	93	0.5	0.5	2.9
15-19	642	5.4	6.0	191	4.3	4.9	833	5.1	5.6	3.4
20-24	1436	12.0	18.0	338	7.7	12.6	1774	10.9	16.5	4.2
25-29	1542	12.9	30.9	459	10.4	23.0	2001	12.2	12.2	3.4
30-39	2257	19.0	49.4	883	20.0	43.0	3140	19.2	47.9	2.6
40-49	1499	12.5	62.4	738	16.8	58.8	2237	13.7	61.6	2.0
50-59	1544	12.9	75.3	776	17.6	77.4	2329	14.2	75.8	2.0
60-69	1342	11.2	86.5	518	11.8	89.2	1860	11.4	87.2	2.6
70+	1617	13.5	100.0	473	10.8	100.0	2090	12.8	100.0	3.4
Total	11948	100.0		4400	100.0		16348	100.0		2.7
Hispanic										
<15	20	1.1	1.1	4	1.0	1.0	24	1.1	1.1	5.0
15-19	237	13.2	14.3	45	10.9	11.9	282	12.8	13.9	5.3
20-24	390	21.8	36.1	68	16.4	28.3	458	20.7	34.6	5.7
25-29	313	17.4	53.5	66	16.0	44.3	379	17.2	51.8	4.7
30-39	387	21.6	75.1	99	23.9	68.2	486	22.0	73.8	3.9
40-49	166	9.3	84.4	61	14.8	83.0	227	10.3	84.1	2.7
50-59	130	7.2	91.6	43	10.4	93.4	173	7.8	91.9	3.0
60-69	76	4.2	95.8	18	4.4	97.8	94	4.3	96.2	4.2
70+	75	4.2	100.0	9	2.2	100.0	84	3.8	100.0	8.3
Total	1794	100.0		413	100.0		2207	100.0		4.3

*Five Southwestern States: Arizona, California, Colorado, New Mexico, and Texas.

Table 2.

Three-Year Suicide Rates* by Ethnicity, Age Group, and Sex
Five Southwestern States**, 1980-1982

Age Group	Male	Anglo Female	Total	Male	Hispanic Female	Total
<15	0.8	0.3	0.5	0.5	0.1	0.3
15-19	17.1	5.4	11.4	17.7	3.5	10.8
20-24	34.0	8.0	20.9	29.4	5.1	17.1
25-29	35.1	10.4	22.7	25.8	5.3	15.4
30-39	31.5	12.7	22.2	23.3	5.6	14.2
40-49	30.8	15.1	23.0	15.8	5.3	10.4
50-59	32.1	15.5	23.6	17.4	4.9	10.8
60-69	34.4	11.2	21.8	17.9	3.5	9.9
70+	57.8	11.1	29.7	25.9	2.6	13.3
Total	26.5	9.5	17.8	14.4	3.2	8.8
Age-Adjusted Total	25.9	8.9	16.9	16.8	3.6	10.0

*Per 100,000 Population

**Five Southwestern States: Arizona, California, Colorado, New Mexico, and Texas.

Table 3.

Suicide Rates* for Males by Ethnicity and Age Group, Five Southwestern States, 1980-1982
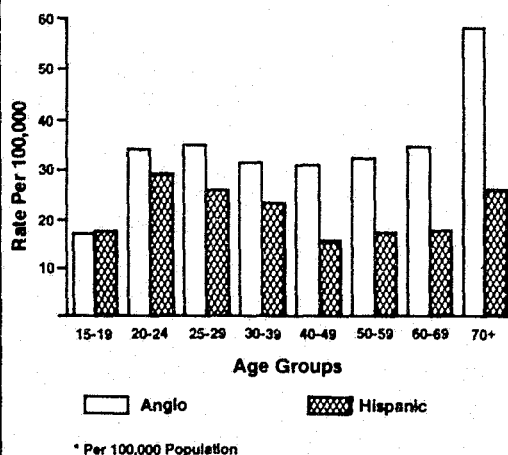
Figure 1.

Suicide Rates * for Females by Ethnicity and Age Group, Five Southwestern States, 1980-1982
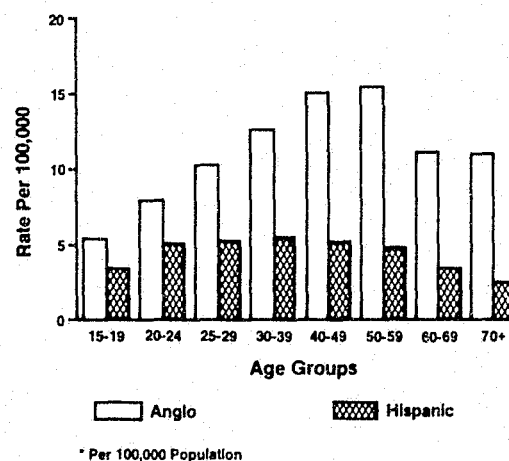
Figure 2.

Methods of suicide are shown in Table 4. The primary method of suicide for Anglos and Hispanics was the same. More than half the persons in both ethnic groups who committed suicide used firearms or explosives (59.8% of Anglos and 59.2% of Hispanics). The second and third most frequently used methods of suicides were reversed for the two ethnic groups. Poisoning (22.5%) was the second most frequently used method for Anglos, and hanging, strangulation, and suffocation (10.8%) were the third most frequently used methods. The reverse was true for Hispanics (20.7% of suicides by hanging, strangulation, and suffocation and 12.8% of suicides by poisoning).

The patterns of suicide by method were similar for females in both ethnic groups, namely, both Anglo and Hispanic females had equally high percentages of suicide by firearms and explosives (42.8% and 44.4%, respectively). Poisoning was the second most frequently used method for both Anglo and Hispanic females (41.5% and 34.5%, respectively) and hanging, strangulation, and suffocation was the third most frequently used method (7.9% and 13.5%, respectively). While Anglo and Hispanic males had equal-

ly high percentages of suicide by firearms and explosives (66.0% and 62.6%, respectively), Anglo males had almost twice the percentage of poisoning (15.5% and 7.8% for Anglo and Hispanic males, respectively) and almost half the percentage of hanging, strangulation, and suffocation (11.9% and 22.3% for Anglo and Hispanic males, respectively).

DISCUSSION

In interpreting the data, three possible data limitations should be kept in mind. First, suicide, to an unknown extent, is understated as a cause of death in vital statistics (16). This understatement is a result of difficulty in establishing suicidal intent, practical considerations (such as a loss of insurance benefits), and the social stigma associated with suicide (which seems to be particularly important among youth).

Although it has been suggested that suicide rates for Mexican Americans may be underestimated, it is unlikely that underreporting alone is responsible for the low rate of suicide among Mexican Americans relative to Anglos (19). An investigation of the validity of reported suicide rates in eleven western

Percentage Distribution of Suicides by Ethnicity, Sex, and Method Five Southwestern States*, 1980-1982

Method**	Anglo Male	Anglo Female	Anglo Total	Hispanic Male	Hispanic Female	Hispanic Total
Firearms and explosives (E955)	66.0	42.8	59.8	62.6	44.4	59.2
Poisoning (E950-E952)	15.5	41.5	22.5	7.8	34.5	12.8
Hanging, strangulation, suffocation (E953)	11.9	7.9	10.8	22.3	13.5	20.7
All other (E954, E956-E959)	6.6	7.8	6.9	7.2	7.5	7.3
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

*Five Southwestern States: Arizona, California, Colorado, New Mexico, and Texas
**UCDA-8 codes shown in parentheses..

Table 4.

States (four of which are in our study) did not reveal any evidence of systematic bias in reporting specific to any race or ethnic group (18). We investigated the possible effect that misclassification of suicide deaths as deaths due to undetermined causes might have had on the difference in the incidence rate of suicides for Anglos and Hispanics. We found that the difference could not be explained by a large number of Hispanic deaths being classified as "cause undetermined". Even if we assumed the most extreme case, that is, no suicides by Anglos were misclassified as "cause undetermined", and all deaths of Hispanics classified as due to undetermined causes were actually suicides, the rate of suicide would still be two times greater for Anglos than for Hispanics.

A second possible data limitation is the unknown extent to which undocumented aliens in the Hispanic population are underrepresented in the CPS sample. The CPS is a sample of housing units and includes all persons who occupy a housing unit, without regard to residency status. No evidence indicates a differential enumeration of Anglos and Hispanics in the CPS data we used. Furthermore, if an undernumeration of Hispanics in the CPS data does occur, then the true Hispanic suicide rate is lower than reported in this paper, and hence, even more disparate from the Anglo suicide rates.

A third possible data limitation is the unknown extent to which different methods of determining Hispanic ethnicity affect the rates, namely, Spanish surname (for vital statistics) and self-identification (for population statistics). Self-identification as used by the U.S. Census Bureau has been suggested as an important way to establish a consistent and uniform definition for Spanish ethnicity (19). Vital statistics, however, continue to rely on Spanish surname for ethnic identification because of problems encountered with self-reporting of ethnicity on the death certificate**.

**Personal communication with persons in the Office of Vital Statistics in the five southwestern States.

The statistical patterns of suicides by Anglos in the five southwestern States were similar to the statistical patterns of suicides by age, sex, and method for whites nationally (20). However, Hispanics in the same five southwestern States had some important differences in patterns of suicide when compared with Anglos, and hence, with whites nationally.

Perhaps the most important difference in suicide patterns for Anglos and Hispanics was that the incidence of suicide for Hispanics was approximately half the incidence for Anglos. Very few studies cited in the literature have looked at the incidence of suicide for Hispanics (5,6,7) and these studies report only local data. Two of these studies (in El Paso (6) and Denver (7)) focused on Mexican Americans and can be compared with our findings because population statistics (10) indicate that almost 90 percent of Hispanics in the five southwestern States are Mexican American. As in our study, both of these studies found suicide rates for Mexican Americans to be approximately half the rates for Anglos.

A second major difference in the patterns of suicide for Anglos and Hispanics was the comparatively small proportion of suicides by Hispanic females compared with the proportion of suicides by Hispanic males. Our study found that the sex ratio for suicides by Anglos was similar to the sex ratio for suicides by whites nationally (21). We found, however, that among Hispanics, the ratio of male to female suicides was greater than that for Anglos in every age group. Overall, the suicide rate for Hispanic males was more than four times greater than the rate for Hispanic females. The higher Hispanic sex ratio was consistent with findings from the studies of suicides by Mexican Americans previously cited (6,7), and with a similar analysis of local area suicide data in Los Angeles (8). A study of age- and sex-specific suicide rates for Mexico City for the period 1975-1978 shows higher suicide rates for males than females in every age group, with an overall sex ratio of 3.7:1 (22).

A third and important difference in suicide patterns among Anglos and Hispanics was that suicide by Hispanics appears to be primarily a youthful phenomenon. Much attention has been focused on the increasing rate of suicide among persons under age 25 (23-32). During the period 1962-1972, the suicide rate for whites 15 to 25 years of age increased by almost 75 percent, while the suicide rate for whites of all ages increased by less than 10 percent (28). The finding that Hispanic victims were younger than Anglo victims in the five southwestern States is similar to the findings of other local area studies (6,7,8).

The 1990 health objective for the United States for suicide identifies young persons 15 to 24 years of age as the population on whom to focus national suicide prevention and intervention efforts (33,34). It appears from our findings that the 1990 objective which focuses on youth suicide is quite appropriate for the Hispanic population, since the higher suicide rates for Hispanics are in the 20-24 year age group. Furthermore, our study shows that while the overall suicide rate for Hispanics is half the rate for Anglos, suicide rates are equally high for both Anglo and Hispanic teenage males (15-19 year age group) (17.1 and 17.7, respectively).

There were some notable similarities in suicide patterns among Anglos and Hispanics. First, in both ethnic groups, more suicides occurred among males than females in every age group. Second, the distribution of age-specific suicide rates was bimodal for both Anglo and Hispanic males and unimodal for Anglo and Hispanic females which is similar to the national patterns for white males and females (35). Third, the sex-specific patterns of methods used for suicide were similar for the two ethnic groups and consistent with sex-specific patterns for whites nationally (35).

Differences in the patterns of Anglo and Hispanic suicide probably reflect an interplay between the effects of the diminishing influence of Mexican cultural traditions, the increasing influence of American culture, and the marginal socioeconomic status of Mexican Americans. Horowitz (36), in a study of culture and identity in a Chicano community in Chicago, identified two values heavily stressed in Mexican cultural tradition which are likely to protect against suicide: the concept of family honor and an emphasis on close family ties. A cultural incentive not to dishonor one's family with a suicide and the ability of close family ties to decrease the risk of social isolation may work together to diminish an individual's risk of suicide. Whether the incidence of suicide increases in the Mexican American population in the future may depend in part on the extent to which these cultural traditions continue to be held within Mexican American communities.

The assimilation of Mexicans into the American culture has undoubtedly diminished the power of cultural traditions to influence behavior, particularly among Hispanic youth (36). This may be reflected in the younger ages of Hispanic suicide victims uncovered in this study. Suicide rates among younger Hispanics were more similar to those for younger Anglos than rates for older Hispanics were when compared to those for older Anglos (Figures 1 and 2). Hispanic youths may be caught between the influence of traditional values and norms and their experiences in the larger social order which are likely to be heavily influenced by their marginal socioeconomic status.

Psychiatric illness is most likely an important contributor to suicide among Anglos and Hispanics. In the general population, it has been estimated that 47 percent of all suicides occur in persons with serious depression or major affective disorders (37). The patterns and differences presented in this paper suggest that cultural and social variables may modify the expression and/or course of psychiatric illness in very important ways.

Few data are available to analyze and explain the differences and similarities between suicide rates for Anglos and Hispanics. Regarding the availability of data for Hispanics, we agree with Braucht, et al: "Unfortunately, the entire group of Hispanic

heritage Americans of Mexican, Puerto Rican and Cuban origin are buried within the 'white' group in nearly all available reports of data from the national vital statistics system and are not available for separate analysis. This state of affairs has resulted in an appalling lack of knowledge about the mortality of the Hispanic population in this country" (38). Further, Petzl pointed out that the meager amount of research done on suicide among minorities has largely focused on blacks and American Indians (28). This is because blacks and American Indians represent racial rather than ethnic categories, and can be studied through existing published vital statistics data.

Although the lack of data on the health status of Hispanics is recognized (39) and better data is promised for the future (40), we are left for the present without sufficient data to examine why suicide patterns for Anglos and Hispanics differ in incidence and by age and sex.

To explore reasons for differences and similarities between suicide rates of Anglos and Hispanics, it would be useful to have data on such variables as employment, education, family composition, and length of residence in the United States. With these data, one could begin to test hypotheses related to interactions between the cultural, socioeconomic, and experiential factors of the two ethnic groups and perhaps explain the differential incidence of suicide.

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ACKNOWLEDGMENT ·······················-

THE ROLE OF VOLUNTEER WORKERS IN SUICIDE PREVENTION CENTERS

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Lay volunteers have been called the most important single discovery in the history of suicide prevention. Eighty percent of the suicide prevention centers in the United States operate with non-professional volunteers as their primary staff (3). These centers represent the only wide scale use of trained lay volunteers for the delivery of clinical services which have traditionally been provided by professionals (4).

Volunteers in the 1980s

Volunteerism is a uniquely American phenomenon. Throughout our history, visitors to this country have observed and remarked upon the resourcefulnes of Americans in organizing themselves and giving of their time, their money, and their talents to address their common problems. It has been estimated that today, more than 37 million volunteers actively participate in community programs and services throughout the United States (2).

The stereotypical view of volunteers as non-professional suburban housewives--which perhaps was accurate twenty years ago--is well out of date in 1986. Since 1975, the number of women employed outside the home has exceeded the number of full-time homemakers. Organizations such as the Junior League, Girl Scouts, PTA, and the League of Women Voters, whose work had for years depended upon an apparently inexhaustable supply of suburban homemakers, contracted severely during the past decade.

At the same time, organizations directed at solving specific community problems such as drug abuse, mental retardation, physical handicaps, and suicide have generally been able to recruit enough volunteers to staff their programs. The gap left by homemakers entering the workforce has been filled largely by single working professionals, retired professionals, and disabled people (6).

Given the demands upon their time as well as their professional experience, today's volunteers tend to be highly selective about the programs with which they become involved. They actively pursue their own interests and often look for opportunities that are directly relevant to their professional careers or which will reflect favorably upon them in a career context. This kind of pragmatic altruism--as opposed to altruism for its own sake--has produced a new breed of volunteers who are educated, skilled and highly motivated.

In the past decade, many corporations began to support their employees' volunteer pursuits both by allowing employees reasonable amounts of time away from work to engage in approved volunteer activities and by encouraging and even underwriting the formation of in-house volunteer organizations which participate in various community service programs. While these corporations are certainly not unmindful of the public relations value of their efforts, they are also aware that many, if not most, of these activities deal with issues and problems that

directly effect employees' lives and health. When the cost of absenteeism, impaired productivity, and health insurance is taken into account, corporate support of volunteerism may reasonably be viewed as good business practice as well as good public relations.

It should also be noted that departments and agencies of the United States government, as well as the United States military and many State and local government organizations, endorse many employee volunteer activities and support participatory volunteer programs.

Development of Suicide Prevention Services

In 1960, there were fewer than half a dozen suicide prevention centers in the United States. By the end of the 1960's, there were more than 100 centers; by the end of the 1970's, approximately 200. Approximately 200 centers are still in operation. During the three decades, 1950-1980, the overall suicide rate in the United States remained roughly static. Therefore, it may be inferred that the growth of suicide prevention centers correlates to increased awareness of the problem, the technology (telephone) to respond to it, and the mobilization of concerned citizens who were willing to undertake action to deal with it (3).

Suicide prevention centers are sometimes controversial undertakings within a community. Such controversy may have a negative impact on a center's ability to win community endorsement, recruit volunteer workers, and raise funds which are vital to its existence since the services it provides are free.

Part of this controversy is rooted in the stigma still associated with suicide in western society. Many people are uncomfortable discussing the subject and seek to avoid it altogether. Others may even deny that the problem exists in their community. Still others believe that discussion of suicide and the advertisement of prevention services will actually cause or inspire suicidal acts. While empirical data do not support the latter view, facts do not necessarily reverse emotionally derived opinions.

Because there had been no consensus of expert professional opinion on the operation and ethical conduct of suicide prevention centers until recently, some centers have found themselves inadvertently in conflict with local medical societies, social service agencies, law enforcement authorities, courts, churches, or other community organizations and institutions. In the early 1980s, the American Association of Suicidology (AAS) promulgated operating standards for crisis intervention centers as well as training and performance evaluation criteria for volunteer crisis workers. An accreditation program, under the aegis of AAS, has made significant progress in alleviating public distrust and professional skepticism about crisis intervention techniques and volunteer crisis workers.

Organization and Structure of Suicide Prevention Centers

The organization and structure of suicide prevention centers is determined by the services offered. The minimum service is usually a telephone hotline whose basic mission is to respond to people in crisis. This response might involve sympathetic listening and "talking things through," referral to professional counseling services, or initiating emergency intervention in the case of immediately life-threatening circumstances. Depending on their financial and staff resources, some centers have expanded their services to include public awareness and education programs, extensive contact and followup programs with callers to the center, and grief counseling services for families of victims.

A center's organizational structure typically includes an advisory board and/or board of directors, executive director, consulting staff, administrative and clerical staff, and lay volunteer staff. The center could also be expected to have ongoing working relationships with community emergency services,

social service agencies, mental health services, hospitals, and private health care providers.

Distinction should be made among three categories of personnel and levels of involvement with the center's operations:

1. **Paid staff:** Usually the executive director and at least a portion of the full-time administrative and clerical staff.

2. **Professionally-trained volunteers** (e.g., mental health professionals): Usually members of the advisory board and the consulting staff who donate their professional expertise and services in support of the center.

3. **Lay volunteers:** Non-professionals who have been trained to provide those crisis intervention services which have traditionally been provided only by professionals.

While crisis intervention workers are typically lay volunteers, it is not unusual for professionally trained people to volunteer to answer hotlines and serve on crisis intervention teams. Both Motto and McGee emphasize that all crisis intervention staff, regardless of their professional training, as well as all consulting staff, should be required to go through the same training programs as lay volunteers and should be subject to the same monitoring and evaluation procedures. Further, Motto and McGee both concluded that people with professional training are not demonstrably more effective than lay volunteers as crisis intervention workers (3,4).

McGee goes on to say that conflicts between lay volunteers and professionals who become directly involved in delivery of crisis intervention services can present a significant challenge to center management. He urges that all crisis workers be measured exclusively against the center's overall performance standards, irrespective of any individual's professional credentials or lack thereof.

Recruiting and Screening of Volunteers

Volunteer recruiting is probably a full-time job at most suicide prevention centers. Sources of volunteers include the general public, college students (especially graduate students), faculty members, corporations, government entities with active volunteer programs, and community volunteer bureaus.

Unpaid advertising is the most usual method of volunteer recruiting. This may take the form of notices in newspaper columns, public service announcements, and flyers and posters distributed to target groups and organizations. A public relations campaign involving media interviews and speeches by a center spokesperson before local civic groups and professional organizations may also be incorporated into the overall recruiting effort.

Paid advertising, such as classified newspaper advertisements, is another alternative. However, since suicide prevention centers often operate on tight budgets, paid advertising may be viewed as less effective than a resourceful volunteer recruiter.

The initial screening process begins with an interview at the center. Upon arrival, the volunteer may be asked to complete a personal data sheet which includes general background information. The respondent is then interviewed by two or three designated interviewers. These interviewers might be some combination of consulting staff, mental health professionals, center administrators, and active volunteer staff. Psychological testing may reasonably be incorporated into the screening process. Initial screening may involve two or three visits to the center, which is in itself a method of screening.

The objective of the screening process is to elicit information regarding past and present life patterns and to provide evidence of emotional stability, integrity, receptivity to learning, perceptiveness, and responsiveness to human needs. Incidence of prior suicide attempts would almost certainly disqualify the

applicant for direct crisis intervention work although the person might be assigned to other tasks within the center at the interviewers' discretion (4).

Applicants who pass screening interviews and testing are accepted into the center's training program. Training may be viewed as an extension of the screening process since some aplicants will drop out or show themselves to be unqualified for crisis intervention work as they are exposed to the real world conditions of the center's operations.

Training

Training programs in suicide prevention centers ideally combine theoretical information with practical experience in crisis intervention. A thorough training program requires 18 to 25 hours of concentrated sessions extending over a three to six week period plus concurrent parallel reading.

Elements of a good training program include:

- orientation to the center's methods of operation, record keeping procedures, performance criteria, and ethical standards.

- lectures by mental health professionals and suicidologists.

- films, video tapes, selected reading.

- listening to audio tapes of actual calls to hotlines (with all personal identification information removed).

- role playing.

- observing actual phone calls to the center.

- working on the phones under close supervision.

By the end of the training period, volunteers have been gradually introduced into their roles as crisis intervention workers and there has been ample opportunity to discover individuals who are obviously unsuited for the job.

McGee reports some instances in which lay volunteers were given no formal training but were put directly to work on the telephones and trained on the job, as it were, after they had been interviewed. In other cases, volunteers were put through marathon two and three day training sessions and began work immediately thereafter. While the results of the short but intensive training sessions have not been evaluated in comparison with the longer sessions, it is thought that one object of the marathon sessions was to produce a large number of volunteer workers very quickly while the longer, more deliberate sessions were aimed at producing genuinely dedicated volunteers who were likely to remain with the center over a long period of time (3).

Some centers do not use lay volunteers at all but depend upon psychiatrists, psychologists, nurses, clergymen, and other professional counselors to serve as crisis workers. Training may be bypassed altogether in the belief that these people are already sufficiently trained to counsel people in crisis. Experience indicates, however, that crisis intervention and suicide prevention work require unique and special skills. Specialized training for all who are engaged in suicide prevention should be considered mandatory (4).

Regular and systematic in-service training is also highly recommended. Extended training may take the form of lectures, seminars, or free-for-all discussion sessions. Opportunities for the exchange of information, experiences, ideas, and even complaints are vital to the success of the center's work and to maintaining staff morale in a highly stressful environment. It should be remembered that volunteers-- particularly those who work late night and weekend shifts--may have little or no face-to-face contact with center personnel, consulting staff, and other volunteers unless such sessions are deliberately initiated and scheduled.

Equally necessary is regular evaluation of the crisis worker's performance. Observation of the worker taking calls and review of written case records prepared by the volunteer are an essential part of center management and can constitute the basis for performance

evaluations as well. When these procedures are combined with regular personal discussions with consulting staff and center administrators, performance evaluation can become a part of the volunteer's continuing in-service training (4).

Program Implementation

The programs of a suicide crisis center can be divided into three broad categories:

1. prevention, which includes education and awareness programs;

2. intervention, which includes telephone hotlines and emergency services; and

3. postvention, which includes followup, outreach, and counseling for the families of victims.

As a practical matter, chronology does not reflect the evolution and focus of the crisis center. Intervention is the center's initial and principal "reason for being," while prevention and postvention programs, and services are later outgrowths and extensions of a successful center's basic service.

Intervention

The telephone is the basic tool of crisis intervention. Some centers limit their service exclusively to hotlines, while others have walk-in facilities and/or crisis intervention teams which go to the caller's location in extreme emergencies. In 80 percent of all suicide intervention centers, the people who answer the phones and respond to emergency situations are volunteers.

As back-up resources, volunteer workers may have access to the center's consulting staff, private practitioners who take referrals from the center, law enforcement and emergency medical personnel, and community social service and mental health agencies.

The basic job of the crisis worker is first, to establish communications with the caller and second, to make an assessment of the caller's condition (lethality assessment). In the case of an immediately life-threatening situation-which is a relatively infrequent occurrence-the first priority is to determine the caller's location and dispatch assistance.

More usually, the crisis worker's role is to establish a rapport with the caller, to listen to the person's description of his problems, and to work with him in setting a course of action. Shneidman has suggested that the role of a therapist is that of ombudsman for the patient; the same can be said of the crisis worker vis-a-vis his client. The worker's objective is to increase the options available to the caller, to reduce the caller's sense of pain and isolation, to listen, to offer hope and help, to suggest alternatives, to play for time, and with the caller's permission, to involve others (7).

Some centers actively discourage any face-to-face involvement between crisis workers and clients. On the other hand, many centers allow workers, at their own discretion, to meet callers away from the center's premises while cautioning against over-involvement in any particular case. Other centers train selected workers to follow the progress of clients through individual personal visits.

Crisis teams are another alternative. Usually comprised of two people, teams are carefully selected and trained to go out into the community and intervene directly in life-threatening situations. There may be some risks to the worker's personal safety in these circumstances, and there is certainly a greater likelihood of a worker's becoming over-involved with a particular case (4). Nevertheless, crisis teams have proven to be highly effective in many instances.

Once a crisis center has established its reputation in the community, it is not unusual for police, fire-rescue services, and hospitals to request that a crisis intervention team be sent to a location where a suicide emergency is in progress. This represents acknowledgement by law enforcement and emergency services personnel that crisis intervention is indeed highly specialized work and best undertaken by those who are specifically

trained for it.

The variety of approaches and techniques used in crisis intervention are limited only by the center's financial resources and the time constraints of its volunteer crisis workers.

Prevention

Many suicide prevention centers assume the responsibility for community awareness and education. While the responsibility for these initiatives and programs is largely within the purview of the professionals affiliated with the center, volunteer crisis workers may be included in a particular program designed for a particular group. For example, college-age crisis workers have been shown to be especially effective in working with teenagers, presumably because their proximity in age engender a natural rapport (1).

Again, methods and approaches vary widely and are limited only by the center's resources and the ingenuity of its staff.

Postvention

Postvention refers to followup and outreach activities directed to individuals following a suicide attempt and to counseling services for families of suicide victims.

In addition to following up at regular intervals the progress of callers to the center, outreach may also involve responding to referrals from hospital emergency rooms, law enforcement authorities, social service agencies, clergy, teachers, and other concerned individuals. In these cases, the center initiates contact, either by telephone or by personal visit, with people who have attempted suicide and extends an offer of help.

Ross describes another approach called "Befrienders" in which volunteers who were able to give large amounts of time were selected to befriend and work with particular individuals who had attempted suicide. Befrienders were carefully matched to clients on the basis of personality, attitudes, sex and age, and were thoroughly briefed in advance on the details of the case to which they were

assigned. They were required to be available for personal visits several hours each week and to be available by telephone as much of the remaining time as possible. Obviously, this involves a substantial time commitment on the part of the volunteer befriender; however, results of the program as an alternative means of post-episode care were considered encouraging (5).

Outreach programs directed toward providing support to families of suicide victims during the bereavement process may be initiated in response to a family's request for help in coping with their grief. In other instances, the center might be contacted by coroners, hospital emergency room staff, funeral directors, or concerned friends who are aware of the circumstances and the family's need for assistance.

In some grief counseling programs, the center serves as facilitator in establishing contact and networks among families who have suffered the same tragedy. The center may also provide referrals to professional counselors and offer seminars and discussion programs dealing with the particular problems of survivors. Special attention is paid to siblings of adolescent victims who are known to be a particularly high risk. Volunteer crisis workers are, of course, involved in the delivery of all of these services.

As a corollary to postvention programs, some crisis workers are trained to conduct psychological autopsies. This involves gathering information from those closest to the victim which may shed light on the external events and family dynamics leading up to the suicide. Because of their training, crisis workers often recognize the significance of information that may have been ignored or overlooked by family, friends, and others involved in the case. Such information is often valuable to researchers and therapists who are trying to understand and deal with self-destructive behavior.

CONCLUSION

Volunteerism is a time-honored custom, in-

deed almost an obligation of American life; but to equate volunteerism with amateurism is to do an injustice to volunteers everywhere. In no case is this more evident than in volunteer crisis workers. Crisis intervention workers are skilled and talented people who take their work very seriously. Most of them have undergone extensive training and devote a minimum of six hours per week to their "volunteer" work. Their contributions to suicide prevention have been recognized by the American Association of Suicidology which, since 1972, has admitted qualified volunteers to full AAS membership.

To call crisis intervention workers lay volunteers and non-professionals detracts from their level of training, skill and commitment. They have earned the respect of their professional colleagues and they have earned the right to be called para-professionals.

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PREVENTING SUICIDE BY IMPROVING THE COMPETENCY OF CAREGIVERS

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SUMMARY

All caregivers should be competent in the tasks needed to make direct, personal, and immediate interventions with persons-at-risk for suicidal behaviors, especially when a person is actively considering suicide. The core tasks of **recognition, risk rating** and **resource referral** define the role of a "gatekeeper" in the intervention process. A review of caregivers' competency in this role emphasizes the need for better learning and training experiences in suicide. Available learning resources are summarized. The curriculum of a program that aims to prevent suicide by improving the gatekeeping skills of all caregivers is described, along with the infrastructure for delivering a two-day presentation to large numbers of caregivers. The Foundation Workshop described in this paper has successfully involved more than 4,000 participants. Prospects and pitfalls for its expansion to a larger, perhaps national, level are briefly discussed.

INTRODUCTION

Even in the most ideal of situations, not all suicides are preventable. The belief that some, and probably the majority, are preventable sustains the efforts of helpers to persons-at-risk for suicide. But the continuing and apparently increasing rate of suicide implies that helping efforts of all kinds are not as successful as might be hoped.

Before discarding the accumulated experiences of efforts in suicide prevention as unworkable and demanding a new direction with innovative prevention strategies, it is important to realize that the impact of helping efforts has always been difficult to evaluate accurately. Only the outcomes of unsuccessful interventions, which result in suicide attempts or completed suicides, are recorded and the difficulties in obtaining accurate and reliable statistics are well known. In addition, few studies claim to have sufficiently controlled all of the many environmental, personal, and historical variables which lead to a decision for suicide. In defining the directions for suicide prevention activities, we are still in an age of empiricism. The choice of effective prevention strategies must derive from the rationale and the rationality of the proposals themselves.

THE RATIONALE FOR "PREVENTION BY INTERVENTION"

An episode of suicidal behavior is initiated when a person actively considers suicide as a problem-solving behavior, usually as a result of some precipitant stressor. An episode is usually time-limited and persons may experience one or more during their lifetime. Every episode demands therapeutic attention. Self-destructive behavior is not a prerequisite in the definition of an episode,

although it offers the best index or marker of the experience. We suggest that the time immediately proximal to the suicidal behavior, a prelude phase, is a focal point for rational, effective, and high impact suicide prevention activities by any caregiver (Figure 1).

A number of similarities have been recognized in persons-at-risk during this prelude to suicidal behavior. Ringel (48) described it as the pre-suicidal state. Shneidman characterized the thought process during this time as one of constriction, and more recently he has described a number of other commonalities (53). If the thoughts, feelings, and actions of those contemplating suicide share some common features, then caregivers can devise intervention responses and activities applicable to any episode and any person-at-risk, whatever the origins, predisposing factors, or immediate precipitants. The interactions between a person at risk and the caregiver's planned activities together make up the process of suicide intervention. The process can be described and modelled, and roles, tasks (and accompanying skills), assigned to both partners in the interaction (34).

The duration of this pre-suicidal or prelude phase is variable, but it is estimated that 80 percent of persons-at-risk warn of their movement towards self-destruction during this time (14,24,33,49,62). These cries for help communicate distress and ambivalence as well as statements about suicidal intent. Because the outcome too often is suicidal behavior, we must conclude that many of these "care-eliciting behaviors" (28) are unsuccessful.

Why is this so? It must not be assumed that the directed communications of the suicidal person are ambiguous, unclear, or directed to the wrong person. They are often repeated and directed towards more than one potential helper or resource (12,49). Some 23 different studies confirm that medical caregivers have significant amounts of direct contact with persons-at-risk in the time preceding suicidal behaviors (references available). Though less exact, similar data indicates that other helpers are also approached (13,24,33). To understand why these directed communications apparently fail to generate caring and helping from others, we must look to the helpers--those
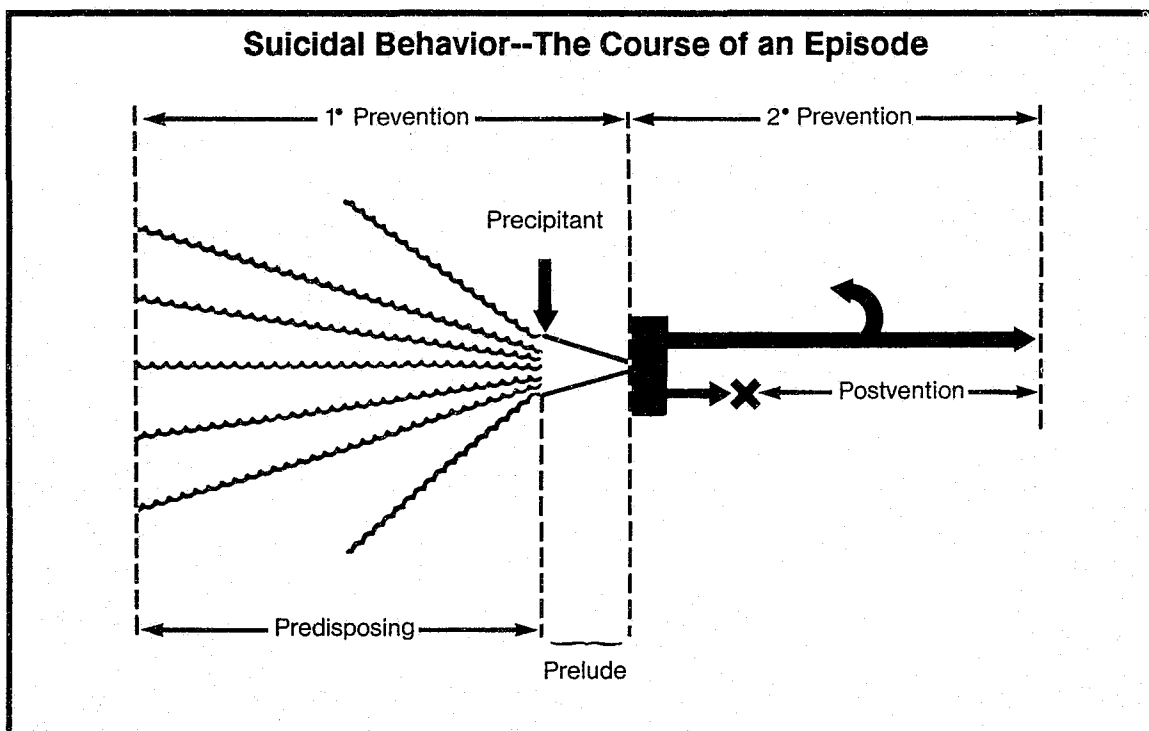

Figure 1.

who receive the messages of distress. Who are these helpers? A medical doctor is the first choice of those who seek formal help for suicidal or mental health crises (13,26,51,56) although many and diverse other caregivers are also approached. The caregivers available for help and support during a suicidal behavior episode can be defined as emergent or designated (45). Designated caregivers have received training to act in a specific helping role to suicidal persons. Emergent caregivers do not have this background, but may have the opportunity to prevent suicidal behavior as the person to whom a person-at-risk turns for help.

What is the helper's role? Some caregiving persons offer support to the person-at-risk while others work directly to resolve the suicidal situation. The aim for all caregivers is to prevent suicide as the outcome of the episode. Terminating the episode by closing the door to suicide and opening or re-opening alternative actions and solutions is an active process of intervention and involvement. The caregiver in this process has been called a "helper of the first instance" (6) or a frontline worker, but the role itself is well described as that of "gatekeeper" (56). The gatekeeper's role includes specific competencies in suicide prevention activities as well as effective use of interpersonal and communication skills. Not all of the neces-

sary skills have been defined, but the role-related tasks include: 1) recognizing the risk of suicide (Schapira's "spotter" 52); 2) rating the degree of suicidal risk; 3) referring to appropriate resources. We call these the 5 R's: **Recognition, Risk Rating, and Resource Referral.** If competence in these tasks were expected of all caregivers, we believe that many episodes ending in suicidal behaviors would be effectively prevented.

THE PRESENT STATUS OF CAREGIVERS AS GATEKEEPERS

A. Prior Education and Training Experiences

Professional schools and clinical disciplines offer few organized courses in the study of suicidal behavior (44). Presentations during clinical practicum experiences review suicide risk factors, but virtually ignore therapeutic, clinical, personal, and professional issues. In two studies, 90 percent (62) and 48 percent (50) of physicians surveyed recalled no instruction in suicidal behaviors during their professional medical training. Boldt (6) found that more than 90 percent of 143 reporting agencies had no workers with any significant training in this area. More that 50 percent of caregivers participating in our program recalled no prior learning experiences in the area of suicide. (See Table 1.)

B. Self-Perceptions

Forty-four (58) and 58 percent (50) of physicians surveyed indicated a desire or willingness to learn more about the area of suicide. In a membership survey of the Canadian Association for Suicide Prevention (8) these caregivers already involved in the field clearly expressed a need for more information and training in dealing with persons-at-risk.

C. Reports and Recommendations

Throughout this century, the need for better education and preparation of caregivers has

Exposure to Learning Experiences About Suicide in Some Community Caregivers		
Caregiver Group (n)		**No Exposure**
Education	(193)	56%
Clergy	(47)	51%
Child Care	(87)	49%
Medicine	(7)	43%
Social Work	(280)	36%
Nursing	(248)	36%
Psychology	(140)	27%

Table 1.

been emphasized by both educators and suicide researchers. The first recommendation of a World Health Organization Working Group (10) stated that training in the detection and management of suicidal persons should be a requirement in the education of all professional helpers in the field of public mental health.

D. Knowledge and Skills

Three of four studies (7,27,30,47) assessing family physicians' responses to a multiple choice questionnaire about suicide produced disappointing scores. Three studies involving different groups of designated caregivers (29,30,47) found that their medical practitioners achieved the highest score of any of the groups tested. Other studies reported a better response to major clinical issues involved in the recognition and management of suicidal persons than to strictly factual or statistical items (30,35,40,50). In commenting on the knowledge and skill competence of caregivers, there was repeated concern with the apparent failure of these caregivers to apply the awareness they do possess to their work with suicidal persons (38). Twenty percent of Steele's (57) medical students and the same percentage of Whittemore's 78 physicians (62) specifically avoided the issue of suicide in clinical situations.

E. Caregiver Attitudes Towards Suicide and Persons-at-Risk

In working with persons at risk for suicide, medical caregivers may be not only unresponsive (55) or passive (4), but also overtly hostile. In retrospective chart reviews of completed suicides, (5,19,31,61) the caregiver's rejection of the patient (attributed to feelings of hate, hostility, anger, and anxiety) is a regular finding. Surveys of caregivers utilizing questionnaires (21,39), semantic differentials (2,22), objective checklists (15), or the rating of clinical vignettes (2,25,43) consistently reflect this negative attitude (Table 2).

Two studies of caregiver's responses to suicidal persons support the general finding that a therapist's initial attitude and emotional reactions are of crucial significance to his clinical decision-making (15,25). Although positive and supportive attitudes appear to develop with increased contact with suicidal persons (22,23,39,62), the majority of caregivers do not regularly encounter suicidal persons in the course of their clinical practices. There is also disagreement about the congruency between personal and professional attitudes toward suicidal persons (22,42). If caregivers' attitudes, both personal and professional, can be the source of significant resistance to their becoming effective agents for suicide prevention, it is important that training experiences ensure the opportunity for open discussion of these issues (17).

These observations about caregiver competence in preventing suicide are disquieting. There is a definite and recognized deficiency in the abilities and attitudes of caregivers to undertake this helping role. If caregiver interventions are to be a successful strategy for suicide prevention, additional training is needed to upgrade the competencies of caregivers in the tasks that ensure successful intervention.

AVAILABLE LEARNING MATERIALS

Training programs, curricula, and learning

Caregiver Attitudes/Feelings About Suicidal Persons	
Negative	Anxiety
Unfavorable	Uncomfortable
Hostile	Contempt, not satisfying to treat
Unsympathetic	Denial, avoidance
Aggressive-avoidant	Passivity
	Rejection
	Betrayal
	Guilt
	Failure

Table 2.

materials are part of the ephemeral literature. The support of the Suicide Information and Education Center enabled a review of these materials, which included the opportunity to view more than 150 audio-visual productions. Additional information was gained in an informal survey of trainer/educators active in delivering suicide prevention learning experiences.

A. Content

A recognizable body of "core knowledge" (36, p.23) needed for the gatekeeping role and a scientific literature supportive of this content is readily available and well documented. For example, cues and clues to recognizing the person-at-risk have changed little since the suggestions made by Sym (59) and Fairbank (18). In the curriculum content of virtually all training/education programs reviewed, mastery of the tasks of the gatekeeping role (5 R's) is included in the participant objectives. The content of audio-visual productions intended for caregiver audiences is more restricted with major emphasis on the task of rating suicidal risk. Only one audiovisual attended to caregiver attitudes (11) and fewer than a half dozen specifically deal with the intervention process (3,9,32,41). A similar emphasis on the risk rating task was noted in the curriculum and program outlines.

B. Formats for Learning Materials

Written text (books, papers, or monographs) continue to be the major format for presenting materials on suicidal behavior to caregiver audiences. Some variant of the "Facts and Myths" questionnaire (54) is the most standardized and widely used learning aid available. Although often not developed for caregiver audiences, the number of audio-visual productions related to suicidal behaviors has doubled in the past decade. The most modern incorporates video disc and computer technology in a self-directed learning experience (20).

C. Learning Experiences

A comprehensive review of issues concerning education and training in suicidology stressed the need to develop "imaginative dissemination programs" (36, p.23). A learning experience in suicide prevention should include: 1) a curriculum outlining content, objectives, and the schedule of learning experiences; 2) available learning materials in different formats that are supportive of and integrated with the content and process of learning and; 3) available background materials which adequately prepare the trainer or educator presenting the program. There are many learning experiences in suicide prevention that meet these standards. Although their curriculum content may be remarkably similar, most programs were uniquely developed for a particular and homogeneous audience of caregivers usually defined by the group to whom their helping services are directed; for example, crisis or distress center workers, correctional institution personnel, school board employees.

Curriculum developers and trainers both agree that one day (7 hours) of caregiver participation is a minimum requirement and the inclusion of practicum and/or simulation activities often lengthens participant committment to two or more days. Few experienced "disseminators" (36) support the development of presentations that are individualized for a particular caregiver group. Experienced trainers/educators virtually all present a core or foundation of similar material to all caregivers with some tailoring of situations and examples to the experiences of the participants.

A program in suicide prevention is more than an organized learning experience. In addition to meeting all of the criteria for an effective learning experience described above, it must have: 1) an organizing infrastructure that monitors, evaluates and modifies both the program and the presentation itself, and 2) a mechanism for ensuring optimal delivery of the learning experience to its intended audiences. Two programs that offer standardized learning materials intended for

caregivers of different disciplines and varying levels of expertise are available. Although not fully meeting the standard defined above, the Suicide Prevention Training Manual (1) has been used widely for almost a decade. The other program (9) intended for distribution to a broad audience is technically superb in content and curriculum materials. Unfortunately, it was never aggressively marketed or promoted, and the materials are no longer available from the copyright holder.

Deciding whether an educational/training experience will succeed in improving caregiver competency requires consideration of learning materials, learning activities, and curriculum organization. Rating of suicidal risk is the major content focus of most available experiences, with almost no attention to ensuring caregiver effectiveness in the overall intervention process. There is no program presently available and appropriate for use by all caregivers that offers integrated learning materials and activities in its curriculum.

THE FOUNDATION WORKSHOP

Over the past five years, we have developed,

piloted and successfully implemented a program which offers a standardized learning experience in the foundations of suicide prevention (46). The workshop presentation assumes that increasing the competencies of caregivers in dealing with persons-at-risk during an episode that might end in suicide is an effective suicide prevention strategy. The intended audience of the program includes caregivers of any disciplinary and theoretical orientation or level of expertise. To our knowledge, it has been delivered to more caregiver participants than any integrated standardized program on suicide prevention ever available in North America.

A. Descriptive Summary

Development team (disciplines): Psychiatry, social work, psychology; with input from clergy, education, counseling, nursing, and family medicine.

Intended audience: Any group of emergent or designated caregivers.

Aim: To provide all caregivers with the competencies to intervene in an episode of suicidal behavior until either the immediate danger is alleviated or further assis-

Content and Learning Activities of the Foundation Workshop

Module / Hours	Audio-visual	Discuss	Survey	Worksheet	"Discovery" Learning	Simulations	Lecture
Introduction / 1			X				X
Attitudes / 3	X	X	X				
Knowledge / 3			X	X	X		X
Skills:Model / 2	X	X					X
Skills: Simulations / 4.5			X			X	
Resourcing: Networking / 0.5					X		
14*	0.75	3.25	1.75	1.25	1.25	3.25	1.5

(* includes 4 breaks of 0.25 hours)

Figure 3.

tance/resources can be obtained.

Curriculum:

> *Model:* adult learning as inservice or continuing professional education.
>
> *Learning Experience:* structured skills (16,37), workshop.
>
> *Formats:* large and small groups (maximum 15 participants/trainer) with team teaching (two trainers minimum).
>
> *Learning Activities:* audiovisuals (2); surveys, questionnaires (3); simulation; worksheet exercises; discussion group; discovery learning (30+ visuals); lectures (maximum 15%) with participant handouts.
>
> *Content: modular.*

B. Developmental History

In the pilot phase, the workshop was presented eight times to a total of 434 participants. The audiences for these presentations were caregiver groups, both homogeneous and heterogeneous in composition, and included helpers in urban and rural communities, childcare workers, staff of a psychiatric institution, and native counselors. Evaluation at the end of the presentation by these diverse groups of caregivers supported both the curriculum organization and the content focus.

The development phase required the preparation of trainers who could present the Foundation Workshop. This preparation, to be discussed later, included the presentation of the workshop by a co-leader or apprentice with a more experienced trainer. These apprenticeship presentations, involving 27 workshops and 1250 participants, were also used to continue the development of the workshop learning experience.

C. Program Evaluation

At the conclusion of the development phase, three experienced trainers in different centers across North America were con-

tracted to review and critique the program materials and curriculum. Later, three other caregivers reviewed the entire program by considering its potential use as a training vehicle for a State-wide mental health delivery system (60).

Participant evaluations are completed at the end of the workshop. Fewer than 1 percent of participants drop out during the two day experience. There are more requests for an extra day or added time than there are dropouts. Fewer than 1 percent of participants fail to recommend this workshop to other colleagues and caregivers. All modules of the workshop receive positive comments, with the practical experiences involving both large and small group simulations garnering the most positive support. It is notable that the evaluations of the workshop with respect to its value, strengths, and deficiencies are remarkably uniform across the different groups of participant caregivers. Evaluation of the Foundation Workshop's impact on caregivers over an extended time span has been proposed.

At present, end of workshop evaluations from all participants are centrally reviewed by a group of experienced workshop presenters. Feedback from this ongoing audit is used continuously to adapt and update the program materials and learning activities.

Delivery of the Foundation Workshop to All Caregivers

The Foundation Workshop is suitable for presentation to any group of caregivers interested in mastering a lifesaving task. To sustain this amount of program activity and to ensure that the quality of the workshop experience is maintained, requires an infrastructure that must be sponsored and supported. At the most practical level in this structure, the essential component is the trainer or educator who delivers the workshop presentation. A training program which offers certification to trainers, who can then conduct the Foundation Workshop, has been developed.

The Training for Trainers program involves experience as a workshop participant, followed by a two or three day training experience in effective use and understanding of the curriculum. Because the standardization of both content and process of the Foundation Workshop is quite rigorous, a 300 page curriculum manual (45) emphasizing theory, content, and practical process is provided. An apprenticeship program in which more experienced trainers assist the newly qualified in the presentation of their first full workshop is also encouraged. Seven presentations of the Training for Trainers program have, to this time, involved more than 150 potential trainers.

The model for program delivery requires considerable effort and expense before any caregivers actually participate in the workshop itself. With this large front-end expenditure, cost-effectiveness increases with the involvement of more candidates at a Training for Trainers session, and with every workshop that is delivered by the certified trainers. It is vitally important to minimize trainer drop-out. This is accomplished by an initial screening procedure, by the evaluation of readiness for apprenticing at the conclusion of Training for Trainers, and by the apprenticing process itself. For certified trainers, an active network keeps them up-to-date with developments and modifications to the workshop information and materials. We have been gratified by the entrepreneurial spirit that has developed within the network of trainers and believe that it reflects their ownership, investment, and identification with the quality of the workshop experience.

Despite the enthusiasm, it is apparent that active sponsorship of this program is required because of both the heavy initial investment and the objective of delivering the workshop to a large number of caregivers. Several avenues for development are available. The development of competency as a basic "Rescuer" in cardiopulmonary resuscitation (CPR) is a similar task, and this program has attracted many organizing spon-

sors. Its success affords a useful model for the delivery of a basic learning experience to large and diverse groups of caregivers. In the area of suicide prevention, the American Association of Suicidology could adopt this program as part of its objective to certify individual caregivers. Professional organizations of designated caregivers (physicians, nurses, clergy, social workers, psychologists) or the administrators of human resources systems could make a commitment to offer the Foundation Workshop to all of their caregivers. Although such support would resolve many organizational hurdles, their endorsement should only be offered to a program of proven excellence.

While awaiting the support for large-scale implementation, it is useful to summarize the successes of the Foundation Workshop program. Following its original development for caregivers in Alberta, Canada, presentation of the Foundation Workshop using the Training for Trainers delivery model has been extended into two other caregiving systems, one geographical and the other system-based. In addition, pilot presentations to special audiences have been offered. These included selected inmates of a medium security correctional facility who were developing a peer support model, and lay persons in a number of rural communities where the formal network of caregiving support resources is diffuse and less important then the support provided by family and friends. Although unplanned, materials and activities from the Foundation Workshop appear in courses offered in professional schools at three Canadian universities. As of April 1986, more than 4000 persons have participated in the Foundation Workshop, and two workshops per week are being conducted by a network of more than 80 certified trainers.

DISCUSSION

As a model program for upgrading the competencies of caregivers in effective suicide prevention, the experiences of the Foundation Workshop point to two major issues

which require further consideration. One addresses program content, and the other concerns the process of delivering the learning experience to large numbers of caregivers. Both issues have been a focus for some resistance to the widespread use of this program.

The content issue questions the effectiveness of a general and basic experience in suicide prevention/intervention for audiences of caregivers who work almost exclusively with a specific at-risk population (adolescents, inmates, crisis center clients). This concern is surprising because similar content and objectives can be identified across many of the programs available for specialized target audiences. Besides discouraging costly duplication, we believe that it is very important to encourage a common learning experience for all caregivers. A shared baseline of competencies across disciplines, caregivers, and agencies facilitates communication between caregivers. Confidence in other professionals at this personal level strengthens the network of available resources and improves the continuity of care for persons-at-risk. In several communities and institutions, workshop participants who took part in simulations dealing with referral to appropriate resources within their systems, later reported making a similar referral in a real-life situation, with the very same caregivers in the referring and resource roles. Finally, in presenting the Foundation Workshop to participants with widely diverse formal qualifications and experiences, we were struck by a remarkable similarity in both the process and the content of the group discussions and learning activities across the different types of caregivers.

The support for a basic or Foundation program does not imply that learning activities for specialized or targeted caregiver groups are not valuable. Parallelling the CPR model, it is most appropriate to present these materials at a secondary or advanced level which can be added after the basic Foundation curriculum has been delivered. The availability of advanced or specialized

learning experiences which further develop caregiver competencies only increases the likelihood of effective suicide prevention.

Before suggesting any further extension of this strategy beyond the basic learning experience, it is important to emphasize again that improving the competencies in suicide intervention of all caregivers is a large and daunting task. The program requires a large front-end loading in terms of dollars, time, and human resources involvement. This requires the continuing support of organizations which can maintain and nourish an active network of trainers.

In our efforts to encourage the large-scale delivery of the Foundation Workshop, two possible sources of resistance by potential sponsors have been identified. The first concerns the scope and size of the program itself. It is possible that the organization required to deliver and maintain this program is seen as a task too large to handle. There is, admittedly, some reality to this concern. The alternative explanation is a much more difficult and onerous one. Different disciplinary or professional groups may have a sense of investment or ownership in being the designated agents of suicide prevention. They would have much difficulty accepting or supporting a program which aims to develop the same baseline of competencies in all caregivers. This limitation broaches the larger question of the relationship between the many different professions, institutions, and agencies which affirm some interest and investment in the issues of suicide prevention.

SUMMARY

1. Persons-at-risk for suicidal behaviors continue to ask for help. Their caregivers of all disciplines and levels of expertise need and want to improve their abilities as successful agents of suicide prevention.

2. Intervening in an episode during the prelude to suicidal behavior deploys caregiver resources at a focused point of potentially great impact. The process of

intervention can be modelled and understood by assuming that a helping caregiver and person-at-risk are identifiable roles. Effective intervention is possible for any caregiver competent in the tasks of the gatekeeping role: recognition, risk-rating, and resource referral.

3. Training opportunities to develop these competencies are available, but many learning experiences are too limited in their content or their intended audience. The Foundation Workshop offers a model program for the development of basic intervention competencies that has been successfully presented to more than 4000 caregivers.

4. The successful experience of the cardiopulmonary resuscitation program can be adapted to deliver a training experience that enhances skills in suicide intervention to large numbers of different caregivers. The basic requirement for large-scale delivery involves the availability of an adequate number of certified trainers. Although a rigorous Training for Trainers experience produces trainers who are committed to and invested in the workshop experience, the need for active sponsors to develop and maintain the network that organizes and monitors program delivery remains an unresolved problem.

CONCLUSION

The need for innovative training and education programs directed to caregivers active in suicide prevention has repeatedly been recognized and recommended. Our experiences in the development and delivery of the Foundation Workshop afford a successful model of one such program. With appropriate support, a large-scale training program for caregivers that ensures their basic competencies in suicide intervention is a rational and workable suicide prevention strategy.

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THE SAMARITANS AND THE PREVENTION OF YOUTH SUICIDE

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SUMMARY

Samaritans U.S.A. is a network of 14 branch hotlines in the eastern United States bound together by a common set of principles and practices. The primary purpose of the branches is to provide a 24-hour crisis line for the lonely, despairing, and suicidal, employing a method called "befriending".

Seven branches have outreach programs for intervention and prevention of youth suicide. Two exciting new models have been developed by Samaritans branches in Boston, Massachusetts and Providence, Rhode Island.

In Boston, the Samaritans are implementing a special hotline staffed by trained teenagers called "Samariteens."

In Rhode Island, the Samaritans have developed a suicide awareness curriculum to be taught by high school teachers that has recently been made part of the required high school curriculum Statewide.

INTRODUCTION

To understand the Samaritans and their role in the prevention of youth suicide, one must first understand the Samaritans themselves. Founded in 1953 in Great Britain by Chad Varah, the Samaritans now have 275 branches worldwide--180 branches and more than 22,000 volunteers in Great Britain alone. In the United States there are 14 branches with more than 700 volunteers.

The Samaritans represent a unique approach to the prevention of suicide. Samaritans branches are non-professional services which offer "befriending" rather than counseling. While the Samaritans have the back-up services of professional counselors and consultants, the telephones are always answered by volunteers who have been carefully chosen for their ability to make an equal-level relationship, to listen, and to befriend the troubled person without offering judgments, unwanted advice, or unsolicited intervention. The Samaritans do not trace calls or take any other unrequested action, thus insuring that the service is completely confidential.

HISTORY

This model differs in some ways from most other suicide prevention agencies in the United States. To appreciate the Samaritans commitment to confidentiality and befriending, it is useful to understand the history of the Samaritans movement and the development of befriending as an approach to the prevention of suicide.

In 1935, Chad Varah's first duty after ordination as an Anglican priest was to officiate at the burial of a fourteen year old girl who killed herself when her menstruation started, not understanding menstruation and having

no one to ask. Moved by this experience, Varah began to counsel his parishioners about human sexuality. Soon he developed a reputation as a sex therapist and clients sought him out in great numbers--many of them suicidal. Over the years, he was moved to expand his ministry and his counseling activities to include outreach to the suicidal.

On the first of November 1953, Varah opened both a telephone and walk-in counseling service for the suicidal at St. Stephen Walbrook. Within a short period of time, both the number of callers and the number of people coming in for counseling far exceeded Varah's ability to respond. Publicity for Varah's services had attracted not only people in need of help but also a large number of people who felt they could give help. While some of these people offering assistance were professionals, most were ordinary people and instinctively Varah began to involve these volunteers in his work. These people did not see themselves as counseling the suicidal but merely as helpers who could pour tea or lend an ear to others as they waited for Varah. In just a few weeks, Varah began to notice that the number of people he was seeing personally began to diminish; those who did come to him for counseling were easier to help because of the time they had spent with the volunteers. He also noted that the people he was seeing were rightly judged to be in need of the kind of professional attention the volunteers could not give. This fascinated him and he began to try to discover what the volunteers were doing and why was it so successful.

By both interviewing and observing the volunteers he realized that they were providing a new kind of listening therapy. They provided an ear, but not advice. They provided sympathy and love, but no judgments. They avoided discussions of religion and God and just listened to what a caller or visitor had to say. They were "befriending."

Befriending, as developed by Chad Varah's experience with these volunteers became his new work. He met with the volunteers regularly, recruited and screened new volunteers, and dismissed volunteers whom he thought were not providing "befriending". The name Samaritans came out of a headline describing Varah as the "Samaritan Priest"--a compliment he passed on and ascribed to the volunteers. For the next five years, Varah experimented with and perfected the Samaritans' particular approach to the suicidal and in 1959 he began to support and encourage the development of other branches in Great Britain. In 1960, the approach went worldwide as Samaritans opened new branches in Hong Kong and Bombay.

Samaritans are "...themselves and what they have to give--namely, their personal concern, their time, attention and friendship. The Samaritan listens, accepts, cares; and this can make all the difference for those who feel that no one has time for them, that they are rejected, and that nobody cares" (1). This simple statement by Chad Varah describes the heart of the Samaritans movement and why the approach of befriending spread so quickly and so far.

In 1974, the Samaritans movement was brought to the United States by Monica Dickens who founded the first U.S. branch, the Samaritans of Boston. The second U.S. branch, the Samaritans on Cape Cod, initially shared a board with the Boston Samaritans. In 1980, Samaritans USA was incorporated to set standards for new branches, to support the development of new branches in the United States and to fundraise for the Samaritans on a national scale.

PRINCIPLES AND PRACTICES

The Seven Principles and Practices, as agreed upon by the Council of Management at its meetings in June and November 1981, are the standards by which Samaritans branches operate in the United States and worldwide. They are:

Seven Principles

1. The primary aim of the Samaritans is to be available at any hour of the day or night to

befriend those passing through personal crises and in imminent danger of taking their own lives.

2. The Samaritans seek to alleviate human misery, loneliness, despair, and depression by listening to and befriending those who feel that they have no one else to turn to who would understand and accept them.

3. A caller does not lose the freedom to make his/her own decisions, including the decision to take his/her own life, and is free to break contact at any time.

4. When a person asks help of the Samaritans, the person's identity and everything he/she has said is completely confidential within the organization unless permission is freely given by the caller for all or part of such information to be communicated to someone outside the organization. A Samaritan volunteer is not permitted to accept confidences if a condition is made that not even the Director should be informed of them.

5. Samaritan volunteers, in befriending callers, will be guided and actively supported by experienced leaders who will have the advice, when required, of professional consultants.

6. In appropriate cases the caller will be invited to consider seeking professional help in such fields as medicine and social work, and material help from other agencies.

7. Samaritan volunteers are forbidden to impose their own convictions or to influence callers in regard to politics, philosophy, or religion.

Seven Practices

1. Samaritan volunteers are carefully selected and prepared by the local branch in which they are to serve.

2. The Samaritans are available at all hours to callers, and may be contacted (anonymously if desired) by telephone or personal visit, or by letter.

3. When a caller is believed to be in danger

of suicidal action, the Samaritan is particularly encouraged to ask the caller's permission to maintain contact during the crisis.

4. Samaritans offer longer-term befriending of callers where appropriate, while recognizing that the Branch may, from time to time, have to set limits.

5. Samaritans listen to those concerned about the welfare of another person, and, if satisfied that the third person is despairing, depressed, or suicidal, may discreetly offer befriending.

6. Samaritans are normally known to callers only by a forename and contacts by callers maybe made only through the branch center.

7. Samaritan branches are banded together in a legally constituted association whose Council of Management represents all the branches and reserves to itself the appointment of the person in charge of each branch (2).

While the primary purpose of all Samaritans branches is to provide a 24-hour crisis line for the lonely, despairing, and suicidal, almost all the branches have outreach programs pertaining to suicide and its prevention. Like many other suicide prevention agencies, the Samaritans have been involved in the schools as their primary outreach--speaking to classes and assemblies, holding workshops for parents and educators, and befriending survivors after a suicide has taken place. While the principles and practices remain constant throughout the Samaritans branches in the United States, the outreach programs of the various branches differ greatly.

SAMARITANS OF BOSTON

The oldest of the Samaritans branches in the United States, in operation since 1974, the Samaritans of Boston receive almost 250 calls or visits daily. Noticeably more and more of these callers are young people who are seriously depressed or suicidal. Since 1982, the Samaritans of Boston have focused spe-

cial attention on the problem of teenage suicide through their Youth Outreach Project.

Instead of waiting for young people to call or visit, the Samaritans focused their efforts on prevention through education. They thoroughly researched the extent of the problem in Massachusetts and designed educational materials based on the results of that research. They began their outreach by distributing their pamphlets to all schools and colleges in the State of Massachusetts. They followed this with an offer to provide a speaker for any class or staff group that was interested.

Both the oral and the written information was divided into two sections one for the students themselves and one for teachers and counselors working with those students. For the professionals, the booklet, "Teens: Depression and Suicide", delineated the problem, identified warning signs of depression and suicide risk in children, offered suggestions on how to help, and provided information on where to go for help. The information is presented in a clear and direct manner, viz.:

Parents, teachers, and friends of depressed or suicidal young people often ask the Samaritans what they can do to help. The important thing is to pay attention. Encourage them to talk. Listen. Be on their side. Reassure without dismissing.

Don't panic. Remember that no one is suicidal all the time. Thoughts of self destruction arise at times of crises, but lives can be saved by understanding and support.

> Learn to recognize the signs of serious depression and suicide risk. Eight out of ten suicides give definite warnings, verbal or behavioral, of their intentions...These signs of depression do not invariably mean that young people are contemplating suicide, but they alert you to the need to explore more carefully their state of mind....

Don't be afraid to ask, "Do you some-

times feel so bad you think of suicide?" ....Discussing suicide openly is one of the most helpful things you can do. It shows that you are taking the person seriously, and that you care.

If the answer is "yes," follow through by asking, "Have you thought about how you might do it?"....It is vital not to underestimate the danger by not asking for details.

If you think there is immediate danger, DO NOT LEAVE THE PERSON ALONE. Stay with him until the crisis passes or help arrives....The Samaritans are always available to help you or the person in danger....

If the person is hallucinating, affected by drugs or alcohol, if an attempt has begun or is imminent, do not try to go it alone. Stay with the person, and contact any of the following: an ambulance service in your town, your local police, emergency room of a local hospital, a trusted adult, the Samaritans (3).

The Samaritans also designed pamphlets geared to young people themselves, offering much of the same information in an easily understandable style. These pamphlets include the warning signs of depression and suicide risk but are presented in question form. Myths and facts about suicide are also included, places to turn for help, and guidelines for handling an emergency.

The Youth Outreach Project of the Samaritans of Boston has been a tremendous success. Now coordinated by a full-time person, the materials described above have been mailed annually since 1982 to 1500 schools and colleges. In addition, Samaritans have given more than 500 talks on the subject of teenage suicide and have followed-up on more than 2500 requests for additional information. The number of teenagers contacting the Samaritans of Boston has increased over the life of the program from 10.8 percent of the total client volume in 1982 to 16.6 percent in 1985 (4).

In 1985, the program was expanded to include information on the relationship of alcohol to youth suicide. Two pamphlets, one oriented to teenagers and the other to their parents, were published in 1985, both entitled, "Drinking and the Teenager."

In 1986, the Youth Outreach Project of the Samaritans of Boston made an additional commitment to the prevention of adolescent suicide through the creation of a special and separate telephone hotline for teenagers, staffed by teenagers themselves who are called SAMARITEENS.

SAMARITANS ON CAPE COD

The Samaritans have developed multiple relationships with the schools in Cape Cod, Massachusetts. They have provided workshops for teachers, both for credit and not for credit, on befriending and suicide awareness. They also make presentations to student groups and church youth groups, usually about once a month that often include a screening of the film, "Urgent Messages." They are often called into a school after a suicide to provide postvention services.

In addition, this group consults with an active chapter of Students Against Drunk Driving (S.A.D.D.), a relationship that not only supports the activities of that organization, but provides access and legitimacy for the Samaritans among a large population of students.

SAMARITANS OF RHODE ISLAND

The unique small size of Rhode Island is conducive to Statewide activities and interventions. The Providence branch of the Samaritans serves the whole State of Rhode Island, both in its telephone service as well as its outreach programs. In 1985, the Rhode Island Samaritans conducted almost 200 suicide information seminars in the schoolrooms of Rhode Island. Realizing that this approach only began to meet the need that

existed in the schools, the Samaritans of Rhode Island began work on a model that would institutionalize the teaching of suicide awareness Statewide in the schools.

Merely believing that the education of students in the classroom is an effective tool in suicide awareness and prevention is not enough to garner the kind of support necessary to implement a new Statewide program. With an issue as emotional as adolescent suicide, documentation and evaluation are necessities.

The Samaritans of Rhode Island first developed a manual to be used in the teaching of suicide awareness in the classroom. The author of the manual, George J. Fincik, is both a Samaritan and a secondary school English teacher. The manual consists of five lessons:

1. Developing a compassionate attitude toward suicide and its victims.

2. Acquiring knowledge about suicide.

3. Developing an awareness of the signs signalling suicide.

4. Developing befriending skills.

5. Building a support system.

Through these five lessons the manual intends to focus the attention of the teaching community on adolescent suicide, to involve teachers in a realistic way in suicide prevention, and to introduce befriending as a skill and approach. Fincik, in his introduction to the manual, states this intent most eloquently:

> We can no longer perceive our roles only as dispensers of knowledge. The students sitting in front of us are not mere receptacles for ideas, facts, values, trends, data, or events. Those sitting in front of us are caught up in the pressure-cooker of modern life. These human beings are sometimes seething with feelings that are incomprehensible, with a sense of helplessness, hopelessness and futurelessness that is emotionally debilitating, with ideas that confuse

rather than clarify, and with demands that would defy a Hercules. Such human beings are hardly in a condition to take our classroom activities seriously.

And who but teachers are in the best position to observe students individually or in groups, to sense the emotions seething under the surface, to monitor subtle changes in behavior, and to realize that the student in reality might be a hurting human being?

But if the teacher lacks knowledge about suicide--its causes and its warning signs-- the teacher very well could be unaware that a life and death drama might be developing. **It is too late to rewrite the lesson plans of life once the student rips up the original copy (5).**

With the help of a grant from the National Conference of State Legislatures, the Samaritans of Rhode Island embarked on a pilot program to assess the effectiveness of the manual and its awareness program in four Rhode Island schools. Four corresponding, non-participating schools were used as controls. Both the experimental schools as well as the control schools represented a sampling of teenagers in the State: urban, suburban, rural and suburban/rural mixed.

In October 1985, baseline data were collected at all eight schools. Following that, the Samaritans held a two day workshop for the participating teachers from the four experimental pilot schools. Four sessions were developed by the Samaritans to help the teachers confront their feelings and attitudes about suicide and to inform them further about youth suicide. The sessions were:

1. Suicide information, statistics, studies, and programs.

2. Attitudes toward death and suicide.

3. Befriending: the art of active listening.

4. The manual, crisis intervention protocol, and school protocols.

Samaritans staff reported that teachers participating in these sessions were extremely positive in their evaluations, and felt more skilled and knowledgeable. Following this training, the teachers implemented the curriculum model from the manual.

Followup assessments were done at all eight schools with four different measures employed as assessment tools: knowledge about suicide, student attitudes toward suicide, personal knowledge of suicide, and feelings of hopelessness.

The pilot program based on both participant evaluation and external evaluation was considered a success.

The Samaritans, in collaboration with the Rhode Island Department of Education, the Rhode Island Department of Health, and the Rhode Island Task Force on Adolescent Suicide Prevention developed a plan to ensure that this model was implemented Statewide. The Rhode Island Department of Education has incorporated suicide prevention into their mandatory health curriculum. In conjunction with Rhode Island College, the Samaritans will offer a two credit graduate course in suicide education so that teachers can learn the new mandated curriculum. The Rhode Island Department of Health has set an internal objective for 1990 that states "...that greater than 60 percent of young people, ages 15 through 24, should identify a suicide prevention hotline." And the State legislature through a bill introduced on behalf of the Task Force on Adolescent Suicide Prevention, has made an appropriation of $35,000 to the Samaritans of Rhode Island to coordinate the implementation of the Statewide suicide curriculum through the continued refinement of the manual and the training of health teachers Statewide in its use.

The preliminary results of the Samaritans of Rhode Island study were presented at the American Association of Suicidology meeting in April 1986 and will appear in the Rhode Island Journal of Medicine in September 1986. A followup study is scheduled for June 1986.

SAMARITANS OF THE MERRIMACK VALLEY

Located in Lawrence, Massachusetts, the Samaritans of the Merrimack Valley integrate their outreach efforts with the efforts of other agencies in the Merrimack Valley. They consult with a high school peer counseling project, "The Connection," that produces an improvisational theater program on adolescent suicide. They participate in the Town of Andover's Assessment-Support-Knowledge (A.S.K.) Program, providing wallet cards with hotline numbers to all the school children in the area as well as integrated and coordinated prevention and intervention programs.

Their outreach efforts also include visits to 20 to 25 schools in the Lawrence/Haverhill/Lowell area, direct mailings of suicide related articles, showings of the video "Teen Suicide--What Can We Do?", and postvention services to communities that have experienced a suicide.

SAMARITANS IN KEENE

Like all Samaritans branches, the Samaritans in Keene, New Hampshire, reach out to the schools, youth groups, and colleges in their area with brochures and offer to present onsite programs. Last year the presented almost 35 programs to groups of young people.

The Keene Samaritans are also taking advantage of the experiences of other Samaritans branches in the United States, both in their current efforts as well as in their plans for new outreach activities and programs. They currently distribute a brochure entitled "Suicide Prevention--A Guide for Students" developed by the Samaritans of Rhode Island. In addition they are in the process of writing a grant proposal that would fund both a Samariteens line such as that developed by the Boston branch as well as an improvisational youth theatre group similar to the one supported by the Merrimack Valley branch.

SAMARITANS OF SOUTH MIDDLESEX

Serving the Framingham, Massachusetts area, the Samaritans of South Middlesex direct-mail a brochure to all schools in their locale. Similar to the other Samaritan branches, they offer a followup visit including a showing of the film "Urgent Message." One unique aspect of the outreach of the Samaritans of South Middlesex is that they emphasize to their young audiences that they can call collect. This, the Samaritans believe, encourages more young people to use the service who might otherwise fear the Samaritans number appearing on the parents' telephone bill.

SAMARITANS OF FALL RIVER/NEW BEDFORD

The Samaritans of Fall River/New Bedford is the newest full branch in the Samaritans USA network, having opened in the spring of 1984. Similar to the other full branches of the Samaritans, the Fall River/New Bedford group has reached out beyond the hotline and walk-in service to the schools and colleges in its area. Two schools have videotaped the Samaritans' presentation and copies are available in their school libraries whenever anyone wants to see them.

In addition, the Samaritans have been invited to produce and plan a workshop on "befriending" for all guidance counselors in the Fall River, Massachusetts system. The Fall River/New Bedford Samaritans are particularly interested in sharing the model of befriending--acceptance without judgment--with key professional people in the schools.

OTHER BRANCHES

The other seven branches that currently make up Samaritans USA are considered either probationary or preparatory branches, still working at meeting all the guidelines and standards for full status. Located in Chicago, New York City, Albany, Hartford, Washington, D.C., the South Shore of Mas-

sachusetts, and South Central New Hampshire, these branches are focusing on providing 24 hour befriending services to their areas. Major outreach activities by Samaritan branches are prohibited prior to attaining full status.

Samaritans USA is still a relative newcomer to the field of youth suicide prevention in the United States. Until recently located primarily in New England, Samaritan branches are now opening in a wider geographical area as indicated in the list of probationary and preparatory branches.

As the number of branches spreads throughout the United States, so does the impact of the Samaritans approach to youth suicide. The Samariteens program in Boston and the suicide awareness curriculum in Rhode Island are quite possibly models for the entire country. And the heart of the Samaritans, befriending, is an approach that has worked and is working worldwide.

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EVALUATION AND MANAGEMENT OF SUICIDAL RISK IN CHEMICALLY DEPENDENT ADOLESCENTS

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SUMMARY

The chemically dependent youngster who becomes suicidal appears to be characterized by a strong family history of chemical abuse, obvious signs of depression and hopelessness, a stated desire to die, and a recent loss or separation, most commonly, parental separation or divorce.

Recognizing the crisis and providing care and protection is the most crucial aspect of the prevention of suicide in these cases. However, the underlying illness is chronic and requires long term treatment with continued alertness to the possibility of a recurrence of suicidal risk.

INTRODUCTION

The correlation between heavy drug use and suicidal behavior is evident to a wide range of clinicians (1,6,7,9). According to Frances (4), half of all suicides are associated with alcohol use. In recent years, large scale studies of mortality in psychiatric patients show that a history of alcoholism or drug dependency greatly increases the likelihood of untimely death among both psychiatric outpatients and inpatients (1,6). Much of the increased mortality in these patients can be attributed to suicide. Recent studies of adolescent populations have confirmed these trends in young people, a finding that does not surprise therapists who treat adolescents and are familiar with this phenomenon in their clinical practices.

The strong relationship between severe depressive illness and suicidal behavior has also been widely recognized (7,8,9). A high rate of depressive symptomatology is also obvious in chemically dependent patients. Indeed, Robins and Alessi (9) have theorized that drug abusing depressives are a special subpopulation with an exquisite sensitivity to dysphoric affects and a very limited capacity to tolerate them. Thus they would be more likely to use chemicals in an effort to ameliorate depression and more likely to be tempted to turn to suicide as a permanent solution to their painful state. In spite of considerable interest and research, however, the relationship between the syndromes of depression and the syndromes of addiction is not completely clear. For example, recent literature suggests that addictive behavior and the depressive syndromes are two separate illnesses with some degree of overlap. It is also clear that a great deal of depression encountered in chemically dependent individuals is a **result** of addiction rather than its **cause** (2,5,10).

Many elements of the addictive experience increase the likelihood of depression with attendant feelings of helplessness, despair, and suicidality. These factors are enhanced in adolescents because of the young person's relative lack of a time perspective, the ten-

dency to be action oriented, and the heightened impulsiveness characteristic of immaturity.

Even if drug-using, depressed adolescents do not represent a specific high risk population as suggested by Robins and Alessi, many, almost inevitable effects of habitual drug use increase the likelihood of suicidal behavior. As mentioned earlier, many of the drugs themselves produce central nervous system depression which is often accompanied by subjective dysphoria. Alcohol, for example, is notorious for producing a morose and irritable mental state when the blood alcohol level begins to diminish. Other drugs produce a depressive frame of mind on withdrawal, particularly cocaine (5).

Most of the depression produced by chemical dependency, however, results from its impact on overall life style. The inability to control one's actions creates a sense of helplessness and demoralization. In addition, the adolescent heavily involved with drugs amasses a constantly increasing load of guilt. This guilt is related to alienation from family and other responsible adults, accumulating failures and disloyalties, and personally unacceptable behaviors which the adolescent had to perform in order to get drugs, or did them because his/her judgment and self control were impaired by intoxication. This increasingly heavy mental baggage of regret and remorse is held just out of consciousness by denial, projection, minimalization, and heavier use of drugs. It looms behind the adolescent as a monstrous shadow, however, ever growing and ever closer to overwhelming the youngster's self-esteem and pleasure in life.

The problems produced by a lifestyle of heavy drug use are accentuated during times of withdrawal because of the physiological depression and irritability which accompany the process of detoxification from many of the psychoactive drugs. The withdrawal from cocaine is frequently accompanied by suicidal ruminations (5), although actual suicidal behavior has not been as frequently reported during withdrawal as it has been

during the state of intoxication itself. For example, many alcoholics who commit suicide are discovered to have high blood alcohol readings at death.

There is considerable agreement that suicidal behavior in drug-involved individuals is frequently triggered by experiences of loss. Very often these losses are the direct result of drug use. For example, the patient may get into serious legal trouble, face major disruptions of family life, be dropped from an athletic team or experience some other loss or life failure clearly resulting from drug use. On the other hand, these individuals seem to be vulnerable to losses that are unrelated to the drug problem, such as the death of a parent or geographic move which disrupts support networks. It is as though the chemically dependent individual is more likely to experience loss than the average person, but may also be less able to deal with the psychological consequences of loss experiences.

CLINICAL PROFILE OF HIGH RISK ADOLESCENTS

Evidence of Depression

According to Robins and Alessi (9) the most accurate indicator of the likelihood of a serious suicide attempt is the adolescents' stated sense of hopelessness and a definite statement that they "wish to die." The author's clinical experience supports the observation that this information is best obtained in an individual interview with the adolescent which should include empathic listening and very direct and persistent questioning regarding the adolescent's true feelings.

> Diane was a 17-year old girl with a history of periodic rage outbursts, periods of depression, marijuana, alcohol and cocaine abuse, and difficulty in making and keeping friends. She was hospitalized following a suicide threat which was judged to be serious although it was not accompanied by any attempt. The patient had a stormy early hospital ex-

perience but was gradually able to discuss her feelings about her mother's death by suicide and her own difficulty in maintaining a positive mood. She improved and was discharged to her home. Continuing outpatient individual and group psychotherapy aftercare helped Diane maintain an adequate adjustment in her adoptive family until the adoptive father's work required a geographic move.

Although Diane was placed in psychotherapy in the new location and seemed to be making an adequate adjustment, she called a friend in her old neighborhood and complained that she was not able to make close friends in the new location and that she had begun to use cocaine again. A week later she called another friend stating enigmatically that she "just wanted to hear her voice". A week later she overdosed on her antidepressant medication and died.

This tragic case reminds us that adolescents often offer meager clues which they expect us to perceive and actively pursue. Unfortunately, as in the case of Diane, these clues are often very confusing. Diane's friends were touched by her telephone calls and since they saw mainly the somewhat abrasive, behaviorally disordered facade which Diane used to protect herself from being hurt in dependency relationships, they simply did not recognize the warning. It is unknown whether Diane provided any warning to her new therapist. It is very likely that no clues were offered although Diane had lived in the new location for more than six months.

Diane's depression, substance abuse, and death also illustrate other important risk factors. As previously mentioned, her mother was a suicide victim. The mother committed suicide on a holiday evening during Diane's seventh year. Diane herself committed suicide within a week after that time ten years later. At the time of her hospitalization the psychologist who tested Diane noted, "thoughts of death are often on her mind." Diane also showed a pervasive difficulty in

forming and maintaining comfortable dependent relationships. She had a mild learning disorder which interfered with her effective functioning in school in spite of a tested I.Q. in the superior range. All of these factors contributed to her reputation as a troublemaker and smart-aleck. They also disguised to some extent her hunger for acceptance and affection. Finally, the geographic move with its disruption of Diane's therapy and friendship relationships probably contributed to her sense of loss and triggered the overwhelming sense of hopelessness and depression that led to her suicide.

A second brief case vignette offers additional examples of the same risk factors.

Dawn, a 14-year old Caucasian female, was raped by a girlfriend's father at a slumber party one year prior to admission. Because of the complex set of circumstances which probably included some poor legal advice, no action was taken against the rapist. Dawn responded to the event with severe psychological problems. She became very rebellious at home, slept excessively, lost about 20 pounds and appeared to lose interest in all of her previous activities, including her school work. She began to act out sexually, caught gonorrhea, became pregnant, and had an abortion. She also began to use drugs heavily, particularly marijuana and cocaine, and started running away from home for prolonged periods. Her depression only became clearly evident, however, when her parents separated and began planning for a divorce two months prior to her admission. When her mother told her of their plans, Dawn became profoundly depressed and made a very serious suicide attempt, taking all the medications she could find in the family medicine cabinet. She was hospitalized in a coma and transferred for psychiatric treatment when medically cleared. At the time of hospitalization, she appeared less depressed and was demonstrating

some of her previous defensive measures. Psychological testing reported defenses of "denial, avoidance, and externalization". Psychological testing also revealed visual perceptual motor problems for which Dawn seemed to be attempting to compensate.

CASE SURVEYS

To provide some numerical support to anecdotal clinical impressions, the last nine youngsters admitted for serious suicide attempts who also reported drug abuse, were reviewed. Certain features are interesting, although is is obvious that we cannot draw definite conclusions from such a small group or even state which hypotheses might best explain the case characteristics.

Two findings are extremely striking. A clear history of alcoholism within a family member (no more distant than uncle or grandparent) existed in eight of the nine youngsters (five girls and four boys). Three fathers, one mother, and four other close family members (two grandfathers and two uncles) had documented alcoholism. In some cases, several family members were known to be alcoholic.

The second striking finding was that a separation or divorce had occurred within the previous two years in six of the nine cases. In two other cases, the probability of separation was being openly discussed by the parents at the time of hospitalization.

A history of a suicide attempt or completed suicide was noted in a family member in only two of the nine cases and only three cases had recently experienced a geographical move. Four of the youngsters had evidence of primary learning disability through both history and psychological testing.

It is difficult to say exactly what these observations mean, but they suggest that the population is a highly vulnerable one. There is a major hereditary susceptibility for substance abuse. Central nervous system dysfunction or instability demonstrated through the presence of learning disabilities was also

evident in four of the youngsters and a fifth had a seizure disorder. Perhaps these vulnerabilities, coupled with problems created by drug abuse help to explain the youngster's difficulty in maintaining self-esteem and the ease with which they could develop a sense of helplessness and hopelessness that might make suicide attractive to them. Often, dependency relationships which might have supported the vulnerable youngsters were tenuous, particularly within their families and, as we have seen in several cases, these tenuous support systems were further disrupted by marital disharmony or separation.

Perhaps the subjective sense of their lives is better conveyed by Marti, a 15-year old girl who wrote in an English essay, in the hospital's school,

> "Why can't I love anyone? Why can't I care about myself? Why can't I keep friends? Why do I hurt people all the time? Why can't I be straight? I can't think of any solutions. All (I) can think about is the questions and the problems that face me."

The psychologist described Marti as "an exceedingly discouraged person who sees herself as undergoing a great deal of suffering and torment.... The depressed feelings that Marti has are compounded by family problems.... This combination leads Marti to feel quite hopeless about things and there are signs that acting on suicidal feelings presents a continuing threat in her case.... Marti feels quite abandoned by other people."

Sometimes this sense of abandonment simply reflects reality. Sean, a 15-year old white male with a history of bedwetting until age 11, played with matches as a child, and was generally destructive. He was completely rejected by both of his divorced parents. The mother refused to take custody. The father hospitalized Sean after a serious suicide attempt but rejected the recommendation for long-term residential treatment or for outpatient treatment since he felt Sean did not deserve "to have another penny spent on his

meanness." He stated instead, that it was his intention to take him home, let him decompensate and then "turn him over to the authorities." On psychological testing Sean "painted a picture of a sordid, morally barren world, in which even loved ones cannot be trusted."

MANAGEMENT OF THE SUICIDAL CHEMICALLY DEPENDENT ADOLESCENT

The first priority in the treatment of the suicidally active, chemically dependent adolescent is risk identification. As mentioned previously, the recognition of suicidal risk is not difficult if the index of suspicion is high. The initial evaluation of all adolescents should include careful review of all pertinent suicide risk factors including the degree of hopelessness and stated desire for death, history of suicidal behavior in a relative or friend, history of previous attempts, and the history of recent losses or separations. It appears from the limited data mentioned in the study of the nine cases above that parental separation or divorce seems to be a particularly dangerous loss experience for this population of youngsters.

Once a youngster with a high risk of suicide is identified, it is important to remember that continuing caution is indicated since most of the conditions which predispose the youngster to depression and suicidal behavior are chronic. These basic vulnerabilities and pathological defenses do not yield easily to treatment and are difficult to alter on a permanent basis. One can easily be overly optimistic about patients who are in treatment. The process of psychotherapy itself temporarily satisfies emotional and dependency needs. The experience of being cared for may produce behavioral improvement which is not, however, readily internalized in the youngster's psychic structure. The fact is that these youngsters remain highly vulnerable to loss experiences. Any changes in living conditions perceived by youngsters as traumatic can produce new suicidal peril for them and their apparent gains may rapidly vanish.

At the time of acute suicidal risk, aggressive treatment is necessary to protect the youngster. One cannot expect complete cooperation from either the adolescent or the adolescent's parents in all cases. For the adolescent, suicide often appears as a consciously desired solution to his/her chronic unhappiness while parents may consciously or unconsciously accept this outcome also. In some instances, such as Sean's father, the parent even seems to be actively and consciously encouraging the adolescent's despair and sense of abandonment.

Adolescents may resist help because they are ambivalent about desiring death and they fear dependency. Often, they force helpful adults to prove their determination and genuine desire to be of assistance by making the therapeutic process as difficult and unrewarding as possible. However, when provided firm, clear support of sustaining life and firm disavowal of suicide as an acceptable action, the adolescent will usually abandon suicidal efforts. At times, supervision of the adolescent is necessary on an almost constant basis to insure the youngster's safety, but as a rule, this kind of caution does not need to be extended over time. When adolescents are prepared to give unequivocal assurances that they will not harm themselves and they will report any suicidal urges to a responsible adult, the promise can usually be trusted. In the same way that adolescents are usually truthful in reporting their plan to kill themselves when asked directly within a framework of care and concern, their promises that they will not harm themselves--if delivered with appropriate affect to a trusted adult--are a reliable indicator of their ability and willingness to protect themselves.

The active treatment of the concurrent chemical dependency is also very important in these cases. Continuing use of drugs undermines self-esteem and produces a sense of alienation from caretakers, both of which increase the danger of suicide.

As a rule, traditional psychotherapy alone is

not sufficient to gain and maintain abstinence and control of addictive behavior in chemically dependent adolescents. Long-term traditional psychotherapy is usually necessary to ameliorate the psychological vulnerabilities which may have initiated the excessive dependency on drugs and also to help the adolescent tolerate the task of mastering those developmental achievements which were disrupted by chronic intoxication and the preoccupation with the drug life.

In addition, special remediation and ego building approaches may be needed to help the adolescent master the environment more effectively and internalize a sense of competence. These ego building, cognitive aspects of treatment may include special education as well as social skills training as indicated for specific adolescents. Practical, sensitive assistance in gaining school and/or vocational successes as well as help in developing and maintaining a network of friends is also important.

The youngster's environment should be evaluated also. If a neighborhood or school is particularly competitive, fragmented, cold, or unfriendly, the therapist may need to become involved in efforts to create community atmospheres more supportive of the fragile adolescent. Assistance in locating appropriate Alcoholics or Narcotics Anonymous support groups may be very important in maintaining abstinence and in providing needed emotional support derived from group membership and group recognition of achievement.

Family therapy is always a necessary part of the treatment process. Some families are difficult to treat. Often these youngsters have been a longstanding source of stress and unhappiness to the parents. The disturbed adolescent may even have been a significant element in the marital discord or separation commonly seen in these families. At the same time, many of the parents are chemically dependent themselves or suffer from ego weaknesses similar to those observed in the adolescents. The result of all these negative factors is that these parents often present in a very unappealing manner. They may be overtly or subtly rejecting the adolescent patient, contemptuous of therapy (to some extent because they have had many treatment failures), and uncooperative. At times, the parents appear very child-like and self-centered and do not hold the attitudes toward child-rearing which mental health workers would find acceptable.

In spite of all these comments, many parents can be involved in therapy if they are approached with understanding and with an accurate perception of the special needs of their disturbed adolescent children. It is usually necessary to be very firm in involving the parents in the treatment process. This may go as far as insisting that they assume their parental responsibilities, if necessary, by involving protective services and other legal approaches to force them to behave responsibly. Firm limits on acting out behavior are often necessary. Interestingly, although this leadership is often initially greeted with anger, the anger does not seem to interfere with long-term efforts to involve the families in treatment. At some level, these adults realize that they have a parental responsibility and, like an acting out adolescent, to some extent they are inviting us to take a firm stand to demand their best possible performance on behalf of their children.

A complete discussion of family therapy approaches is obviously not the purpose of this paper. It should be mentioned briefly, however, that multi-family therapy provides a model in which families who have achieved progress in developing or regaining a supportive parental role in their child's life can help new families. The "experienced" families can calm and support the shakier new parents and guide them through the treatment process with greater tact and with less narcissistic injury than professionals alone can offer.

Didactic techniques, which include substantial education regarding the addictive process, its depressive component, and the effectiveness of therapy, also can be very im-

portant in orienting the family to the nature of the treatment process and encouraging them regarding the possibilities of a positive outcome.

The value of psychopharmacology in the treatment of these adolescents is difficult to evaluate generally. Some adolescents, particularly those with a clear family history of major depressive illness, do seem to benefit by antidepressants. These medications are a reasonable part of the treatment plan, particularly in cases where treatment is begun in a hospital setting. It is crucial, however, not to expect too much of the antidepressant drugs, particularly in youngsters with histories that include clear cut ego defects and external traumas such as most of those we have described in this paper. It is important not to forget that the most common drug used in suicide attempts and successful suicides is the antidepressant.

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OVERVIEW OF EARLY DETECTION AND TREATMENT STRATEGIES FOR SUICIDAL BEHAVIOR IN YOUNG PEOPLE

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INTRODUCTION AND OVERVIEW

During the past five years, it has become apparent that suicidal behavior among young people represents an important public health problem requiring the development and implementation of detection and information strategies at the national policy level. Suicide is now the second leading cause of death in young people. For example, between 1970 and 1980, 49,496 of the nation's youth, 15 to 24 years of age committed suicide. Within this one decade, the suicide rate for this age group increased 40 percent (from 8.8 deaths per 100,000 population in 1970 to 12.3 per 100,000 in 1980), while the rate for the remainder of the population remained stable. Young adults 20 to 24 years of age had approximately twice the number and rate of suicides as teenagers 15 to 19 years old. This increase in youth suicide is due primarily to an increasing rate of suicide among young men. Rates for males increased by 50 percent (from 13.5 to 20.2 per 100,000) compared to a 2 percent increase in females (from 4.2 to 4.3 per 100,000) between 1970 and 1980 so that by 1980 the ratio of suicides committed by males to those committed by females in this age group was almost five to one.

A first step in our review of this area is to define early detection. It is important to realize that completed suicide is a low-base-rate phenomenon in that, fortunately, it does not occur that frequently (1). However, this rare event status does not compromise our major objective, which is to increase our ability to determine who is at greatest risk for completed suicide. We would argue that targeting one's efforts to prevent successful suicide--that is, to detect all behavior that leads to a final common pathway, suicide completion--is best done if we understand the various domains through which suicidal behavior emerges. These domains are not just risk factors but spheres of vulnerability. Because they can be detected and manipulated, they also represent opportunities for intervention.

In this review, we will attempt to describe several levels of detection and to integrate our proposed model of risk factors with a multi-threshold level model of detection (Table 1). Unfortunately, up to the present, reports on detection of suicide have often been flawed by poor methodology. Moreover, available detection and interven-

tion studies have not been adequately evaluated, nor has sufficient attention been given to the development of a conceptual model of detection and intervention. We believe that there are three major levels of detection.

- The first level represents the need to "red flag" high risk groups. It is basically a detection awareness strategy to follow individuals who may possess certain genetic and biological risk factors that interact with environmental factors in such a way that these individuals may be at risk for developing behavioral problems and/or psychiatric disorders that are present in Levels II and III. Level I also includes environmental stressors that are linked with suicidal behavior.

- Level II represents the detection of major behavioral/environmental problems. Here we are dealing with symptomatic children and youth in whom assessment and intervention may be required. Problems such as emotional difficulties, running away from home, and poor self-esteem may be identified at this particular level.

- Level III represents the detection of a psychiatric disorder of sufficient severity to require assessment and intervention by mental health professionals.

These three levels will be described in greater detail later in this review.

Levels of Detection

·Level I - **Detection Awareness:**
Red flagging high-risk groups for awareness and educational purposes.

Level II -**Detection of Major Problem:**
May require assessment-intervention (academic problems, self-esteem, being the victim of child abuse).

Level III-**Detection of Psychiatric Disorder**
Requires assessment and treatment.

Table 1.

Model of suicidal behavior

Our next task is to describe the five domains that comprise our theoretical model of suicidal behavior. We believe that five domains organized as a matrix provide a simple but appropriate model for considering these five risk factors for clinical investigation as well as for education and clinician intervention (Figure 1). We believe this overlapping model of risk, shown graphically as a series of interlocking Venn diagrams, represents a compelling alternative to notions of final common pathways or parallel schemas (2). A major clinical research strategy using this new model will be to develop weightings for each of its major components. For example, in applying this model, the breakup of a relationship might be a final humiliating experience that triggers a depressive episode in a young person with a family history of affective disorder. Such an individual may also have poor social supports which interact with the other identified risk factors to increase the individual's vulnerability for suicide. The question is, at what level and in what degree do each of these factors contribute to suicide potential? Is the degree of overlap of all factors the most significant criterion? Or, we may wish to pose such questions as, what makes 15 percent of the people who suffer from an affective disorder end their lives by suicide while the other 85 percent do not? Using this overlapping model, we may learn that the subgroup of affective disorder patients who commit suicide have a greater overlap of other risk domains such as increased hopelessness, impulsiveness, fewer social supports, a recent humiliating life experience, and/or stronger family history of affective disorder or suicidal behavior.

Domains of risk matrix

What are the five domains that comprise our risk matrix? The first is a **careful description according to psychiatric diagnosis. Second, personality traits** relating to suicide, such as aggression, impulsiveness, and hopelessness, are important in and of themselves in charac-

terizing suicide since they may represent personality styles that cut across diagnostic groupings. In addition, this domain includes certain personality disorders, such as borderline personality disorder and antisocial personality disorder, which are more highly correlated with suicidal behavior and represent risk factors. The third domain is concerned with **psychosocial factors, social supports, life events, and chronic medical illness**. For example, early loss, greater number of negative life events, the presence of chronic medical illness, and fewer social supports increase the risk for suicide. The fourth area is the identification of **genetic and family factors** that predispose an individual to suicide. Previously, investigators have suggested that the genetics of suicide may be independent of the genetics in a family history relating to specific psychiatric disorders such as affective disorder or alcoholism. The final factor in the matrix is the **neurochemical and biochemical variables** which are currently

under active investigation in an attempt to identify either a biologic abnormality or a vulnerability state for suicide.

With respect to children and youth, each of these domains is at least mentioned in the available literature. A number of theoretical issues, however, still need to be considered. These center around such questions as, what are the commonalities across psychiatric diagnoses which increase suicidal risk; does the mere presence of such a disorder with the overlapping of the domains create the increased risk; or, is it both?

Psychiatric diagnosis

The diagnostic picture for youth suicide is not clear-cut. Only a few studies on completed suicide have been conducted in this age group. However, in the adult literature, we know from four major studies with sufficient sample size (three retrospective and one prospective (3-6)), that if one sums the find-
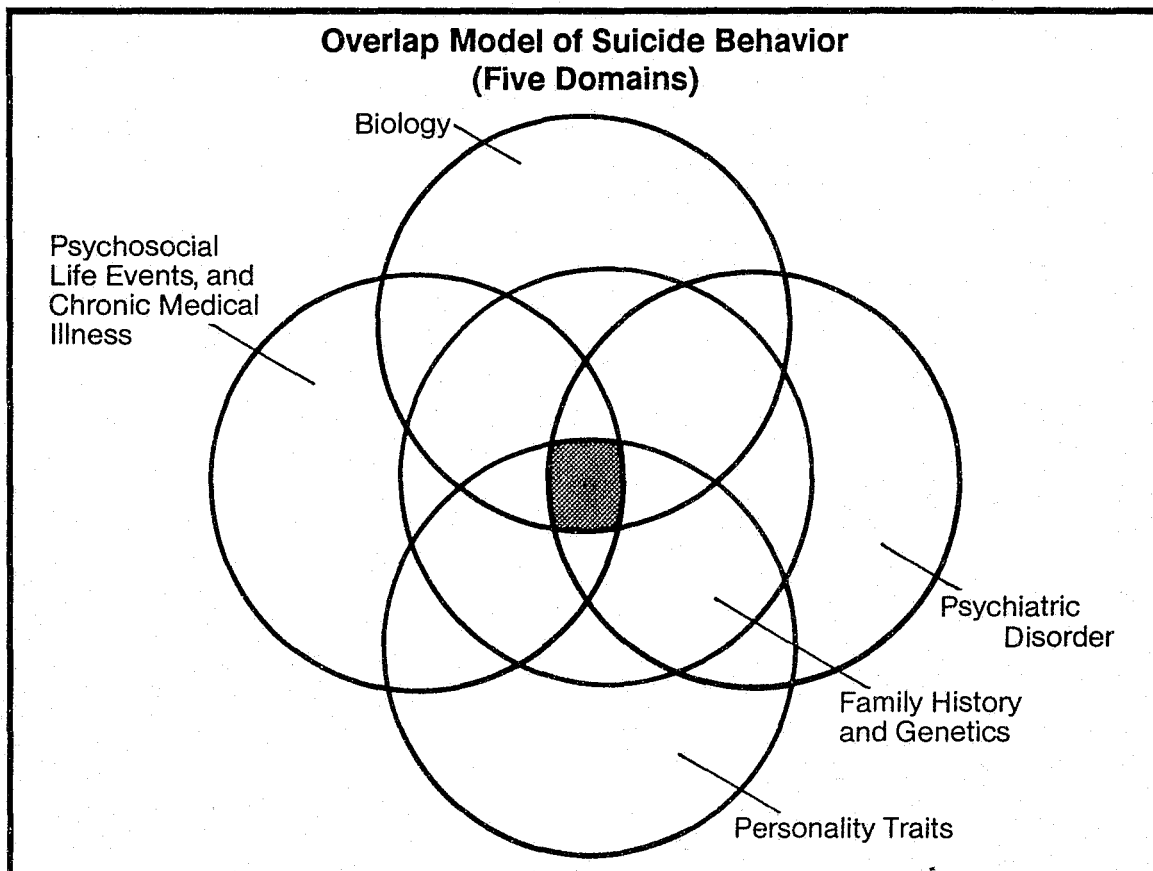

Overlap Model of Suicide Behavior (Five Domains)

Biology

Psychosocial Life Events, and Chronic Medical Illness

Psychiatric Disorder

Family History and Genetics

Personality Traits

Figure 1.

ings about the association of suicide with psychiatric disorder from these studies, more than 90 percent of the victims had a psychiatric disorder and less than 10 percent had no mental disorder. The findings in the adolescent literature are quite similar. A recent study by Shafii (7) found that 95 percent of the adolescent suicide victims had an associated psychiatric disorder by DSM-III criteria. A high percentage of these young people had an affective disorder--76 percent had major affective disorder or dysthymia as compared to 28 percent in the control group. His work (8) also suggests that 70 percent of youngsters who end their lives by suicide have associated substance abuse, 70 percent have a history of antisocial behaviors, 65 percent have "inhibited" personality traits, and 50 percent had made a previous suicide attempt. Suicidal behavior of parents, relatives, and friends, along with a parental history of emotional problems and abuse, were also significant variables. An earlier study by Shaffer (9) suggests that several personality traits are characteristics of youngsters who end their lives by suicide, including tendencies to be withdrawn, perfectionistic, impulsive, or aloof. Preliminary data from a large ongoing psychological autopsy study of adolescents (10) suggest that at least a third of the young people in the study who ended their lives by suicide had an associated conduct disorder and that one quarter of the sample population were suffering from a depressive disorder. In addition, a high percentage of these youth abused alcohol or drugs. Approximately 50 percent of these young people had a family history of suicidal behavior (11). Suicide attempts in this age group have likewise been linked to depressive symptoms. The co-morbidity of antisocial and depressive symptoms appears to be a particularly lethal combination in youth (10,12).

In sum, it is likely that the symptom triad of aggressiveness, impulsiveness, and depressive symptoms represents a major contribution to risk for suicide across the life cycle. In addition, substance abuse represents a major risk factor for youth suicide especially when linked with affective symptoms and impulsive personality traits.

Personality factors

Even though conduct disorders and borderline personality disorders are highly associated with adolescent suicide (7-10,13,14), assessment of personality factors has been impeded by lack of standardized measures for these characteristics in young people. In addition, assessment of personality at the time of a suicide attempt is confounded by the distress experienced by the individual concerning the event. Finally, there is a continuum of traits and disorders associated with suicidal behavior in youths with such behavior in adults. Therefore, characteristics appear to be stable over the life cycle (15). It is proposed that certain diagnostic categories from the DSM-III Infancy, Childhood, and Adolescence section correspond to, and in effect eventually develop into, certain personality disorders (e.g., schizoid disorder of childhood and adolescent lead to schizoid personality disorder; avoidant disorder of childhood and adolescence leads to avoidant personality disorder; conduct disorder leads to antisocial personality disorder; oppositional disorder leads to passive aggressive personality disorder; and identity disorder leads to borderline personality disorder).

The presumption is that the childhood or adolescent condition is diagnosed if the individual is under age eighteen, and the adult personality diagnosis is used after age eighteen whenever the personality psychopathology has persisted at an intensity sufficient to meet disorder criteria (15). In addition, these personality variables may also have biological correlates (i.e., serotonin deficiency related to increased impulsiveness and aggressiveness) which interact with environmental factors. It should also be noted that the co-existence of Axis I depression and Axis I conduct disorder or borderline identity personality disorder may represent an extremely risky combination of factors.

Recently, the relationship of personality

variables to cognitive styles has been studied in suicidal behavior. In one study (16) cognitive characteristics of rigidity, impulsiveness, and field dependence were contrasted in a group of suicide attempters and a group of nonsuicidal psychiatric controls. The suicide attempt group was characterized by greater rigidity in a divergent thinking task; using multivariate analysis while controlling for age and diagnosis, field dependence was also more characteristic of the suicide attempters, but only in the 19-34 age group. Impulsiveness did not differentiate the two groups. The results were interpreted as supporting a hypothesis of a cognitive predisposition to attempting suicide.

In a similar manner, Beck and colleagues (17) intensively studied 207 patients hospitalized with suicidal ideation, but not recent suicide attempts, at the time of admission. During a followup period of five to ten years, fourteen of these patients committed suicide. Of all the data collected at the time of hospitalization, only the Hopelessness Scale and the pessimism item of the Beck Depression Inventory correlated with the eventual suicides. A score of 10 or more on the Hopelessness Scale correctly identified 91 percent of the eventual suicides. Taken in conjunction with previous studies showing the relationship between hopelessness and suicidal intent, these findings indicate the importance of degree of hopelessness as an indicator of long-term suicidal risk in hospitalized depressed patients. Beck (personal communication) has now been examining the congruence of cognitively rigid individuals and the level of hopelessness in the development of suicidal ideation and behavior. Neuringer (18) has suggested that cognitively rigid individuals faced with naturally occurring life stress are unable to generate alternative solutions to their problems; as a result, they are inclined to develop ideas of helplessness and hopelessness, which, in turn, heighten the risk of suicidal ideation and/or behavior. In support of this model, Schotte and Cum (19) found that college students under high life stress who performed poorly on an interpersonal

problem solving task, the Means-End Problem solving procedure (20), reported greater suicidal ideation as measured by the Scale for Suicide Ideation (21). While other issues of impulsiveness and aggressiveness in children need to be examined systemically, these data represent the current level of knowledge regarding the association of specific personality factors and suicide in young people.

Finally, in an extensive review of psychosocial and cognitive aspects of adolescent suicide, Petzel and Riddle (22) concluded that adolescent suicide completers are even more isolated, less visible, and more disturbed than suicide attempters. Social isolation and impulsiveness were reported in a number of studies, and suicidal behavior within the family was associated with increased adolescent suicide attempts. They described a host of familial, social, school, and emotional problems, as well as physical illness, as interacting to increase the suicide risk. Petzel and Riddle concluded with a recommendation for clinical research approach using an interrelationship of multiple factors.

Psychosocial factors

Although the data base is limited, there is considerable convergence of findings in the area of family and environmental factors in relation to youth suicidal behavior (23). Adolescents who make suicide attempts are characterized by considerably increased life stress and have had many losses (particularly early loss) and significant changes within the nuclear family as compared with other psychiatrically disturbed youngsters, depressed adolescents, and the general population. They have also had both physical and psychiatric illnesses. Precipitating events are often humiliating and are almost invariably interpersonal problems between the adolescent and his parents or peers. The social and familial background of these adolescents is marked by parental death, divorce, and separation. The general relationship with parents is often troubled,

and discord is a frequent characteristic of the marital relationship. Adolescents who attempt suicide have a greater number of negative life events, fewer social supports, and fewer personal resources than adolescents who do not. In addition, increased contact with suicidal behavior in the environment has been noted as putting certain vulnerable youth at greater risk.

Family history and genetics

A family history of suicide is a significant risk factor for suicide. Explanations for this association include identification with and imitation of a family member who has committed suicide, transmission of genetic factors for suicide, and transmission of genetic factors for psychiatric disorders such as affective disorders (24-28). A study of psychiatric inpatients revealed that (a) half of the persons with a family history of suicide had attempted suicide themselves, and (b) more than half of all patients with a family history of suicide had a primary diagnosis of affective disorder (29). A study of the Amish, a religious group with a 100-year history of non-violence, no alcohol or drug abuse, a high degree of social cohesion, no divorce or family dissolution, and a philosophy of suicide as the ultimate sin, has demonstrated, quite unexpectedly, that suicides do occur among this group. Twenty-six suicides have been documented among the Amish of southeastern Pennsylvania between 1880 and 1980. Twenty-four of the 26 individuals who committed suicide were diagnosed with a major affective disorder, and the suicides occurred in four primary pedigrees. This research suggests possible genetic factors in both the transmission of affective disorders and suicide (30). Another study of suicides in the general population found that six of 100 suicide completers also had a parent who committed suicide. This rate was eighty-eight times higher than predicted (31).

Investigations have suggested a high concordance rate for suicide in identical twins (32,33). While ten sets of identical twin pairs who both committed suicide have been reported in the literature, there has been no report in which both fraternal twins have committed suicide (34). In another study, a greater incidence of suicide was found in the relatives of the control group (28). In the well-known Copenhagen adoption study, a greater incidence of suicide was found in the biological relatives of adoptees who committed suicide than in their adoptive relatives (as compared to adoptee controls) (24). The fifty-seven adoptees who committed suicide had 269 biological relatives, of whom twelve committed suicide (4.5 percent) and had no adopting relatives who committed suicide. By comparison, only two of the 269 biological relatives of fifty-seven matched control adoptees (0.7 percent) and none of 150 adopting relatives committed suicide. In another adoption study comparing suicide in persons with known depressive illness and matched controls, these same investigators again found a greater incidence of suicide among the biological relatives of the probands (3.7 percent). Of 407 biological relatives, fifteen (0.5 percent) committed suicide; only one of 187 adopting relatives committed suicide (S. Kety, personal communication).

These studies suggest that we may be able to separate the contribution of a family history of suicide and a family history of affective disorder to isolate high-risk groups for both research and clinical purposes. Issues of family history and genetic factors are complicated not only by concordance for psychiatric diagnoses in families but also by the environment in terms of identification and imitation of suicidal behavior by family members over long periods of time.

Biological factors

Recent biochemical investigations of suicidal behavior have shown that suicide victims and violent suicide attempters have alterations in the function of a brain neurotransmitter, serotonin, which has been measured by examining a major metabolite of serotonin, 5-hydroxy- indoleacidic acid (5-HIAA), in the cerebrospinal fluid (CSF). Other studies

have measured serotonin and imipramine binding in the brains of suicide victims. Furthermore, reduced central serotonergic activity is associated with suicidal behavior, not only when there is a diagnosis of unipolar depressive disorder but also in association with a range of other psychiatric disorders. This research has found a common biochemical association with aggression, impulsiveness, and reduced serotonergic function. Some studies suggest that the findings of decreased serotonin and violent suicide attempts may increase the risk of completed suicide ten-fold at one-year followup (35). Arsonists, for example, show a very high incidence of violent suicide attempts (36). But even with the promising 5-HIAA data, we must urge caution. While low 5-HIAA levels are associated with violent suicide attempts, low 5-HIAA levels are found in patients with diverse psychiatric illnesses and also in groups of normal controls (37). An increased incidence of depressive illness has been found in the relatives of both patients and normals with decreased CSF 5-HIAA (38,39). While the serotonergic data represent the most compelling current evidence for a biological correlate of suicidal behavior, other biological factors (neuroendocrinological, neuro- physiological) are also being investigated actively. It is expected that information derived from such studies will strengthen the relative weight of biological factors in our overlap model of suicide.

EARLY DETECTION AND TREATMENT

Several suggestions have been made about how to prevent suicide attempts in children and adolescents, but none of them have been evaluated. It is not known whether voluntary agencies providing help at times of crisis have had a major preventive effect. It has been suggested that more care in the prescribing of psychotropic drugs for young people may prevent overdoses (40-42). However, this is unlikely to have any impact on very young adolescents because they visit their general practitioners before overdoses less often

then their older counterparts (43), and usually attempt suicide with non-prescribed analgesics (44). In school children, educational measures, including use of the media, aimed at modifying attitudes to self-poisoning have also been proposed (41). Finally, some data demonstrate that States that have strict gun control laws have lower suicide rates (45). Other public health measures have also been found to be effective. In Great Britain, for example, the rate of suicide decreased when the type of domestic gas was changed from a toxic to a non-toxic form (24).

Evidence now available from two school-based programs demonstrates that teachers, counselors and other students were increasingly able to deal with suicidal students following crisis training for counselors, inservice training for teachers, and curriculum additions for students (46). In one program, students were described as becoming more willing to ask friends directly about their suicidality and were less likely to view a suicidal statement as "nothing to worry about." Students and teachers both reported increased knowledge about the mental health referral process.

While there is no dearth of literature on intervention techniques for youth suicidal behavior, the results of studies to date are compromised by poor methodology, lack of control groups, lack of evaluation and followup, and by the fact that most of these interventions are not based on a conceptual model of detection and intervention. These points are easily demonstrated by examining the published studies on whether volunteer agencies providing help at times of crisis have had a major preventive effect. A second form of "intervention" is represented by the many school-based programs that have provided in-service training for teachers and crisis training for counselors. However, no followup data are available to evaluate their impact. In sum, the available data base points to both lack of proven efficacy of these approaches as well as insufficient methodology to provide the tools to evaluate them. At this point, we have been unable to

demonstrate, beyond the importance of crisis support, that these interventions decrease the actual rate of suicide, although it is acknowledged that these efforts may play a significant role in providing needed support and education about suicide.

Risk detection levels

It is appropriate now to return to the three levels of risk detection to provide greater detail. We will give a brief overview of each level and then present several examples.

Individuals whom we would place in Level I, which can best be labelled **detection awareness**, are not actively suicidal or in immediate danger of suicide (Table 2). However, individuals at this level have certain risk factors of which we ought to remain aware. For example, the offspring of affectively ill or substance abusing parents, the offspring of a person who has died by suicide, close contacts with suicides and suicidal people, and abused and neglected children would comprise the Level I group. Level I would also include children who have recently been under extreme stress, such as divorce of parents, moves, the presence of a chronic illness either in the children or in the family, or the ~cent death of a parent or a close relative. ı. ~hould be pointed out that one can think of tı ` individual as having relatively little control o、 ·r Level I problems. And, as

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Level I - Detection Awareness

a. Offspring of affectively-ill or substance abusing parents

b. Offspring of suicides and suicide attempters

c. Close contacts with suicides and suicidal people (prevention of contagion)

d. Abused and neglected children

e. Children who have recently been under severe stress
--Divorce of parents
--Move
--Death of parent/relative

Table 2.

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mentioned earlier, Level I contains individuals with a high threshold of genetic loading for psychiatric disorders or suicidal disorders as well as those individuals who have experienced major environmental stressors. Recently, Salk et al. (47), suggested that several "early" risk factors, namely respiratory distress for more than one hour at birth, no antenatal care for the mother before twenty weeks of pregnancy, and chronic disease of the mother during pregnancy differentiated adolescent suicide victims from matched controls.

Level II, shown in Table 3, is characterized by major problems that do not meet criteria for a psychiatric disorder. Young individuals who fit into Level II may require assessment, intervention, and perhaps even treatment; but the treatment is not for a DSM-III psychiatric diagnosis. Individuals at this level generally show some amount of distress, presence of symptoms, and/or decrease in function. Examples of symptoms at this level may include pronounced academic problems, the presence of learning disabilities, increasing interpersonal relationship difficulties, a major loss, or severe self-esteem problems. These individuals may be exemplified by youth who run away, adolescents who have an unwanted pregnancy, or children who are undergoing major stresses and become symptomatic. Extreme aggressiveness or feelings of hopelessness also characterize Level II in young people. Individuals at Level II may indeed become suicidal and are at risk for suicide attempts and suicide completion. They may be individuals who have demonstrated difficulties relating to Level I and have moved from Level I to Level II. However, we must remember that individuals can also move from Level II to Level III or I to III, or appear *de novo* at Level II or III.

Level III represents the detection of suicidal youth who have major psychiatric disorders (Table 4). When any individual is identified at this level, assessment and an intervention component are required with the intervention representing active treatment aimed at

a specific psychiatric diagnosis. Such diagnoses in children and youth may include affective disorders, conduct disorders, schizophrenia, eating disorders, substance abuse, and adjustment reactions. Even though personality disorders are not diag-

nosed before the ages of eighteen, they can be diagnosed in those youth between the ages of eighteen to twenty-four. In younger individuals, such disorders as conduct disorders, identity disorders, oppositional behavior, avoidant disorders, and overanxious

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Level II - Major Problem Awareness

Requires assessment and intervention/treatment (not related to psychiatric diagnosis)

Anything that is not a major psychiatric disorder

Symptomatic, but does not meet criteria for a DSM-III, Axis I disorder

    a.   Academic problems

    b.   Learning disability

    c.   Interpersonal relationship difficulties

    d.   Self-esteem and sexual identity problems

    e.   Runaways

    f.   Having an unwanted pregnancy

    g.   Children who are undergoing major stress or loss and are symptomatic

    h.   Aggressivity, hopelessness, personality traits and styles

Table 3.

Level III - Major Psychiatric Disorder

Necessitates appropriate assessment and evaluation

Has a treatment component aimed at a specific psychiatric diagnosis

    a.   Affective disorder

    b.   Conduct disorder

    c.   Schizophrenia

    d.   Eating disorder

    e.   Substance abuse

    f.   Alcoholism

    g.   Adjustment reactions

    h.   Identity disorder

    i.   Oppositional disorder

    j.   Separation anxiety disorder

    k.   Avoidant disorder

    l.   Overanxious disorder

Table 4.

disorders would fall into Level III. In addition, as was previously discussed, certain disorders of childhood and adolescence may be predictive of adult disorders (i.e., conduct disorders lead to antisocial personality disorders). It should be pointed out that medical illness also can be treated at any of the three levels of suicidal potential.

The interactions of the overlapping matrix model (2) of risk with the three-level detection intervention schema should be readily grasped. For example, at Level I, the so-called awareness level, one may have a genetic loading for a psychiatric disorder, particularly an affective disorder, or have a family history of suicide which increases the individual's risk of suicide. In addition, there may be stressors in that young person's life that impact directly on the adolescent. At Level II, we include the genetic, biological, and environmental domains, but add to them personality style and traits, which may also play a major contributory role to risk so that a young person begins to have more of the domains or risk factors interacting by the overlap. Therefore, the risk for suicidal behavior increases as the individual meets Level II criteria. Future studies will determine whether the appropriate risk model is an additive or a multiplicative model. Finally, at Level III, which requires a psychiatric diagnosis, all of the domains and levels of the overlap model are apparent and interacting. Thus, genetic and biological loading, personality traits and style, the environment, and psychiatric diagnoses clearly interact at the Level III stage. Obviously, individuals can move among these levels; and it is hoped that individuals at Levels II and III, through appropriate intervention, will return to Level I where intervention is not necessary. Persons who are in clinical remission from a psychiatric disorder, however, should remain "red-flagged."

Intervention and treatment

The next issue to be considered is intervention and treatment, which should be reviewed at each of the three levels. Level I,

detection awareness, requires a strong component of education. This means education of teachers, parents, and health care professionals in detection awareness. For example, although controversial, we consider the education of young people themselves about their risk and about what they can do to prevent further development an appropriate arena for active discussion. We believe that direct information concerning suicide risk in relation to family history of suicide, the presence of alcoholic parents, or parents with affective disorders should be conveyed by health professionals in an age-appropriate style to young people.

We will also have to assess whether a heightened awareness among physicians of suicidal behavior will reduce the scope of the problem. The issue of physician recognition of mental illness is extremely complex, and both patient and physician factors have been studied to explain the lack of recognition. Nevertheless, it should be possible to design an intervention program in which the educational component for physicians focuses on suicide and related symptoms, diagnoses, and behaviors with specific emphasis on adolescents and young adults.

Awareness education

It is critically important to educate health care practitioners outside the mental health mainstream about the various levels of awareness that comprise our model. These individuals include family practitioners, internists, pediatricians, obstetricians, and gynecologists, who, while trained to deal with stressful health issues such as chronic illness or unwanted pregnancy in the young population, may not be aware of the additional risk imposed by the factors we have identified as part of our matrix. In addition, many young people may present to their doctors with physical complaints that are somatic representations of their psychic distress.

For the same reasons, it is important to extend our educational activities to health and social service personnel who work within the juvenile justice system. Health care profes-

sionals need to pay particular attention to life cycle issues that emerge during puberty and adolescence. We cannot overemphasize the need for education of health professionals. It is apparent from the adult literature that more than 80 percent of the people who complete suicide have seen a physician within weeks to months before the attempt and may have accumulated many months of prescribed medication which they can use to end their lives (3,5,6). Thus, physicians must be educated to diagnose psychiatric syndromes and suicidal behavior and to intervene and refer when appropriate. Guidelines for treatment, particularly when pharmacologic intervention is involved, need to be learned.

The second task in detection awareness is best described as information gathering and documentation by health care professionals about the various factors mentioned earlier under detection awareness. Documentation in patient charts by pediatricians or internists concerning Level I factors is extremely important. In essence, we are arguing for a type of red flagging of these individuals, even as a lifetime red flag. The major objective here is to keep children and youth at Level I through education, recognition of individual risk, and instruction about what to do if more factors develop so that we can prevent them from moving on the Level II or III.

The third task is "environmental detoxification." It is important to point out to the family of anyone at Level I the need to "detoxify" the home from fire arms, medication, and other potential means of suicide. These kinds of public health measures (gun control, non-lethal domestic gas, and removing toxic substances from the home) are important interventions in reducing suicide. The detoxification should certainly take place at Levels II and III, but we would argue that it is equally appropriate for Level I.

Level II, major problem awareness, requires a level of active intervention and treatment to deal with behavioral problems, personality issues, or specific life events. It is important to develop age-appropriate assessment scales to determine degree of hopelessness, aggressiveness, personality, and other relevant characteristics that are associated with increased suicide risk. Interventions should include primarily behavioral interventions (for example, cognitive behavior training, psychotherapy, educational interventions for learning disabilities, self-esteem training, stress management, and group activities). We believe that these types of interventions should deal appropriately with various academic problems, self-esteem issues, stressful life events, personality issues, and runaway problems seen in adolescents at Level II.

This brings us to Level III, which deals not exclusively, but certainly with psychiatric disorders. Here, the use of age-appropriate assessment and diagnostic scales by health care practitioners is important, as is the issue of referral. When does the health care professional refer? What are the specific circumstances that require immediate intervention by the psychiatric system? Obviously, there are specific interventions for diagnosed psychiatric disorders including psychotherapeutic and psychophamacologic treatments. In addition, we feel very strongly that the early development of bipolar affective illness or schizophrenia in young people requires immediate intervention for both the patients and their families.

Strategies for treating specific psychiatric syndromes may play a major role in preventing suicidal behavior. Examples include the use of lithium carbonate early in the course of bipolar affective disorder to prevent future manic episodes or the use of neuroleptics in the treatment of schizophrenia. Cognitive or interpersonal psychotherapies aimed at cognitive distortions and problems in relationships that occur in affective illnesses can help minimize symptoms and interactional styles that may occur with a chronic, untreated illness. It has been demonstrated that suicidal risk is probably high in the early years of bipolar disorder and schizophrenia. Therefore, aggressive treatment during the period of initial illness might

indeed reduce the risk of completed suicide.

Treatment strategies for Level III using the overlap model approach would be to treat the associated psychiatric condition but at the same time to "red flag" the high risk patient, paying particular attention to environmental stresses and psychosocial supports (Table 5). Psychotherapeutic and psychosocial treatment modalities used in conjunction with pharmacotherapy may increase the compliance rate of high-risk individuals who are most prone to commit suicide. In addition, psychotherapeutic treatment may improve interpersonal relationships and reduce the cognitive distortions that frequently occur with depression and suicidal thinking. Since suicidal patients are difficult to sustain in treatment and frequently drop out, the use of clinic facilities, clinic support, or network systems to ensure that such individuals will stay in treatment is an important strategy. In addition, such programs provide a type of social support through which patients, families, and clinicians can form an alliance that provides education, treatment, and family support over long periods of time. Reports from clinic facilities for the treatment of affective disorders in New York, Tennessee, and California confirm this phenomenon (48). They suggest that the rates of suicide in these patient groups are much lower than would be expected and that such system approaches have a "protective role."

Multidimensional intervention components

This type of treatment strategy illustrates the interaction of the overlap model of suicide risk and the model of detection awareness levels and intervention. Affective disorder clinics such as those described above provide interventions aimed at all five domains of suicide risk: education to patients and their families (family history and genetics); development of network and support systems (psychosocial and environment); identification and treatment of associated psychiatric disorder (psychiatric disorder,

biological factors), and psychotherapeutic interventions (personality factors, psychiatric diagnosis, family problems). Interventions such as these clinics provide, which encapsulate as many domains as possible, increase the possibility of preventing suicide in high-risk persons. These programs follow persons in remission as well as during illness; therefore, individuals remain "red flagged."

Other psychiatric illnesses that require similarly aggressive interventions include alcoholism and drug abuse, particularly among youth, and disorders of childhood and adolescence such as conduct disorders and antisocial behavior. Interventions that involve as many domains as possible, including family treatment, environmental modification, and treatment of the behavioral disorder, will maximize prevention of suicidal behavior. Again, the need to detoxify the home should be apparent. In each case, one should follow crisis management principles, use psychotherapeutic and/or psychopharmacologic interventions when appropriate, but also include environmental interventions. It is important to educate the family and, when necessary, to treat the family.

Several final points with respect to intervention and treatment issues include the need to develop followup strategies and a schema to ensure that children at risk will not engage in recurrent suicidal behavior. Difficult issues often arise for the clinician in treating such cases. In general, young suicidal patients are

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Issues in the Treatment of Suicidal Behavior

Therapeutic style - rapport, directness

Reassurance

Therapeutic interventions
    a. Altering cognitive rigidity
    b. Modification of hopelessness

Medical aspects - pharmacotherapy

Education - patient and family

Countertransference

Table 5.

difficult to manage and may seem at times unrewarding to treat, and the child and family may be excessively demanding. These factors may make the physician feel increasingly helpless and inadequate. It is important for health care professionals to keep these issues in mind and not to communicate negative attitudes and messages to the patients or their families.

CONCLUSION

To summarize, our recommendations can be grouped into three areas: educational, clinical, and research. We have placed a great deal of reliance on education interventions, for example, at Level I, "red flagging" high-risk children, detoxifying the home, and developing rapid and economical screening batteries for general practitioners and pediatricians to use as early detection tools. It is important to highlight the need for good record keeping of suicidal behavior, psychosocial stresses, and family history data. Regarding detoxifying the home, even though national gun control efforts have not succeeded at this point, it is appropriate to argue that stricter gun control is a method for decreasing suicide among youth. Studies have shown that States with strict gun control have lower suicide rates (45). While most detection efforts have focused on Level III (which are still inadequate because psychiatric illness is underestimated in youth), relatively little has been done at Level II and almost nothing at Level I. Recent studies show increasing rates of affective disorder and conduct disorder in young people (49). Even so, very few people really understand the relationship of any of these detection levels to suicidal behavior and where to go for help for the problems identified in each of the levels. With respect to the clinical arena, it is important to educate clinicians about the diagnostic criteria for psychiatric illnesses in young people and the most effective treatments for specific psychiatric syndromes in youth. From our discussion, it should be apparent that future directions for research operate at every one of the three levels that we have described and that all three clearly need considerable attention.

However, research should not be confined to one level because there is considerable overlap across levels. It is hoped that the outline of these strategies can significantly enhance our approaches to the early detection and intervention of suicidal behavior in young people and, thereby, prevent this tragic loss of human life in our country.

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SPECIFIC TREATMENT MODALITIES FOR ADOLESCENT SUICIDE ATTEMPTERS

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INTRODUCTION

The treatment of adolescent suicide attempters is a particular interest of mine. I have been working with this population for about five years, along with David Shaffer, M.D., to develop interviews which identify the symptoms and problems of suicide attempters. More recently, I worked with Mary Jane Rotheram, Ph.D., to test treatment strategies targeted as specifically as possible to those problems. I approach the topic of treatment with a bias towards brief psychotherapy and outpatient management. As director of the Child and Adolescent Depression and Suicidal Disorder Clinic at the Presbyterian Hospital in New York City, I am also interested in the problems of training staff to work effectively with this difficult group of adolescents.

STUDIES OF TREATMENT FOR SUICIDE ATTEMPTERS

I can state quite simply that there are no specific treatment modalities for adolescent suicide attempters. That is, there are no treatment studies--psychotherapeutic, behavioral, or psychopharmacologic --which show that a clearly defined treatment approach is superior to no treatment or to some other treatment. There are many descriptions of treatment--individual, family, group, insight-oriented, behavioral, cognitive, and so forth--but no evidence that suicide at-

tempters who are so treated might not have done just as well without that treatment.

Only a few studies of treatment in adults provide limited support for the idea that **contact** with a helping professional is better than no contact for the prevention of suicidal behavior.

- Greer & Bagley (1971) showed that subjects who had two or more visits with a professional were less likely to make another suicide attempt than untreated subjects; however, the treated subjects were self-selected and may simply have been healthier and better motivated to change.

- Motto (1976) made regular telephone contact with one-half of 853 people who dropped out of outpatient therapy after hospitalization. At the four-year follow-up, 5 percent of "contact" and 8 percent of "no contact" subjects had committed suicide; this difference approached, but did not achieve, significance at the 0.05 percent level.

- Welu (1972) telephoned and visited a random sample of subjects at home. These subjects were more likely to attend outpatient visits and were less likely to make another suicide attempt than non-contacted controls.

- Studies by Ettlinger (1978), Chowdhury, et al. (1973), and Gibbons, et al. (1978) failed to demonstrated any impact of outreach or time-limited case work on reattempt rates.

- Liberman and Eckman (1981) showed that subjects receiving 32 hours of inpatient behavioral therapy did better on a variety of measures of mood than those receiving insight-oriented psychotherapy, but the groups did not differ in their reattempt rates.

The last observation speaks to a problem which has already been raised by others, namely, that suicide attempters have a number of problems such as mood disturbance, drug and alcohol dependency, aggression, etc., but it is difficult to know which problems will improve in therapy. Mood may change in the short run, for example, but suicidal behavior may not change in the long run.

DEVELOPING A TREATMENT PROGRAM

The second part of this paper addresses a series of questions which I keep asking myself in trying to develop an effective, practical treatment program:

1. What conditions need treatment?

2. Who wants treatment?

3. Who gets treated?

4. What general treatment approaches are useful with adolescents?

5. What can we learn from psychotherapy studies of other adult and child populations?

6. Are any medications of use?

This paper will try to provide some, not definitive, answers to these questions.

What conditions need treatment?

A review of the literature reveals relatively few characteristics which distinguish suicide attempters from other adolescent psychiatric patients. Ideally, treatment should be designed to change a problem, symptom or constellation of symptoms (diagnosis). A valid diagnosis carries information about etiology, natural history, and sometimes, treatment. A suicide attempt is not a diagnosis since it is associated with many different causative factors and diagnoses.

SPECIFIC FOCI FOR TREATMENT

- **Major Depressive Disorder (MDD)**
- **Aggression, Conduct Disorder**
- **Associated Physical Illness**
- **Drug and Alcohol Abuse**
- **Parental Psychiatric Illness**
- **Marital Conflict**
- **Parent-Child Conflict**

MDD. Depression powerfully increases the risk of suicide in adults. While only 25-30 percent of suicide attempters can be said to be depressed, depression is a **treatable** disorder, at least in adults, and therefore, should not be overlooked.

Aggression and conduct disorder. Aggression and suicidal behavior often go hand-in-hand. Shaffer (1974) noted that a majority of young adolescents who committed suicide manifested antisocial behavior before their deaths; this was also found to be true in the on-going New York Study of Adolescent Suicide (Shaffer & Gould, 1985). Fifty percent of black suicide attempters, but only 10 percent of whites, had recently been in trouble with the law (Breed, 1970). Dr. Meeks pointed out that hopelessness and guilt are often associated with antisocial acting out.

Associated physical illness. Studies have shown higher rates of current medical illness among older adolescents who have attempted suicide than among age-matched peers (Garfinkel et al. 1982; Hawton et al. 1982). I include pregnancy among physical conditions associated with suicidal behavior.

Appropriate medical management and **education** can be expected to produce better physical and psychiatric functioning and improve self-esteem.

Drug & alcohol abuse. This problem was already discussed by Dr. Meeks. Thirty to 40 percent of adolescent suicide attempters have parents with high rates of alcoholism (Cohen-Sandler et al., 1982; Garfinkel et al. 1982). Depressive spectrum disease may affect the families of some suicide attempters, so that some members become depressed, some are alcoholics, some are both alcoholics and depressed, and some remain disease free (Van Valkenburg et al. 1977).

Parental psychiatric illness. Psychiatric illness is very common and serious among the parents of suicide attempters. For example, maternal depression can **cause** disturbance in children; depressed mothers show decreased emotional involvement, disaffection and increased hostility towards their children (Weissman et al. 1972). Maternal depression is also a barrier to compliance; this will be discussed later. Suicidal preoccupation in a parent and conscious or unconscious wishes to be rid of a child may push some children towards suicide as a solution to their parents' problems (Margolin & Teicher, 1968; Sabbath 1969, 1971).

Marital conflict. Adolescent suicide attempters come from homes with high rates of marital conflicts and are more likely to have heard recent talk of separation and divorce than psychiatric controls (Stanley & Barter, 1970).

Parent-child conflict. This is the most important external factor in adolescents' suicide attempts; 70 percent of our adolescent girls report suicide attempts precipitated by arguments with parents. Their parents often exhibit extremes of expectation and control, alternating between over-protectiveness and indifference,

withdrawal, and an inability to respond to adolescent crisis (Trautman & Shaffer, 1984).

Who wants treatment?

A suicide attempt is a life threatening event and one would think that parents would be eager to avail themselves of professional services to make sure it did not happen again. Yet this is not so.

NON-COMPLIANCE WITH AFTERCARE

Analysis of Suicide Attempters Seen in Emergency Rooms (ER)

> **23% were evaluated and completed 15 sessions of brief psychotherapy or were still in treatment.**
>
> **10% were referred to other clinics or hospitalized.**

but:

> **20% did not keep *any* outpatient appointments.**
>
> **19% dropped out during the initial assessment period (first or second appointments).**
>
> **27% completed two diagnostic visits but refused treatment or dropped out during treatment.**

Source: Trautman & Rotheram, 1986, unpublished

In a consecutive series of 77 adolescents treated in the emergency room for self-poisioning or other self-injury, 23 percent failed to keep a followup appointment in the child psychiatry clinic and 19 percent kept only one followup appointment (Trautman & Rotheram, 1986, unpublished). This occurred in spite of vigorous efforts by telephone and letter to reschedule missed visits.

Our experience is similar to that of others:

ATTEMPTER NON-COMPLIANCE WITH AFTERCARE

44% of 50 8-17 year olds (82% female) did not keep an appointment within one week of ER discharge (Taylor & Stansfeld, 1984).

61% of 27 10-17 year olds (50% hospitalized) did not keep followup recommendations (Litt, Cuskey, & Rudd, 1983).

88% of 138 children and adults (34 10-19 year olds) did not follow outpatient care recommendations.

75% did not follow recommendations for voluntary admission (Bogard, 1970).

55% of 29 adults did not keep outpatient appointments (Paykel, et al., 1974).

73% of 296 adults ("moderate or high risk for suicide") did not keep outpatient visits (Knesper, 1982).

Taylor & Stansfeld (1984) examined 50 8-17 year olds (82% female) who had been admitted to a pediatric ward following a deliberate self- poisoning. All were given a followup appointment in the psychiatric outpatient clinic within one week of discharge but 44 percent failed to attend. Only 39 percent of 27 10-17 year olds (half of whom were briefly hospitalized) complied with recommended followup within one year after their attempt (Litt, Cuskey & Rudd, 1983). In a study of 138 child and adult attempters, of whom 34 were 10-19 years old, only 12 percent of those recommended for outpatient care attended, and only 25 percent of those recommended for voluntary admission to an inpatient or day treatment facility actually turned up (Bogard, 1970). Compliance for the adolescent subjects was not reported separately. Paykel et al. (1974) reported 45 percent compliance among 29 adult patients given an outpatient clinical referral following an attempt. In a study of 296 adult patients who were judged to be at moderate to high risk for suicide at an emergency room visit, only 27 percent kept an outpatient appointment (Knesper, 1982). Compliance with pediatric referrals from emergency to other clinics or from the pediatrician to child psychiatrist is generally in the range of 50-70 percent (Litt & Cusky, 1980; Hildebrandt & Davis, 1975; Lefebre et al., 1983; Bergman, Corbin & Haber, 1982; Bacon, 1985).

What contributes to compliance after emergency treatment for a suicide attempt? In the Taylor & Stansfeld (1984) study, attenders had more psychiatric symptoms, particularly **depressive symptoms** (depression, insominia, and loss of appetite), were judged to have greater intent to die (as opposed to goals such as escape, help-seeking, or manipulation), and were more likely to have received a psychiatric diagnosis than non-attenders. This finding is similar to findings among adult patients that low levels of anxiety and/or depression and high levels of paranoid and sociopathic symptoms contribute to drop-out from psychotherapy (Baekeland & Lundwall, 1975).

Who gets treated?

This paper has already shown that 40 percent of attempters do not get **evaluated** and only 20 percent of the subjects (at best) complete a three-month brief therapy program.

Studies of drop-out rates from adult psychiatric clinics show that the median number of sessions attended is about six, and that 30 to 65 percent of patients drop out unilaterally, i.e., before their therapists think they should. In a study of 102 adolescent outpatients, Viale-Val et al. (1984) found:

- 23% did not turn up for the first visit.

- 25% dropped out after one, two, or three sessions (assessment).

- 26% dropped out unilaterally after four or more sessions.

- 10% were referred away.

- Only 14.7% stayed in treatment for a median of eight sessions.

Suicide attempters, children referred for school problems and externalizing disorders, and minority and low-income patients were less likely to stay in treatment.

One can conclude two things:

1. Adolescents are **not** more likely to drop out of therapy than adults, as is often stated.

2. People want brief treatment and fast results: either they get it and leave **or** they do not get it and leave.

Therefore, brief, crisis-oriented treatment makes sense for most patients. Many suicide attempters have problems of a brief nature; studies by Henderson et al. (1977) and Facy et al. (1979) illustrate this point.

SUICIDE ATTEMPT SUBTYPES

A. Formal Psychiatric Illness
Multiple Adverse Social Factors
Methods of High Endangerment

B. No Formal Diagnosis
Acute Familial or Interpersonal Crisis
Methods of Low Endangerment

Suicide attempters in Group A are older adolescents and a greater proportion are boys. Suicide attempters in Group B are younger, mostly girls, and have problems which are often quickly resolved, with or without treatment.

What general treatment principles are useful?

We know from studies by Ricks (1974) and Kolvin et al. (1981) (see reviews by Shaffer, 1984 and Dulcan, 1984), that an effective therapist for children is active, assertive, explanatory, and responsive, not passive. S/he uses community resources and meets with parents. S/he uses longer treatment for more severely disturbed patients and shorter treatment for less disturbed patients. The therapist's age, sex, race, religion, experience, and theoretical orientation make little difference (Parloff, et al. 1979), although Viale-Val et al. (1984) found that sex-matching of patient and therapist was associated with better treatment compliance.

Effective treatment for depression is characterized by:

a. High treatment structure.

b. A clear, well-planned rationale.

c. An emphasis on skills training.

d. The independent use of skills outside the treatment context (i.e., homework).

e. An emphasis on self-attribution for increased skillfulness (i.e., not only behavioral change but also the ability to say, "I did this myself and did a good job of it").

What can we learn from other studies?

Cognitive behavior therapies hold promise for the treatment of depression and suicidal behavior in adolescents.

Beck et al. (1979) described the cognitive triad of depression: a negative attitude about oneself, the world, and the future. They argue that dysfunctional beliefs (e.g., "my friends don't really care about me") cause sad moods and lead the subjects into maladaptive behaviors (e.g., avoiding others). Several studies of adults have shown that cognitive therapy is as effective as tricyclic antidepressant medication for the continuing treatment of depression, with better treatment compliance.

Beck's cognitive therapy seems well-suited for adolescents: It is systematic, highly structured, and didactic. The patient and therapist work together to identify and solve problems, and the patient is instructed to carry out homework assignments, to gather information about himself, monitor mood and behavior, and try out new behaviors.

Meichenbaum (1977) focuses on the thinking processes involved in performing a task. He believes that a patient's behavior is influenced not primarily by environmental

events, but what the patient says to himself about these events. He trains children and adults to use coping self-instructional thought to deal with problem situations.

Spivack & Shure (1974) noted that children with behavior problems were poor interpersonal problem-solvers. They train children in two types of social reasoning--first, to think of alternative solutions to conflict situations, and second, to predict the likely consequences of the various solutions.

Lewinsohn (1974) proposes a behavioral theory of depression which has three major assumptions: 1) a lack of pleasant events (reinforcement) stimulates depressive "behaviors" such as dysphoria and fatigue; 2) the lack of reinforcement is a sufficient explanation for symptoms of depression, and 3) the amount of reinforcement is a function of the number of potentially reinforcing events for the individual, the number of potential reinforcers the environment can provide, and the skill of the individual in eliciting these reinforcements. Treatment involves the use of activity schedules, identification of reinforcers, and training in social and assertiveness skills and desensitization.

Family therapy interventions move the focus of attention from the attempter to pathological family interactions which promote suicidal behavior or which the suicidal behavior is meant to solve. Disturbances in family structure including role conflicts, blurring of role boundaries (e.g., the child who is given a parental role, or the mother who undermines her parental authority by saying, "Johnny, stop yelling! Okay?"), dysfunctional alliances across boundaries (e.g., a child who joins one parent in discrediting the other), failures of communication, secretiveness, and rigidity with inability to accept change or tolerate crisis, may promote suicidal acting out (Minuchin, 1974; Richman, 1979, 1981; Fishman & Rosman, 1981).

These systems-theory approaches are essentially descriptive rather than etiologic, but are useful in that they readily lead to defining the tasks of treatment, for example, getting the parents to unite on rules for the child's behavior, or removing parental responsibilities from the adolescent. The clinician must take care not to let family systems issues blind him to the immediate psychopathology of the adolescent. Depressive delusions, for example, are reason to admit the patient to a hospital, no matter how solid the family relationship. On the other hand, removal from the home might also be indicated in the absence of major psychopathology when open marital conflict has pushed the adolescent to suicidal acting out.

Parent-child conflict is the most common immediate precipitant of suicidal behavior and family sessions are an essential, if not the only, component of successful management. (A useful discussion of combined individual and family treatment is provided by Steinhauer, 1985). The goals of the initial family sessions are to decrease destructive family interactions, increase communication among family members (including discussion of the adolescent's suicidal ideation and parents' destructive wishes), and to help the family identify solutions to the current crisis (Richman, 1979; Perlmutter & Jones, 1985). These solutions may be readily apparent once the family is able to state explicitly the nature of their crisis, and are already within their problem-solving repertoire.

Specific family training programs in communication skills and problem solving have been shown to be effective (Robin, 1979; Guerney, Coufal & Vogelsong, 1981) but whether this kind of explicit skill training is necessary is unclear. In a study comparing problem-solving communication training (PSCT) with an alternate family therapy ("family systems", "psychodynamic", or "eclectic"), only PSCT families objectively used problem-solving techniques, but both groups reported significant subjective decreases in family conflicts and disputes, as compared to controls (Robin, 1981). In a study comparing communication skills training to unstructured group therapy for mother-daughter pairs, the skills training was

superior in enhancing expressive and empathic skills as well as the general quality of the relationship (Guerney et al. 1981).

A word of caution should be added about compliance with family therapy approaches. Drop-out rates from behavioral family approaches are high among lower socioeconomic and high-risk families (Wahler et al. 1977, cited in Werry, 1979). Shapiro & Budman (1973) reported significantly higher drop-out rates from family therapy than from individual therapy and emphasized that the father's enthusiasm for treatment is very important to the continuance of that treatment.

Group therapy. Very little is written about group therapy for adolescent suicide attempters. It is easy to understand why: groups for adolescents are not easy to start or maintain under the best of circumstances unless you have a captive population in a hospital. One needs 10 referrals to be successful in starting a group of five. Only a large medical center would have enough patients at any one time to start up a group exclusively for suicide attempters; and the group would have to be continuous, not time-limited.

An indication of the difficulty of running an outpatient group for adult attempters is provided by Comstock & McDermott (1975) who conducted open groups (that is, the patients were free to attend the group as long as they wished). One hundred five patients were so treated, and the median number of sessions attended was six. Only 20 percent attended the group for three months or longer. The number of patients who were offered but refused group treatment is not stated. This supports the earlier contention that, given a choice, the majority of attempters want very brief, supportive treatment.

Costock & McDermott (1975) provide some useful goals for short-term groups:
a. Identify situational differences that lead to suicidal preoccupation;

b. Point out that action without reflection accounts for many suicides; label inci-

dents of impulsive acting out as such; teach group members how to alter their tendency to act impulsively, especially under stress.

c. Emphasize that alternative behavior is possible for individuals contemplating suicide;

d. Foster psyological mindedness, particularly taking responsibility for one's behavior, self-observation, questioning motivation, identifying mood correctly, and examining differences between what the patient said and what she/he wanted to convey.

Other non-spcific beneficial effects of group therapy include, learning that others in the world share one's problems, support by peers, role-modeling, ventilation, and acquisition of social skills such as conversational skills and the use of eye contact (Yalom, 1970). A skillful leader must ensure that role-modeling does not work negatively, that is with hopelessness, suicidal ideation, and suicidal behavior spreading contagiously to all group members. With its greater opportunities for frustration and provocation, a group experience may be more likely than individual treatment to bring out aggression in a suicidal person (Mullan & Rosenbaum, 1975) which may be meted out on other group members (DeRosis, 1975).

Glaser (1978) and Ross and Motto (1984) described group therapy techniques and experiences with hospitalized and non-hospitalized adolescent suicide attempters. The latter used group therapy with suicidal adolescents. After a two-year followup of 17 subjects, they found no reattempts or completed suicides. Glaser suggested that group therapy may be a useful alternative to family therapy for the adolescent who is in florid rebellion against his parents.

What drugs are useful?

Many reports demonstrate the superiority of tricyclic anti-depressants (TCAs) and ECT over placebo for the treatment of major depressive disorders in adults. Endogenous

or melancholic symptoms (e.g., early morning awakening and weight loss) respond well to TCAs in the short- and long-term (Anderson, 1982). Depressive delusions are generally resistant to TCAs but respond to ECT.

There were no well-controlled drug studies of children or adolescents before 1977; three or four have appeared recently, only one of which is a study of adolescents. In a double blind study of pre-pubertal children with MDD, Puig-Antich et al. (1979, 1985a) found no differences between impramine (IMI) and placebo; the response rate was high, about 60 percent in both groups. This is a much higher placebo response rate than that found in adult studies, which is typically about 30 percent. A small study by Kashani et al. (1984) shows a trend (p .09) for the superiority of IMI in a pre-pubertal sample of nine subjects. Puig-Antich et al. did find that high plasma levels of IMI were associated with significantly greater improvement as compared to placebo or low plasma IMI. This finding was also reported by Geller et al. (1985) in a study using nortriptyline.

In an open study using IMI (5 mg/kg) in 34 adolescents, Ryan et al. (in press) found that 44 percent improved; there was no relationship between plasma level of IMI and improvement. In a study comparing amitriptyline and placebo, Kramer and Feiguine (1981) found no significant drug superority.

Drugs for mania and bipolar disorders. Mania is extremely rare in children but increasingly common in adolescents. About one-fifth of adult bipolar patients report that their symptoms began before age 19, and 10 percent report onset before age 12! (Perris, 1966; Winokur et al. 1969; Carlson et al. 1977; Loranger and Levine, 1978). Many adolescents with bipolar disorder are misdiagnosed as schizophrenic; a patient of mine, who was doing headstands on his hospital bed, was diagnosed as "borderline." Mania and depression appear to be equally common first manifestations of bipolar disorder, but after onset, manic episodes outnumber depressive episodes by about 3:1 (Carlson and Strober, 1978). About one-fifth of adolescents admitted for a depressive episode eventually develop bipolar disorder. Early onset has a worse prognosis both for frequency of episodes and suicide. Family risk for depressive disorder is greater for bipolar than unipolar (depression only) patients.

Lithium is effective for controlling the symptoms of mania in adolescents and for preventing recurrence, as is true in adults (Delong, 1978; Youngerman & Canino, 1978). Possible complications of lithium treatment include hypothyroidism, proteinuria (renal damage), adverse effects on learning, concentration and memory (Judd et al. 1977) and inhibition of bone growth.

Carbamazipine, a drug related both to the TCAs and promazine (a neuroleptic) is effective in adults and in lithium-resistant subjects (Nolen, 1983).

In summary, this paper has tried to make the following points about treatment:

1. We are a long way from developing a specific treatment strategy for adolescent suicide attempters, and on one treatment that will be effective for this diverse group.

2. There is great resistance to treatment on the part of adolescents and their families.

3. People want brief treatment and quick results, especially low-income and minority patients (Acosta, Yamamoto & Evans, 1982).

4. Good therapy with adolescents is active, teaches skills, uses outside resources, engages the patient in problem-solving, and involves the family.

5. Cognitive-behavioral approaches meet the needs for brevity and activity.

6. We need innovative approaches to:

   • Educate families about the therapy process;

- Structure the therapies which focus quickly on specific problems,

- Promote home visits to understand problems families face and to reach out to those who will not or cannot come to the office, and

- Develop strategies which will appeal to minority and low-income families.

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PERSPECTIVES OF YOUTH ON PREVENTIVE INTERVENTION STRATEGIES

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SUMMARY

Because a youthful suicide has a powerful effect on thousands of young people, it is important to involve them in developing and carrying out preventive strategies which they might view as helpful. Their depth and maturity of thinking, their insights, honesty, and frankness can provide us with additional solutions to the agonizing tragedy of suicide. Their opinions regarding the statistics on the increasing rate of teen suicide, why some young people choose suicide while others choose life, and what we as professionals might do to help prevent this tragedy can offer us guidance in our examination of this phenomenon.

INTRODUCTION

It is estimated that every 90 minutes a young person completes the act of suicide. Nationally, suicide increased in youthful populations by 136 percent between 1960 and 1980 (5.2 to 12.3/100,000). According to the National Center for Health Statistics, suicide is the second leading cause of death for 15-24 year olds. For every young person who completes suicide, another 100 attempt suicide unsuccessfully, some becoming paralyzed or disabled for life. These numbers are evidence of a major health problem in the United States.

Young people have displayed remarkable insight and depth of understanding when addressing the reasons of why some of their peers choose suicide while others choose life. They make cogent suggestions for effective and helpful intervention approaches. As helping professionals, we must continue to solicit their viable and important contributions, adding these to the already-existing data, so that we might obtain additional resources in our fight against this national tragedy.

Today's youth have clearly spoken to us of the stress and anxiety that they experience in today's complex world. Many of them have been profoundly touched by the suicide of a friend or loved one. It is, therefore, imperative that they be given full consideration in addressing this problem. It is appropriate that they become aware that they are not powerless, that they can take charge of their lives, and that they can assist their friends and peers by becoming part of the solution to suicide prevention.

We have solicited and received comments and opinions from young people throughout the country about why so many of their peers have chosen to give up on life while others did not choose this drastic action. We have asked them to report to us anonymously their suggestions for effective prevention techniques aimed specifically at young people between the ages of 14-24. Questionnaires (Appendix A) were distributed with the help of youth counselors, youth workers, and suicide prevention coordinators around the

country. Two specific age populations were targeted; high-school age youth, and college students up to the age of 24. Participants were provided with self-addressed, stamped envelopes for direct return of the information. Age and gender were indicated on the return questionnaire and, in many cases, the respondent chose to identify him/herself by name and address (the latter was optional).

Questionnaires were returned by 82 students, including 54 from high school youth and 28 from college youth. Among the total number of respondents, 35 percent were male, 45 percent were female; 20 percent replied anonymously. All of the responses were written with the exception of one high school group from the State of Georgia which submitted a five-minute video discussion. Students from twelve States were invited to participate including a sampling from the Northeast, Southeast, North Central, South Central, Northwest and Southwest. States included were New York, Maryland, Pennsylvania, Georgia, Minnesota, Kansas, Texas, Washington, Montana, Illinois, North Dakota, and California. Responses were received from Washington, California, Minnesota, Kansas, Maryland, and Georgia.

DOCUMENTATION OF OTHER RESOURCE STUDIES

Many authorities have described the attraction that the act of suicide holds for some young people in distress. Few researchers have gone directly to the source: to youth themselves. One account, in particular, called *Loss and Grief Overload* by Judith M. Stillion of Western Carolina University provides such a clear analysis of current youthful problems and attitudes that it is outlined here to serve as confirmation of the validity of this approach.

Ms. Stillion is a teacher who has headed an enrichment project for bright students. Her test cohort consisted of fifty persons each summer for four successive years. Every student had a measured intelligence quotient (IQ) of 130, had scored on achievement tests

at least two grade levels above their current placements, and had been recommended for the course by a school official. The investigation was a part of a project for gifted students in the ninth grade called the Cullowhee Experience, then in its 24th year, the purpose of which was to study decisionmaking among the components of feeling, reasoning, valuing, and deciding. They discussed adolescent attitudes toward suicide for two days.

The discussion was important in understanding the world view of adolescents. These students stated that many of their peers are in a constant state of bereavement and grief. They believed that the suicide rate was already proportional to the increase in loss experienced by young people today. Several sources of loss which they listed are: body changes, the increasing divorce rate, geographical relocation and moving away from friends and support groups, stress and tension associated with living up to parental expectations and academic pressures, drug and alcohol experimentation, and the threat of nuclear destruction. John Mack documented similar feelings of anger and grief regarding the nuclear threat in his later studies with young people which he presented through videotape.

Mrs. Stillion concluded her study with many good suggestions, including:

1. Stop considering kids as innocents. They're not.

2. Think of them as veterans of grief and loss who have not yet learned to cope.

3. See that they find adults who can teach them about coping and who will give them permission to express their sorrow and pain, talk out their anger, and resolve their grief.

4. Consider applying grief counseling models to adolescents.

5. Help youth acknowledge and understand their feelings and teach them skills to cope with the overload of loss.

Stillion believes that many adolescents have images of a safe, predictable, consistent world only in their fantasies (if at all). She concurs with Erik Erikson's theory that mentally healthy people must have a basic sense of trust in the world around them. She concludes with optimism that we must communicate to youth that, in spite of the stress, loss, television newscasts and media headlines, there still exists a rewarding world.

In March 1986, a special edition of Life magazine examined America's teenagers, their passions and problems. They put together a nationwide team of 22 teenage reporters and assigned them the task of interviewing their high school peers. They looked at what the 25.5 million youngsters born between 1967 and 1973 were doing. The survey concluded that "the highs are the highest, the lows the lowest; it's the first time and the last time and forever." Adolescence has never been tougher with all-time-high numbers of teen runaways, pregnancies, imprisonments, and suicides.

Although the Life survey was criticized for containing shallow and vapid questions relating to current sayings, hairstyles, eating habits, etc., many of the questions allowed us a composite view of the more serious pressures facing today's adolescents. For instance, it was reported that "marijuana smoking is as regular as breathing." When asked, "What do you want to be when you grow up?" most teens responded "rich." Regretfully, the Life report missed the opportunity to deal with the teens' attitudes about suicide, depression, and stress.

HIGH SCHOOL STUDENT RESPONSES TO THE QUESTIONNAIRE

In February and March of 1986 questionnaires were given to high school students across the country. They were asked to respond to four questions relating to suicide. The first question was as follows:

"In your opinion, why are so many young people between the ages of 15-24 attempting suicide today?"

In reviewing the responses, it is clear that high school youth feel that they are living extraordinary stressful lives, due in part to pressure from family, school, peers, and others in authority. Some thought that they are being pushed too hard to achieve. A student from Pennsylvania said: "society expects too much from us like ... get good grades, go to a good college, get a good job, make a lot of money, be a success." Other students felt pressure to be perfect and **never** make mistakes. They felt they could not live up to the many expectations which were placed on them by parents, and society as a whole. They spoke of competition and giving up when it became clear that they couldn't "measure up."

Many students attributed suicide attempts to wanting attention from parents or friends or "to see if anybody cares." There was a near consensus that people who attempt suicide are lonely, sad, depressed, have low self-esteem, feel unloved, rejected, unwanted, or feel they are in the way. A student from Georgia said "if I killed myself, my friends wouldn't have to put up with me anymore." They talked of the cruelty of "friends" who "criticize, call you names, or make fun of you."

The high school students spoke to the feelings of hopelessness when too many problems piled up and they didn't feel comfortable sharing that with anyone. Being overwhelmed with pain and sadness and "not being able to trust anyone" was a common statement. One student lamented, "they don't know where to turn so they turn to the easy way out." A 16-year-old girl speaking of those who think of suicide said, "if people don't try to do something to stop them, they (the youngsters) think that they (the adults) really don't care." Some students believed that most people really don't mean to go through with suicide; they leave hints and hope somebody will stop them.

A number of respondents wrote about the meaninglessness of life in terms of feeling

bored. "There is nothing for us to do ... there is nothing to live for ... there is no purpose to life." A student from Washington wrote "I don't feel needed, important, valuable ... so what's the point of living?"

A common issue for teens attempting suicide was discussed as "confusion about sexual identity." Comments were written as follows: "You have guilt about your sexuality, your actions .... you have fears of being gay." Also, "due to religious upbringing, guilt and fear of being evil or a sinner is terrifying. You're afraid you will be punished by God, so you might as well go ahead and punish yourself."

Drug and alcohol abuse was viewed by students as an important reason for some kids attempting suicide. "There is a lot of peer pressure to do drugs and they are used for recreation ... people can't handle it ... if you're already depressed, using drugs exaggerates and magnifies your feelings." Punk music and rejection by friends was also mentioned frequently as causes for attempted suicide. Other issues discussed included kids who are abused physically or sexually, kids who are angry and have no outlet for their anger, teen pregnancy and the associated guilt and shame, as well as getting revenge on others.

"In your opinion why are so many young people between the ages 15-24 completing suicide today?"

A number of responses from high school students repeated and emphasized the same reasons as for attempting, with special emphasis on stress and pressure to achieve. Additional relevant comments include the following:

"Suicide is an escape from too many problems at once"

"They don't actually see themselves DEAD"

"People don't take the warning signals seriously"

"Everyone would be better off if I was dead"

"It's so easy to get a gun or other weapon"

"Revenge, to make everyone sorry and guilty"

"Breakup of a romance"

Adolescents get depressed because they tell themselves things that aren't true, such as "I'm stupid ... nobody likes me ... I'll never stop hurting ... it's hopeless ... I'm hopeless." Another comment was "sometimes you believe you are crazy and you're better off dead."

The third question was stated as follows:

"What do you think can be done to prevent suicide?"

Answers ranged from things individuals can do to suggestions for society in general. Typical responses were:

"Use students as counselors because they relate better to their peers"

"Have telephone counseling lines"

"We need more speakers in high school and junior high to educate students, teachers and parents."

"Relieve some of the pressures"

"Take all threats seriously"

"Teen clubs would help kids have something to do"

"Tell teens bad times won't last"

"Have dinner together as a family--we never see each other anymore"

It is apparent, from the responses, that these high school students want to be included in problem solving and helping to save lives.

The last question in the questionnaire addresses the issue of why people do **not** commit suicide. The question was posed as follows:

"Why do you think most young people do not commit suicide?"

Most of the respondents concluded that the reasons most people do not commit suicide is that life is going well for them; they have friends; they know how to ask for what they want; they realize the pain or the problem

won't last forever; and they have goals for the future. Others felt that these teens had people to talk with who understood them and who listened to them without trying to solve their problems. Some thought that many kids are taught that suicide is morally wrong and their religious beliefs kept them from doing it.

A few teens felt that their peers did not commit suicide because they were afraid to die and frightened of the pain involved. They were also frightened that they might be disabled if they did not succeed. A few teens expressed the thought that if no weapons or pills could be found in the house, the depression and urge to kill themselves might pass.

On a positive note, several respondents stated,

"They have a love of life in spite of trouble"

"They are not afraid to tell someone they are in trouble or to ask for help"

"Most teens value their life, even in spite of present circumstances"

COLLEGE STUDENT RESPONSES TO THE QUESTIONNAIRE

College students in the some geographical areas were given the same questionnaire as the high school students. The first question was as follows:

"In your opinion why are so many young people between the ages of 15-25 attempting suicide today?"

Their responses were similar to those of the high school students, citing pressure to achieve beyond their abilities, high pressure from family, peers, school, themselves, and society to perform, drug and alcohol involvement and abuse, family problems, loneliness, and hopelessness. They addressed the issues of low self-esteem, inability to communicate, a combination of problems, inadequate social skills, losing a boyfriend/girlfriend, and not knowing how to cope. There were numerous responses from students who believed that

suicide attempts were for attention-getting and were a cry for help which had gone unheard. Some of the specific comments were as follows:

"Possibly we lack the mental toughness that it takes to face the reality of the real world."

"As an animal scientist, a very important principle was constantly drilled into my head-- genotype (internal) x environment = phenotype (the outward expression of a trait). Environmental factors are numerous: breakdown of the traditional family, lack of responsibility, pressure to achieve beyond their ability, a means of drawing attention."

"I have been involved in three different situations where people wanted to commit suicide. In all three cases, I felt the major problem was that the persons did not like themselves, mainly because of a hard situation that had happened to them (abortion, break-up of a relationship). In all cases it seemed the only way out."

The second question presented to college students was as follows:

"In your opinion why are so many young people between the ages of 15-24 completing suicide today?"

Responses in this category again reflected the thinking of the high school students with a number of additions as follows:

"Younger people are committing suicide because they feel inadequate or they aren't given enough attention. More should be taught about the psychological thoughts of children" wrote a 21-year-old female who indicated that a friend had committed suicide.

"Too many pressures to think and act like adults. When I was 15 my mother decided to remarry. I was expected to understand and hold back all my anger."

"Unemployment is a problem ... now ... in college, part-time ... and later. Maybe I won't be able to get a job to support myself."

"People don't realize the permanence of suicide."

"A lot of kids are selfish and don't think of anybody but themselves."

"If you can't equal your parents' success, why try? Take the easy way out and kill yourself."

"A lot of kids only meant to attempt but end up dead because they didn't know how to save themselves."

"Feeling lonely and trapped--cornered."

"The media show life's problems solved quickly and painlessly. Youth expect to lead such happy lives, quickly resolving their problems. You agonize over decisions and you fear failure."

"Both people I know killed themselves because of drugs."

"I don't know who I am and what my purpose on earth is. Finding my identity is hard--I might as well give up now."

Question 3 of the survey asks:

"What do you think can be done to prevent suicide?"

College students discussed a variety of preventive measures involving the individual, the family, schools, and society. Pertinent responses are as follows:

"We need more education about suicide for students, teachers and parents. We need to know the warning signs of depression."

"Teach kids a more realistic view of life."

"Allow for failure and help kids realize you can learn from your mistakes."

"Let students know that others have the very same problems and they just hide it better."

"Tell them it isn't okay to die."

"I don't like my problems, but I know they are temporary."

"Let kids create plays and improvisations about suicide for other kids to see--kids listen to kids."

"Encourage kids to plan conferences themselves on suicide. Adults can advise, but let kids get involved in actually doing it."

"Teach the consequences of suicide on family and friends."

"Deglamourize suicide. Kids need to know the gory details and that it is not romantic.

A 24-year-old male from Athens, Georgia summed up his suggestions for preventing suicide with these comments:

a. "Parents taking more time to really talk with their children and being courageous enough to openly discuss with them their problems."

b. "Giving children tasks to perform to establish early on their own personal importance in the scheme of things."

c. "Don't spoil children by constantly giving them material things, but instead, give them your time."

d. "Encourage children to do their best, but make them understand that their own personal best may be less than someone else's, and that's okay."

e. "Encourage children to spend more time in creative activity and athletic activity rather than just sitting and watching television for hours on end."

The last question for college students posed in the questionnaire was:

"Why do you think most young people do not commit suicide?"

The essence of comments from college youth is as follows:

"Feelings of responsibility or guilt."

"Too scared to do it."

"Hopeful about the future."

"Have few problems."

"Strong support network."

"They enjoy life."

"I thought of how others would feel ... I couldn't do that to them."

"Mental toughness."

"They have goals and dreams."

"They let their anger out in other ways."

"They know that all problems can be solved and that nothing is so bad that they have to die over it. Things just feel that way sometimes."

"The knowledge that I do have something to offer ... maybe not now, but some day."

"It's okay to fail and to be imperfect, if I do my best and learn from my mistakes."

"Since God made me I must be valuable and okay."

"My religious teachings keep me from suicide."

"I'm afraid of what I might miss if I killed myself."

SUMMARY AND RECOMMENDATIONS

Through a sampling of high school and college students' attitudes about suicide, it is clear that many of their lives are full of complexities, pressures, stress and frustrations. A 22-year-old female from Minnesota spoke for a number of her peers when she wrote:

> "Attempting suicide is a cry for help. Too many people take life for granted and too many people take love for granted. Without expression of such feelings, people of ages 14-24 can feel neglected and useless. On a more personal basis, in the early twenties or late teens there are a lot of transitions, walls of financial uncertainty, too many paths to follow and decisions to make with no one to really help. If you're standing on shifting sand, lacking control of life, what better way to control it than to end it? Completed suicides, I feel, are attempted suicides that went too far. People who attempt suicide want to be helped, but are too hasty and sometimes the result is a completed suicide. I think that when suicide is actually completed, it has been an action taken because of a gnawing growth

of self-disappointments over many years. Some people just feel that life just isn't satisfying enough. I just don't understand why these people don't speak louder or more obviously to get the help they need. Sometimes people can't listen because they aren't spoken to openly enough."

The energy and enthusiasm of the youth who responded to the task of suggesting solutions to the problem of suicide is encouraging and gratifying. They took their charge seriously and gave thoughtful ideas with mature insights. Suggestions covered four main areas including preventive measures for individuals, families, schools, and society.

Recommendations for Individuals (Ages 14-24)

It was probably no accident that major emphasis was given to the area of individual responsibility and initiative. Although the three other areas were important to them, it is observed here that young people are aware that it is their own coping skills and abilities which can save lives. They do not hide from the reality that they themselves have the power to be in charge of their own lives, even though at times they may feel powerless. They observe that they may not be able to control events in their lives, but that they can take charge of how they respond to those events.

A general theme among all the students was learning sufficient coping skills to handle crises, especially a suicidal one for themselves, or for someone else. To learn how to cope and how to solve problems was a priority. It was suggested that when someone had suicidal thoughts and images, they could consciously replace them with more positive concepts and thoughts. To go further, young people wanted to change their own attitudes about counseling so that there would be more freedom to seek counseling without fear of being labeled "crazy" or "inadequate."

Students wanted to find ways to decrease the pressure they felt from parents, peers, teachers, others in authority, and their own self-imposed pressure to perform and achieve. It was felt that if they could open lines of communication with others and take responsibility for giving feedback about the kind of pressure they were feeling, they at least would not feel like victims.

A major insight and recommendation from youth was that if they were to risk sharing their humanness and vulnerability with others, then everyone would begin to realize that most people have the same problems and the same feelings. One student told of a 7-year-old boy who found a Playboy magazine and looked at the pictures. When asked what he thought of the naked people in the pictures, he thought a moment and then said, "Well, under clothes, everybody is naked!" A 20-year-old from California said: "Letting down the barriers and taking off our masks is a way to begin to understand that we are not alone, and that others experience the same feelings.

Self-esteem is important to youth and finding ways to feel valued and worthwhile is an important task. They suggest loving yourself unconditionally, just because you were born, and not because of what you do. If you can do that, it doesn't matter who else loves you because you always have yourself and your self-respect.

The students were concerned with finding a purpose in life, some meaning or goal for the future. They suggested that a skill for coping with depression was to find something you wanted to do in the future that if you died you would never have the opportunity to do ... a real "missed opportunity." They suggested picturing what the future would be without you and without your contribution. To anticipate something in the future is to have hope.

The fast-paced, complex life of school, relationships, family, cars, drugs, alcohol, peer pressure, and the accumulation of problems can lead to wanting to end one's

life. A 19-year-old female from New Jersey said, "I didn't want to end my life, I wanted to end what was going on in my life ... and there's a difference." This insight is rare and needs to be translated to others, according to many college students.

The wisdom of youth tells us that we must learn patience in an impatient world; that pain does not last forever, nor does joy. It is important to know that depression doesn't last a lifetime, even though it may feel that way sometimes. Additionally, when discouragement and pressure to achieve are experienced, it is important to remember that it took parents a long time to be successful too.

Individuals need to understand that suicide is a permanent solution to a temporary problem. They need to take responsibility to ask for help when they need it. They need to find outlets for anger so it doesn't get bottled up. They need to know they are not helpless even when they are abused. Many students suggested getting help from their minister or rabbi or from their religious beliefs.

The students discussed the need to deal with relationships in terms of learning how to get into one, how to keep it together, and how, when appropriate, to get out of the relationship without destroying one another.

Students recommended that everyone have a support system of several people whom they trust so they may confide in them during stressful times.

Since most young people realize that they experience many losses in their lives, they recommend learning about the process of grief and how to handle loss. They suggest that the individual give him/herself permission to learn from mistakes without being devastated and especially that they learn to laugh at themselves. One 24-year-old student stated, "to be able to minimize the heaviness and seriousness of life with laughter is to be able to survive."

Finally, young people wanted their peers to take responsibility to plan conferences ad-

dressing the problem of depression, stress, and suicide. They believe that peers listen to peers and that they can have the greatest impact on one another. They advised that youth work alongside adults in an educational preventive effort at educating other youth in terms of warning signs, interventions, and counseling resources. They are 99 percent in favor of teaching peer counselors to help identify and counsel troubled youth, perhaps one day teaching peer counseling skills to the whole student body.

Recommendations for the Family

Youth are asking for the support and encouragement of parents, rather than pressure to succeed. They are asking for quality time with parents, including occasionally eating dinner together instead of everyone in the family being on different schedules. They suggest helping young people to feel better about themselves by talking to them, not at them. They want their feelings to be taken seriously; they want their lives to matter and to feel that parents value them as people, not as puppets to perform and to be controlled. They suggest that parents pay closer attention to the feelings of their children and that they take threats of suicide seriously, especially in those who have attempted previously.

They suggest that parents take parenting courses to learn to communicate, listen, and hear, so they can teach kids to communicate effectively also. They want parents to set limits, but to be fair in so doing. They suggest removing guns and large doses of medication from the home so that, in moments of desperation, it would be difficult to find the means with which to kill oneself.

Young people are concerned about child abuse and wish that parents would get help with the stress and pressure of parenting, and know how to have more control of their anger. They also want parents to help children understand that "someone can be angry at you and still love you." Many kids expressed concern that a parent's anger means the child is unloved and unloveable.

Additional recommendations involve issues of drinking and parental alcoholism. They suggest that parents seek help with their problems, so they can set a better example at home.

A final suggestion for parents is that parents and children should enjoy one another more without getting into power struggles. Youngsters would like to do things with parents occasionally, but they want their privacy respected and their need to be with their friends understood. They hope that parents know that learning to become independent is difficult, and finding their identity is a major task. They need help with that, and with the fact that sometimes they feel like kids, and the next minute they feel like adults. They are asking for patience.

Recommendations for Schools

Almost unanimously, young people recommend that suicide prevention programs be conducted in the school, but that they be geared to teaching skills such as communication, dealing with stress, building self-esteem and problem solving. They want the word "suicide" minimized so that it is not always in front of them. They hope that schools will provide this kind of training which includes learning the warning signs of depression, intervention skills, and what to do when suicide occurs. They want students, teachers and parents to have the same training.

A popular suggestion was to have peer counselors in the schools so that everyone would know someone his or her own age with whom she/he can confide. Respondents to the questionnaire emphasized teaching **coping skills** and **helping skills.** They wanted to learn how to cope themselves, and they wanted helping skills to be able to help someone else in trouble.

Most students stated that they had no idea of where to go for help outside the school. They recommended posting phone numbers of

outside counselors and centers in the halls and bathrooms of the school.

A young man in Georgia suggested that coping skills be listed on a wallet-sized card so that if you felt really suicidal, you could pull that card out of your wallet and read something like:

1. Pain doesn't last forever.

2. Go talk to a friend or someone you can trust.

3. Your feelings are normal.

4. Give yourself a break.

5. Suicide is a permanent solution to a temporary problem.

6. Call 256-9797 to talk with someone who can help.

Students recommended that drama clubs and classes write and perform theatrical presentations dealing with the subject of stress and depression, so that youth will be more receptive to dealing with the issue of suicide. It is their thinking that, in an age of fast-moving video frenzy, one of the best ways to get the attention of young people is through live entertainment. The original student musical entitled, "Dim Lights Need More Current" performed by a cast of students from Griffin High School in Griffin, Georgia, was cited as an example. This kind of presentation, done under qualified adult supervision "benefits the student audiences, the cast, and the community," according to a 17-year-old student.

Recommendations for Society

The primary focus for action in this area is the changing of attitudes of our culture to be more accepting of counseling and of asking for help. Young people want to change attitudes about discussing problems so that "you know you are not alone and you know that everybody has problems."

Students hope that society will value young people more in the future and will help them understand that their life does matter. They do not want society to dictate what success is;

they believe success is an individual matter. They hope that people will become less judgmental and more loving, allowing young people to succeed and fail in their own time, without the pressure of a materialistic culture judging everything in terms of money, things, prestige and power.

Students suggest more community centers, supported privately or publicly, so kids have a place to go and to belong. They hope society will encourage more physical activity in this age of the computer revolution and the age of television. They suggest that doctors receive more training in suicide prevention so that patients who have attempted suicide will not be released too soon from the hospital. They want the clergy to have more training in prevention and learn how to help the attempter and the family of a completed suicide, so that they don't commit suicide themselves. They expect our society to teach people the consequences of suicide to families, friends, and communities throughout the country.

REFLECTIONS

It is the attitude of the young people in this country who believe that they can make a difference that will help those who feel that they cannot. It is their hope that under our masks we are indeed one and, if not the same, at least similar. It is their vision for the future that provides them with a sense of purpose and direction. It is their attitude, their hope, and their vision that will change this world to effect not only the problem of suicide in this country, but that will allow them to become healing enablers in a society which needs them. As they feel needed, as they feel their power, as they feel their value, our families, schools, and communities will feel their presence.

We have been privileged to experience their energy and their enthusiasm in writing this paper. Their voices have been heard and duly recorded, with respect and admiration. A 22-year-old young woman from Minnesota wrote these simple words:

"Most people have the strength to hang on to tomorrow, knowing that sunshine and rainbows follow the rains."

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ACKNOWLEDGMENT ·······················

APPENDIX A

DATE:_____

QUESTIONNAIRE
For youth 14 to 24 years old

_____High School
_____College
_____Other: Please explain   _____
_____Age
_____Large City __Medium City __Suburb __Small Town
_____Other: Please explain_____

* *

Anonymous:_____

OPTIONAL

Name:_____

Address:_____

City, State, Zip:_____

Phone: Office_____ Home_____

Person responding to questionnaire:

_____Friend or relative of someone age 24 or younger who has **attempted** suicide.
Friend____ Relative_____

___Friend or relative of someone age 24 or younger who has **completed** suicide.
Friend____ Relative_____

_____I have seriously considered suicide myself.

_____I have attempted suicide myself in the past.

_____I do not have any personal experience with suicide in this age group of anyone age 14-24

* *

PLEASE ANSWER THE FOLLOWING QUESTIONS:

1. In your opinion why are so many young people between the ages 14-24 attempting suicide today?

2. In your opinion why are so many young people between the ages 14-24 completing suicide today?

3. What do you think can be done to prevent suicide?

4. Why do you think most young people do **not** commit suicide?

My response will be: _____Written (limit: 2 pages)

                              _____Audio cassette recording (limit: 5 minutes)

                              _____Video recording (limit: 5 minutes)

MASS MEDIA AND YOUTH SUICIDE PREVENTION

Alan L. Berman, Ph.D., Department of Psychology, American University, Washington, D.C.

INTRODUCTION

The stereotype of the mass media is that of an omnipotent sculptor of attitudes, interests, and behaviors of a highly malleable and responsive public. After all, if the advertising it presents can effectively merchandise products as diverse as detergents and politicians, then surely it must be responsible for stimulating and controlling the behavior of large numbers of people.

Social scientists who have investigated the effect of the mass media on human behavior have been primarily concerned with the impact (essentially negative) of television. Of special interest here are those studies suggesting media influences on aggressive--specifically suicidal--behavior among young people. If such a negative impact can be documented, then preventive efforts can focus on attenuating these effects.

TELEVISION AND YOUTH

Among adolescents, television is the preeminent medium and a trusted source of information. There is clear evidence that television advertising aimed at the youth market is successful in influencing purchasing behavior (1). Television as a whole, has been described as a significant source of socialization (2) and, by the National Institute of Mental Health (NIMH) as "a significant part of the total acculturation process" (3, p.87).

Estimates of viewing habits of adolescents, ranging from 18 to 21 hours (4) to nearly 28 hours per week (5), have led to the observation that typical American youth spend more time watching TV than at any other single activity, including school (6). Among the more negative stimuli to which the typical young viewer is exposed during these hours are frequent depictions of people drinking alcohol and a barrage of violent images and acts.

Content analyses of television programming have found that alcohol use, both casual and heavy, occurs twice as often as the drinking of coffee or tea (7). Greenberg (8) estimates that the average viewer who is too young to drink will see about 3,000 drinking acts per year, although Wallack, et al. (9) argue that heavy or irresponsible drinking is shown only infrequently. Similarly, very little licit or illicit drug use is depicted on television (10). In contrast, televised acts of violence have been described as "so pervasive that, by graduation day, the average high-school student has seen 18,000 murders" (5, p.46) and 800 suicides (11).

Violence on Television and Aggressive Behavior

The most widely publicized conclusion of the NIMH-sponsored review of the relevant scientific literature on television and behavior was that "violence on television does lead to aggressive behavior by children and teenagers who watch the programs" (3, p.6). Although the link was not seen as enduring, it was described as "causal" (3, p.6). The researchers proposed several theories, all of

which are common to suicidology, to account for the observed effects: (a) observational learning (imitation and modeling), (b) disinhibition, (c) attitude change, (d) desensitization and heightened arousal, and (e) justification of preexisting aggressive behavior.

Representatives of the broadcast industry (12,13) and others (14) have questioned the evidence and conclusions presented in the government review and criticized the studies as methodologically inadequate and proving correlation but not causation. However, while noting that research never yields unequivocal interpretations, Rubinstein concluded that "the convergence of evidence from many studies (of television and aggression) is overwhelming" (7, p.821).

MEDIA AND IMITATIVE SUICIDE

If violence on television promotes imitative aggressive behavior, can it be demonstrated that media depictions of suicide promote suicidal behavior among its viewers? Bolen and Phillips found significant increases in suicides in the United States just after televised news stories about suicides with effects lasting about 10 days (15). Phillips also reported evidence suggesting that both suicides and fatal and nonfatal auto accidents increased after fictional (soap opera) suicides appeared on television (16). However, Kessler and Stipp criticized his methodology and further analyses invalidated this finding (17).

The effect of publicized suicides on imitative behavior has been most consistently documented in studies of the print media. In an early paper, Phillips found statistically significant increases in suicides just after front-page suicide stories (18). Phillips termed this phenomenon the "Werther effect," referring to an alleged rash of imitative youth suicides that followed the publication of Goethe's *The Sorrows of Young Werther* in 1774 (19). Phillips showed that the Werther effect increased proportionally to the amount of publicity devoted to the suicide and that it occurred primarily in the geographic area where the suicide story was published. Wasserman extended Phillips' data set and reexamined his findings (20). His analysis revealed that only stories of celebrity suicides appeared to elicit imitative behavior. Recently, Stack reported an extension of this work, demonstrating that entertainers had a more significant effect on imitative suicides than other celebrities (e.g., politicians, criminals) and that this effect on suicide rates was as profound as that found for unemployment (21). Moreover, Stack demonstrated that the effect was specific to those in a similar social role--stories of young male suicides most affected suicides of young males.

Other work by Phillips has linked publicized suicides to transient increases in other forms of violent death that might serve to disguise suicidal intent, namely, motor vehicle accidents and noncommercial airplane crashes (22-24).

Davidson and Gould have summarized this research and concluded that nonfictional, media-reported suicides do serve as models for imitative behavior (25). The evidence linking fictional models with imitative behavior is, however, more controversial and less conclusive.

Anecdotal reports of imitative suicide following presentations of fictional suicides on television and in movies have appeared (22,27). Radecki (11) has documented 37 deaths by Russian roulette world-wide between 1978 and April, 1985 attributed to imitations initiated by viewing the movie "The Deerhunter." Even rock music has been blamed for stimulating suicide (28). Until recently, however, no one had presented empirical evidence for a relationship between fictional suicides and imitative suicide.

Gould and Davidson have reported the first such data (29). They examined completed youth suicides for metropolitan New York City, southwestern Connecticut, and all of New Jersey as well as admissions at six New

York area hospitals for attempts two weeks before and two weeks after each of four televised movies presenting fictional suicides. They found significant increases in both attempts and completions in the followup period.

Unanswered by this data is the question of whether the cases following the televised fictional suicides were new or merely accelerated, i.e., they would have occurred anyway at some other time, precipitated by some other event. Also, no data is presented that directly link the event to the film, i.e., did the adolescent even see the film? Also, there is some suggestion that the attempts following the film were of lower lethality (resulting in a lower proportion of hospital admissions after, rather than before each film). Therefore, it can be construed that an ostensibly negative effect may actually have been positive in that more troubled teens, because of the film, were stimulated to bring themselves to the attention of the helping system. As further evidence of this interpretation, hotlines and crisis centers reported significantly increased numbers of telephone contacts after these presentations (30).

With regard to increased completions, the Gould and Davidson data are difficult to interpret. One of the films studied had no subsequent youth suicides reported. Another, in which the teenager portrayed actually talked his suicidal father out of killing himself, had four youth suicides after the film, versus none prior to its showing. These data argue for more intensive case studies, moving from macro to micro analyses.

Television and Suicide: "Surviving": A Case Study - Part I

On February 10, 1985, the ABC network aired a three-hour drama about youth suicide. "Surviving" was a fictional portrait of two depressed teenagers who found solace in one another's arms and escape from pain through a dyadic suicide by carbon monoxide (CO). The New York *Times'* review of this production described it as "serious," "enormously watchable," and "intelligent" (31).

ABC conducted its own poll of national probability sample and found that 16 percent of those contacted had watched the film and that 93 percent of the viewers rated the film good to excellent (32). The majority viewed the film with another person (e.g., a parent or child), talked about it after its presentation, and felt that it had increased their awareness and understanding of the problem of teen suicide.

Other studies suggest that the film had untoward effects. Ostroff et al. noted significant increases in adolescent admissions to a psychiatric emergency service for suicidal overdose in the two-week period after its presentation (33). Gould and Davidson's data for this film showed four completed suicides after its showing compared with only one before (29).

To evaluate further the effects of this film on completed youth suicide, we collected data from nine urban medical examiners' offices across the United States: Atlanta, Cleveland, Dallas, Ft. Lauderdale, Philadelphia, San Diego, Seattle, St. Louis, and Washington, D.C., serving a combined population of more than 12 million. The total number of suicides certified by these offices in 1985 amounted to 1,843, an estimated 7 percent of all suicides in the United States that year. We then compared two-week and four-week data sets, before and after the February 10, 1985 air date of "Surviving." As noted in Table 1, there were no differences for either study period in: (a) total suicides, (b) youth suicides, and (c) carbon monoxide suicides. However, there was a noticable shift in the proportion of youth suicides by carbon monoxide. This shift might be accounted for by a process of identification with and imitation of characters in the film.

All five of the youth suicides by carbon monoxide after the movie were male (the movie depicted both a male and a female CO suicide). Further investigation of each of these suicides revealed that only two of them were known to have watched "Surviving." Each had seemingly positive reactions to the film: one wrote in his diary, "I loved that

film;" the other was reported to have responded to the film more ambiguously as "helpful."

Each of these youths had long histories of pathology. One had made a prior suicide attempt by overdose six months earlier and was in treatment at the time of his death. The other left a diary spanning the last two years of his life that documented a suicidal gesture two years earlier, frequent suicidal ideations, and at least one other failed attempt by carbon monoxide. The diary also recorded severe family conflict, rage toward his father, and problems of sexual identity. If anything, he had been more significantly affected by another television movie, "Consenting Adults," which aired prior to "Surviving" and dealt with homosexuality and a lack of family support. About this film he wrote: "...the movie reminded myself of me 100 percent...I feel exactly about males as he did. I feel like I'm lying to myself."

Such psychological autopsies of completed suicides allow for more intensive investigation of idiosyncratic influences not ascertainable through aggregate data analyses. From these case studies we can derive no evidence that "Surviving" stimulated new suicides. An imitative effect is suggested only in the shift of method chosen by youth who otherwise were known to be suicidal before the movie aired.

The act of viewing a film takes place in the mind. The viewer cannot be reduced to a simple stimulus-response machine. How we participate as observers, with whom we identify, what we perceive selectively, and whether we will be influenced at all depends on a variety of personal and mediating factors: our history, our moods, our predisposition, our needs. Heavy viewers of television have been found to see the world as a mean and scary place (17); those predisposed to violence might be those who prefer to watch

Nine-City Sample of Suicide Completions Before/After Broadcast of "Surviving"		
	Before	After
Total Suicides		
4-Week N	165	155
2-Week N	87	74
Youth Suicides (under age 25)		
4-Week N	34	29
2-Week N	23	18
Proportion Youth/Total Suicides		
4-Week	0.21	0.19
2-Week	.26	0.24
Carbon Monoxide Suicides		
4-Week N	16	18
2-Week N	8	8
Youth Carbon Monoxide Suicides		
4-Week N	2	5
2-Week N	2	3
Proportion Youth CO/Youth Suicides		
4-Week	0.06	0.17
2-Week	0.09	0.17

Table 1.

and who are most readily aroused by viewing violence (34). Those influenced by fictional suicides appear to be so predisposed, rather than molded by the suicidal stimulus.

MASS MEDIA AND PREVENTION

One approach to the prevention of youth suicide is to limit or inhibit stimulating influences on suicidal behavior. To the extent that the media may present models for imitation or where the media depicts behaviors that predispose depressogenic conditions (e.g., makes alcohol consumption seem attractive), then reducing these influences would be appropriate.

However, the media may also take a more active and positive role in prevention. Educating the populace could increase early detection of potentially suicidal youth. Using the media to inform viewers about health problems and to provide models that promote health-conscious behavior is one possible way to reach some of these potentially suicidal adolescents and thus reduce the population at risk.

Public Service Announcements

Public service announcements (PSAs) are the most typical mass-media vehicle for campaigns to educate the public and promote health. PSAs attempt to increase viewers' awareness of a specific problem and possible solutions. In addition, some aim at changing beliefs, attitudes, motivations, and behaviors; however, significant change generally fails to occur (6).

The reasons for ineffective PSAs are many and varied. Most PSAs consist of a small number of spots of varying quality, aired neither at prime-time nor when the targeted viewing audience is available to watch. In addition, competition between PSA sponsors limits the frequency of showing, therefore limiting the saturation, dissemination, and reach of any one message. As a result, the average time period during which a PSA is kept active is only three months (35).

To be effective, public information messages must be factual and specific and must reach the intended target audience. The great majority of those produced do not meet these criteria (35). Only 6 percent are aired during prime viewing time and even then on local stations when most of the viewing audience watches national programming (37). Hanneman and McEwen found that PSAs which were oriented toward youth were often aired **during** school hours (38).

PSAs are usually placed gratis by the broadcaster (in contrast to paid advertisements); therefore, they are placed as space and time permits. Some of the responsibility for this lack of reach rests with those who produce the PSAs. For example, Capalaces and Starr found that station managers were poorly informed about a series of anti-drug PSAs, consequently, they allotted haphazard energy and effort to their scheduling (39). Goodman also noted that station public service directors lack specific guidelines for attending to these campaigns (35).

Evaluations of PSA campaigns have found anti-drug PSAs to be cost-effective (40) and anti-crime campaigns to be effective in changing behaviors (41). Other campaigns considered effective, however, have not been found to affect the young (42) and some may even have "boomerang" effects in that the risky behaviors sensationalized by the media may be glamorized and lead to increased experimentation among youth (43).

Flay (44) and Goldstein (45) have suggested several guidelines for effective PSA campaigns. PSAs should be novel and use a knowledgeable, credible spokesperson with whom the audience can identify. The content of the PSA should be based on scientific fact and delivered in a manner that minimizes the arousal of fear. Also, clear alternative behaviors should be presented. The PSA needs widespread dissemination, high saturation (frequent exposure), and extended duration of exposure. To be most effective, PSAs need to be supplemented by other media (e.g., print) and community networking.

PSAs have been developed that focus on suicide prevention. Highly professional PSAs have been produced by and are available from the Los Angeles Suicide Prevention Center and the American Association of Suicidology. However, to date, no evaluation of their effectiveness has been conducted.

Television and Suicide: "Surviving": A Case Study - Part II

One possible explanation for the lack of imitative suicides following the showing of "Surviving" in February 1985 was the extensive public information and awareness campaign conducted by ABC's Community Relations Unit. The campaign included both broadcast and print components. Five one-minute news segments featuring interviews with specialists in adolescent suicide and stress management were distributed. PSAs, with room for a local crisis center hotline number, were provided to all local stations. One hundred thirty thousand handbooks on teenage suicide prevention were distributed free to secondary schools, mental health centers, and crisis centers nationwide. Some local ABC affiliate stations went further, sponsoring mini-documentaries and even town meetings.

The central element of this campaign was a half-hour educational program, "ABC Notebook: Teen Suicide" hosted by one of the stars of "Surviving". Eighty percent of affiliated stations carried "Notebook," 80 percent of these were aired on the weekend of "Surviving." However, fewer than one in five stations (18.2%) showed "Notebook" during prime time viewing hours. Perhaps for this reason, only 6 percent of the viewers who watched the movie, saw "Notebook" as well (36).

PRINCIPLES OF EFFECTIVE MASS MEDIA PREVENTION CAMPAIGNS

Historically, mass media public information campaigns have rested on the assumption that problems should be addressed with more and better information. Thus, information has been confused with education, and education with prevention (46). Behavior change does not result from mere exposure to well-designed informational messages. This "hypodermic needle theory" is too simplistic and has not been proven to be effective (47).

Effective suicide prevention must rest on the assumption that the target group--those at risk (potentially suicidal adolescents) or those around the person at risk (parents, teachers, peers)--can be reached by, will attend to, participate in, and respond to preventive messages. The messages must be informational (e.g., signs and symptoms, cues) and directional (e.g., where to get help); but, also, they must provide skills and incentives to act.

How do you get high risk adolescents, those who are acting out, depressed, abusing substances, etc., to pay attention to suicide prevention programming? What have we learned from studying mass media prevention efforts that increases the likelihood of having positive impact?

Sacco and Silverman have outlined five principles, inferred from empirical data, for successful mass media prevention campaigns: (a) information must be readily available to the target audience, (b) communication strategies must be designed to be salient to multiple targets, (c) contradictory information must be minimized, (d) objectives must be realistic and specific, and (e) desired behaviors to be pursued by the audience must be made explicit (48).

Flay and Sobel (6) suggest that mass media efforts must use multiple sources of information, extend campaigns over time, and convince gatekeepers (e.g., television station managers) of the worth of the campaign, to ensure adequate dissemination. They argue that more persons will pay attention if the message is seen as meeting a salient need (e.g., offers a skill) and is delivered by someone with whom adolescents identify or on

whom they model themselves (e.g., music groups, sports figures). Furthermore, and perhaps most important, they contend that media programs must be both complimented and supplemented by school-based curricula, home/family involvement, or community organization designed to increase interpersonal communication, discussion and networking.

The most successfully designed mass media campaigns that promote changes in health behavior are those that incorporate interpersonal communication (49). For example, the USC/KABC-TV Smoking Prevention and Cessation Program consisted of five 5-minute news segments, a coordinated 5-day classroom curriculum for junior high students emphasizing social skills regarding resisting social influence, homework assignments requiring adult involvement, a followup series of five 5-minute news segments, and a written guide provided to all parents. Students involved in the program made significant gains in smoking cessation and non-initiation (6).

To teach specific behavioral skills, the Stanford Heart Disease Three Community Study (50) included intensive mass media campaigns (PSAs, radio and television features, newspaper articles, bus cards, billboards) and face-to-face clinics for high risk subjects. The program extended over two years and significantly reduced risk for cardiovascular disease.

The Crime Prevention Coalition, with the cooperation of the Advertising Council, produced the national "Take a Bite Out of Crime" campaign (41). This program relied heavily on well-produced PSAs designed to induce behavioral change, a coordinated print campaign, and local community projects. Significant changes were accomplished in six of seven target goals.

A similar and impressively coordinated effort, although as yet unevaluated, has been mounted by WQED-TV in Pittsburgh. "The Chemical People" project (51) involved two PBS television shows, educational print resources, and guides. Most importantly, it involved citizen outreach activities which resulted in more than 10,000 town meetings which evolved into continuing task forces to deal with youth drug problems on a community level.

RECOMMENDATIONS AND CONCLUSIONS

The mass media are not responsible for causing youth suicide nor are they responsible for preventing youth suicide. Yet, as a significant part of the sociocultural milieu in which our children are raised, they have the potential to profoundly alter the message environment in which children behave.

To the extent that publicized news stories about celebrity suicides contribute to the suicide of a youngster predisposed to suicide, concern within the media needs to be raised. Newsworthiness is an appropriate consideration in the amount and type of coverage given a news event. Celebrity suicides are newsworthy, but the possibility of imitative suicides as a consequence to their reports suggests some balance needs to be considered. Neither censorship nor prior restraint* are appropriate, but limits may be. Elective guidelines might be established. Consultative discussion between media representatives and suicidologists might, for example, achieve some desired balance between the public's need to know, the media's right to report, and alternative consequences.

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* There has been but one legal test of prior restraint, that of Welu vs. CPB, No. H-80-1332 (S.D. Tex, Filed 6/16/80). On June 16, 1980 a temporary restraining order precluding defendents from distributing and broadcasting "Choosing Suicide" was denied for lack of federal jurisdiction. The show, scheduled on PBS that date, was a documentary distilled from 19 hours' recording of the ideas, plans, and discussion by and with Jo Roman regarding her suicide. Roman, age 62, had Stage II breast cancer (80% survival rate), had planned her suicide over 10 years, and died by suicide in June, 1979 by a lethal dose of Seconal. Plaintiff argued that broadcast would cause immediate and irreparable harm. Defendants countered that the feared impact of the program was "speculative," that there was no definitive evidence that the broadcast would inevitably, directly, and immediately cause harm, and that prior restraint was unconstitutional.

To the extent that the media may be used to educate, concentrating on prosocial education in early childhood appears to be the best possible use of the media for prevention. To the extent that children can be influenced by positive models, taught instrumental skills, etc., and to the extent that positive models are presented by the media, there is likely to be some lessening of the multitude of factors that lead to suicidal behavior. Especially important might be the depiction of nonsuicidal solutions to situations of conflict and despair (52).

The use of PSAs as vehicles of health promotion, information dissemination, and behavior change needs to be examined closely. If the guidelines discussed above regarding dissemination, targeting, timing, frequency and duration cannot be implemented effectively, then, short of government regulation, industry cooperation accomplished through consultative discussion is needed. The empirical research strongly supports supplemental efforts--the use of schools, home, and community networking--to make a public information campaign effective. With such activities, normative behaviors are established around the goals of the campaign and peer influences minimize opportunity for non-participation.

What is known about the impact of PSAs has come from their use in health promotion campaigns other than that of suicide prevention, primarily drug abuse prevention. Whether guidelines derived from these experiences are directly applicable to suicide prevention either awaits further research or requires a leap of faith. While we await further research, that leap of faith appears worth making.

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INTERVENTION STRATEGIES: ENVIRONMENTAL RISK REDUCTION FOR YOUTH SUICIDE

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SUMMARY

The cost of suicide in terms of mortality, the effects on lives saved and the costs of health care are great. Numerous factors associated with suicide are far-reaching and deeply rooted in the problems of society, family, and in the biochemical problems of the individual. Each suggests a specific set of interventions. The majority of risk for teenagers, however, appears to center on two areas: the cultural pervasiveness of violence, and the negative social factors of neglect and stress. The interventions that would appear to have the greatest impact on youth suicide are decreasing the cultural pervasiveness of violence, limiting the availability of lethal agents such as drugs and alcohol, firearms and medications, and instituting education programs for youth, parents, and the public.

What are the theories about the causes or predisposing factors of youth suicide and what interventions could influence the methods of suicide?

This paper examines the issues of environmental risk reduction as an intervention strategy for reducing suicide. To do this, two issues must be addressed. What predisposes an adolescent to commit suicide? And, what methods do young people use to commit suicide?

Regarding the predisposing factors, many theories abound. The factors most frequently cited as related to the rising rate of adolescent suicide are:

1. A high level of social and academic competition and pressure.

2. Violence that children and adolescents are exposed to--real violence such as rape, murder, and child abuse and created violence on television, in videos, movies, and music.

3. The lack of socially acceptable ways for youngsters to express anger.

4. The lack of connection to religion.

5. The increase in abuse of drugs and alcohol.

6. The special sensitivity of many kids to social isolation.

7. The increase in the absolute number of adolescents in society.

8. The pressures on kids to grow up too quickly.

9. The increasing mobility of the American family.

10. The disappearance of the extended family, the dissolution of the nuclear family, and the changing role of the family.

Which of these causes are amenable to intervention?

1. Competition and Pressure:

Suicide rates are high in societies where achievement is a major priority and lower where there is less pressure to achieve. In Japan (DeVos, 1968) and in Sweden (Hendin, 1964), where achievement is important, suicide rates are high. The highest rates among adolescents today are in countries such as Switzerland, Austria, Canada, and the United States (World Health Organization, 1985), all countries with a highly motivated young population. In the United States there is extreme pressure on our young to achieve. Ever increasing numbers of young people obtain college degrees and doctorates (in 1940, 3/100,000 and in 1971, 15/100,000) (U.S. Bureau of Census, 1974). Ours is an achievement- oriented society and children learn it as early as kindergarten.

Pressures to achieve academically are felt particularly strongly during the adolescent years. Failure to achieve may be particularly painful to adolescents whose families place heavy emphasis on success. Some adolescents may choose to take their own lives rather than to disappoint their parents or see themselves as a failure.

In order to combat a high level of competition both socially and academically, we would need to encourage cooperation. This would mean a different ethos of society. I don't see this happening.

Could we impress upon parents the necessity of reducing the pressure on their youngsters? Can we ask parents not to give their children a large number of lessons, not to send them to prestigious schools, not to instill values of competition and achievement? I doubt it.

2. Violence:

Our society has become almost immune to violence. The need for social agencies and law enforcement agencies to intervene to reduce the number of murders and violent crimes is imperative but beyond the scope of this paper.

Teens are greatly influenced by the media:

television, rock videos, the movies, and music. Producers will make and air what the public will pay to hear and see. I suspect the most forceful intervention will come from the buying public. If adolescents and adults refuse to buy products which depict violent behaviors, the industries will stop producing them. I am not hopeful that this will happen rapidly.

In July of 1978 it was estimated that the average American child, by his eighteenth birthday, had watched the equivalent of 710 solid days (almost two full years or 17,040 hours) of television. He will have seen 15,000 television murders (McWhirter, 1986). One study reports that the level of television violence in shows specifically designed for children have become increasingly violent. In 1967, one hour of cartoons contained three times the number of violent episodes as one hour of adult programming. By 1969, only two years later, violence in children's television was six times more prevalent (Murray, 1973).

It has been suggested that watching violence on television sensitizes the viewer to perceive more violence in the world around him and increases the likelihood that the viewer will use violence as a means of resolving conflicts (Liebert, Neale and Davidson, 1973). The kids who watched the cartoons in the 1960s are today's adolescents and young adults.

Perhaps, we might want to follow the example of Iceland. Iceland has television-free Thursdays to reduce the disruption in family life. Otherwise transmission is limited to the hours between 8 and 11 p.m. We should check the suicide statistics for Iceland.

Violence will be discussed further in the section on the use of guns as a method of suicide.

3. Aggression:

The inability of adolescents to express anger in a socially acceptable way may be contributing to the suicide rate. In societies or in situations where there is an acceptable outlet for

aggression, the suicide rate appears to be lower. For example, there is a lower rate of suicide in the army during war time. Individuals may have the opportunity to discharge aggression and hostility toward an actual enemy. It is possible, however, that suicides are hidden under the guise of battle casualties (Yessler, 1968).

Young people learn about the limits of expressing aggression in their societies. When they are angry, some kids may be able to risk open expression of aggression against adults. But some have to internalize their feelings. For these adolescents, inward aggression and self-destruction may seem like a reasonable solution for problems which make them angry such as family disruption or school or social failures.

It would be healthier if schools and parents would allow for the open expression of anger, frustration, and resentment within socially acceptable limits. Society must move away from encouraging physical punishment for children or any method of intimidating children which blocks their ability to express their own angers. Non-harmful, non-physical, non-combative techniques must be taught to parents and children and adolescents.

4. Religion:

It is believed that in cultures where the majority of people subscribe to a formal religion, successful suicides are low and where there is no formal religion successful suicides are higher (McAnarney, 1979).

Religious attendance in the United States is undergoing change, especially for adolescents. While stated church membership has increased at the same rate as the total population, many churches are reporting difficulties in maintaining contact with adolescents through teen groups, once popular in the 1950s and 1960s, but no longer popular now.

It would be interesting to study whether the adolescent suicide rate is higher among teenagers whose families practiced a religion as compared to those adolescents who were never reared in any religion, or among those who continue to practice their families' religion as compared to those who do not. As noted by many sociologists, groups in transition experience more suicides than stable groups. The presence or absence of a religious belief may not be the important variable, but rather the transition from a religious system to none, which might make an adolescent vulnerable to feelings of guilt and non-belonging.

5. Drug and Alcohol Abuse:

The association of drug and alcohol abuse with suicide is well documented and needs no further elaboration here. Drugs and alcohol are used by teens to belong to a peer group, to numb the psychological pain, and to escape depression. But drugs and alcohol are depressants. The substances which are taken to alleviate depression cause kids to become more deeply depressed. Whatever can be done by law or social agencies to stop the use of potentially lethal drugs and whatever can be done by schools, parents, and media to educate kids on the dangers of drug and alcohol abuse will certainly aid in the efforts to curb teen deaths by suicide.

6. Isolation:

Social isolation is a factor which appears to contribute to adolescent suicide. We know, for example, that suicide rates are higher in the western part of the country than in the eastern section. This is thought to occur because there are fewer social services in the West and people are more isolated from one another. We know that kids who commit suicide are often loners, withdrawn, and without friends.

What can be done to help these lonely kids? We cannot reshape personalities, but we can reshape the places where the kids spend most of their time--their schools. Our elementary, junior high and high schools could have smaller classes. The schools could encourage

social skills, not just academic skills.

We know that college students commit suicide in the fall more often than any other time of year. One theory accounting for this is that the transition from home to college is a difficult one. Kids move from the protection of their families and home town to the anonymity of an unknown town and a big institution. Colleges need to recognize this and make the transition easier. Freshmen need to live in small units and have more intimate classes where they will get to know their professors and make friends. Large classes could be reserved for upperclassmen where support may be less a matter of life and death. This is probably an issue of economics for colleges and universities, but if mental health counts more than dollars, classes could become smaller. The same is true for our elementary and high schools. We need smaller classes and more teachers.

7. Population:

The absolute numbers of teenagers in society appears to be positively correlated with the number of suicides among this age group. The theory is that the more teens there are present in society, the greater the competition for academic honors and employment opportunities and the fewer chances for success. This appears to be correcting itself with a decreased teen age population predicted by 1990 (Holinger and Offer, 1986).

8. Accelerated Pace:

The pressures on kids to grow up too fast and too soon, often tasting the privileges usually reserved for adults such as sex, money, and drugs while they are psychologically still children, can have disastrous consequences (Elkind, 1981). The average age of today's top fashion models is 12 to 15 (New York Magazine, 1980). The average age of one's first sexual experience is now 15. This places enormous pressures on kids who are cognitively and emotionally still children.

Many of our teens have too much material wealth, have nothing to strive for, and are bored all the time. They have experienced very little external adversity and yet feel a great deal of internal disconnectedness.

Again, I don't see much hope in reversing this trend. The only solution I can see is to move much of our population to the back woods of Wisconsin. The pressures have to be less and the pleasures simple. This would also help redistribute the population of the U.S. into less populated areas and reduce the crowding in the East. Thus, violent behaviors, such as murders, which are thought to be the result of frustrations and crowding, would be reduced. With the increased population in the West, isolation and the resultant violent behaviors such as suicide would be reduced. Thus, by redistributing the population of the United States we could reduce both the suicide and the homicide statistics.

9. Mobility:

On the other hand, redistributing the population would increase the already high rate of mobility in the United States. Mobility may be a factor in the youthful suicide rate. Again, groups in transition, such as mobile families, have higher suicide rates than those in stable circumstances. Some of the transitional members of contemporary society are people living in disorganized portions of big cities, for example, immigrants, and individuals transferred every few years by corporations. Studies in Seattle, Minneapolis, and Chicago show extreme concentrations of suicide in the disorganized central sections of the cities (Shneidman and Farberow, 1957). These transitional sections of the cities are characterized by extreme mobility and personal and social disorganization. People become isolated and lonely as they move into unfamiliar surroundings.

Studies on immigrants produce similar results. The suicide rates for immigrants is substantially higher than the rates in their countries of origin (Bourne, 1973, Burvill, et al., 1973).

We have seen a high incidence of suicide among adolescents in "new" towns such as

Plano, Texas in the last few years. It is possible that some of the suicides in the more affluent towns such as Scarsdale, New York, may have to do with the families of transferred executives. We would need to look at the background of the families of teens who have committed suicide and consider how transient their histories have been.

Some adolescents welcome changes, but others may be frightened by them. For those youngsters who may be uncertain of themselves, reassurances previously provided by a stable home life, a stable religion, and a predictable place to live, may be absent. Rather than face the insecurity of continual changes, some youth may choose to die.

10. Family:

The traditional family is disappearing. Half of today's children will be adolescents in a divorced home. Increasingly, children will be living in single parent families. Even where two parents are present, both parents may be working. Women are entering the work force and men are not electing to stay home and take their place. Families are depending on two incomes. But the question does not appear to be one of divorce or of working parents, but rather one of involvement. American parents spend less time with their children than parents of almost any other nation in the world. The attitude of many American parents is that their children are an inconvenience, an impediment to freedom or to success.

In societies where family ties are close, the suicide rates are low. Conversely, where families are not close, the suicide rates are high. One study contrasted the suicide rate (all ages) of the city of Edinburgh, Scotland with that of Seattle, Washington. The suicide rate was 15/100,000 in Edinburgh and 20.8 in Seattle (Ripley,1973). The cities were said to be comparable in population composition, colleges and universities, weather, and location on the water. Edinburgh was characterized as a more traditional, less violent society with strong roots in

family and school and with a far less mobile society than Seattle.

Work by Dizmang (1974) on the Shoshone Indians again suggests that the lack of family stability and a chaotic childhood account for their high rate of suicide. This message is repeated again and again throughout the literature (Finch and Poznanski, 1971; Hendin, 1964; Toolan, 1968).

The model for the traditional nuclear family is changing in twentieth century America. The once stereotypical family--the male head of the household, the female keeper of the hearth, and a home with children emotionally and geographically close--is changing for many. The number of divorces is increasing (a 4.1% increase between 1960 and 1965 and an additional 8.8% increment between 1970 and 1973). Exactly what the American family will be in the future is hard to assess, but there is little doubt that it will not be the traditional family of the 1900s.

The changes in the American family have not been shown to be causally related to self-destructive behaviors. The presence of supportive family, however, whether living under one roof or two, can help teens pass through the developmental phases of adolescence. If adolescents have lost one or both parents and do not have adequate parent substitutes, they may be severely compromised in their ability to complete this developmental phase without being vulnerable to impulsive, self-destructive behaviors. In addition, in families where adults give little time or concern for adolescents, or where parents are not in contact with their children, early symptoms of suicidal behavior may go unheeded. The adolescent who is neglected or unheard may attempt suicide in order to get attention. Occasionally this attempt may turn out to be lethal.

Thus, the changing American family may compromise the adolescents' capacity to cope with the stresses of adolescence and may compromise the parents' ability to recognize their children's problems before suicide becomes the only alternative to the

youngster.

While we cannot influence the divorce rate by public interventions, and while we do not wish to encourage parents who are miserable to remain together, there are directions we could take which might be helpful to our children and adolescents. One method is screening programs for early detection of emotional and behavioral problems. Perhaps where parents are not capable of detecting such problems, the schools and the community mental health agencies can help. Early detection can mean early intervention.

What are the most common methods of youth suicide? What interventions could influence the methods of suicide?

How do kids commit suicide? It is well known that guns and medications are the most common methods of suicide. The frequency of use of these agents in teen suicides necessitates concentrating on them. Other methods of suicide such as hanging, jumping off bridges, jumping in front of cars and trains are less frequent and less prone to regulation and, therefore, have less prevention potential.

Firearms are the leading cause of suicide, and is the one method which has increased significantly with the increase in suicide rates (Boyd, 1983). Guns now account for more suicides than all other methods combined: 65 percent of teen suicides are committed with firearms. An environmental risk reduction strategy would call for decreasing the availability of handguns. Some 25 million households have handguns and one-half of these keep their handguns loaded (Cantor, 1985). Adolescents are impulsive. Having a loaded handgun around the house is an invitation to disaster.

Mandatory safety training and public education on the dangers of handguns in the home would not solve the underlying problems of self-esteem and depression which contribute to suicide, yet it would result in fewer deaths. The analogy with mandatory seatbelts is ap-

propriate. Seatbelts do not make people better drivers, but they do improve the chances of surviving a collision.

Epidemiologic studies estimate that of those teen suicides committed with a gun, 70 percent of those victims could not have obtained handguns or firearms if there had been gun regulations, and some 50 percent of those individuals might have used another method. Thus, it is estimated that the reduction in firearm accessibility would save the lives of approximately 20 percent of our youth (Hollinger, 1984).

Limited gun control, such as mandatory waiting period and background check for handgun purchasers is one step. Others might include licensing of handgun owners and halting the manufacture and sale of snub-nosed hand guns. The sale of handguns to individuals with a history of psychiatric hospitalizations or previous suicide attempts might be prohibited and regulations might differentiate between handguns and other firearms.

While the issue of gun control is a controversial political concern, the bulk of the evidence seems to suggest that it would be an effective method of reducing the suicide rate (Westermeyer, 1984; Browning, 1974; Markush and Bartolucci, 1984; Boyd, 1983; Hudgens, 1983; Lester and Murrell, 1980, 1982; Lester, 1983).

When highly lethal methods of suicide are less available, evidence shows that people do not necessarily switch to other means. When the English converted their home heating gas from deadly carbon monoxide-containing coke gas to low-lethality natural gas, the suicide rate dropped 33 percent. The low rate has remained constant despite the bleak economic picture in England which might have been expected to lead to an increase in the suicide rate (Kreitman, 1982; Seiden, 1984).

While the mere correlation between guns and violent deaths does not indicate causality, it is clear that strict gun control laws in many countries are correlated with a lower

incidence of homicide and suicide. For example, all guns must be registered in the Netherlands; in Italy and Norway, guns are seldom used by the public. In some countries private ownership of a pistol is forbidden to everybody except the police, military personnel, and a few competitive marksmen. "In Great Britain, most persons, including officials of the British Rifle Association, find it difficult to comprehend the notion of the right to bear arms, as espoused by many persons in this country" (Fredericks, 1984).

While it is true that other means of committing suicide are used in countries where firearms are not available, little doubt remains that the availability of firearms makes violent acts such as suicide, easier to commit--and the lethality of the act has no peer. If an individual can be deterred from committing suicide, even temporarily, his chances for survival increase, which with gun in hand, would be lost.

Poisoning, usually with prescription medicine, is the second most common method of suicide, accounting for 11.3 percent of all suicides. The availability of lethal drugs could be limited by restricting the number of tablets permitted for each prescription. This kind of legislative restriction on sedative and hypnotic drugs is thought to be largely responsible for the decline in the suicide rates in Australia in the 1960s and 1970s (Oliver and Hetzel, 1973).

In addition, the tricyclic anti-depressants could be sold with an emetic or antidote. If a teen overdosed and changed his/her mind or was found, an antidote could be given and a life could be saved. Projections claim this method might save approximately 3 percent of teen suicides per year (Holinger, 1985).

The first antidote ever developed against Valium and Librium, the drugs most commonly used in suicide attempts, has undergone preliminary successful human testing. The antidote, called Anexate, could be used to save hundreds of lives each year (Chicago *Tribune*, 11/3/85).

Jumping from high buildings or bridges is another method of suicide for which intervention may be possible. Access to high buildings could be limited, physical barricades such as high glass or steel fences could be required above a specified height and windows above a certain story could be made unopenable or unbreakable. However, since the number of suicides among young people which occur by this method are few, the impact of the interventions probably would not be great. The causes of youth suicide appear to be enormously far-reaching and deeply enmeshed in societal problems. The building of barriers on buildings and bridges would not seem to make a dent in the problem.

What can we do to reduce these alarming statistics? Perhaps the most important possibility for intervention is to conduct school programs in positive mental health education for students, teachers and parents. These programs must begin with helping children to develop self-esteem, and communication and listening skills. Then kids can learn how to identify a child in trouble and how to reach him. They must know whom to turn to in the school to get help and when to turn to a professional. They need programs in stress management and coping skills as well as programs in suicide prevention. School faculty need to know what to do in the event that someone in the school does attempt or commit suicide to prevent one suicide from becoming multiple suicides.

Educational intervention is difficult to evaluate because of the absence of data. Over a period of years, however, education would appear to have the best potential for decreasing self-inflicted mortality. Here I use the analogy of sanitation and its effects on infectious disease. More lives have been saved by preventive sanitation than by antibiotics. Based on studies of the effects of public education in the areas of child abuse, discrimination, and drunk driving, self-inflicted mortality for children and adolescents could be reduced by as much as 20 percent through public education (Holinger, 1984).

HIGH RISK POPULATIONS

Psychiatric patients and suicide attempters

The major focus of this paper is on adolescents in the general population. However, it is well documented that psychiatric patients and those who have previously attempted suicide have a far greater rate of completed suicide than that of the general population (Pokorny, 1983; Sainsbury, 1982). Thus, they must be considered. Can our knowledge of their high risk be used for prevention? Kreitman (1982) has shown that if we were to screen a large high-risk population we would catch relatively few suicides at high expense. If one concentrates on a smaller high-risk group, the yield is so low that the overall reduction in the total number of suicides is minimal.

What other possibilities can be considered? The first is training of psychiatrists, psychologists, physicians, nurses, and other mental health professionals to be increasingly aware of the risk of this group.

Another fruitful avenue is that of biochemical research. Specific biochemical tests are being developed to establish the potential of patients with biochemical disorders such as decreased serotonin levels for the propensity to impulsive, violent behaviors including suicide (Van Praag, 1982).

A third possibility involves the use of the agents of suicide, particularly guns and medications. Stricter regulations of gun sales and medications are needed, especially to previous suicide attempters and persons with histories of psychiatric hospitalization.

Juveniles in jails and detention centers

Another group of youngsters with a high rate of suicide are adolescents held in jails and juvenile detention centers. One example of practical intervention is the program that the Samaritans of Boston have instituted. Each week, volunteers meet with the inmates of the Charles Street Jail where they have trained thirty inmates to be "barred befrienders" to help identify the suicidal among the 5000 new arrivals to the jail each year. Since the program began there have been six suicides at Charles Street, rather than the fifty-six that the National Institute of Justice statistics indicate normally happen in an institution of its size. In addition, officer training in suicide prevention is now required by the State of Massachusetts. How effective this training will be in the prevention of youthful suicide should be evaluated.

Another area of risk for youth is in juvenile detention centers. Youngsters are brought here, often on a first offense such as a drunk driving charge, to wait for a parent. They are placed in a cell and left alone. Sometimes there is a television monitor for surveillance. I would rather recommend the use of other inmates for surveillance rather than an inanimate object, and further would recommend the holding of these youths in cells with another person present rather than alone. Often these kids are humiliated and frightened, and isolation is the last thing we want for them. These procedures are simple to institute and they may help to reduce the death toll for a select high-risk population.

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SCHOOL-BASED PREVENTION PROGRAMS

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INTRODUCTION

As the statistics on youthful suicide rise dramatically, prevention of youth suicide has become a priority of professionals involved with community-based facilities. Suicide prevention centers, crisis hotlines, family physicians, and teachers are just some of the different community resources available to help the suicidal individual. The efficacy of these various individuals and programs has, however, been subject to question. Controversy still continues about whether suicide prevention centers and agencies, psychologists and psychotherapists can actually prevent suicide (Bagley, 1968; Jennings, Barraclough and Moss, 1978; Innes, 1980). Other studies, specifically those examining the role of suicide prevention centers, similarly have found conflicting results (Weiner, 1968; Lester, 1974; Miller, Coombs, Leeper, Barton, 1984). Overall, however, suicide prevention centers may have some beneficial effects especially in diminishing the rate of suicide in young white females (i.e., women and girls 24 years of age or younger).

Recently, suicide prevention programs and curricula have been developed for junior and senior high schools. These programs have assumed various tasks but have as their overall goal the prevention of suicide by the students enrolled in school. All of the current programs utilize some of the ideas of a comprehensive school-based prevention program. Unfortunately, serious omissions occur in many of these programs. In reviewing this field, it is apparent that nine aspects of prevention programs must be developed and integrated into the different school-based programs. They are:

1. Early identification and screening.

2. Comprehensive and thorough evaluation of the depressed, suicidal, and psychiatrically disturbed young person.

3. Crisis intervention and case management.

4. Programs immediately following a suicide.

5. Education for students, teachers, community, and professionals on identification, diagnosis, and management of suicidal youth.

6. Monitoring and followup.

7. Community linkage and networking.

8. Research of epidemiology, causation, and longitudinal followup of attempters.

9. Advocacy.

This paper reviews the existing youth suicide prevention programs developed for schools and elaborates on some of the more critical aspects of the nine components of a systematic protocol that would comprise an effective prevention program.

The general purpose of a successful school-based program should be to integrate an understanding of the risk factors for youth suicide, an appreciation of the behavioral characteristics and clinical symptomatology of the suicidal individual, and an awareness

of the various psychosocial stressors with which the suicidal adolescent is attempting to cope. The synthesis of these three functions forms the basis of suicide curricula for schools.

This review of existing youth suicide prevention curricula was undertaken by the Greater Lakes Mental Health Foundation in Tacoma, Washington. The review committee consisted of educators, physicians, psychologists and community workers. A review of 19 programs revealed that only five curricula received an overall positive rating. Some programs had specific deficiencies when rated on a four point scale examining four aspects of the prevention curriculum. The four areas critiqued were: coping skills, prevention, intervention, and postvention.

EARLY IDENTIFICATION AND SCREENING

The question of "what do we screen for?" arises in training educators and school administrative staff to screen for suicidal youth. Does the screening include an examination for depression, antisocial behaviors and attitudes, impulsiveness, suicidal intent, hopelessness, coping skills, family background, and psychosocial stressors? Should evaluation include all these areas? Three general areas of early identification and screening that **must** be examined are:

1. Identification of depression in young people,

2. Appreciation of the various psychosocial stressors affecting students, and

3. Methods of responding to and handling difficult problems.

Early identification is dependent on observing the various risk factors associated with attempted and completed suicide in youth. Risk factors identified by Hawton (1982) and Garfinkel, Froese, and Hood (1982) are:
1. older adolescent,

2. male,

3. previous attempts,

4. chemical dependency (alcoholism) in the family,

5. family breakdown,

6. deteriorating school performance,

7. recent antisocial acts (characterized by rage, aggression, and impulsiveness),

8. living away from the family,

9. history of depression.

In a 1986 study of suicide attempts in high school students, Garfinkel et al. (1986) showed that attempters had more than twice the number of psychosocial stressors within a six-month period prior to their attempts than normal adolescents. The various stressful events were not just more frequent, but were qualitatively distinct from the stressful events in non-attempters. For example, family breakdown, divorce, and school-based difficulties were far more frequent in the attempter's group.

Common stressors experienced by adolescents who attempt suicide include:

1. Breakup with boyfriend or girlfriend.

2. Trouble with brother or sister.

3. Change in parents' financial status.

4. Parental divorce.

5. Losing a close friend.

6. Trouble with teacher.

7. Changing to a new school.

8. Personal injury or other physical illness.

9. Failing grades.

10 Increased arguments with parents.

Although more than fifty events could be identified as upsetting to an adolescent, these ten were reported most often by the attempters. The stressful life events are ranked in order of frequency that adolescents attempting suicide identified as most to least stressful of the ten most troubling events (Garfinkel, et al., 1986).

Suicide attempters in a high school setting demonstrate not only depression, but also behaviors characterized by:

1. Angry and explosive outbursts.

2. Passive withdrawal into drinking, smoking, and drug usage.

3. Avoidant types of behavior including hypersomnia, joyriding, and infrequent communication with adults.

4. Recent antisocial behaviors such as fighting, violent outbursts, stealing, and vandalism.

5. Visits to family doctors concerning depression.

6. Deteriorating school work.

Recently, Garfinkel, Hoberman, Parsons, and Walker screened 4,267 junior and senior high school students in rural Minnesota. They examined five symptom and behavioral areas:

- Depression

- Antisocial behavior

- Life stressors

- Familial and demographic factors

- Coping and adaptive strategies

Hopelessness and nihilism were not evaluated. Information concerning suicide attempts, ideation, and impact of role models were also assessed and shown to be important in determining suicide attempts. Instrumentation for this type of screening and early identification is relatively simple and brief. Self-report questionnaires and rating scales were the most efficient way of obtaining this information. The Beck Depression Inventory; Berilson Rating Scale for Depression; A-COPE, Johnson and McCutchen Life Events Questionnaire, demographic, familial, and antisocial questions were shown to have validity. By applying this information to specific students, it is possible to identify an individual undergoing severe stress. A pattern emerges that often resembles that of

a suicidal adolescent who has a sufficient number of preexisting risk factors to warrant a further comprehensive evaluation.

COMPREHENSIVE EVALUATION

Following the screening measures, some students will be identified as needing further evaluation. The comprehensive assessment and evaluation of a student attending a junior or senior high school must be based on a structured systematic psychiatric protocol. This should include a structured psychiatric diagnostic interview, self and clinician ratings, and psychometric testing. The evaluation must utilize existing instruments that have a high degree of validity and reliability. Because depression reflects a temporary and episodic state, most rating scales and instruments for evaluating depression do not have a high test/retest reliability. There are, however, a number of structured psychiatric interviews that are effective in identifying depression, including:

- Kiddie SADS

- DICA, (individual and parent)

- DISC, (Diagnostic Interview Schedule for Children) (individual and parent)

Clinician ratings such as the Children's Depression Rating Scale by Poznanski demonstrate good psychometric properties. In addition, self-report ratings such as the Children Depression Inventory (CDI) (Kovacs, 1978, Birelson, 1978) and the Beck Depression Inventory, (Beck, 1979) are worthwhile as well as parental ratings for depression. Psychological tests such as the Personality Inventory for Children (PIC), the Minnesota Multiphasic Personality Inventory (MMPI), and the Million Personality Profile for Adolescents can be usefully applied to the evaluation of suicidal youth. Often in a school setting, the evaluation team must obtain both parental and teacher evaluations of the student and examine the difficulties being identified in as many set-

tings as possible. Weinberg (1973) showed that between 40-60 percent of all learning disabled children met diagnostic criteria for depression.

It is also important to measure hopelessness and suicidal intent. Suicidal intentions are measurable with instruments such as the Beck (1974) or Pierce Scales (1981). The Beck Hopelessness Scale has been shown to be a very good predictor of completed suicide in individuals who have made a previous attempt (Beck et al., 1985).

Evaluation should include a thorough assessment of an individual who had already made one suicide attempt. A number of characteristics of the attempt indicate how serious the attempt was and the probability of an individuals' ultimately committing suicide. The following characteristics, originally suggested by Beck (1974), Hawton and Catalan (1982), and Garfinkel, Froese, and Hood (1982), are good predictors of the seriousness of a previous attempt.

1. whether others were near by

2. the likelihood of being rescued

3. precautions taken to avoid discovery

4. actions that indicate that death was likely (e.g., giving away one's most prized possessions)

5. intricate and extensive suicidal plans

6. leaving a suicide note

7. not telling others of the attempt following the self-destructive actions

8. informing others of the attempt before it actually occurs

9. family history of suicide

CRISIS INTERVENTION-- A MODEL

Barteolucci and Drayer (1973) and Hawton and Catalan (1982) recommend a crisis intervention model based on brief, collaborative problem-solving therapy emphasizing the rapid resumption of control over one's environmental future. Various personnel in-side and outside the school system may be effective in working with crisis intervention teams based within schools. The following individuals may be asked to provide a consultation or act as a liaison:

- child and adolescent psychiatrist
- school psychologist
- nurse
- social worker
- teacher
- principal
- speech pathologist
- occupational therapist
- coach
- audiologist
- pediatric neurologist
- clergy

Depending on the unique aspects of a case, these diverse individuals may be asked to consult or become a permanent member of the suicide prevention team. The role of psychotropic medication should be examined critically because it may be useful in treating an immediate crisis (Hawton and Catalan, 1982). In general, the purpose of the suicide team is to transform, for the depressed and suicidal adolescent, an environment that, until the crisis, had only emphasized academics and athletics. The team should provide a very supportive, concerned, and empathetic group of individuals prepared to work with the individual to alleviate psychological and social stress.

One of the chief responsibilities of school-based suicide prevention teams should be to insure that an adolescent receives the necessary psychotherapy and social work following a suicide attempt. It is important to establish immediately an integrated network of parents, community-based professionals, and school-based educators and counselors. Often the early crisis intervention work done with the school will determine how successful subsequent community-based counseling

will be. If the rapport and therapeutic alliance established with the school-based personnel is effective, it is likely that community work will also replicate that positive pattern.

GOALS OF INTERVENTION AFTER A SUICIDE

As outlined by Hawton (1982) and Beck, Schuyller, and Herman (1974), a number of specific goals should be set and accomplished during the crisis-intervention work with an adolescent who has attempted suicide. Catalan et al. (1980) and Hawton and Gaths (1979) demonstrated that all disciplines, including social workers, counselors, psychologists, nurses, and psychiatrists can assess the individual who has attempted suicide. They clearly indicate that the diagnostic assessment of every adolescent attempter need not involve only one discipline. The goals of the assessment are as follows:

1. Establish a therapeutic alliance.

2. Determine the type of psychosocial stressors the individual had been experiencing.

3. Rule out the presence or absence of a psychiatric disorder.

4. Identify the adaptive and coping mechanisms that the individual uses to manage stress.

5. Determine all the external resources and support personnel and systems within the individual's life that can be called on to help.

6. Identify what further help the person is willing to accept in order to stop the suicidal behavior.

The first step of this protocol is to determine all the events that immediately preceeded the attempt. In general, a thorough history of the preceeding 48 hours is essential. Events during the two days are reviewed with the individual to determine whether or not some could be viewed as a precipitant, or perceived by the individual as a reason for self-destructive behavior. If no psychosocial stressors are identified and the suicide attempt appears to have no reasonable event causing it, then it becomes very important that a psychiatric disorder be ruled out. Most often, when no psychosocial stressors or obvious reasons for the self-destructive actions are apparent, the suicide attempt is a direct outgrowth of a psychiatric disorder.

An evaluation of the degree of hopelessness, suicidal risk, and lethality of the actions must occur next. The circumstances of the attempt indicate how lethal and serious the behavior was. Garfinkel, Froese, and Hood (1982) and Beck et al. (1974) described features of attempted suicides that are important to identify:

- Was the attempt made in isolation?

- Were others nearby and likely and able to intervene? This is necessary to find out because efforts to avoid discovery or to conceal the attempt indicate level of severity.

- Were there actions that showed the person anticipated death? Giving away one's most valued possessions is information about severity often provided by friends.

- Was a suicide note left?

- What was the extent of premeditation and planning?

- What method of self-destruction was chosen? Jumping, hanging, and drowning are more lethal and serious than drug overdoses and wrist laceration.

Following an attempt, it is useful to have the adolescent list with the person doing the evaluation, all his/her difficulties. In order of frequency, identifiable problems emerge and include the following:

- problems with boyfriend or girlfriend

- problems with parents.

- problems of a non-specific nature within the family.

- problems that are school-based.

Hawton, O'Grady et al. (1982) demonstrated a similar list of problem areas in 50 adolescents who had attempted suicide, including parental, school, peer, social, physical, sexual, and alcohol based difficulties. It is important to note that such difficulties may, in fact, be a consequence of depression rather than a cause. They may also perpetuate a person's pessimistic view of himself and his future. Moreover, they may also have precipitated the crisis or the decision to end one's life.

After identifying existing problems and psychosocial stressors, the next step involves the identification of a possible psychiatric disorder. Identifying cognitive problems is as important as identifying affective disorders. For children and adolescents it is known that individuals with learning disabilities, brain dysfunctions, and severe depressions may have marked cognitive changes. It is also known that individuals with depression have cognitive distortions and altered attributes that affect thought content. At this step individuals assessing the patient can do a full mental status examination, emphasizing an evaluation of both mood and thought disorders.

The next component of the evaluation emphasizes identifying family psychopathology, family dynamics, and external resources available to the suicide attempter. Research has indicated that significant psychopathology in family members, especially alcoholism and family breakdown, are frequently associated with adolescent suicide attempts. General psychopathology in other family members should be documented noting whether another family member has tried to commit suicide. Suicide attempts and completed suicide in other family members are associated with suicidal behavior in adolescents. Dynamic issues are also important, especially in determining the help young persons can expect from individuals in the immediate environment. Because family members may have coped with severe problems for a long period of time, they may not be accommodating to the adolescent's

present crisis. They may take a very rejecting, uncooperative attitude. They may also treat the child as if he/she were "expendable," i.e., they are so tired of the long-standing conflicts that they have "given up" on the person's ever getting better. Without sufficient resources available to the attempter, closer observation such as day hospital and full hospitalization may be necessary.

The adaptive and coping mechanisms of the attempter should be explored. It is important to determine whether the attempter is showing the commonly observed behavior of individuals who attempt suicide: passive withdrawal, avoidant behavior, irritable and angry responses, and impulsive/explosive antisocial actions. At this stage of evaluation, previous suicide attempts, ruminations, and plans should be identified. Finally, all supportive relationships must be identified; they can include peers, family members, clergy, educators, and professionals. It is important that the evaluator not keep the suicidal behavior strictly confidential. If intentions are kept secret, adolescents with suicidal ideation may not be adequately monitored or managed in all settings, and could result in a fatality.

The last step is to establish a contract. The individual who has attempted suicide agrees to work on specific problems with identified external resources without turning to suicide during a specified period of time, usually three to four months. Often, three to four months is necessary to allow for sufficient mood elevation, cognitive reorganization with new attributes, and the resolution of various psychosocial stressors to deter the individual from further suicidal behavior.

SURVIVING A CHILD OR ADOLESCENT SUICIDE

Following a suicide, educators and community workers have difficulty managing and counseling relatives, peers, and classmates of the individual who committed suicide. A number of principles should be adhered to within the school setting that would deem-

phasize the social learning and role modeling that can occur following a suicide. All subsequent actions should be handled in a very sensitive manner deemphasizing, but acknowledging the presence of guilt, responsibility and anger. Only two basic principles underpin this type of work; first, preventing social modeling from occurring, and second, preventing negative feelings of guilt, responsibility, and anger from overwhelming the survivors.

A number of tasks should be carried out in the school that are directed to both school friends as well as the general student body. Following an attempt or completed suicide, approximately one-third of the student body will have already heard about it indirectly. Educators therefore, should not think that by discussing what has occurred, they are giving young people the idea that suicide is an option. The students can be encouraged to explore with adults the sense of loss and abandonment regarding the suicide. Herzog and Resnik (1967) indicated that both the parents and peers may have difficulty in communicating openly about the individual who committed suicide and may need support, direct encouragement, and time set aside to discuss it.

Individuals working with peers of the suicide should attempt to stress the psychopathology that the individual was experiencing. Adolescents often believe the individual who committed suicide did not have any problems whatsoever. Occasionally this is true, however, more often the psychopathology was minimized or not readily apparent. Stressing the psychopathological elements in the individual's functioning demystifies the suicide, emphasizes emotional and mental disturbances, and makes it more difficult to identify with the dead individual. A major component in working with the survivors is to break down the identification with the individual who committed suicide. Emphasizing family and other problems unique to the individual and deemphasizing the strengths the individual possessed are methods by which identification can be diminished. Em-

phasizing psychosocial stressors such as academic difficulties, breakup of peer relationships, and physical issues that were stressful events in the individual's life, places the suicide in the context of a unique set of circumstances. By sharing the unique aspects, other students have a more difficult time in identifying with the decedent. Furthermore, professionals and educators working with the students should deemphasize suicide as the cause of death. In fact, some professionals do not mention suicide at all but emphasize depression and various other stressors as leading to the individual's suicide.

Peers, classmates and family members should be encouraged to limit the extent of memorializing the decedent. Although not fully researched in a controlled fashion, some empirical evidence suggests that individuals who memorialize a suicide do so in a much more elaborate fashion compared to a similar age person dying from other causes.

Finally, coming to terms with the loss and abandonment must be explored. Survivors have great difficulty in comprehending suicide as permanent and volitional. These two particular aspects (i.e. volitional and permanent) of the decedent's actions should be discussed. In general, ventilation of anger with the decedent ("he was no different from the survivors"), responsibility and guilt, and non-specific communication are **not** the most effective ways of trying to limit the social modeling and the potential for clustering of suicides.

EDUCATION FOR STUDENTS AND SCHOOL PERSONNEL

Educational programs to develop sensitivity and awareness of the issues of youth suicide abound for students, teachers, and administrative school personnel. Educational programs vary in duration, content, and personnel. The major components of various programs are four-fold and usually include coping skills, prevention, intervention, and postvention.

Some programs have been as brief as one

class period and others have grown to as many as 3 to 5 classes. No one has been able to demonstrate that programs directed to students have any direct benefit. Similarly, no evidence suggests that programs for school personnel are effective. It is possible that general discussions about suicide may have a deleterious effect on the students in that the topic may inadvertantly become idealized and appealing.

STUDY OF EDUCATIONAL PROGRAMS IN MINNESOTA

Garfinkel, Hoberman, Walker, and Parsons examined suicide educational programs in rural Minnesota high schools which were directed to either students or educational personnel. They wished to determine if educational programs correlated with either the suicide attempt rate for that particular school or the occurrence of severe depression. The ten schools studied had six suicide attempts within the six months prior to the beginning of the study. Beck Depression Inventories were completed on 200 students designated for this study. Students in grades 9, 10, 11, and 12 in a particular class were asked to fill out the Beck Depression Rating Scale, provide other information such as suicide information, demographic data, and coping and life stress events schedules. Principals were interviewed to determine the number of educational programs on suicide, depression, or stress that the school provided. They were also asked whether specific personnel within the school were designated to give these educational programs and whether or not experts were brought in. The range of programs varied from 0-4.

Whether educational programs were provided did not correlate with either the suicide attempt rate in a particular school or with the occurrence or severity of depression recorded. The type of speaker, (by discipline, or an outside expert, or someone on faculty) also did not have an impact on the rate of suicide or depression. Similarly, the number of suicide education programs or

number of staff persons did not have a significant effect on these two variables.

This is a pilot study that will be replicated in forty more schools. The programs may be criticized on the basis that the philosophy or approach was not known. It is encouraging to note that in spite of media attention to suicide and the social learning and modeling that can occur when suicide is discussed generally, these programs did not have an enhancing effect on the suicide and depression rate within the schools that we studied. Therefore, one can cautiously conclude from these preliminary findings that a nonstandardized educational program within a school setting directed to students and teachers is not associated with an increase in suicide attempts or severe depression within a particular high school.

When the Greater Lakes Mental Health Foundation critically reviewed youth suicide prevention curricula, they identified four components of the student and teacher curricula: coping skills, prevention, intervention, and postvention. Nevertheless, the programs that were critically reviewed had multiple omissions from the reviewer's perspective.

The curriculum that received the highest rating was developed by Thomas C. Barrett, Ed., entitled, "Youth in Crisis, Seeking Solutions to Self-Destructive Behavior". It consists of 255 pages dealing with prevention and intervention models for the school and community. A five-lesson curriculum is provided along with exercise and resource material accompanying the lessons. My review of this material is more critical and I have identified a number of shortcomings:

1. The overall model is vague and is overly sociological and anthropological with a deemphasis on mental disorders as a cause of youth suicide.

2. The bibliography is far too brief and not current.

3. The mental health team does not include psychiatry.

4. The student curriculum spends most of its time examining the issues and circumstances surrounding suicide itself, with a deemphasis on depression.

5. The model of suicide emphasizes societal factors and does not integrate or emphasize psychology.

Herbert of the Fairfax County, Virginia Public Schools has produced "A Guide to Adolescent Suicide Prevention Programs Within the School". This 55-page booklet summarizes the major characteristics of suicide educational programs based within schools and communities. It has a balanced perspective that identifies depression as being a significant factor in youth suicide. It has not been demonstrated, at this time, whether these particular programs have an ameliorative effect on suicide and depression within school settings. It also has not been shown whether these types of programs are inadvertantly providing role models to already depressed individuals and guiding more people to attempt suicide.

Many of the educational models for students emphasize more effective adaptation, coping skills, and communication among teenagers. The program that has developed these educational areas most systematically is the Suicide Prevention Center in Dayton, Ohio. They have produced five separate teacher manuals that deal with various aspects of depression and suicide. The most useful of the manuals emphasizes stress management, i.e., coping skills, instead of focusing on the topic of suicide. It is not known whether it is more helpful to discuss depression, coping mechanisms, or more effective communication than to avoid bringing suicide to the classroom directly to the students attention.

Most educational programs encourage the development of early self recognition of depression. Self-identification and identification of depression in one's peers appear to be worthwhile skills to teach students. Emphasizing depression rather than suicide appears to be an effective way of focusing on a phenomenon associated with suicide. Ex-amining ineffective coping styles, as well as more effective coping mechanisms is a very useful and practical educational strategy for students. Learning to deemphasize passive withdrawal, avoidant types of behaviors, alcohol and drug use, anger, and antisocial behaviors is important. Emphasizing networking and the integration of adult guidance into the youth's support system are worthwhile skills with which to train and educate our high school students. Reinforcing assertive and clear communication is also a worthy goal of educational programs. Deemphasizing the rageful forms of communication and the indirect methods that are commonly seen in suicidal youth are also being brought to the attention of the students. At this time, it is not known whether educational programs emphasizing these issues will alter either coping or communication in depressed and suicidal individuals.

COMMUNITY LINKAGE AND NETWORKING

School suicide prevention teams can become a community link to other school districts, high schools, community mental health centers, hospitals, universities, churches, and private mental health practitioners. The legal system, including truant officers, probation officers, and community police officers frequently can be included. Community networking includes determining what community-wide educational programs are available. Networking deals with the media and guides them to deemphasize the coverage of suicides when they occur and to establish followup, aftercare management and treatment networks to serve young people after a crisis or suicide attempt. Often the suicide prevention team within the school must interact with parents, siblings, children, and adolescents who are especially vulnerable to depression and suicide. The prevention team should work with youth in health, recreational, and social areas and in the exchange of expertise among all groups addressing this problem. The linkage serves as a prevention, crisis intervention, and re-

search base for the enhancement of scientific and clinical knowledge about youth suicide.

RESEARCH

Applying the model outlined above, the University of Minnesota Division of Child and Adolescent Psychiatry and the Agricultural Extension Program in the Department of Home Economics, in association with the 4-H Clubs of Minnesota, established a broad community-based study of youth suicide attempts in rural Minnesota. The study included 52 counties in three regions of rural Minnesota. It surveyed 82 schools and involved 65 agricultural extension agents. Over 4,267 students were surveyed and their information provided data on:

- demographic characteristics of suicide attempters.

- the prevalence of suicide attempts in rural Minnesota youth.

- stressful life events.

- coping and adaptive skills.

- a self-rating scale for depression.

- an inventory of antisocial behaviors.

Research of this type was only possible with the help of an extensive network of professionals working with the schools in collaboration with community resources. It utilized existing networks and teams within and outside our junior and senior high schools. Other research taking place within schools that has examined affective disorders in suicide included a study of the prevalence of Seasonal Affective Disorders in high school students.

MONITORING AND FOLLOWUP

Because of the unique function of schools that keep all children below the age of 16 in school eight hours a day, five days a week, students in a junior high school and the early grades of senior high school are much more available for monitoring and followup pur-

poses. Unlike adults who have made a serious suicide attempt or gesture, and whose diverse vocational and social functioning make it difficult to determine their compliance with recommended management programs, children and adolescents can be followed within the schools by a suicide prevention team and the school team can monitor community-based treatment programs. Because individuals who attempt suicides are at high risk for ultimately completing suicide or making multiple attempts, it is imperative to monitor these individuals closely. Monitoring and supervising the progress of individuals who have been identified as individuals at risk or are involved in self-destructive behavior, can be a major function of the school-based team. Similarly this team is in a unique position to monitor community-wide trends regarding suicide, community education efforts, media exploitation of youth suicide, recent advances in suicide research, and specific school trends over a number of years. Suicide in a particular school can be examined as a function of unique local situations and events.

CONCLUSIONS: THE YOUNG PERSON'S ADVOCATE

The development of suicide prevention programs and teams within our junior and senior high schools results in a number of programs being developed. These include:

- Early identification

- Comprehensive evaluation

- Crisis intervention

- Postvention

- Education

- Monitoring

- Community linkage

- Research

Providing these different functions can be accomplished while the students maintain their routine and regular activities. The school

program becomes a resource not only for the school and district, but for the entire community. It becomes a clearinghouse for new research, comprehensive management techniques, and the coordination of community education efforts in the area of suicide. Moreover, as this team monitors, follows-up, and establishes a registry of individuals at highest risk for suicide, it can become the children's most effective advocates. School, peer and parental attitudes may be insensitive and unaware of the depressed and suicidal individuals who lack the energy, social skills, and abilities to deal effectively with the usual adolescent developmental demands. Having advocates within the school setting can provide immediate response to difficulties at teacher, peer, classmate, and parental levels. Explaining to both teachers and parents that a suicidal and depressed individual may not be able to concentrate and complete homework and, therefore, punitative actions about incomplete assignments, lack of energy, and excessive daydreaming may be harmful to an already depressed individual. Explaining physical ailments and somatic symptoms may also be very helpful. As the young persons' advocate, the prevention team ultimately can reframe behavioral, physical, and social problems from one perspective to another. Rather than observing antisocial behaviors entirely within a conduct disorder framework, one can also present them as adaptive behaviors commonly seen in depressed and suicidal individuals.

The most important benefit of all is that the suicidal student will have an advocate readily available eight hours a day who will be knowledgeable about the thoughts and feelings the student is experiencing, able to interpret the individuals' behavior towards others more effectively, and will accomplish these tasks in an empathetic fashion to the student. It is estimated between 3-6 percent of all high school students require the direct services of a suicide prevention team. Not only do at-risk students, but all students, teachers, and members of the community benefit from the diverse activities of this team.

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Volume 4:
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Report of the Secretary's Task Force on Youth Suicide

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January 1989

The members of the Secretary's Task Force on Youth Suicide wish to acknowledge
the extraordinary effort of the Executive Secretary,
Ms. Eugenia P. Broumas.

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NATIONAL CONFERENCE ON STRATEGIES FOR THE PREVENTION OF YOUTH SUICIDE

INTRODUCTION

Background

During the past 30 years, the suicide rate for young people between the ages of 15 and 24 almost tripled. Suicide is now the second leading cause of death for young people in this age group. This sharp increase in youth suicide rates prompted the Secretary of Health and Human Services to organize a task force to investigate this pressing problem.

The major functions of the task force were to review, assess, and consolidate the available information about suicide; provide forums for communication among health care professionals, educators, researchers, social service workers, and families; and coordinate suicide activities among Federal agencies, Congress, State and local governments, private agencies, and professional organizations.

The task force was also charged with recommending activities to address the problem. The task force apportioned these various tasks to three work groups, one on risk factors, another on preventive interventions, and a third on strategies and recommendations. This volume summarizes the work of the Work Group on Strategies for the Future charged with evaluating strategies and developing recommendations. The recommendations in their entirety are contained in Volume 1 of the task force report.

Objectives and Goals

The Work Group on Strategies for the Fu-

ture had four objectives. The first objective was to identify the most cost-effective strategy for preventing youth suicide. We had hoped to do this by reviewing the findings of the work groups on risk factors and prevention, matching specific preventive interventions to subpopulations with specific risk factors, and then evaluating these strategies in terms of cost and effectiveness.

The second objective was to present a comprehensive set of recommendations to the Secretary of Health and Human Services that would address the most urgent needs for research and prevention; reflect input from a diverse set of disciplines, interest groups, and experts in the field; be clear, practical, and few in number; address ways to include many different sectors (such as business, education, health, and mental health); and not require a large expenditure of government funds.

The third objective was to develop an implementation plan to indicate how a wide range of sectors and organizations could all be active participants in implementing the recommendations. These sectors included public health, mental health, health services, education, business and philanthropy, media and entertainment, criminal justice and legal, religion, social services, and family; the organizations included government and non-government groups.

Finally, the fourth objective was to build a consensus in the suicide prevention com-

munities by using the process of developing the recommendations to bring together separate sources of support: the suicide prevention center movement and the "medical community"; lay persons and health professionals; service providers and the research community; and even within the research community, to bring together the biological and psychosocial "camps."

Procedures and Process

The work group constructed preliminary recommendations by reviewing all 50 papers commissioned by the task force, including the papers on risk factors and on prevention. In addition, recommendations were solicited from all participants at the national conferences on risk factors and prevention. Over 700 experts and participants in youth suicide prevention attended these conferences, and more than 200 persons submitted written recommendations. From these sources, the work group compiled a set of preliminary recommendations that the task force reviewed and revised. These preliminary recommendations were distributed just before the National Conference on Strategies for the Prevention of Youth Suicide. At a day-long invitational meeting, working groups composed of experts in specific areas of suicide prevention worked together with representatives of more than 90 different local and national organizations that could play important roles in implementing these recommendations. Each working group was asked to establish priorities for the recommendations in their sector, list the steps essential to implementing each recommendation, identify who should do each step, and present a rough timetable and set of measurable objectives for monitoring progress on each objective. The collected set of recommendations and the implementation plan for each objective, a 120-page document, were typed, edited, printed, and distributed for discussion by the next day at the National Conference on Strategies for the Prevention of Youth Suicide. These recommendations were further refined, and

the 47 recommendations from the conference were reduced to 6 final recommendations for the task force.

Summary of Commissioned Papers

This work group commissioned 11 papers to assist in the development of strategies and recommendations. To help the task force avoid mistakes that had been made before, Margaret Gerteis, a health services historian, and her coauthor, Mark L. Rosenberg, asked what we can learn from how the Federal Government approached the problem in the past--what seemed to have worked and what did not; what the keys were to the Government's successes. They looked at the major players (individuals and institutions) on the scene; their positions; and their institutional constraints, strengths, and weaknesses. They examined how this information could be incorporated into the task force recommendations from the outset so that the final recommendations would have the greatest possible chance of facilitating suicide prevention.

In "The Federal Role in Youth Suicide Research and Programs: The Legacy of Recent History," Gerteis and Rosenberg traced the history of Federal involvement in the area of suicide from the 1960s, when a special suicide prevention unit was established at the National Institute of Mental Health (NIMH), through the era when that unit was dismantled and suicide research was subsumed under NIMH's interest in depression. At that point NIMH no longer provided a distinct focal point for leadership in suicide prevention, and, in response, locally based suicide prevention centers assumed a leadership role.

The authors pointed to two negative consequences of this development: (1) divisions and distrust between local community groups and academic researchers and (2) a fragmented research community in a field that desperately needs coordination and collaboration. As a result, support for youth suicide research is weaker than it might be

because there is no unified advocacy for it. The authors recommend both a vigorous, integrated program of planned suicide research with sustained funding through NIMH's new suicide research consortium and strong support for the national leadership provided by the Centers for Disease Control (CDC) in surveillance and prevention activities.

A major paper, prepared by David M. Eddy, Robert L. Wolpert, and Mark L. Rosenberg, focused on "Estimating the Effectiveness of Interventions to Prevent Youth Suicide." The authors constructed a model and conducted a survey of experts to estimate the effectiveness of six different interventions to prevent youth suicide: (1) affective education, (2) early identification and treatment of at-risk youth, (3) school-based screening programs, (4) crisis centers and hot lines, (5) improved training of health care professionals to treat at-risk youth, and (6) restriction of access to major means of committing suicide. The authors found a wide range of uncertainty among the experts as to the relative efficacy of the interventions but a consensus that no single intervention was "the" cure. The authors recommended a five-step strategy of (1) analyzing current information about the effectiveness of specific interventions, (2) conducting short-term research to estimate effectiveness and costs of those interventions for which data are not available, (3) analyzing the results of that cost/effectiveness research, (4) designing pilot programs to evaluate the most promising research programs, and (5) planning large-scale interventions based on evaluation of the pilot projects.

The human cost of youth suicides is well known; what is less well appreciated is the economic cost in terms of lost productivity. In assessing the "Economic Impact of Youth Suicides," Milton Weinstein and Pedro Saturno found that each youth suicide in the United States results in an average loss of 53 years of life and $432,000 of economic productivity. The total cost of youth suicide to the Nation in 1980 was 276,000 years of potential life lost and $2.26 billion in lost productivity. If the trend continues to the year 2000, the annual costs will be 276,000 to 346,000 years of potential life lost and from $2.26 billion to $2.65 billion, even with a shrinking population base in the 15- to 24-year range. Relative to its social and economic impact, the authors pointed out, youth suicide receives a disproportionately small share of public health resources for research and programs.

Professionals who see and help troubled young people say uniformly that they need an accurate way to identify those adolescents who are suicide-prone and determine how serious their predisposition to suicide is. Many professionals rely on clinical judgment and their "feel" for the person; a more formalized screening instrument would improve their effectiveness in identifying young people at risk and referring them to appropriate treatment. In "Developing a Youth Suicide Screening Instrument," Robert Yufit reviews the need for such a screening technique and describes a Suicide Screening Checklist that could be field-tested to determine its effectiveness.

What factors do young suicide attempters have in common? A study of teenagers who attended free medical clinics in 10 cities showed that the factors most strongly associated with suicide attempts included multiple depressive symptoms, living apart from parents (often after running away from home), having a history of conduct problems, having family members who are psychiatrically ill, repeated drunkenness, use of drugs other than marijuana, and having been assaulted, arrested, or incarcerated. Lee Robins, who described the study in "Suicide Attempts in Teenage Medical Patients," developed a guide incorporating these correlates to help clinic personnel recognize youngsters at risk of suicide attempts.

In "Suicidal Ideation and Attempts: The Epidemiologic Catchment Area Study," Eve Mościcki, Patrick O'Carroll, and coworkers reported that more than 21 percent of adults aged 18 and older said there had been a

period of 2 weeks or more at some time during their lives when they thought about their own (or another's) death. Moreover, 7.1 percent reported that they had "felt so low" they had wanted to die, 10.2 percent had thought about committing suicide, and 2.9 percent had attempted suicide at some time in their lives. Females 25 to 44 years of age, separated or divorced persons, whites, and persons with low socioeconomic status were more likely to have attempted suicide or to have thought about it, as were persons with a diagnosis of psychiatric disorder.

Because the news media see their role as defender of the public's right to know, rather than as a vehicle for social change, they have not attempted to focus efforts on the prevention of youth suicide. Critics and scholars who study the media's impact on the phenomenon have emphasized the negative effect that true or fictional stories about suicide may have by causing young people to imitate the suicides to which they are exposed through these stories. The result has been a generally defensive and adversarial relationship between the media and social sciences, according to Alan Berman, author of "Interventions in the Media and Entertainment Sectors to Prevent Suicide." He recommended that the two communities work collaboratively to prevent youth suicide by conducting research into the mechanisms by which the media affect imitative behavior, increasing awareness of the issue among media decisionmakers, and encouraging the media to present models for positive change.

Barbara Starfield reviewed "Preventive Interventions in the Health and Health-Related Sectors with Potential Relevance for Youth Suicide" and noted that the health services sector has the greatest potential for impact on youth suicide. To realize the potential of that sector, though, it will be necessary to improve the following: access to services, consistent utilization of a regular source of primary health care, recognition of psychosocial problems, and management of such problems when they are detected. Further, Starfield stated, interventions are most

likely to be successful if they do not require individuals to change their behavior; hence, "passive" interventions (such as reducing access to the means of suicide) are more likely to be successful.

The increase in youth suicide has broadly paralleled other striking increases in "youth disorders" such as homicide, out-of-wedlock births, and drug and alcohol use, according to Edward A. Wynne. In "Preventing Youth Suicide through Education," he used an analysis based on sociologist Emile Durkheim's work to suggest that the problem lies in society's failure to provide an integrated, wholesome environment for young people in the schools.

"The Contribution of Social Services to Preventing Youth Suicide" can be substantial, according to Jerry Silverman. That sector's useful perspectives include focusing on populations at risk, targeting services to those most in need, coordinating services for diverse problems, focusing on the family, and networking among various service providers. The Department of Health and Human Services (DHHS) can utilize these perspectives in working toward the goal of preventing youth suicide. Among the strategies Silverman recommended were encouraging cooperative efforts among social service disciplines, disseminating information about successful approaches, working with local social services groups, and encouraging relevant research in the field.

The world of business and charitable foundations has not viewed support for youth suicide as an important priority. Where resources from these sectors have been channeled to youth suicide programs, the motivation often has been the personal interest of a specific senior official in the organization, pointed out coauthors Wendy Watson and Bobbie Wunsch in "Interventions through Business and Industry to Prevent Youth Suicide." The authors recommended that businesses encourage community education and school-based research in the area of youth suicide, as well as include counseling, through their employee assistance programs,

for employees' families with children at high risk of suicide.

NATIONAL CONFERENCE ON STRATEGIES FOR THE PREVENTION OF YOUTH SUICIDE

Summary of Opening Remarks

Otis R. Bowen, M.D., Secretary of Health and Human Services, reviewed some of the risk factors associated with the rise in youth suicide since the 1960s. He cited alcohol and drug abuse, divorce and family disruption, child neglect and abuse, depression, violence, and antisocial behavior. The sharpest rise in youth suicides, which occurred between 1965 and 1979, he noted, was coincident with a sharp increase in drug use among young people. Dr. Bowen advocated a multifaceted approach to controlling the risk factors associated with suicide among the young.

A theme common to youth suicides and other youths in trouble is alienation and loss of hope. Dr. Bowen strongly emphasized the potential role of the family and community in helping to alleviate many problems of youth, including suicide. By giving emotional and spiritual support, parents and siblings, peers, friends, teachers, and church and community leaders can participate in helping youth through their developing years. The family structure must be strengthened because it is the most important source of nurture and guidance for young people and "the single best social program we have." Although a strong family cannot guarantee a young person a future without pain, a life with no family support becomes very hard to live.

As Secretary of Health and Human Services, Dr. Bowen stated that his important goals included strengthening the family, promoting health and healthy behavior in the home, and ensuring that the Department's programs promote, rather than impede, the creation and maintenance of strong families. To this end, DHHS and the Department of Labor

have established YOUTH 2000, a new program to help young people shape a responsible future. The program's goals are to encourage "responsible family formation, lifestyles free from substance abuse, better education, employment and economic self-sufficiency, and physical and mental well being."

Two specific goals of YOUTH 2000 are to reduce substantially the mortality rate among 15- to 19-year-olds and reduce the number of suicides. In addition, YOUTH 2000 will seek to reduce teen pregnancies.

As part of the campaign, young people will be encouraged to set positive goals for themselves with the help of families, health professionals, State and local officials, community leaders, and other concerned citizens. Dr. Bowen stated that he is optimistic about this program's success because of the reemergence of the community in the role of extended family (e.g., schools, religious organizations, service clubs) and because parents and others in the community have initiated campaigns to decrease the negative effects of alcohol and drug abuse in many areas of our lives.

He closed by challenging participants to help find better ways to guide families and communities to respond better to signs of desperation or suicidal behavior in young people.

Shervert H. Frazier, M.D., the task force chairman, traced the history of NIMH from its original emphasis as a service and training institution to its current research mission in mental health. As an organization devoted to basic, clinical, and applied research, NIMH links the research world to real-world service needs and facilitates the application of research findings to clinical practice.

The long term NIMH agenda proposed for youth suicide focuses on clinical as well as basic research needs. Clinical research studies are needed for youth with histories of mental disorders. Although we know that diagnosable mental illness accounts for only a portion of youth suicides, we also know that

the risk of suicide is high among mentally ill young people. Followup studies of schizophrenic and depressed adolescents are needed to better understand the course of these illnesses and to find better ways of identifying individuals at high risk. Biochemical aspects of suicidal behavior need more study. A related need is to assess and improve instruments that measure aggressive and impulsive behavior and then to clarify suggested associations between these traits and biological findings. This will also help to identify individuals prone to self-destructive behaviors other than suicide.

Aside from specific psychiatric disorders, research on psychological autopsies should be expanded. Followup studies on suicide attempters should be conducted, including studying the course and outcome of treatment for suicide attempters and ideators. Longitudinal studies are needed of populations that can be followed over sufficient time. Suicide should be considered prospectively in context with many other risky behaviors of adolescence, such as car accidents, homicide, substance abuse, smoking, and aggressive behavior. How these activities and behaviors relate to each other should be explored. Finally, an immediate need is to redefine the methodologies available for both clinical and epidemiological studies of suicides.

Many needs exist in the systems-oriented perspective, NIMH's biometry and applied sciences programs. We need to study the effectiveness of individual primary care practitioners, pediatricians, mental health professionals, educators, and school personnel in identifying children at potential risk and taking action. We also need to study the effectiveness of various parts of the mental health and health care systems and how well they interact with each other. For example, how well do various health, human service, and educational components work together in a given region? How effectively do emergency care providers interact with the family physician? How effective is the referral and followup between the schools and the men-

tal health system?

Dr. Frazier suggested that a study be tagged onto the National Mental Health Statistical Reporting system to learn how standard practices across the country compare with model intervention programs. He concluded by emphasizing that NIMH's most appropriate and productive roles are to assist in basic and clinical research, design and evaluate major demonstration programs funded by non-Federal as well as Federal resources, and collaborate with service providers and those who educate practitioners and clinicians.

James O. Mason, M.D., Dr.P.H., Director, Centers for Disease Control, addressed the role of the Federal Government in preventing youth suicide. He stated that the Federal role should be one of leadership and should include all three branches of government. Given the magnitude of the youth suicide problem and the social consequences resulting from premature, preventable deaths, we need strong Federal leadership to ensure that youth suicide is recognized as an important national problem that must be addressed effectively at the national, State, and community levels.

The kind of leadership the government can best provide includes:

- Coordinating suicide prevention efforts among all levels of government, the private sector, and other concerned voluntary groups. In this way, successful programs can be shared efficiently with others. This function should in no way obviate the many initiatives undertaken in communities around the country.

- Mobilizing resources. Research capacity as well as funds need to be developed to support research at the basic and applied levels.

- Translating the results of research into practical applications as rapidly as possible.

- Collecting statistical data and setting up surveillance systems. Improved data col-

lection efforts are needed to identify and report suicides more uniformly, completely, and objectively. CDC has compiled surveillance data on suicide among youth, but these data are likely to be inaccurate because of the widespread underreporting of suicide deaths. Criteria have been defined for determining which deaths can be called suicides, but distinguishing unintentional deaths from suicides is still a problem.

- Establishing goals and measurable objectives to track progress in suicide prevention. These must be based on sound data and effective interventions.

The CDC's primary role in the area of youth suicide is one of prevention. Many interventions have yet to be fully developed and evaluated. Dr. Mason concluded by stating that "we have only started our war against this tragic problem in our society."

Reports of Workshops

An important objective of the Work Group on Strategies for the Future was to go beyond the traditional "medical model"--to involve in the prevention of youth suicide disciplines and interest groups outside the health care, mental health, and public health sectors. For the National Conference on Strategies for the Prevention of Youth Suicide, we divided over 75 recommendations among 10 groups organized by sectors. For each sector, representatives of the organizations important in implementing these recommendations were invited to participate in developing implementation plans. About 100 invited participants, representing public health, mental health, health services, education, philanthropy, business, criminal justice and the law, media and entertainment, social services, youth services, and the family, met in workshops the day before the conference. Each workshop addressed recommendations pertinent to a particular sector. The workshop participants considered a formidable number of recommendations derived from commissioned papers, or submitted by participants at the previous con-

ferences on risk factors and prevention, members of the various work groups (subgroups of the overall task force), and interested individuals. Participants then had the task of synthesizing, placing in priority order, and developing implementation plans for the recommendations. The results of their work were presented in a printed report distributed to the conference attendees the following day. This summarizes those reports.

Public Health
Chairman: Morton M. Silverman, M.D., formerly, Associate Administrator for Prevention; Alcohol, Drug Abuse, and Mental Health Administration (ADAMHA)

Prevention of youth suicide should be a public health goal and priority. Public health has important roles to play in surveillance, research, program evaluation, and program delivery.

Specific recommendations center on the need for improved surveillance--identifying, tracking, reporting, and analyzing cases--in three areas: suicide, suicide clusters, and attempted suicides. Operational definitions for each of these terms are needed, together with criteria for the determination of suicide as a cause of death on death certificates.

State and local public health authorities should work with appropriate public and private groups in community-level epidemiological investigations and preventive interventions. This approach will build teams of professionals, at the community and State level, with expertise in recognizing and preventing youth suicide.

Public health sector teams like these should also be involved in research on the etiology of suicidal behavior, supporting and organizing longitudinal and prospective studies of high-risk youth. Research priority should be given to populations with special needs, such as Native Americans, and to populations who are already part of a major research endeavor, such as the NIMH Depression Collaborative Study.

Mental Health

Chairman: David Shaffer, M.B., B.S., F.R.C.P., Director, Division of Child Psychiatry, New York State Psychiatric Institute, and Professor of Psychiatry and Pediatrics, College of Physicians and Surgeons, Columbia University

The underlying assumption of this workshop is that a majority of young people who commit suicide have some evidence of mental illness. Still, the relationship between the individual's mental illness and suicide may be quite complex. For example, the precipitants or "trigger points" for suicide are often unrelated to the distortions or fantasies commonly associated with mental illness. Another important assumption is that modern research techniques have barely touched some of the most basic--and probably relatively easy-to-answer--questions in this area. Thus, there is great optimism about the potential for research to discover risk factors for youth suicide and optimal forms of treatment.

In the overall area of improved research design, three specific strategies were recommended. One is to "piggyback" youth suicide questions onto existing research, such as epidemiologic studies and research on substance abuse, by including questions about youth suicide in related questionnaires or interviews. Second, because there is always more than one factor contributing to a young person's suicide, more research needs to be done on multiple risk factors that characterize young people who commit or attempt suicide. And third, research should concentrate on groups of young people at particularly high risk, including runaway children, young homosexuals, and Native Americans.

Once young people at risk are identified, the challenge is to provide the most effective preventive intervention; here, the problem is complicated by the lack of evidence for the effectiveness of different treatments. Theories abound and are passionately defended, but very little evidence has been accumulated to provide direct guidance on the best treatment. To help provide a clearer picture of the children at risk and in need of treatment, it is important to have registers (i.e., listings of cases, treatment, and outcome) at places where large numbers of suicide attempters are seen to permit followup on the efficacy of treatment.

Finally, there should be greater incentives to encourage people to undertake professional mental health training and focus on this problem of child and adolescent suicide. Professionals already in the field also need training to improve their skills at identifying and managing young persons at risk.

Health Services

Chairperson: Emily H. Mumford, Ph.D., Professor of Clinical Sociomedical Sciences, College of Physicians and Surgeons of Columbia University)

We must try organizing health services for a variety of approaches to suicide prevention because information is lacking to support one definitive approach. Demonstration programs for young people at high risk of suicide should be located in a variety of settings where such young people are likely to come for help: emergency rooms, substance-abuse treatment centers, runaway shelters, community and migrant health centers, and other similar places where adolescents seek health services. These demonstration programs should have an evaluation component built in to address feasibility, efficacy, and cost-effectiveness. There should also be more integration of services among the several agencies or institutions that are likely to come into contact with a youth at risk for suicide.

In the area of research, adolescent suicide should be viewed as but one aspect of an array of suicide-related behaviors. Because suicide is a relatively rare event, it is difficult to use it as the sole outcome indicator of the impact of preventive interventions. Research, therefore, should focus on indicators of suicide risk that are more

prevalent and amendable to change. Such indicators include lessening of depression, fewer admissions for drug overdose, fewer runaways, and less ruminating about suicide.

Education

Chairperson: Lucy E. Davidson, M.D., Ed.S., Medical Epidemiologist, Division of Injury Epidemiology and Control, Centers for Disease Control

School personnel represent the most universal access we have to adolescents. With the opportunity to observe young people in a variety of daily activities, such school personnel--including teachers, nurses, counselors, social workers, administrators, and other school service workers--have the potential to reach troubled youth before their distress escalates to suicide. Youth suicide prevention programs in the education sector should capitalize on the existing relationships school personnel already have with students and their families, rather than attempt to push students and staff alike into unfamiliar areas of psychiatric diagnosis and treatment. School personnel should be trained, through their initial professional and continuing education, to recognize youth at risk for suicide, to approach these students and their families, and to refer them to available services. School-based suicide prevention programs also need to be designed, evaluated, and, when effective, promulgated.

Local and Federal collaboration is important in achieving these objectives. Education about important health issues also needs to occur outside the schools. At the national level, information should be collected about the spectrum of school-based programs available. Another national task is to derive content and process objectives for school-based suicide prevention, then design and field-test several promising model programs. Information based on evaluation of those programs then could be disseminated to the local level, where school systems should decide how to adapt the materials and techniques to their community's needs and resources.

Specific recommendations from the workshop were:

- Develop model curricula on suicide prevention.

- Develop information to help school personnel recognize high-risk behaviors among young people.

- Establish a referral network in the community and make it known to school system personnel.

- Disseminate information through the schools so that troubled youth can contact appropriate agencies about a range of issues that include not only suicide, but also unintended pregnancy, drug problems, and family conflicts.

- Help train "gatekeepers" who have frequent and close access to students (coaches, scout leaders, etc.) to recognize young people at risk for suicide.

- Establish a national clearinghouse that would disseminate information about youth suicide and suicide prevention.

Religion and Youth Activities

Cochairmen: Dominic Mastrapasqua, Deputy Associate Commissioner, Family and Youth Services Bureau, Administration for Children, Youth and Family; David A. Brent, M.D., Codirector, Teenage Suicide Center, University of Pittsburgh

Members of the clergy can have a valuable role in preventing youth suicide: they play a gatekeeper role at pivotal times in peoples' lives, and because they are generally respected and widely accepted in their community, many people prefer to consult them in lieu of mental health professionals. Because their services are not often well-integrated with social services in the community, however, and because their training in this area is minimal, their help may be overlooked.

The clergy's effectiveness in the area of youth suicide prevention can be eroded if religious

views exclude certain youth at risk, such as homosexual adolescents, or devalue mental health treatment, using the rationalization that strong religious faith alone can overcome all problems. Further, the problem of privileged communication can cloud the issue of a "clergyperson's" responsibility in a case where a youth discloses that he or she is suicidal.

Within the framework of these concerns, the workshop participants made several recommendations. First, all denominations should develop guidelines to help clergy identify and assist adolescents at risk. They should also develop standards for training and certification of those engaged in this area of pastoral counseling. Guidelines should also be developed for the area of privileged communications, with particular attention to exchanging information about clients held in common by clergy and mental health professionals. Finally, churches and synagogues should be encouraged to increase youth activities that could provide support to those in potential need, including efforts to involve disenfranchised youth in activities traditionally offered by religious organizations.

In the area of youth services specifically, this workshop recommended an extension and expansion of programs such as Head Start, programs that reach disadvantaged youth and integrate social, medical, and mental health services. Youth services also can encourage and support appropriate peer support groups among youth at risk; however, "peer counseling" may be too heavy a burden to place on some adolescents.

Legal/Political and Criminal/Juvenile Justice
Chairman: Robert E. Litman, M.D., Codirector and Chief Psychiatrist, Los Angeles Suicide Prevention Center

The highest priority articulated by this workshop was to recommend every possible legal action to limit access for disturbed young persons to lethal means of suicide,

especially handguns.

Specifically, the workshop urged the following steps:

- Enforce the current laws on licensing requirements and limiting access to minors.

- Improve safety features on guns.

- Encourage insurers to exclude a clause relating to self-inflicted injury.

- Survey existing programs on suicide prevention in detention centers and prisons to determine if model programs need to be developed for such settings.

Family/Social Services
Chairman: Jerry Silverman, Program Analyst, Office of the Assistant Secretary for Policy and Evaluation

Underlying this workshop's discussion were two general themes related to the perspective of people who work in family and social services. One is that such services have a tradition of working with communities and linking various resources within a community; such an approach obviously has relevance to the issue of youth suicide prevention. The other theme is that family and social services are less likely to use the medical model of suicide, that is, of suicide as a problem that can be "cured." Rather, the family and social services sector is more likely to view suicide as one aspect of a series of life challenges.

The workshop's general recommendation was to encourage communities to mobilize around issues of troubled youth and to lobby for State funds through sources such as block grants. A recommendation that stresses primary prevention is to develop and disseminate models of family support to help families deal with a whole range of problems. A third general recommendation was for training people in the fields of social and family services to help them be more effective "gatekeepers" as they encounter troubled youth with suicide potential.

Business and Philanthropy
Chairman: Richard M. Steinhilber, M.D.,
Chairman, Cleveland Clinic Foundation

This workshop acknowledged that the business and philanthropic community, in general, does not get involved in issues relating to youth suicide, except in those unusual cases where a company executive has had a family member in such a crisis. In those cases, executives have used their positions to influence donation of funds to the area of youth suicide. The corporate community tends to use denial as "a convenient mechanism" to avoid involvement in a whole range of personal and social issues. Because the workplace is an area where adults, and many adolescents, spend a significant amount of time, however, workshop participants thought it an appropriate arena for prevention efforts.

The first recommendation was to help educate employee assistance counselors about ways to identify risk factors for youth suicide; dissemination of materials from this conference would be a good starting place. Smaller businesses without employee assistance programs should be given help in identifying community resources to deal with troubled youth. Companies can stress such resources and encourage prevention efforts during orientation programs for new employees, especially companies like fast food chains that employ large numbers of young people.

Finally, participants agreed that it is strategically important to raise the awareness of leaders in the corporate world, especially in the Fortune 500 sphere, about the complexities of youth problems, including suicide. Solid data relating to these problems must also be provided to philanthropic organizations.

Media
Chairman: Alan Berman, Ph.D., Professor
of Psychology, American University

This workshop acknowledged, first, that a collaborative relationship between the media and the research community is imperative, and, second, that a sometimes adversarial relationship exists between the two groups. Reasons for this tension are apparent. The research community tends to focus primarily on the negative effects of media violence and, in the case of youth suicide, the role of media in stimulating imitative behavior. The media, on the other hand, sees its role as reporting the news, rather than as serving as a means of education or prevention. Furthermore, there is little consensus as to the real negative impact of the media on suicidal and imitative behavior.

The workshop's first recommendation, therefore, urged support of definitive research--to be carried out as a collaborative venture--to define the real effects of media coverage on suicide and suicide attempts. Such a collaborative effort would help diminish the adversarial feeling between the two groups and establish a base of information that both groups could accept.

The media workshop also recommended researching, designing, and evaluating public information approaches to convey information about a broad range of potentially harmful or self-destructive behaviors. The goal is to encourage the media to teach and model desirable behaviors in a proactive way. A specific example of the research recommended would be to examine the effectiveness of traditional public service programs.

Panel on Barriers to Progress and Resources for Change

What barriers exist that could compromise success in efforts to prevent suicide among young people? And what are the prospects for hope and real change in this area? Those were the discussion questions directed to

panel members toward the conclusion of this conference. Mark L. Rosenberg, M.D., M.P.P., panel moderator and conference chairman, invited the panelists to address the "realistic, real world, nitty-gritty obstacles" faced by organizations devoted to youth suicide prevention.

Panel members representing suicide prevention organizations were Cynthia Pfeffer, M.D., President of the American Association of Suicidology (AAS); Charlotte Ross, President and Executive Director of the Youth Suicide National Center in Washington, D.C.; and Alfred W. Del Bello, Chairperson of the National Committee on Youth Suicide Prevention in New York. Also on the panel were officials of Federal agencies concerned with the issue: Shervert H. Frazier, M.D., former Director of NIMH, and James O. Mason, M.D., Dr.P.H., Director of CDC.

Dr. Pfeffer, a child psychiatrist, pointed out two barriers from her perspective. First, parents and potential helpers do not recognize suicidal children. These adults often find it hard to properly prioritize the many problems that may be presented by a child who, for example, may be truant from school, abusing drugs, and suicidal. Second, these adults often do not respond appropriately by getting help when they do recognize a problem. This results, in part, from denial; partly from not appreciating the seriousness of the problem; partly from not knowing what "help" means; partly from the fear of "getting involved"; and partly from not knowing how to actually get help.

In terms of attacking these barriers, Dr. Pfeffer said, we must deal with the inexperience of so many people who work with suicidal youngsters and the general lack of information about suicidal youth behavior. Drawing on its strengths as a multidisciplinary organization, the AAS provides a forum for people representing various professions to come together and discuss what they know-- and do not know--about suicidal behavior among youth. The AAS is also active in the arena of political action and in certifying suicide prevention centers. Dr. Pfeffer is

most optimistic about progress being made through continuing multidisciplinary efforts to exchange information and work collaboratively.

Simultaneous progress is needed on two fronts, according to Charlotte Ross. "Action is needed as well as research," she said; we are frequently faced with inadequate data on which to base programs, "yet, action is demanded." People in the field need to "cautiously and carefully try creative approaches. . . and simultaneously evaluate research." She pointed to the suicide prevention centers and public awareness and education campaigns as examples of action programs that must be continued.

Ms. Ross also pointed to the possible negative consequences of mounting concern about youth suicide. For example, legislation recently was prepared in Indiana that would make suicide a crime in that State, thus reversing the progress of recent decades in decriminalizing suicide.

Alfred Del Bello, former Lieutenant Governor of New York, speaking from his perspective as founder of the National Committee on Youth Suicide Prevention and the New York State Council of Youth Suicide Prevention, was candid about the problems in getting politicians to focus on the issue of youth suicide. Because immediate results are not likely and because the topic is inherently not "upbeat," Mr. Del Bello said, "it is a terrible subject to deal with politically."

He found that the best approach to forcing recognition of the problem is to encourage the general public to be "concerned with the fact that their kids are killing themselves and that they ought to reach out to elected officials and get a response." If such pressure from the public and from the business community is forthcoming, there will be action from the Government, he predicted.

Dr. Mason concurred that if advocacy groups, communities, and States work together, they can have a tremendous effect. "When money is short, the Government listens to where the wheels squeak. And if you

can squeak in unison, then the opportunities to do something are very great." However, if Congress hears "three different squeaks and they are not in harmony, then this gives them an automatic way out." One of the unifying themes that ought to come away from this conference is exactly what needs to be done, and how Congress and the President and the Secretary [of Health and Human Services] hear that single message.

Dr. Frazier seconded Dr. Mason's message, pointing out successful models from the war on cancer and the campaign to destigmatize mental illness: "When people get together and make their wishes known, they have an impact on the budget."

CONCLUDING NOTE

This work group, in concluding, pointed out that:

- The state of knowledge about youth suicide--what causes it, who is at greatest risk, and how to prevent it--is much less developed than that of many other health problems.

- Acquiring this knowledge will require a carefully coordinated, sustained program of focused research and an organized multidisciplinary approach that integrates the diverse interests in the field.

- We need to evaluate rigorously the effectiveness of various interventions designed to prevent suicide.

- An effective approach to suicide prevention will need to involve committed individuals in health, mental health, education, and social services in both the public and private sectors.

Let us begin.

ACKNOWLEDGMENTS

COMMISSIONED
PAPERS

THE FEDERAL ROLE IN YOUTH SUICIDE RESEARCH AND PROGRAMS: THE LEGACY OF RECENT HISTORY

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SUMMARY

The history of Federal involvement in the area of suicide prevention dates from the 1960s, when a special suicide unit was established at the National Institute of Mental Health (NIMH). Broadbased and eclectic in its approach, this unit supported a variety of researchers and clinicians and initiated two programs that helped shape the future of the suicide field: a graduate fellowship program at Johns Hopkins University combining the multidisciplinary study of suicide with clinical training, and a suicide prevention movement based on the English Samaritans' model, resulting in the nationwide proliferation of suicide "hotlines" and prevention centers.

Several factors contributed to the demise of the first suicide unit at NIMH and the programs under its jurisdiction. In the years that followed, NIMH took a markedly different approach to suicide, partly as a result of new program priorities and partly because of shifts in professional ideology. No longer a distinct program area, suicide was subsumed within the larger category of depression, a new NIMH priority. Clinically, suicide was at this time seen as an aspect of depression, appropriately treated not through the counseling methods of the suicide prevention centers but through more standard medical and psycho-therapeutic approaches.

Cut off from government support, the remaining suicide prevention centers began, in the 1970s, to build community-based constituencies of their own. As local citizens' groups began to focus on youth suicide in the early 1980s--responding to alarming stories about teenage "cluster" suicides and to the increased rate of suicide in younger age groups--they found natural allies in those community-based programs. They also found much to criticize in the NIMH approach--both its lack of interest in community service programs and its allegedly one-dimensional and professionally "elitist" definition of the problem. For the most part, the recent popular interest in youth suicide has sought different channels for official action--notably State legislatures and the U.S. Congress. The result, at the Federal level, has been the introduction of youth suicide prevention bills to fund school and community prevention programs, none of which have yet been passed into law.

This legacy has created serious difficulties for those trying now to shape a Federal policy on youth suicide. First, it has left deep divisions and mutual suspicions, especially between

community prevention programs and the academic community studying the phenomenon of youth suicide. Second, it has created serious shortcomings in research-- most notably the absence of development and systematic evaluation of alternative prevention strategies and an overall lack of support for basic suicide research involving a variety of disciplinary perspectives.

Yet, the recent past also suggests positive models for remedying the situation. Although current financial constraints and the broad nature of the Alcohol, Drug Abuse, and Mental Health Administration (ADAM-HA) block grant program preclude recreating a single, integrated program of research and community intervention at NIMH, other integrative mechanisms are possible. The National Institutes of Health's (NIH's) model of working with advocacy groups to heighten public awareness, marshal public resources, and share in planning research needs and opportunities can be a useful one for NIMH to follow. The recent reorganization of extramural research within NIMH and the creation of a suicide research consortium can also promote a more integrated, collaborative, and multidisciplinary approach to basic research. The Centers for Disease Control's (CDC) involvement in suicide surveillance and prevention and its establishment of a Division of Injury Epidemiology and Control further promises to strengthen ties to community programs of prevention and intervention and to improve the quality of data available to researchers. To be successful, however, such efforts must be supported by reliable and continuing funding and directed by ongoing, coordinated planning strategies.

Youth Suicide as a Public Policy Issue

The identification of youth suicide as a social phenomenon warranting public attention and action is a quite recent occurrence, and results from two principal sources. The first is a growing popular perception that suicide among the young is now common, even

epidemic, in proportion. Bolstered by statistics demonstrating a real increase in the rate of youth suicide over the past 25 years, this alarm concerning youth suicide is nevertheless not entirely warranted. As Dr. David Shaffer points out, suicide remains a rare "disease" in the general population from which most younger people are relatively immune (1). Moreover, even though the rate of suicide among the young increased most rapidly during the 1960s and 1970s, the trend did not excite the public until the 1980s, when the rate appeared to be leveling off. Probably of more immediate importance to the current perception have been the widely, and often luridly, publicized "cluster" suicides in otherwise apparently stable, middle-class communities in Plano and Clear Lake, Texas, and Westchester County, New York. Undoubtedly, as Dr. Shaffer suggests, youth suicide as a cause has appealed to a wide diversity of groups and individuals with very different social agendas. Whatever the explanation, the widespread public interest in youth suicide is evident from the proliferation of magazine and newspaper articles, the creation of at least two national advocacy groups on the issue, and growing demand at the State, local, and Federal level that government "do something" (prompting, for example, the Secretary's Task Force on Youth Suicide).

The second factor shaping public policy on youth suicide draws from a somewhat different source that has also been influenced by the popular forces described previously. Although a small group of researchers and public health professionals has long been interested in the problem of suicide among the young, the phenomenon recently has gained broader legitimacy as a focus of public health concern for two reasons. First, the statistical increase in suicide among the young, especially against a backdrop of declining or stable rates among older age groups, is a real cause for concern. Second, there has been a tendency in the past few years to redefine the public health agenda in terms not only of disease incidence and disease burden but also of years of potential life lost. Suicide among the

young, although rare, is the second leading cause of death in the 15- to 24-year-old age group, accounting for more than 5,000 youth deaths each year and eliminating about 200,000 potential years of life in this age group alone (2,3). From this perspective, youth suicide is a significant public health problem and is part of an array of self-destructive and violent behavior patterns leading to premature death.

In this paper, we seek to examine the recent history of Federal policy in support of suicide prevention and research to elucidate past successes and failures, and to help shape better policies for the future. We begin with the assumption that suicide among the young is a legitimate public health concern that warrants our attention, although not in the alarmist terms often used by the media or public interest groups. In the following pages, we seek to analyze the pattern and structures of Federal support of activity relating to suicide; identify strengths, weaknesses, needs, and alternatives; and recommend feasible strategies for a Federal approach. The prevailing popular interest in youth suicide can provide the political momentum crucial to effective action. However, unless guided by solid and reliable research and information, this popular interest can also prompt hasty, ill-advised, and even harmful suicide intervention. These concerns shape the following discussion.

Methods

This paper originated with the concern that the recommendations developed by the Work Group on Strategies for the Future of the Secretary's Task Force on Youth Suicide should be based on an understanding of the real opportunities for, and constraints on, Federal action. We therefore set out to survey and examine the recent Federal experience in youth suicide research. The resulting paper is intended to provide a common reference for the Task Force in devising workable and effective strategies.

The research methods employed are ap-propriate both to historical analysis and to the case-method approach to political and bureaucratic analysis. We have relied, in part, on materials available in the public record--including Congressional hearings and testimony, public documents, and data provided by NIMH and other agencies. Our analysis relies principally, however, on an evaluation of the direct testimony of individuals involved in suicide research and programs, both inside and outside of government, provided by personal and telephone interviews. Although the list of those interviewed is far from exhaustive, we attempted to develop a representative sampling of key individuals from the various institutions and organizations associated with youth suicide efforts in the recent past.

Overview of Federal Involvement

Legislative Branch

The legislature, as the popular branch of government, has been the natural conduit for popular concern about youth suicide. Scarcely seen in the annals of Congress before 1980, the subject of suicide among the young began to appear regularly in a variety of contexts after 1983 as a result of the publicity surrounding the 1983 Texas cluster suicides and of popular pressure from parents' and other advocacy groups. In October 1983, for example, the House Select Committee on Children, Youth, and Families heard testimony from surviving friends and family of the Texas victims, lay activists, and health professionals on the general subject of "Teenagers in Crisis" (4). One year later, the Subcommittee on Juvenile Justice of the Senate Committee on the Judiciary, chaired by Senator Arlen Specter, held hearings on teen suicide and school programs, also focusing on the Plano episode and on the testimony of teenage acquaintances of suicide victims (5). The Subcommittee on Human Service of the House Select Committee on Aging, chaired by Mario Biaggi of New York, followed suit the next month, hearing testimony about adolescent suicide prevention programs in California (6). And in the spring

of 1985, the Senate Subcommittee on Juvenile Justice reviewed the Federal role in addressing youth suicide (7).

The outcome of this activity is proposed legislation tentatively entitled "The Youth Suicide Prevention Act," strongly influenced by the lay public interest groups who have actively lobbied their legislators. As originally proposed by Representative Tom Lantos of California, the legislation called for creating an independent, 13-member Commission for the Study of Youth Suicide. The Commission would be comprised of the following: 1) Secretaries of Health and Human Services and Education; 2) eight members representing the American Association of Suicidology, the American Medical Association, the American Psychological Association, and the American Psychiatric Association; and 3) three members representing the public. The Commission was to report 90 days after its formation, at which point it would disband. Based on the Commission's recommendations, the Departments of Health and Human Services and Education were to establish a joint grants program for school- and community-based suicide prevention programs. Total authorization for the program was $1.5 million for the Commission, and "an amount not to exceed $6 million for each of fiscal years 1986, 1987, and 1988" for the grants program (8). Charlotte Ross of the Youth Suicide National Center, who strongly favored the Commission approach of the Lantos bill, believed that such an approach offered the best means of grounding suicide prevention programs in state-of-the-art research and professional consensus.

At about the same time, two other bills relating to youth suicide were introduced independently in the House. H.R. 1243, introduced by Representative Charles Bennett of Florida, called for an authorization of $1 million for the Director of NIMH to develop, publish, and disseminate information on the causes and prevention of suicide

(9). H.R. 1099, introduced by Representative Gary Ackerman of New York, proposed a grants program under the auspices of the Department of Education to support the development of teenage suicide prevention programs in local educational agencies, with authorization not to exceed $10 million in each of the ensuing fiscal years (10).

Because they were introduced over a year ago, the suicide prevention bills have undergone several changes in response both to legislative politics and to the fiscal constraints of the Gramm-Rudman era. Although supporting a grants program for local suicide prevention programs, Mr. Ackerman and others opposed making such a program contingent on the Commission's recommendations. "Appointing a commission," they argued, has become tantamount to "doing nothing" in the public's opinion and not without cause (11). Moreover, a bill with a commission attached to it would have to be referred to the Committee on Energy and Commerce, where it would probably run into delays (12). The legislation currently pending in the House, H.R. 4650, cosponsored by Representatives Ackerman and Lantos, thus bears more resemblance to Mr. Ackerman's original bill than to the youth suicide bill first introduced by Mr. Lantos and others. H.R. 4650 calls for grants to be made available to local educational agencies, upon application to the Department of Education, to develop suicide prevention programs in the schools (13). Requested appropriations also will be reduced to $1 million for the first year, with funding for subsequent years left open. H.R. 4650 was reported as out of the Committee on Education and Labor and passed by the U.S. House of Representatives in July 1986. However, Senate action was not forthcoming in the 99th Congress. The bill's sponsors plan to reintroduce it during the 100th Congress (12).

In the meantime, the commission portion of the suicide prevention legislation has been pursued in the Senate by Senator Jeremiah

Denton of Alabama, who sits on the Judiciary Committee. The Senate bill calls for creating a center within the Department of Health and Human Services* with liaisons to private and public sector organizations. The center would serve as a conduit for information and the dissemination of technical assistance and would coordinate Federal youth suicide programs that cross jurisdictional boundaries. No Senate action was taken on the Denton bill during the 99th Congress. Because Senator Denton will not be returning to the 100th Congress, a new Senate sponsor will be sought (12,14).

Executive Branch
NIMH

For all practical purposes, most observers agree, the history of Federal involvement in the area of suicide dates from the early 1960s, when a special suicide unit was established at NIMH under the leadership of Dr. Edwin Schneidman. Since that time, NIMH--now one of three institutes under the umbrella of ADAMHA--has continued to be the principal locus of Federal activity related to suicide. Reflecting Dr. Schneidman's view that the study of suicide transcends virtually every traditional academic discipline and a wide spectrum of clinical specialties, the original suicide unit was broad-based and eclectic in its approach, assembling and supporting a variety of researchers and clinicians. (This spirit of eclecticism remains alive in the American Association of Suicidology, which Dr. Schneidman founded in 1967.)

Professionals in the suicide field associated the early NIMH unit, however, with two programs that it initiated. One was a graduate fellowship program based at Johns Hopkins University, directed by Dr. Seymour Perlin, that combined the multidisciplinary study of suicide with clinical training. The

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* For practical purposes, given Senator Denton's position on the Judiciary Committee, the commission has been initially placed in the Justice Department. Ultimately, however, the bill's sponsors plan to locate the bill in the Department of Health and Human Services.

other and better known effort was the inauguration of a suicide prevention movement, based on the English Samaritans' model, that resulted in a nationwide proliferation of suicide telephone "hotlines" and suicide prevention centers supported by NIMH funding (15-19).

Several factors contributed to the demise of the first suicide unit at NIMH and the programs under its jurisdiction. In part, the suicide prevention movement was absorbed by (and lost in) the community mental health movement, the subsequent major programmatic thrust at NIMH. A later generation of clinicians and researchers trained in behavioral and biomedical research methods also criticized the "soft" approach taken by the NIMH unit and found no hard evidence to suggest that suicide prevention centers actually reduced the number of suicides. Losing favor, the suicide programs also fell victim to the financial constraints of the post-Vietnam era. Although the suicide unit continued under the direction of Dr. Harvey Resnik for a time after Dr. Schneidman's departure, both the unit and its programs were ultimately disbanded. Cut off from government support, the suicide prevention centers that remained began to build community-based constituencies of their own (1,16,17,19).

In the years that followed, NIMH took a markedly different approach to suicide, partly as a result of new program priorities and partly because of shifts in professional ideology. Individual staff members continued to monitor suicide statistics, and NIMH continued to fund a small number of investigator-initiated extramural research projects reflecting diverse behavioral, sociological, and biomedical aspects of suicide. Suicide was no longer a distinct program area, however, nor was there funding for interventions targeting suicide. Instead, suicide tended to be subsumed within the larger category of depression, a new NIMH priority. Clinically, suicide was at this time regarded as an aspect of depression, appropriately treated not through the counsel-

ing methods of the suicide prevention centers, but through more standard approaches using psychotropic drugs and psychotherapy (15-17,19,20).

As local citizens' groups began to mobilize around the issue of youth suicide in the early 1980s, they found natural allies in whatever community-based programs remained. They also found much to criticize in the NIMH approach--both its lack of interest in community service programs and its allegedly one-dimensional and professionally "elitist" definition of the problem (15-17,21). Partly in response to such pressures, a small Suicide Research Unit (SRU) directed by Dr. Susan Blumenthal was set up in 1983 within the Center for Studies of Affective Disorders in the Division of Extramural Research Programs. The unit initiated a broad agenda, including carrying out and coordinating research, holding conferences and workshops, increasing public and health care professional awareness, and providing medical direction for a videodisc on adolescent suicide assessment and intervention for medical students. The unit also collaborated with CDC on suicide surveillance studies and helped prepare informational materials with other government agencies. The unit coordinated funding of $1.2 million per year; but before it could reach full potential, the programs and functions of the SRU were distributed to other components as part of a larger Institute reorganization (6,7,18,19,21).

Since the creation of the ADAMHA Block Grant under the Omnibus Budget Reconciliation Act of 1981, which transfers jurisdiction over most service programs to the States, NIMH has been almost exclusively a research institution (21). Because NIMH's primary mission is research, the Institute has had problems in forging strong links to community groups. As with the National Institutes of Health, most research at NIMH is supported through Institute grants for investigator-initiated extramural research projects. Each grant application is referred for peer review by the ADAMHA grants referral officer to one of 12 public advisory

committees serving as NIMH research review committees (22). Corresponding generally to NIMH program areas, at present these committees include the following:(23)

1) Basic Behavioral Processes Research Review Committee;

2) Cognition, Emotion, and Personality Research Review Committee;

3) Criminal and Violent Behavior Research Review Committee;

4) Epidemiologic and Services Research Review Committee;

5) Life Course and Prevention Research Review Committee;

6) Mental Health Behavioral Sciences Research Review Committee;

7) Mental Health Research Education Review Committee;

8) Mental Health Small Grant Review Committee;

9) Neurosciences Research Review Committee;

10) Psychopathology and Clinical Biology Research Review Committee;

11) Research Scientist Development Review Committee;

12) Treatment Development and Assessment Research Review Committee.

Each application receives a priority score based on scientific merit by the peer review committee before it is referred to the Director's Office. Final funding decisions are made by the Director, with the advice of the National Advisory Mental Health Council and in cooperation with Divisional and Branch Chiefs, based on NIMH funding and program priorities. Since 1975, the proportion of approved research projects actually funded has dropped from 52% to an estimated 32% (24).

Since 1979, NIMH has granted a total of 89 awards in the amount of approximately $17 million to extramural research relating to

suicide. The importance of this activity relative to overall NIMH research support and recent trends in support for adolescent suicide research are suggested in Table 1. However, Congress has increased NIMH research appropriations by $45 million for fiscal years 1986 and 1987, earmarking $1.5 million to be spent explicitly on research relating to youth suicide.

Under the previous divisional structure at NIMH, responsibility for most extramural research was distributed among the following six branches of the Division of Extramural Research Programs: 1) applied research; 2)behavioral sciences research; 3) clinical research; 4) neurosciences research; 5) small grants; and 6) psychosocial treatment research. Most suicide research fell under the jurisdiction of the affective disorders unit of the clinical research branch, where "Project Depression" was housed. Since January 1986, however, a major reorganization has distributed substantive responsibility for extramural research among three new divisions: 1) Division of Clinical Research; 2) Division of Biometry and Applied Sciences; and 3) Division of Basic Science. The Clinical Research Division--the largest of the three--is now organized into six branches corresponding generally to DSM III disease classifications: Schizophrenia, Affective and Anxiety Disorders, Mental Disorders of the Aging, Child and Adolescent Disorders, Prevention, and Epidemiology and Psychopathology. Suicide research may now appropriately "belong" to any one of these six branches or to either of the other two extramural research divisions, although youth suicide would most likely fall under the jurisdiction of the Child and Adolescent Disorders Branch (19,20).

Intramural research at NIMH, under the direction of Dr. Frederick K. Goodwin, has been unaffected by the organizational reshuffling and changing program priorities that shape the Institute's extramural activities. Intramural research on suicide has focused on neurobiological markers of suicidal and violent behavior. NIMH research in this area has been closely associated with intramural research conducted under the auspices of the National Institute for Alcoholism and Alcohol Abuse (NIAAA) and the National Institute on Drug Abuse (NIDA) (25,26).

Total NIMH Support for Extramural Research, Suicide-Related Research and Adolescent Suicide Research* ($000)

	Total	Suicide and Suicide-Related (%)		Adolescent Suicide (% of Total)	
1979	130,910	1,053	(0.8%)	0	
1980	143,515	1,010	(0.7%)	0	
1981	140,259	884	(0.6%)	0	
1982	143,787	2,354	(1.6%)	0	
1983	158,300	2,791	(1.8%)	74	(0.1%)
1984	173,109	3,285	(1.9%)	311	(0.2%)
1985	192,985	3,770	(2.0%)	306	(0.2%)
1986	190,261	1,893	(1.0%)	458	(0.2%)

* Adolescent suicide research is defined as those NIMH-funded projects in which narrative descriptions specify a focus on adolescents. Age parameters, in this table, have not been explicitly defined.

Table 1.

To coordinate suicide research within NIMH and to establish priorities for spending the $1.5 million in recent Congressional appropriations, a suicide research consortium has been formed with representatives from each appropriate unit in NIMH. One of the consortium's first efforts, working with representatives from CDC, was to analyze data on suicide ideation and attempts from NIMH's epidemiologic catchment area survey--the largest such study in existence. The consortium further seeks to develop research spending priorities that will actively stimulate new research and supplement existing program research targeting suicide. The consortium has also begun the process of identifying suitable candidates to administer a coordinated suicide research program at NIMH (19,22).

Dr. Shervert Frazier, Chairman of the Secretary's Task Force on Youth Suicide and formerly Director of NIMH, has expressed a strong commitment to making the problem of youth suicide an NIMH priority. Notwithstanding the fiscal retrenchment currently affecting all areas of government, Dr. Frazier believes that Institute funding will be available over the next several years not only to target research priorities but also to support specific program interventions--for example, under the Institute's clinical training grants or other special programs (27).

Other ADAMHA Institutes

As head of ADAMHA, Dr. Donald Ian Macdonald sets the policy direction and oversees the work of NIMH, NIDA, and NIAAA. He emphasizes that the ADAMHA block grant, which transferred the service programs under the Administration's purview to the States and cut its overall budget by about half, has redefined ADAMHA's mission. "ADAMHA is not a service agency," he explains, "not because we don't want to be, but because the Congress has said we are a research, knowledge transfer, and public policy-setting agency." As part of this mission, Dr. Macdonald would like to see the

ADAMHA Institutes establish ties to community-based citizens' and service coalitions. At the same time, however, those groups must begin to develop their own constituencies and find sources of support outside of the Federal Government. In this capacity, they may begin to function like the American Cancer Society, the American Heart Association, and other advocacy groups that work with the National Institutes of Health to heighten public awareness and marshal public resources toward research needs and opportunities (21,24,28).

Dr. Macdonald has both a strong interest and background in working with community programs aimed at adolescents and has made the problems of youth a clear ADAMHA priority. In the area of youth suicide, Dr. Macdonald would like to see ADAMHA move away from the mental illness/depression model that has dominated in recent years, and has been a particular source of frustration to citizens' and patients' groups. He has a particular interest among the relation between substance abuse and suicidal behavior in youth and would like to see more collaboration among the ADAMHA Institutes on this connection in addition to the investigations currently being pursued by intramural researchers (21).

Historically, NIMH has received about two-thirds of all ADAMHA research appropriations; NIDA and NIAAA receive slightly more than one-fifth and one-tenth, respectively, of ADAMHA funding. Since 1980, the latter agencies (especially NIAAA) have received a slightly larger proportion, reducing the NIMH share to about 60%. For the past 3 years, however, the annual research budgets of all three Institutes have remained the same--a total of about $300 million (24).

CDC

Although NIMH has been the primary conduit for federally supported suicide research, CDC, another Public Health Service agency in the Department of Health and Human Services, has become the principal public

health prevention agency of the Federal Government. CDC's suicide–related activity, for the most part, is much more recent than that of NIMH. Growing public health interest in the causes of premature death led CDC in the early 1980s to expand beyond its traditional focus on communicable and infectious disease, to violence and to apply the traditional surveillance principles to the analysis of suicide. In 1983, the Violence Epidemiology Branch was established under the directorship of Dr. Mark Rosenberg. When staff of the new unit began to hear reports of cluster suicides in Texas, Epidemic Intelligence Service (EIS) officers--CDC's investigative field officers--were dispatched to investigate the suicides in cooperation with the Texas Department of Health. Since then, this unit has continued to gather and analyze statistics on trends in youth suicide and is studying the phenomena of suicide "contagion" and "clusters" in depth. It has also developed guidelines to help local officials respond to crises like those in Texas and is continuing to work on methods for improving the identification and reporting of suicides and suicide attempts (30).

In response to a National Academy of Sciences report on injury in America, CDC recently organized a Division of Injury Epidemiology and Control under the leadership of Dr. Stuart Brown. Violence is now subsumed under this Division as "intentional injury," whereas accidents come under the rubric of "unintentional injury." Once vulnerable to Federal funding cuts because of its apparent duplication of NIMH research support in the area, the intentional injury section now shares equal status with the other areas of injury prevention and control--a major program priority within CDC (30).

Although CDC has not traditionally been a research grant-making agency, it has been able to contract with outside researchers and consultants on particular problems--for example, in the analysis of cluster suicides. More importantly, as an outcome of the creation of the new Injury Division, CDC has received some $7.8 million in funds diverted

from the Department of Transportation for the direct support of research ($5.8 million) and of "centers of excellence" ($2 million) in the area of injury prevention and control (31). Half of this research budget has been targeted to motor vehicle injuries, leaving approximately $2.9 million to support research on all other types of injury, including suicide.

CDC's Director, Dr. James Mason, emphasizes that CDC's mission is to promote health and prevent disease at the community level. CDC's principal strength as a public health agency lies with its ties to local public health officials and agencies, cultivated over the 40 years of CDC's history. These ties provide access both to the data sources needed to identify particular problem areas and to an organizational structure for the diffusion of problemsolving technology (19,32).

Other Government Agencies

Other agencies within the Department of Health and Human Services (DHHS) and other executive departments have become involved in youth suicide primarily because of their legal and moral responsibility for the minors under their jurisdiction. Their roles, far more limited than those of NIMH or CDC, are briefly summarized below.

The Administration for Children, Youth, and Families (ACYF) in the Office of Human Development Services (OHDS) at DHHS is responsible for the runaway and homeless youth program that operates 265 shelters nationwide. In 1984, ACYF commissioned a report by Drs. David Shaffer and Carol Caton on suicidal behavior among runaway youth in New York City. Thereafter, ACYF announced the availability of $600,000 to fund a total of seven projects aimed at developing emergency programs and interventions to be used in runaway shelters. Working with ACTION for community volunteers, ACYF has also developed brochures, for use by community agencies, outlining the "danger signs" of suicidal behavior and recommending preventive steps to be taken. The Office of Human Develop-

ment Services also spearheaded the first National Conference on Youth Suicide, targeted to mental health professionals, held in the spring of 1985 (7,33).

The Office of Juvenile Justice and Delinquency Prevention (OJJDP) in the Department of Justice monitors suicide among incarcerated youth as reported in the data of the National Census of Jails conducted by the Bureau of Justice Statistics. The OJJDP's interest in deinstitutionalizing or segregating juvenile offenders has been motivated in part by the problem of suicide among incarcerated youth. The OJJDP also participated in the OHDS National Conference on Youth Suicide (34).

In collaboration with CDC, the Indian Health Service in the Public Health Service has formed a special task force to investigate the problem of suicide among native Americans. The Department of Defense has made similar arrangements with CDC to study the problem in the armed forces, particularly in the Air Force (29).

Research Needs and Alternatives

Evaluation of Suicide Prevention Programs

One of the most pressing needs in the area of suicide research from a public policy perspective is to develop and evaluate intervention and prevention strategies. The absence of such work has been the most consistent criticism and source of frustration with the NIMH approach in recent years and has been most apparent whenever officials have been called upon to explain to Congress or the public what they are doing about the problem (7). In the meantime, private citizens and organizations lobbying State and local legislators or officials have taken the initiative for developing programs targeting youth suicide, and these groups have produced a groundswell of activity.

Yet, serious questions have been raised about these programs. Hotlines and suicide prevention centers, for example, have been criticized for failing to reduce the actual rate of suicide in communities. However, as Dr. Schneidman suggests in the programs' defense, such efforts might have other palliative effects on the "level of perturbation" in a community. Is the suicide rate alone the appropriate measure of a program's success (15)? Some have also questioned whether suicide education programs in the schools contribute to an atmosphere of hysteria or melodrama that only exacerbates the problem. Charlotte Ross, Executive Director of the Youth Suicide National Center and one of the principal architects of the school program in California, argues strongly for the need to evaluate suicide programs and to tailor such programs to the needs of particular communities. And yet, she acknowledges, countless communities are now in the process of implementing school-based programs without any notion of how to assess or evaluate their potential impacts (35,36). Stronger evidence suggests that press coverage or media campaigns designed to heighten awareness about the problem of youth suicide may, in fact, have a deleterious effect. Yet, few serious inquiries have been undertaken that might guide responsible media strategies in the future. Research is needed to develop appropriate criteria to evaluate such programs, to assess their efficacy on the basis of these criteria, and to explore the factors that contribute to their success or failure.

At present, the two principal channels for funding research on suicide prevention programs at the Federal level are:

1) through the regular peer review mechanism for investigator-initiated research at NIMH;

2) in response to CDC's request for proposals for injury prevention and control research.

However, no programs currently target suicide prevention directly as a research priority. Although the most recent Suicide Research Unit at NIMH planned to issue a contract for evaluating suicide programs, no

Request for Proposals (RFP) was forthcoming by the time that unit was disbanded (6). Without an explicit priority targeting youth suicide issues at NIMH, the independent chances of any investigator-initiated proposal being funded would be, at best, about one in three after it had passed the peer review, based on current funding statistics. NIMH's suicide research consortium will address the question of research priorities and might target this issue. That group's research agenda, however, has yet to be developed (19,22).

CDC's new injury research program explicitly addresses the issue of evaluating intervention strategies, and thus may lend itself more readily to the purpose (31). Through its "centers of excellence," CDC may also develop a more heterogeneous network of academic researchers than is now represented in NIMH's constituency--including, for example, behavioral scientists, economists, policy analysts, biostatisticians, and epidemiologists, as well as mental health or medical clinicians and researchers. CDC also has the means to disseminate its research findings through local communities--a crucial need in this divided arena. However, CDC's extramural research funding is for one year only. Moreover, because half of the $5.8 million in current research funding must be spent on motor vehicle injury, less than $3 million remains to support research on all other types of unintentional and intentional injury. CDC is not ordinarily a grant-making agency and the availability of suicide prevention alternatives cannot be accomplished in a few small short-term efforts. It requires an ongoing strategy to support collaborative research at multiple sites and a continuous effort to disseminate research findings to community organizations.

Quality and Coordination of Research

A more generic problem in basic suicide research is that it "belongs" to no one academic discipline or professional specialty, nor to any well-defined group of disciplines. As Dr.

Seymour Perlin has observed, suicide research is something of a "bastard" field, lacking a distinct identity. Recognizing this problem, Dr. Schneidman took an eclectic approach in organizing the suicide center at NIMH in the early 1960s. In regard to identifying suicide research, the center is almost uniformly remembered as an intellectual success by those who participated in it, even if its programs later fell out of favor (15-18). A similar motive of promoting a multifaceted (albeit quite different) approach prompted the decentralization of suicide research in NIMH's most recent reorganization and the abandonment of the single Suicide Research Unit in favor of a consortium (19).

Given the diversity of interests in the study of suicide, how can good suicide research best be promoted? Dr. Darrel Regier, Director of the new Division of Clinical Research at NIMH, argues that the best research comes from good researchers pursuing their own interests in their own respective fields. This rationale has produced a preference at both NIH and NIMH for investigator-initiated, as opposed to Institute-solicited, research. Concerning suicide, however, this preference can create practical difficulties.

Good suicide research requires identifying and rigorously assessing a wide variety of biomedical, psychosocial, and psychopathological factors. Promoting such research thus requires a high degree of sophistication and multidisciplinary expertise not only on the part of researchers but also on the part of the peer-review committees evaluating research proposals. Because the traditional peer-review system favors narrowly defined research questions within traditional disciplines, multidisciplinary suicide research is not likely to fare very well unless it is encouraged and targeted by explicit, well-articulated Institute research priorities.

The weak showing of suicide research among investigator initiated peer-reviewed proposals is suggested by the relative paucity of funded research relating to suicide, especially to youth suicide, before 1983, when

suicide became at least an informal priority at NIMH. Although this is one of the tasks of the suicide research consortium, NIMH does not yet have a clear set of priorities relating to youth suicide that would allow it to target research opportunities (19,22). The promotion of good suicide research, however, will also require establishing a separate peer-review process performed by research review committees particularly acquainted with the practical difficulties of suicide research.

Data

One of the most frequently mentioned problems of suicide research is that of collecting reliable data. This difficulty is exacerbated because neither CDC nor NIMH, the two national agencies with a primary interest in suicide, has jurisdiction over the collection of that data. NIMH gathers data on the use of the mental health system and CDC collects statistics on reportable communicable and chronic diseases. But suicide falls within neither category. Instead, most statistics on completed suicides are gathered by the National Center for Health Statistics (NCHS) in DHHS, as part of its monitoring of mortality and morbidity in the United States. (Other sources include the Department of Justice's National Census of Jails.) In recent years, both NIMH and CDC have relied on NCHS data to track and analyze suicide trends among different age and demographic groups, and to some extent, this work has been duplicative (18,19). NIMH has also undertaken the first large-scale assessment of suicide ideation and attempts through analysis of data gathered in its own epidemiologic catchment area survey (19).

Because CDC has more direct access to the local departments of health and medical examiners who determine the causes of death which are eventually reported to NCHS, that agency ought to assume the lead role in monitoring suicide statistics. Recurrent criticisms among suicide researchers have addressed the absence of uniform criteria for determining suicide as a cause of death, the

natural tendency to underreport such deaths, and the absence of incentives for coroners and medical examiners to fully investigate deaths suspected as suicide. Working with a larger number of other organizations and individuals, CDC has begun to develop guidelines to encourage uniform guidelines, it is the Federal agency in the best position to work with coroners, medical examiners, and local public health officials to identify practical obstacles and encourage the adoption of national reporting guidelines (29,32).

Another problem with data in suicide research relates to the rarity of suicide. Aggregate data, even when reliable, do not offer much insight into the etiology of suicide, because national trends are influenced by a variety of social, cultural, and economic factors. On the other hand, the quality of more detailed prospective or retrospective studies is often compromised by the small sample sizes involved. Larger samples would require the collaboration of many centers and much larger levels of funding. Moreover, because different investigators use different criteria for selecting their samples (suicide ideators, attempters, or completers, different age groups, etc.), generalizations often cannot be made beyond the particular circumstances of each study. Mechanisms are needed to promote collaborative research and the use of uniform research criteria. Although the suicide research consortium at NIMH appears to have set this task on its agenda, it does not yet have explicit plans to develop strategies for promoting collaborative efforts (22).

Coordinating Mechanisms and Strategies

Perhaps the first question on Federal program coordination is whether youth suicide efforts are best focused at a single site or dispersed among many. A single site offers the advantage of bringing together diverse perspectives in an inherently disintegrated field, serving as a central clearinghouse of information for professionals and the lay public, and coordinating multifarious

activities relating to suicide. Various alternatives have been suggested at various times. The idea of establishing an independent government commission was embodied in an earlier version of the Youth Suicide Prevention bill, although it fell victim to legislative politics (8). Others have suggested providing a Federal subsidy for a private, nonprofit commission on youth suicide--for example, a commission built around one of the two existing national advocacy centers. The independent commission approach tends to be favored by lay advocacy and professional groups who see it as an opportunity to participate more actively in public policymaking (6,14,16,36,37). Alternatively, youth suicide activities could be focused within a single center of an existing government agency, as was done in the suicide center at NIMH in the early 1960s and at the Suicide Research Unit of the early 1980s. On a more limited scale, the current Senate legislation similarly calls for the establishment of a center on youth suicide within DHHS.

The success and professional legitimacy of any single suicide center or unit, inside or outside of government, however, will depend on its funding, staffing, and leadership. A single suicide unit would have to be viewed as genuinely representative of the diversity of interests in the field or else it would be vulnerable to the appearance of "capture" by a single interest group. Such a unit would need both the leadership and the authority to coordinate the activity of disparate groups, and it would need sufficient funding to carry out a broad range of activities. Lacking these qualities, any single suicide center would be more form than substance. The comparative contemporary reputations of the two suicide units at NIMH are illustrative: the Suicide Research Unit was generally regarded as a poorly funded and inadequately staffed "token" effort (15-17,19,36).

In the current political climate of limited government and financial retrenchment, the bureaucratic solution of creating yet another unit of government is not likely to be looked upon with favor. The marked reduction in scope of the commission proposed in the pending youth suicide legislation reflects this disfavor. The commission currently proposed in the Senate legislation lacks both the power and the authority to accomplish much more than a general clearinghouse function. Although focusing activity in a single nonprofit organization outside of government may avoid some of these practical political difficulties, no existing organization seems likely to transcend the broad and deep divisions that currently separate lay, professional, medical, nonmedical, and competing advocacy groups in the suicide field. Even those who favor the idea of a single focus for youth suicide activities in principle are skeptical that such a focus can be achieved (15,17,19,32).

The alternative to a single locus of suicide activity is a multisite, multiagency, and multifaceted approach overseen by one or more lead agencies and integrated (at least loosely) through some variety of coordinating mechanisms. Although there is no formal understanding between NIMH and CDC, Dr. James Mason, CDC Director, believes that there is a fairly natural division of labor between the two agencies which could readily translate into a memorandum of understanding on youth suicide, designating NIMH the lead agency on matters relating to suicide research and CDC as the lead agency on data collection, public health, and community investigative and educational activity (19,27,32).

That designation leaves unresolved, however, the critical problem of coordinating and communicating with the other diverse interest groups currently active in the area of youth suicide. Although several mechanisms have emerged inside government to coordinate activity or share information among agencies and offices, no formal channels of communication have been established with community, professional, and advocacy groups that are rapidly pursuing their own agendas. CDC, as we have suggested, may have a mechanism for establishing communications channels through its community

programs. CDC and NIMH also have the authority to call together ad hoc public advisory committees on any number of special topics and to sponsor workshops and conferences. The NIH has successfully used these activities to communicate research and clinical findings and to involve constituency groups in the planning process (28). In the area of suicide, however, such mechanisms have been used only very broadly, in spite of the well-intentioned plans of the late Suicide Research Unit. These Public Health Service agencies could enhance their legitimacy and strengthen their constituencies by routinely involving representative public advisory groups in an interactive and iterative planning process.

CONCLUSIONS AND RECOMMENDATIONS

Lessons From the Past

The legacy of the recent past in Federal policy on suicide has created some serious obstacles for those who are now attempting to address the problem of youth suicide as a public health policy issue. Above all, past Federal policy has left deep divisions, mutual hostilities, and suspicions throughout the field. In part, these represent differences of opinion between medical and nonmedical professionals as to the best preventive and therapeutic approaches. More serious, however, are the factors that divide lay community groups seeking practical solutions to the problem of youth suicide from the public health and mental health research community studying the phenomenon. A very real danger is that the community groups will pursue their own agendas because they are suspicious of researchers and critics and resistant attempts to evaluate their programs critically. Yet, serious questions have been raised, with some evidence to support the theory that some programs may be not only ineffectual but harmful, exacerbating the problem by raising the level of anxiety among young people.

A second and related problem growing out of

recent history is that previous policy has left (at least until quite recently) a very weak base of support for suicide research. In the absence of particular program priorities at NIMH, new research in the field has received little encouragement, and very little funding has been directed toward suicide research through the regular extramural grants program. This weak base of support has left serious shortcomings in our current knowledge about suicide etiology, primary prevention, or therapeutic intervention. Most importantly there has been a paucity of applied research, and even of interest, in evaluating alternative intervention strategies, despite the serious questions raised about the programs that are rapidly proliferating. Moreover, fundamental problems in basic research remain and they can only be resolved through coordinated, collaborative studies based on uniform research criteria and guided by explicit research priorities.

Given this legacy, what does recent history suggest as workable strategies for the future? The history of suicide research points to the need for integrative mechanisms--both to integrate public health and mental health research with community service programs, so that they can inform each other, and to promote collaborative, multidisciplinary research. Although the early NIMH suicide unit's approach to prevention has since come under fire, that unit was generally regarded as successful at promoting an integrated approach to the problem. The idea of concentrating the effort now in a single suicide unit--either within NIMH or in an independent commission--has received some attention, but at present, such a unit appears to be an impractical option. In the current political and fiscal climate, a new unit of bureaucracy is not likely to be looked upon with favor. And even if it were created, it probably would not be funded or staffed sufficiently to make it truly representative, leaving it vulnerable to the appearance of representing a single interest group or to tokenism.

There are, however, alternative integrative mechanisms. One mechanism that has been used quite successfully by some institutes at NIH, but relatively little by NIMH, entails actively involving advocacy and professional groups and field researchers in a process of research-program planning and information dissemination. Such an ongoing, iterative process can help create a community of interest around youth suicide, mobilizing public awareness and support and marshaling resources. A successful working relationship, however, requires not only initiative on NIMH's part but also a recognition on the part of the advocacy and professional groups that the Federal Government role has changed.

Another promising model to promote collaborative and multidisciplinary research is NIMH's current decentralized approach, spreading jurisdictional interest in suicide research among many clinical branches and divisions. Although the NIMH consortium can help to coordinate the relevant research within NIMH, it could benefit from a broader range of input by being expanded to include researchers from the field and from related areas of adolescent risk-taking behavior, including those represented in other Public Health Service agencies.

Finally, CDC's recent involvement in suicide surveillance and public health issues is a promising development. CDC can use its well-developed network of relationships with local public health officials and departments to improve the quality of baseline statistics, support the development and evaluation of preventive interventions, and bridge the information gap between the research and service communities. In this way, CDC can help fill the void left by NIMH's withdrawal from the provision of services.

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ESTIMATING THE EFFECTIVENESS OF INTERVENTIONS TO PREVENT YOUTH SUICIDES: A REPORT TO THE SECRETARY'S TASK FORCE ON YOUTH SUICIDE

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SUMMARY

In this paper, we describe the use of a model to analyze the effectiveness of six interventions for decreasing youth suicides in the United States and the use of a questionnaire to query experts about factors that determine the effectiveness of those interventions. The interventions examined are the following: (1) affective education, to help youth understand and cope with the types of problems that can lead to suicide; (2) early identification and treatment of youths at high risk of committing suicide; (3) school-based screening programs; (4) crisis centers and hotlines; (5) improved training of health care professionals in treating problems among youth that can lead to suicide; and (6) restriction of access to three main methods of suicide--firearms, medications, and high places. This study indicated a wide range of uncertainty about each intervention's effectiveness and the range of uncertainty among experts about any particular intervention exceeded the differences among the best estimates for each intervention. The study also indicated that no single intervention, or even all six interventions combined, could be considered a "cure" for youth suicides. Additional empirical research about the factors that determine the effectiveness of youth suicide prevention programs followed by careful analysis, is needed before large-scale programs are launched. Given the urgency of the youth suicide problem, we recommend a strategy of (1) analyzing the available information; (2) conducting short-term research to gather empirical data for estimating both the effectiveness and costs of different interventions; (3) analyzing the results of that research to set preliminary priorities; (4) designing pilot projects to evaluate the most promising interventions; and (5) planning large-scale interventions based on the evaluation of the pilot projects.

INTRODUCTION

Youth suicide is an important social problem. In the United States, suicide is the second

leading cause of death for persons 15 to 24 years of age. More than 1 in every 1,000 children will commit suicide before reaching the age of 25. This year in the United States about 7 of each 8,000 youths aged 15 to 24 years will commit suicide, totaling about 5,000 deaths. For comparison, accidents, the leading cause of death for persons 15 to 24 years will claim about 17,000 youths in this age group; about 7,500 will be murdered; and about 4,800 will die of a specific disease. Suicide rates for certain subpopulations are nearly double the average and seem to be rising.

Many interventions have been proposed to reduce youth suicides. However, estimating the effectiveness of these interventions can be extremely difficult because of the many factors that must be considered. First, at least four major types of psychiatric problems can increase the chance a youth will commit suicide: depression, manic-depressive disorders, character disorders characterized by impulsivity and aggression, and schizophrenia. (In addition, many youth who commit suicide do not display psychiatric symptoms.) Youths with each type of psychiatric problem respond to different interventions in different ways. Second, the proposed interventions have many different mechanisms of action, including prevention (e.g., affective education), early detection (e.g., school-based screening programs or programs to educate families about the symptoms of psychiatric problems), improved treatment, and legal measures such as restricting access to guns. Third, the success of each type of intervention is determined by many unknown variables. For example, estimating the effectiveness of a suicide hotline requires estimating the proportion of potential youth suicides who would be inclined to call such a hotline if they had access, the proportion of those who actually have access, the success of the hotline's personnel in thwarting the immediate suicide attempt, and the likelihood that a youth who survives the immediate crisis through the aid of the hotline will not commit suicide at a later time.

Unfortunately, very little empirical research exists that evaluates or compares the effectiveness of different interventions to prevent youth suicide. At present, policy makers have little choice but to rely on the subjective judgments of experts. For other health problems, analytic models are effective for soliciting and using knowledge about the cost and effectiveness of a range of interventions to identify the best ways to use limited resources. For cancer control, for example, mathematical models have been used to estimate the effectiveness and costs of a wide variety of prevention, screening, and treatment programs and to set priorities for public programs (WHO 1986). We tried to develop an analogous model for youth suicide to help identify the most cost-effective interventions.

In this paper, we describe the use of a model to analyze the effectiveness of six major types of proposed interventions for decreasing youth suicides in the United States and the use of a questionnaire to query experts about factors that determine the effectiveness of those interventions. The interventions examined are the following: (1) affective education, to help youths understand and cope with the types of problems that can lead to suicide; (2) early identification of youths at high risk of committing suicide, to bring them into treatment; (3) school-based screening programs; (4) crisis centers and hotlines; (5) improved training of health care professionals in treating conditions that can lead to suicide; and (6) restriction of access to three main methods of suicide--firearms, medications, and high places.

METHODS

To derive preliminary estimates of different interventions' effectiveness in decreasing suicide, we developed a questionnaire to solicit the subjective judgments of experts in various aspects of the youth suicide problem. To assist the experts, we broke the problem into components and directed the questions at specific factors that could be researched or accessed through the experts' experience.

Specifically, the questionnaire distinguished four major categories of potential youth suicides: depressives, manic-depressives, "impulsive-aggressives," and those not manifesting the symptoms of identifiable psychiatric disorders. Many psychiatrists believe the first three categories have much higher suicide rates than the population at large, so individuals in those categories are described as "high risk," whereas those in the fourth category are described as "normal risk." Although persons diagnosed as schizophrenic also have a higher-than-average risk of suicide, we did not ask separate questions about this group because the symptoms necessary to diagnose schizophrenia are frequently not identified before age 25. Additionally, a recent study of almost 200 adolescent suicides did not identify a significant number with schizophrenia (David Shaffer, 1986). The effect of each intervention was analyzed for each category separately, and the results were combined. These categories are defined in Appendix A.

To structure the questions, the questionnaire used a simple framework that identified the various points at which each intervention would prevent a suicide (Figure 1). (Figures appear at end of chapter.)

The framework starts (on the left of Figure 1) with a potential youth suicide, which we define as a youth who would commit suicide before the age of 25 in the absence of any intervention (including current treatment interventions). If a suicide in such a youth is to be prevented, he or she must first be identified as a potential youth suicide, he or she must then be offered and accept a treatment, and the treatment must be successful in preventing the suicide. Therefore, the probability that a potential youth suicide will actually commit suicide depends on whether the steps of this process are accomplished. A suicide will result from a failure at any step-- if the youth is not identified, if the youth does not receive appropriate treatment, or if the treatment fails.

Each of the six interventions examined in the questionnaire affects one or more of the

three steps. For example, school-based screening is intended to identify potential youth suicides and bring them to treatment. The screening's effectiveness depends on how much it increases the probability that a potential youth suicide will be identified. Education of parents and "gatekeepers" (i.e., persons who come into contact with and talk to suicidal youth, such as health professionals, hairdressers, gym teachers, and bartenders) is also intended to increase the probability that a potentially suicidal youth will be identified and offered treatment.

Interventions that aim to improve treatment are intended to decrease the probability that a youth identified as a potential suicide will actually commit suicide. At present, not all potentially suicidal youths are offered any treatment, and those who are do not all receive optimal treatment. To analyze this problem, we grouped all possible treatments for each psychological condition into three categories--no treatment, suboptimal treatment, and optimal treatment. Detailed definitions of the treatment levels for each condition are provided in Appendix B. One possible treatment intervention involves ensuring that specialists know and offer an optimal treatment for each type of psychiatric problem. Another treatment intervention involves educating other health care professionals (nonspecialists) to refer potentially suicidal youth to appropriate specialists. Such interventions are intended to help ensure that a youth identified as potentially suicidal actually receives optimal treatment.

School-based affective education programs appear on the basic framework at two points. Such programs alert both potential youth suicides and their friends to the signs and symptoms preceding a suicide. School-based education programs are intended to increase the probability that potential youth suicides will be identified (either by themselves or by their friends) and referred for treatment before committing suicide.

Another more direct effect of affective education involves helping potentially suicidal youths and their friends to be more

aware of the suicide problem and the steps to correct it and helping them to be more aware of the psychological stresses all youths face. When successful, affective education might itself be a form of treatment. Even without referral to a professional, the self-awareness or the intervention of a friend might prevent a potential youth suicide.

A crisis center also has several effects. The direct effect is that if a potential youth suicide victim contacts a crisis center, he or she might be talked out of committing suicide at that time. The suicidal person might or might not commit suicide at a later time. Secondarily, a potential youth suicide might not only be prevented at that time, but might also be brought into a treatment program. These effects would be registered as an increase in the probability that a potential youth suicide would be identified and as an increase in the probability that a potential youth suicide would receive optimal treatment once identified.

Finally, the effect of interventions designed to restrict access to suicide methods (e.g., guns, drugs, and high places) can be viewed as a form of treatment. Obviously, such interventions do not treat the underlying conditions leading to suicide, but they can prevent an immediate suicidal event. In some cases, restricting access to suicide methods might thwart the suicidal impulse long enough to enable the potential youth suicide victim to pass through a personal crisis and revert to nonsuicide. (The interventions are defined in Appendix C.)

The questionnaire was designed to estimate the interventions' effectiveness by identifying all the important factors that could determine their impact and to focus questions on each specific factor. (The questionnaire is attached as Appendix D.) This approach helps narrow the scope of factors the respondents must consider at one time and helps ensure accurate answers. For example, for an estimate of the overall impact of a crisis center or hotline on reducing the chance that a youth would commit suicide, questions were asked about four topics: (1) the proportion

of potential youth suicides who would have access to a hotline; (2) the proportion of those with access who would be inclined to call, (3) the proportion of those who call who would have their immediate suicide prevented, and (4) the proportion of these who would not become suicidal again before age 25 either because they changed or because they were brought into a successful treatment program. Thus, the experts were never asked a global question, such as "how much will Intervention A reduce youth suicides," which would require them to consider dozens of factors or venture a wild guess. Rather, they were asked about specific factors one at a time, and the overall effect of each intervention was calculated from their answers about the individual factors, according to the specified framework and the laws of probability theory.

We submitted the questionnaire to 29 individuals identified by the Secretary's Task Force on Youth Suicide. These individuals were not at all intended to be a representative sample of all suicide "experts." Instead, they were selected because they either had many years of experience working on youth suicide prevention, or had expertise in a particular area covered by the questionnaire such as screening, delivering mental health services, or assessing the quality of health services. Fifteen individuals returned the completed questionnaire. Estimates of each of the interventions' impact were then calculated separately for each of the experts.

The results are presented for each of the individual experts separately and anonymously. We did not combine or "pool" the experts' estimates.

RESULTS

The results of the questionnaire are shown in Figures 2-10. Figure 2 indicates the estimated effect of **current** treatment programs in preventing suicides. The horizontal axis indicates the proportion of potential youth suicides prevented by existing treatment programs, and each mark on

the axis indicates the calculated estimate of a particular expert. The experts estimated that 1 percent to 39 percent of potential youth suicides (that would occur in the absence of any treatment) are currently prevented by existing treatment programs (Figure 2). On average, the experts estimated that approximately 10 percent of youths who would commit suicide in the absence of any intervention are currently being prevented from committing suicide by existing treatment programs. The median was 6.5 percent. A 10 percent reduction in youth suicides would represent approximately 500 suicides prevented each year in the United States.

The experts surveyed expect programs designed to improve the treatment of potential youth suicides by health and mental health professionals to decrease youth suicides from 1 percent to about 39 percent (Figure 3). The average of the estimates predicted reduction in potential youth suicides (in addition to the reduction already achieved by current treatment) of 11 percent. The median was 8 percent.

Figure 4 describes the estimated impact of an intervention designed to identify potentially suicidal youth and bring them treatment, either by making parents more aware of the signs and symptoms of psychiatric problems or by helping gatekeepers (e.g., teachers, barbers, beauticians, bartenders, gym teachers, religious counselors, neighbors, or relatives) identify potential youth suicide victims and bring them to treatment. The experts' answers indicate that such an intervention could reduce the current number of youth suicides by less than 1 percent to about 41 percent. The average of the answers was a reduction in youth suicides of about 13 percent, and the median was 8 percent.

Screening school-age children was estimated to reduce youth suicides by less than 1 percent to 13 percent, with an average and median reduction of 8 percent.

Crisis centers and hotlines were estimated to reduce youth suicides by less than 1 percent to 18 percent. The average of the answers

predicts reduction in youth suicides of about 7 percent, with a median of 4 percent.

School-based affective education programs might be expected to reduce youth suicides by less than 1 percent to 17 percent (Figure 7). The average of the estimates was a 6 percent reduction in youth suicides, and the median was 4 percent.

The last set of interventions involves restricting access to various suicide methods, such as firearms, medications, and high places (e.g., bridges, towers). Estimating the impact of these interventions was aided by data that indicated that about 62.5 percent of youth suicides are committed with firearms (approximately 80% of these are handguns); about 6 percent of youth suicides are due to poisonings by prescription medications (e.g., tranquilizers and psychotropic agents); and about 3 percent of youth suicides are caused by jumping from high places. About 30 percent of youth suicides are caused by other means, such as hanging and poisoning by carbon monoxide. Thus, restricting access to any one of these suicide methods could have an impact no greater than the proportion of suicides caused by each of these means. For additional assistance in estimating the impacts of these interventions, we asked the experts to assume that an intervention designed to restrict access to firearms would actually prevent only 50 percent of potential youth suicide victims from having access to firearms. Similarly, we asked them to assume that a program designed to restrict access to medications would actually restrict access for 75 percent of potential youth suicide victims, and that a program designed to restrict access to high places would actually restrict access for 25 percent of potential youth suicides. Thus, the maximum possible impact of interventions to restrict access to firearms, medications, and high places is a suicide reduction of 31 percent, 4.4 percent, and 0.7 percent respectively. These are overestimates of the maximum possible effect, however, because some potentially suicidal youths who are denied access to their chosen means will choose a different means and will

still commit suicide. The experts surveyed estimated that programs designed to restrict access to firearms might reduce the number of youth suicides by 4 percent to 23 percent, with an average estimate of about 14 percent and a median of 16 percent (Figure 8). Given the fairly small proportion of suicides caused by medication overdose, the expected impact of an intervention to restrict access to medications is understandably small. The respondents estimated that such a program would decrease suicides by less than 1 percent to about 4.4 percent (Figure 9), with an average of about 3 percent and a median of 2 percent. The respondents estimated that the expected impact of an intervention to restrict access to high places would be a reduction in suicides of less than 1 percent, with the average and median of the answers both less than 1 percent (Figure 11).

The respondents' answers can be examined for patterns; even if there is a wide variation in the estimated impact of each intervention, there might be agreement on the most promising interventions. Unfortunately, this is not the case. For each intervention the respondents ranked the intervention first, second, third, and so forth. The only intervention that appears to receive a high preference from most of the respondents is restricting access to firearms, and the only intervention that clearly receives a low priority is restricting access to high places (Figure 12).

CONCLUSIONS

This study has led to several conclusions. First, there is much uncertainty among acknowledged experts about the expected effectiveness of different proposed interventions--clearly indicated by the wide range of estimates among the experts who responded to the questionnaire. In addition, most of the experts stated that their individual estimates were "soft" or uncertain. Furthermore, many of the experts did not respond because of their own uncertainty and reluctance to have their answers misinterpreted as hard data. If the experts

who chose not to respond were even less certain about the impact of the interventions, the actual range of uncertainty might be even greater than that shown in the figures.

Second, none of the interventions are expected to represent a "cure" for youth suicides. The medians of the experts' predictions indicate that each of the interventions would reduce suicides by from less than 1 percent to 16 percent. (A 10% reduction in youth suicides would represent approximately 500 youth suicides prevented each year.) Even if **all** suicide interventions were imposed simultaneously, the expected suicide reduction would be less than 50 percent (their sum) and possibly as low as 15 percent (if the same individuals responded to each intervention).

However, even if none of the interventions could be considered a "cure," some still might be cost-effective public health programs, depending on the costs of the interventions, a factor not examined in this study. Calculating the costs for saving a life through different suicide prevention interventions and comparing those with the costs of other selected health interventions would be useful. For example, in 1981 the Medicare end-stage renal disease program provided kidney dialysis facilities for approximately 64,000 enrollees, at a cost of approximately $23,000 per year of life, the National Heart, Lung, and Blood Institute estimates that between 17,000 and 35,000 victims of end-stage heart disease would benefit from heart transplants each year, at an average cost of about $50,000 per transplant, leading to a median life extension of 5 years. In the absence of available donor hearts, left ventricular assist devices provide about the same life extension at a cost of about $150,000 per recipient. For liver transplantation, the cost per patient surviving 1 year exceeds $230,000 (Task Force on Liver Transplantation in Massachusetts, 1983). At the other end of the spectrum, the cost of adding a year of life through immunization against measles ranges from $480 to $2,100, and the cost of averting a death through oral rehydration therapy can be as

low as $100 (Harvey V. Fineberg, personal communication). Screening 30-year-old women every 3 years for cervical cancer delivers a year of life expectancy for approximately $1,000. (Screening annually instead of every 3 years delivers an additional year of life expectancy for approximately $100,000) (David Eddy, unpublished data).

Third, there is no clear "winner" among the proposed interventions. Not only are the averages of all the answers close, but the differences among the averages for each intervention are very small when compared with the range of uncertainty expressed about each intervention. This wide uncertainty about each intervention (represented graphically in the figures) makes it meaningless to attempt finely tuned comparisons among the different interventions, except on the basis of cost. For example, if two interventions are estimated to have approximately the same effect, but one costs 100 times more than the other, clearly the less costly intervention would be preferred.

The experts also varied widely in their choices of the six proposed interventions they believed would be most effective. The experts thought the most effective intervention was to limit access to firearms.

Fourth, most of the information needed to plan effective interventions has not yet been collected or compiled. Thus, the experts cannot accurately select which interventions will be the most effective or cost-effective at this time. Definitive answers cannot be obtained by polling experts or soliciting their opinions. Nor can Congressional hearings or special commissions, which rely on expert opinion, be expected to provide the answers. At this time, arriving at reliable answers will require further research. Perhaps the study's most important conclusion is that a great need exists for additional empirical evidence and for rigorous analysis of the factors that control the effectiveness of different interventions.

RECOMMENDATIONS

Because of the great uncertainty about both the effectiveness and costs of different proposed interventions, it is currently not appropriate to implement any large-scale interventions. Not only is there no rational basis for choosing which interventions would be most effective or efficient, but implementing any large-scale activity could commit resources prematurely to inappropriate interventions and could falsely convey that our information base is stronger than it is.

Rigorous planning is needed before preceeding with interventions. Although the recommendations provided by the Secretary's Task Force on Youth Suicide describe a wide variety of possible large-scale programs, insufficient resources exist to undertake all of these interventions and insufficient data are available to intelligently choose among them.

Because of the social importance and visibility of youth suicide, there might still be great social pressure to undertake **some** activities before adequately assessing which interventions would be most effective. If so, it will be important to recognize the source of the urgency and to design the intervention specifically to address that objective. For example, if increasing public awareness of the problem and demonstrating society's concern are considered important, then interventions should be selected that achieve those objectives. Furthermore, among the possible set of interventions that achieve those objectives, those with the lowest cost should be given priority. Interventions that are expected to have benefits in addition to achieving reduced youth suicide rates should also be emphasized. For example, an intervention designed to prevent youth suicides by supporting families through life crises might not only prevent youth suicides but could prevent other problem behaviors, such as substance abuse and interpersonal violence.

Developing a rational strategy for preventing youth suicides will require that we learn more about the potential effectiveness and costs of each proposed intervention. This knowledge is best obtained through a program of carefully coordinated and directed research.

First, the work introduced in this paper must be expanded. Some expert respondents in our survey have suggested that additional interventions be considered and identified. The evidence about each intervention should be made available to expert panels, and the panelists should discuss the data in the light of their experience to reach a consensus about the factors that determine the effectiveness of each intervention. "Consensus" estimates for the effectiveness of the interventions can then be calculated.

Second, experts can describe the factors that determine the effectiveness of different interventions and identify those factors about which there is greatest uncertainty. Many of those factors could be examined with short-term, low-cost empirical research. For example, with retrospective research, investigators can identify the proportion of youth suicide victims who had been identified as being at high risk for suicide before their deaths. This type of information would greatly improve estimates of the potential impact of interventions designed to improve identification of high-risk youths. If this research showed that all youths who committed suicide had previously been identified as being at high risk, a new intervention designed to increase the identification of high-risk youths would have no additional value. Through research, the proportion of youth suicide victims who were already under medical treatment and the proportion of those who were receiving optimal treatment can be identified. This information would improve estimates of the value of professional education programs. Researchers can identify the proportion of youth suicides that occur in clusters, to help estimate the effectiveness of forming special teams to offer intensive suicide prevention services in high schools where a suicide has occurred. The results of this type of short-term research could then be used to set preliminary priorities and to design pilot programs.

Research is also needed on the costs of various interventions. Some information on program costs already exists, but more cost information is needed. Ongoing and new intervention research should routinely address cost aspects.

Longer term research will eventually be required to evaluate the pilot programs. With this research, information could be collected both on operational characteristics of an intervention (such as the yield of previously unidentified high-risk youths identified through a school-based screening program) and on its long-term effectiveness in actually reducing youth suicides. However, because of the low incidence of suicides, very large sample sizes or large community programs will be required to derive meaningful estimates of the effectiveness of different interventions.

Given the urgency of the youth suicide problem, we recommend a strategy of (1) analyzing the available information; (2) conducting short-term research to gather empirical data for estimating both the effectiveness and costs of different interventions; (3) analyzing the results of that research to set preliminary priorities; (4) designing pilot projects to evaluate the most promising interventions; and (5) evaluating the pilot projects to plan large-scale interventions.

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ACKNOWLEDGMENTS ·····················-

FRAMEWORK

Potential Youth Suicide → Youth Identified as a Potential Suicide → Treatment is Offered and Accepted → Treatment is Effective → Suicide is Prevented

Figure 1.

CURRENT TREATMENT

Reduction In Youth Suicide

Figure 2.

IMPROVED REFERRAL AND TREATMENT

Reduction In Youth Suicide

Figure 3.

IDENTIFY HIGH—RISK YOUTHS

Reduction In Youth Suicide

Figure 4.

SCHOOL—BASED SCREENING

Reduction In Youth Suicide

Figure 5.

CRISIS CENTERS AND HOT LINES

Reduction In Youth Suicide

Figure 6.

AFFECTIVE EDUCATION

Reduction In Youth Suicide

Figure 7.

RESTRICT ACCESS TO FIREARMS

Reduction In Youth Suicide

Figure 8.

Figure 9.

Figure 10.

Figure 11.

INTERVENTION

Current Treatment

Improved Treatment

Identify High—Risk Youths

School—Based Screening

Crisis Centers and Hot Lines

Affective Education

Restrict Access to Firearms

Restrict Access to Medications

Restrict Access to High Places

Legend

Lower Limit   Avg   Upper Limit

0   .5

Reduction In Youth Suicide

INTERVENTIONS

Restrict Access to
Firearms

Identify High—Risk
Youths

Improved Treatment

School—Based Screening

Crisis Centers
and Hot Lines

Affective Education

Restrict Access to
Medications

Restrict Access to
High Places

1   8

RANK

Figure 12.

APPENDIX A

Definitions of Psychiatric Categories

Depressives: Persons suffering from major depression. Depression here refers to a serious and pervasive mood disturbance marked by despair and an almost complete loss of pleasure in living, and lasting at least 2 weeks. Additional symptoms include sleep disturbances, loss of interest in one's surroundings, guilty ruminations, lack of energy, appetite disturbances, slowing of thoughts and movements, inability to concentrate, and suicidal thoughts (based on DSM III definition). Evidence indicates that this type of depression has a basis in neurophysiological changes and that antidepressant medication or specific forms of psychotherapy can shorten its course and reduce its severity. Many persons with severe depression are not treated by mental health professionals and many of those who are are not appropriately treated with antidepressants or the specific forms of psychotherapy that have been proven effective.

Manic Depressives: These are persons suffering from bipolar disorder, or manic depressive illness (MDI). Persons with this disorder suffer episodes of depression and episodes of feeling excessively "high," energetic, and unstable ("manic").

Many young people with MDI might not be identified as such before they reach middle age. There is no biological marker or test for the illness, and young people with MDI who have not had full-blown manic and depressive episodes might manifest the disorder as excessive impulsiveness and/or aggressiveness. The best clues to MDI among such young people are probably the following: (1) a family history of MDI, and (2) an episodic or cyclical nature of impulsiveness or aggressiveness--the more cyclical the appearance of these traits and the more discrete and delimited the episodes of mood swings, the more likely these are to represent MDI.

Impulsive/Aggressive: Several recent studies suggest that a proportion of youth suicides occur among young people with no affective illness but whose behavior is characterized by a long history of impulsive and aggressive behavior. Frequently such behavior results in the young person's getting into trouble at home, at school, and with the law. This behavior might not differ from the episodes of aggressive/impulsive behavior in children with manic depressive illness, except that it is not episodic and is not a manifestation of a serious affective disorder.

"Normal Risk": These are persons who do not manifest any particular signs or symptoms suggestive of a potential youth suicide.

APPENDIX B

Definitions of Treatment

Three basic levels of treatment that can be delivered by professionals were defined for each type of psychiatric problem. The first level is no treatment. At the other end of the spectrum is optimal treatment. However, even youths who are under professional care do not always receive optimal treatment, and for this reason a third category of treatment, called suboptimal treatment, is identified.

The descriptions of "optimal treatment" and "suboptimal treatment" depend on whether we are talking about depressives, manic depressives, or impulsive/aggressives. Though individual treatment plans may vary and may be tailored to specific circumstances, we provide the following set of generalized definitions.

Depressives

Optimal: Optimal treatment requires that the depressed person be treated with the correct antidepressant (or very specific psychotherapy), in large enough doses, for a long enough period of time to achieve an improvement. Usually psychotherapy (i.e., "talking therapy") alone does not constitute satisfactory treatment, but would be an important part of treatment for most patients. There is recent evidence that two very specific types of psychotherapy (cognitive therapy and interpersonal psychotherapy) might be effective even without medication. For a small proportion of extremely depressed and suicidal persons, hospitalization in a psychiatric hospital would be required. When depression was accompanied by severe agitation or psychotic symptoms (or an inability to recognize reality), antipsychotic medication would be prescribed with the antidepressant medication. For persons with severe cases of depression that did not respond to medication or where the person's life was threatened by starvation or other physiologic complications of depression, electroconvulsive therapy (ECT or "shock therapy") would be used.

A physician as therapist or cotherapist would be required to treat depression with antidepressant medication. The physician could be a psychiatrist, internist, family physician, gynecologist, specialist in adolescent medicine, or other primary care physician.

Suboptimal: Most types of psychotherapy without accompanying antidepressive medication, or with antidepressive medication administered at insufficient dose levels or for an insufficient period constitute suboptimal treatment.

Manic Depressives

Optimal: Lithium (at appropriate levels) either alone or in combination with antidepressants or antipsychotics, with accompanying psychotherapy to detect and treat episodes of depression and mania, is the optimal treatment.

Suboptimal: Psychotherapy or antidepressants without coadministration of lithium and failure to differentiate manic depressive illness from depression or from "personality" or "behavior problems" are considered suboptimal methods.

Impulsive/Aggressives

Optimal: Evaluation by a mental health professional, consultation with parents, and provision of followup counseling during periods of markedly increased stress are optimal methods.

Suboptimal: Meeting with school guidance counselor or disciplinary action by teacher are inadequate.

No treatment is recommended for normal-risk persons.

APPENDIX C

Definition of Interventions

These intervention definitions were formulated to give questionnaire respondents a clearer idea of the type of interventions we were to assess. These interventions are not meant to be ideals, but rather were presented as general models for which the most important characteristics could be clearly described. Because we did not attempt to estimate costs of these interventions, we did not include their associated costs. We recognize, however, that each intervention has significant direct and indirect costs associated with it. Indirect costs include the costs of falsely "labeling" a nonsuicidal youth suicidal, and the potentially harmful effects of some educational programs.

INTERVENTION 1: IMPROVED RECOGNITION AND TREATMENT OF DEPRESSION BY HEALTH CARE PROFESSIONALS

The Intervention

Physicians could be taught about proper treatment of depression and manic depressive illness through a combination of lectures and supervised patient care experiences in medical school and residency training. Physicians who are already in practice could be reached through articles in the medical literature (both scientific and "throw-away" journals) and postgraduate continuing medical education courses. Questions about recognizing and treating depression on medical school and specialty board examinations would create additional incentives for physicians to learn to recognize and properly treat depression. Economic incentives such as increasing the allowable medical insurance charges for treating depression or acute psychological crises, could also lead to improved treatment.

Physicians who did not prescribe appropriate drug treatment for depression (an obstetrician or dermatologist, for example) would have to be taught to refer depressed patients to an appropriate psychiatrist or primary care physician. Nonphysician health care providers (including nurse practitioners, psychiatric social workers, and psychologists) would have to be taught in their professional training, through postgraduate training, and through financial incentives to recognize depression and refer depressed patients for appropriate treatment. Financial incentives to improve the treatment of depression might include health insurance regulations that require evaluation by a physician for any patient with a diagnosis of depression and provisions for complete reimbursement of costs incurred in the appropriate medical treatment of depression.

Target Population

The target population would be health care professionals serving all youths aged 15 to 24 years suffering from major depression or manic depressive illness. Depression occurs during any year (prevalence) in about 1 percent of the population, and manic depressive illness occurs in another 1 percent; we assume these illnesses occur at the same rate among youths aged 15 to 24 years. Thus, in a community of 500,000 (which would include about 95,000 young people in this age group), there would be about 1,000 young people with serious depression and 1,000 with manic depressive illness. About 1.3 of 1,000 normal-risk youths commit suicide during the 10-year period between the ages of 15 and 24 years, but the rate among depressives and manic depressives is believed to be much higher.

Intended Benefits

Benefits of the intervention include lives saved by preventing suicide, improvement in the quality of life of persons treated for depression, improvement in the quality of life of family and friends of depressed individuals, and decreased utilization of medical care services for treating physical symptoms that were indirectly caused by depression. In addition, depressed persons who might otherwise have received inadequate treatment for their depression might actually require fewer mental health services because appropriate treatment would "cure" their depression sooner.

Finally, persons treated quickly and effectively would spend less time in a depressed state and make larger contributions to society in terms of productive work.

INTERVENTION 2: EARLIER IDENTIFICATION OF POTENTIAL YOUTH SUICIDES

The Intervention

Many persons with depression or manic depressive illness (MDI) currently go undiagnosed and, thus, never receive appropriate treatment. This intervention would improve the ability of such individuals to identify themselves as having a serious emotional disorder, the ability of parents to identify their children's disorders, and the ability of "gatekeepers" to better identify these disorders. Gatekeepers are those people who come into contact with depressed persons and who might be able to refer them for appropriate treatment. Gatekeepers include teachers, coaches, priests, and peers.

This program to improve the identification of depression, manic depressive, and other presuicidal indicators would be directed toward parents and gatekeepers. The National Institute of Mental Health is currently implementing such a program called Depression/Awareness, Recognition, and Treatment. This program would attempt to improve parental and public awareness and recognition of presuicidal symptoms through public service announcements on prime time television, articles in the popular press and professional journals, and mailings to professional associations of teachers and other "gatekeepers." Discussions and, possibly, educational programs in public schools would improve the ability of students to identify depression and MDI in their friends and peers.

Target Population

The target population would consist of the parents, teachers, coaches, parole officers, peers, and other persons in a community who have the opportunity to observe youths aged 10 through 24, which would include nearly every citizen.

Intended Benefits

This intervention would result in earlier identification of persons with serious emotional disorders. Combined with a successful treatment intervention, this intervention could result in preventing suicides. In addition, early recognition of these emotional disorders could lead to appropriate treatment, with improvements in the quality of life and increased productivity of persons with these disorders.

INTERVENTION 3: SCREENING SCHOOL-AGED CHILDREN TO DETECT YOUTH AT HIGH RISK FOR SUICIDES

The Intervention

This multistage screening program would attempt to identify students at very high risk of suicide and provide an optimal treatment program for those identified students. The screening program's objective would be to constitute a treatment group containing a large proportion of suicidal youths and a small proportion of nonsuicidal youths.

All children in grades 9-12 would be given Stage 1 of the screen.

Stage 1: One-page, mechanically scannable screening test for risk factors including, among others:

   a. impulsivity
   b. depression
   c. suicide among family members or among friends
   d. previous suicide attempts

e. short-time horizon (seeing "the future" as close at hand)

Teachers would not score the tests because their access to student responses might inhibit students' honest responses. Teachers could refer students who they believe are at risk to Stage 2 of the screening program. In addition, all students scoring above a certain threshold on the screening test would be given Stage 2 of the testing program.

Stage 2:   Twenty-minute conference with a guidance counselor trained to recognize signs of:

        a. anger--repressed or expressed
        b. depression
        c. alienation

Students designated as "high risk" in this interview would participate in Stage 3.

Stage 3:   Sixty-minute session with a trained psychologist or psychiatrist to identify potential youth suicides.

Those students identified as "high risk" in the last stage are given treatment, possibly consisting of a combination of the following:

        1. intensive psychotherapy (1 hour/week)
        2. family counseling
        3. compulsory enrollment in classes intended to help students cope with their special problems

Target Population

High-school-aged children, aged 15 to 18 years, would be the target population. This program would miss students who had dropped out of school; about 24 percent of all entering high school students drop out before graduation. The drop-out rate may be higher among potential youth suicides.

Intended Benefits

This intervention would identify a number of "suicidal" young people and enroll a proportion of them in a treatment program that might save their lives. Nonsuicidal youth with emotional or developmental problems might also be identified by teachers or parents; they might also benefit from early attention in terms of improved quality of life and improved school performance.

INTERVENTION 4: CRISIS CENTERS

The Intervention

In a community with no previous suicide prevention programs, we would introduce a crisis center with a well-publicized "suicide hotline," which would operate 24 hours a day. Personnel at the crisis center would also be able to schedule one or two counseling sessions with individuals in crisis or with family or friends of such individuals. These sessions would be conducted by trained volunteer counselors supervised by mental health professionals. When appropriate, these counselors would refer individuals for followup by mental health professionals in the community. The crisis center would meet the accreditation standards of the American Association of Suicidology.

The crisis center would affect both the identification and treatment of suicidal persons. High-risk persons would be identified by crisis center staff, by callers who were helped to recognize when they are at high risk of suicide, and by family and friends of suicidal persons who were helped by phone to recognize when those persons were at high risk. Treatment would include counseling and support for individuals at risk (by phone or in person), referral to professional treatment or other sources of support in the community, and support for a friend or family at a time of crisis. In addition, the crisis center might have an effect on the community in terms of providing a constant source of hope or help so that potentially suicidal people might feel less

hopeless.

Target Population

The target population would be a community of 500,000, with 135,000 youths between the ages of 10 and 24. About 12 suicides would be expected in this population of youths each year, and no other suicide prevention programs would exist in this community.

Intended Benefits

The benefits of the crisis center would include lives saved by preventing suicide among suicidal persons who had contacted the center, lives saved among suicidal persons whose family or friends had contacted the center, and lives saved among suicidal persons who had been dissuaded from committing suicide because they were aware that a caring place (i.e., the crisis center) existed. Additional benefits would include improvements in the quality of life (through identifying and treating ameliorable problems) of troubled individuals and their families. These individuals would include suicidal and nonsuicidal persons. The crisis center could also serve as a resource center for other community mental health workers concerned about suicidal clients.

INTERVENTION 5: AFFECTIVE EDUCATION

The Intervention

High school students in grades 9-12 would participate in a 6-week program (perhaps as part of a course in health education) that met for one class period a day with the goal of teaching them the following:

> 1. to recognize and identify their feelings
>
> 2. to discuss their feelings with friends, parents, and others
>
> 3. to ask for help when needed
>
> 4. to listen to and identify a friend's call for help (i.e., to develop reflective listening skills)
>
> 5. to recognize how and where to get help for oneself and for others

Target Population

High school students, grades 9-12 (ages 15-18) would be targeted. A community of 500,000 would have about 37,000 students in these grades.

Intended Benefits

This course would attempt to improve students' ability to **identify** suicidal feelings in themselves and peers and to **treat** such feelings in themselves and peers. Treatment would occur through talking about their feelings with friends or through making referrals to counselors, parents, or mental health professionals. Some "suicidal" young people would be dissuaded from suicide. An additional benefit of an improved ability to identify and communicate feelings would be an improvement in the student's quality of life.

INTERVENTION 6: RESTRICTING ACCESS TO THE MEANS OF SUICIDE

The Intervention

This intervention would seek to reduce the access of suicidal young people to three lethal means of suicide: handguns, medications, and high places.

> 1. Handguns. We assume that we could reduce by 50 percent the number of young people to have access to handguns by a legislative package that would include some or all of the following elements:

    a. ban the sale of all firearms to minors

    b. require a 2-week waiting period for purchase of firearms

    c. require licensing and registration for all firearms

    d. screen potential purchasers of firearms for felons or persons with a history of mental illness

    e. require purchase of a locking gun storage box or rack with purchase of firearms

    f. ban the sale of all handguns and confiscate handguns currently in circulation

    g. strictly enforce these regulations at local, State, and national levels

2. Lethal medications. The following precautions could help reduce the number of youth suicides by overdose:

    a. Limit prescriptions for potentially lethal medications (such as antidepressants) to a 7-day supply for a depressed patient. Antidepressant medications are frequently used to commit suicide: they have a very narrow margin of safety between their effective dose and their lethal dose, and they are prescribed for persons who are frequently despondent and suicidal.

    b. Limit the number of pills in a single bottle for other potentially lethal and commonly ingested medications such as acetaminophen (e.g., Tylenol).

3. High places. In New York City, jumping from high places is the leading method of suicide. Making access to such places more difficult by erecting barriers around roofs and along bridges or putting locks on doors might reduce the number of suicidal persons with ready access to such locations by 20 percent.

Target Population

The target population would be all young persons aged 10-24. A community of 500,000 would have about 135,000 youths in this age range.

Intended Benefits

In addition to preventing suicides among young people, each of these interventions would prevent suicides among the 25 and older population.

Some suicide attempts would also be prevented, and benefits include hospital and medical costs saved that otherwise would have been spent to treat these suicide attempts. Some homicides and unintentional injury deaths ("accidents") would also be prevented.

1. Firearms. Unintentional firearm injuries (0.85 fatal and 78 nonfatal injuries per 100,000 people annually) would also be reduced. The rates of homicides and assaults involving firearms (currently about 6.8 per 100,000) as well as firearm use in criminal activities would also be reduced.

2. Medications. A large proportion of suicidal young people are depressed, and many see physicians who prescribe potentially lethal antidepressant medications. Restricting access to medications might prevent some youths from committing suicide by an overdose of antidepressants. Among older persons, a larger number of suicides would be prevented.

3. Jumping. Some potential youth suicide victims who are prevented from jumping will not choose another method and thus their lives will be saved.

QUESTIONNAIRE

The purpose of this questionnaire is to help the Task Force estimate the effectiveness of several different types of interventions in preventing youth suicides. The interventions to be examined include (1) improved identification and treatment of youths with presuicidal conditions (for example, those suffering from depression or manic depressive illness) by health care professionals; (2) earlier identification of potential youth suicides by parents and "gatekeepers" to help identify high-risk youths; (3) school-based screening programs; (4) creation of crisis centers with hotlines; (5) affective education programs for school-aged children; and (6) programs to restrict access to the instruments of suicide (e.g., guns, drugs). The interventions are described more fully in Appendix A: Interventions. As Mark Rosenberg has explained in his cover letter, there are no studies or databases that provide definitive answers to any of these questions. Our task will be to use whatever data do exist, plus your judgments to estimate the effectiveness of the different interventions. These estimates, in turn, should help the task force make preliminary recommendations, and identify targets for more intensive research.

Try to answer every question, even if you are not totally confident about the answer. For those answers about which you are uncertain, you can describe your degree of confidence by stating a range for the answer. For example, if your best guess about the effectiveness of a particular treatment is that it would reduce the chance of suicide by about 60%, but you are highly uncertain, you might answer "60% ± 30%." If you are very certain, you might say "60% ± 5%."

When we put together the answers to the questionnaire we will incorporate your individual degrees of uncertainty, as well as the variability of the answers we receive. If you find the wording or definitions of a particular question to be confusing, with different interpretations leading to significantly different answers, please edit the question so that it describes unambiguously the question you are answering and then answer that question. We will incorporate your answers to the revised question in the analysis. It is important, however, that we know precisely the question that you are answering.

Obviously, you can use any sources of information you want to help answer the question and we encourage you to discuss the questions and answers with knowledgeable colleagues. After all the information has been compiled, we will send you the results of the questionnaire, plus a draft of the analysis based on the questionnaire.

DEFINITIONS

We will define a "potential youth suicide" as a youth who would definitely commit suicide before age 25, if there were no intervention. Thus, with the term "potential youth suicide," we are intentionally **not** including youths who make nonlethal suicidal attempts or gestures, or those youths who appear to be at high risk of suicide but who would not actually commit suicide before age 25 if there were no intervention.

We understand that it is impossible to identify such "potential youth suicides" in advance: only a portion of apparently "high risk" youths will actually commit suicide in the absence of intervention, and some youths will commit suicide who could not be identified as "high risk." It is only those youths who would actually commit suicide that we want to define with the term "potential youth suicide." The term "high risk" will be used to describe youths who **could be identified** as having higher than average probability of actually committing suicide.
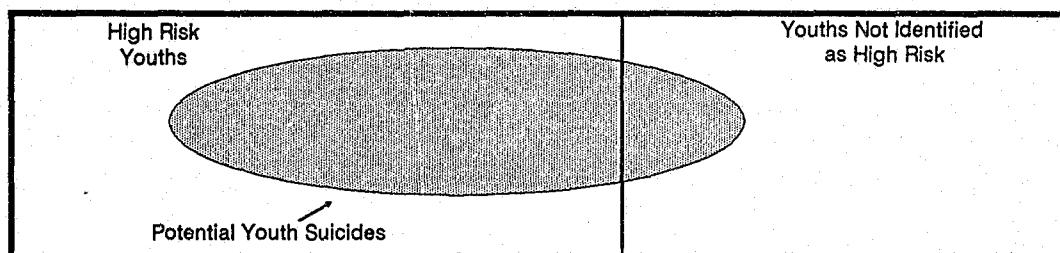
Figure 1.

BASIC FRAMEWORK

This section presents the basic framework we will use in constructing our model to analyze the effectiveness and costs of different interventions. This section also introduces the notational system we use to describe the probabilities of certain outcomes under specified conditions. Some people find the notation helpful, while others find it confusing; the questions will be posed in two forms, both with and without this notation. The basic framework for analyzing the impact of different suicide prevention activities is shown in Figure 2. At the left side, we start with a potential youth suicide. In order to prevent that suicide, the youth must be identified as a potential youth suicide, be offered and accept treatment, and the treatment must be successful in preventing the suicide. The probability that a potential youth suicide actually commits suicide, then, is dependent on the probabilities that affect each of the three main links in this chain.

PYS $\longrightarrow$ FIND $\longrightarrow$ OFFER & ACCEPT TREATMENT $\longrightarrow$ NO SUICIDE TO AGE 25
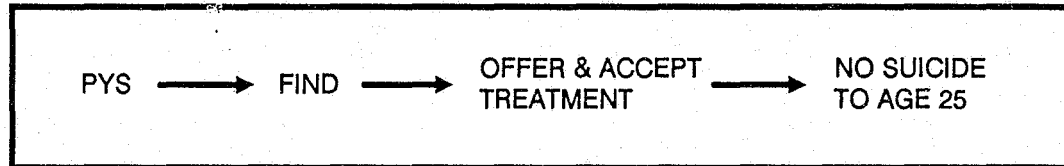
Figure 2.

For example, for the first link we are concerned with the probability that a potential youth suicide will be identified ("found'), which we will designate with the notation:

P(find | PYS)

where "find" denotes the person is identified, "PYS" denotes potential youth suicide, and the vertical bar "|" is read as "given." Thus, P(find | PYS) is read as "the probability that the person will be identified as a potential youth suicide, given that a person is a potential youth suicide."

For the second link we are concerned with the probability that, if a potential youth suicide is found, he will **be offered and accept** a particular type of treatment, which we will denote as T_1. In symbols, this probability is:

P(T_1 | found)

Finally, for the third link, we need to estimate the probability that a youth will commit suicide, if he is given treatment T_1. The symbol for this is:

P(suicide | T_1)

Each of the six interventions that we will examine affects one or more of these three probabilities. For example, screening is intended to find potential youth suicides and bring them to treatment. Thus, its purpose is to increase P(find | PYS), and its effect can be described by the change in this probability caused by screening. Education of health professionals, parents, hairdressers, gym teachers, and bartenders ("gatekeepers") is also intended to change the probability that a potential youth suicide will be found.

Treatment interventions are intended to decrease the probability that a youth given treatment will commit suicide. At present, not all youths who are potential youth suicides are offered any treatment, and not all youths under treatment are getting optimal treatment. To analyze this problem, for each of the basic diagnostic categories of potential youth suicides (e.g., depressives, manic depressives), we will describe three basic levels of treatment.

No treatment at all for the particular presuicidal condition will be denoted by the symbol T_0, suboptimal treatment will be denoted T_1, and optimal treatment will be denoted T_2 for the particular condition. Obviously, we would like all potential youth suicides to receive optimal treatment. A possible treatment intervention for reaching that goal could be to educate health care professionals to either refer potential youth suicides to specialists from whom they can receive optimal treatment, or, if a youth is already being seen by a psychiatrist or psychologist, to make certain

that the specialist is offering the optimal treatment. The effect of this intervention would be to change the proportion of identified potential youth suicides who receive optimal treatment, that is to increase $P(T_2 \mid \text{found})$.

School-based affective education programs affect this basic framework at two points. One effect is to make both potential youth suicides and their friends more alert to the signs and symptoms characteristic of potential youth suicides. This aspect of an affective education program is intended to increase the probability that a potential youth suicide would be identified and referred for treatment before he commits suicide. Its effect is to increase $P(\text{find} \mid \text{PYS})$, where the potential youth suicide is "found" by himself or a friend.

Another impact of affective education is more direct. By helping potential youth suicides and their friends to be more aware of the suicide problem and the steps that can be taken to correct it, affective education might itself be a form of treatment in the sense that through self-awareness or the intervention of a friend (without referral to a professional), the potential youth suicide will be converted to a nonsuicide.

A crisis center also has several effects. The direct effect is that if a potential youth suicide contacts a crisis center, he or she might be talked out of committing suicide at that time. The person might or might not go on to commit suicide at a later time. A secondary effect of a suicide hotline or crisis center is that a potential youth suicide might not only be prevented from committing suicide at that time, but might also be brought into a treatment program. These effects of the hotline would be registered as changes in $P(\text{find} \mid \text{PYS})$ and $P(T_1 \mid \text{find})$.

Finally, the effect of interventions designed to restrict access to the methods of suicide (e.g., guns, drugs, and high places) can be viewed as another form of treatment. Obviously, it does not treat the underlying condition, but it could prevent the immediate suicidal event by postponing the impulse long enough that the potential youth suicide passes safely through the acute phase and reverts to a nonsuicide.

THE QUESTIONS

The intent of the questions that follow is to determine how each of these interventions affects each of these probabilities. Once this information is obtained, it will be possible to make rough estimates of how each of the interventions affects the number of youths who commit suicide.

Before proceeding with the questions, it is important to point out two more factors that you must keep in mind. First, the interventions will be targeted to specific age groups. In each case, we will state the specific age group that will be the target of the intervention (e.g., age 10 through 24), and your answers should address the particular age group identified for that intervention. We will adjust all the answers to take into account the different age-specific incidence rates.

The second factor is that there are different types of problems or psychiatric conditions that can lead to suicide. In this questionnaire, we will focus on the most important categories, which we will label depressives, manic depressives, and impulsive/aggressives. We also note that some suicides occur in youths who show no signs or symptoms of mental illness or presuicidal behavior and therefore appear to be at "normal risk." Because each of the interventions can affect youths in each of these four diagnostic categories differently, we must break down all of the questions and ask them separately for each category. Thus, when asking questions about a screening program, we will ask separately for the probabilities that a particular screening program will identify depressives, manic depressives, and impulsive/aggressives. In many cases the questions would be irrelevant (and will not be asked) for the "normal risk" group.

Because of this, it is important to note the following definitions of the four categories. They are as follows:

> **Depressives:** These are individuals suffering from major depression. Depression is used here to refer to a serious and pervasive mood disturbance marked by despair and an almost complete loss of pleasure in living, and which lasts at least two weeks. Additional symptoms in-

clude sleep disturbances, loss of interest in one's surroundings, guilty ruminations, lack of energy, appetite disturbances, slowing of one's thoughts and movements, inability to concentrate, and suicidal thoughts (based on DSM III definition). There is clear evidence that this type of depression has a basis in neurophysiological changes and that antidepressant medication or specific forms of psychotherapy can shorten its course and reduce its severity. Many individuals with severe depression never come to the attention of mental health professionals and many of those who do are not appropriately treated with antidepressants or the specific forms of psychotherapy that have been proven effective.

Manic Depressives: There are individuals suffering from bipolar disorder, or manic depressive illness. Individuals with the disorder suffer episodes of depression and episodes of feeling excessively "high," energetic, and unstable ("manic"). In children, manic depressive illness might appear as a cyclical disorder where the child has relatively discrete episodes of acting abnormally aggressive and/or impulsive. A history of depression or manic depressive illness in the family might be an important diagnostic indicator.

Many young people with manic depressive illness (MDI) might not be identified as having this disorder before they reach middle age. There is no biological marker or test for the illness and young people with MDI who have not had full-blown manic and depressive episodes might manifest the disorder as excessive impulsiveness and/or aggressiveness. The best clues to MDI in such young people are probably (1) a history of someone else in their family with MDI; and (2) an episodic nature of these traits of impulsiveness or aggressiveness--the more cyclical the appearance of these traits and the more discrete and delimited the episodes of mood swings, the more likely these are to represent MDI.

Impulsive/Aggressive: Several recent studies suggest that a proportion of youth suicides occur among young people with no affective illness but whose behavior is characterized by a long history of impulsive and aggressive behavior. Frequently such behavior results in the young person's getting into trouble at home, at school and with the law. This behavior might not differ from the episodes of aggressive/impulsive behavior in children with manic depressive illness, except that it is not episodal and is not a manifestation of a serious affective disorder.

"Normal Risk": These are individuals who do not manifest any particular signs or symptoms suggestive of a potential youth suicide.

For brevity, we will sometimes abbreviate the names of these four categories by D, MD, IA, and NR, respectively.

EPIDEMIOLOGY OF POTENTIAL YOUTH SUICIDES

Several facts about the epidemiology of suicide are important. First, it is important to have age-specific incidence rates of suicides. This information is available from the published literature and is shown in Table 1, which gives the incidence rates by five-year age groups for the U.S. in 1980. Annual rates are based on national vital statistics.

Age	U.S. Population	Annual Suicide Rate per 100,000 population
10-14	8.0%	0.78
15-19	9.3%	8.49
20-24	9.4%	16.15
10-24	26.8%	8.86
All ages	100%	11.86

Note: Using 1980 rates, we calculated that about 130 of each 100,000 youths commit suicide in the U.S. before age 25, and about 850 of each 100,000 individuals commit suicide in all. Rates are higher for males, whites, and those living in the west. It should be noted that age-specific suicide rates seem to be changing over time, with a marked increasing trend for youths ages 15-24.

Table 1.

In addition to this, we need to know the approximate proportion of potential youth suicides who come from each of the four main diagnostic categories. That is: given all the youths who would commit suicide (before age 25) in the absence of an intervention (potential youth suicides), what proportion are:

1. Depressives   _____ %
   Manic Depressives   _____ %
   Impulsive/Aggressives   _____ %
   <u>Normal Risk</u>   _____ %

          Total   100 %

To estimate spinoff benefits and costs of different interventions, we also need to know the approximate frequency of each of these diagnostic categories among youth in general. That is, of all youths between the ages of 10 and 24, what proportion are:

2. Depressives   _____ %
   Manic Depressives   _____ %
   Impulsive/Aggressives   _____ %
   <u>Normal Risk</u>   _____ %

          Total   100 %

To simplify the analysis and make it manageable, we will, for each of the diagnostic categories, identify three basic levels of treatment that can be delivered by professionals. The first level will be *No Treatment*, and the symbol T_0 will be used to identify that treatment. At the other end of the spectrum, we will identify *Optimal Treatment*, and use the symbol T_2. We recognize, however, that even youths who are under the care of a professional do not always receive optimal treatment, and for this reason identify a third category of treatment which we will call *Suboptimal Treatment* and use the symbol T_1.

The descriptions of "optimal treatment" and "suboptimal treatment" depend on whether we are talking about depressives, manic depressives, or impulsive/aggressives. Those definitions are as follows:

Depressives

> *Optimal:* Optimal treatment requires that the depressed individual be treated with the correct antidepressant (or very specific psychotherapy), in large enough doses, for a long enough period of time to achieve an improvement. Usually psychotherapy (i.e., "talking therapy") alone does not constitute satisfactory treatment, but would be an important part of treatment for most patients. There is recent evidence that two very specific types of psychotherapy (cognitive therapy and interpersonal psychotherapy) might be effective even without medication. For a small proportion of extremely depressed and suicidal cases, hospitalization in a psychiatric hospital would be required. When depression was accompanied by severe agitation or psychotic symptoms (or an inability to recognize reality), antipsychotic medication would be prescribed with the antidepressant medication. For severe cases of depression that did not respond to medication or where the individual's life was threatened by starvation or other physiologic complications of depression, electroconvulsive therapy (ECT or "shock therapy") would be used.
>
> Treatment of depression with antidepressant medication would require a physician as the therapist or cotherapist. The physician could be a psychiatrist, internist, family physician, gynecologist, specialist in adolescent medicine, or other primary care physician.
>
> *Suboptimal:* Most types of psychotherapy without accompanying antidepressive medication, or with antidepressive medication administered at insufficient dose levels or for an insufficient period.

Manic Depressives

> *Optimal:* Lithium (at appropriate levels), either alone or in combination with antidepressants

or antipsychotics, with accompanying psychotherapy to detect and treat episodes of depression and mania.

Suboptimal: Psychotherapy or antidepressants without coadministration of lithium; failure to differentiate manic depressive illness from depression or from "personality" or "behavior problems."

Impulsive/Aggressives

Optimal: Evaluation by a mental health professional, consultation with parents, and provision of followup counseling during periods of markedly increased stress.

Suboptimal: Meeting with school guidance counselor or disciplinary action by teacher.

No treatment is recommended for normal risk individuals.

For each of the major diagnostic categories, we now need to know the proportions of potential youth suicides in each diagnostic category **who are currently seen by professionals.** We will define a "professional" as a psychiatrist, psychologist, or psychiatric social worker trained to treat these disorders, or as a health care professional (e.g., pediatrician, internist, gynecologist, or non-physician therapist) who is sufficiently knowledgeable about these diagnostic categories to refer a potential youth suicide to an appropriate specialist for a definitive treatment. This leads to the following questions:

3. a. What proportion of potential youth suicides of the **depressive** type (hereinafter denoted by PYS/D) is currently under the care of a professional?

$P(\text{prof care} \mid \text{PYS/D}) = $ _____ %

   b. What proportion of potential youth suicides of the **manic depressive** type is currently under the care of a professional?

$P(\text{prof care} \mid \text{PYS/MD}) = $ _____ %

   c. What proportion of potential youth suicides of the **impulsive/aggressive** type is currently under the care of a professional?

$P(\text{prof care} \mid \text{PYS/IA}) = $ _____ %

   d. What proportion of potential youth suicides of the **normal risk** type is currently under the care of a professional?

$P(\text{prof care} \mid \text{PYS/NR}) = $ _____ %

Next, we need to know the proportions of the potential youth suicides of various types that are receiving each of the three levels of treatment. Thus, for depressives:

4. a. Of those potential youth suicides of the **depressive** type who are under the care of health care professionals, what proportion would you estimate are getting no treatment for their presuicidal condition?

$P(T_0 \mid \text{PYS/D, prof care})$ _____ %

   b. Similarly, estimate the proportion of potential youth suicides of the **depressive** type, seen by professionals, who are receiving suboptimal care:

$P(T_1 \mid \text{PYS/D, prof care})$ _____ %

   c. Estimate the proportion of potential youth suicides of the **depressive** type, seen by professionals, who are receiving optimal care:

$P(T_2 \mid \text{PYS/D, prof care})$ _____ %

The answers to the last three questions should add to 100% because there are only three possibilities (no treatment, suboptimal treatment, and optimal treatment).

5. For potential youth suicides of the **manic depressive** type, who are seen by professionals, estimate the proportion who are receiving

    a. no treatment: $P(T_0 \mid \text{PYS/MD, prof care}) = \underline{\hphantom{aaaa}}\%$

    b. suboptimal treatment: $P(T_1 \mid \text{PYS/MD, prof care}) = \underline{\hphantom{aaaa}}\%$

    c. optimal treatment: $P(T_2 \mid \text{PYS/MD, prof care}) = \underline{\hphantom{aaaa}}\%$

6. For potential youth suicides of the **impulsive/aggressive** type, who are seen by professionals, estimate the proportion who are receiving

    a. no treatment: $P(T_0 \mid \text{PYS/IA, prof care}) = \underline{\hphantom{aaaa}}\%$

    b. suboptimal treatment: $P(T_1 \mid \text{PYS/IA, prof care}) = \underline{\hphantom{aaaa}}\%$

    c. optimal treatment: $P(T_2 \mid \text{PYS/IA, prof care}) = \underline{\hphantom{aaaa}}\%$

Finally, we need to know the effectiveness of each of these treatments. Because a potential youth suicide, by definition, will commit suicide in the absence of treatment, we can say that the probability of suicide, given no treatment for any of these three categories, is 100%. We will define a successful treatment as a treatment that prevents the youth who would otherwise commit suicide from committing suicide at least through his 24th year. Presumably, suboptimal and optimal treatment will lower the probability of suicide.

7. For potential youth suicides of the **depressive** type, please estimate the chance of suicide before age 25 given

    a. optimal treatment: $P(\text{suicide} \mid \text{PYS/D}, T_2) = \underline{\hphantom{aaaa}}\%$

    b. suboptimal treatment: $P(\text{suicide} \mid \text{PYS/D}, T_1) = \underline{\hphantom{aaaa}}\%$

8. For potential youth suicides of the **manic depressive** type, please estimate the chance of suicide before age 25 given

    a. optimal treatment: $P(\text{suicide} \mid \text{PYS/MD}, T_2) = \underline{\hphantom{aaaa}}\%$

    b. suboptimal treatment: $P(\text{suicide} \mid \text{PYS/MD}, T_1) = \underline{\hphantom{aaaa}}\%$

9. For potential youth suicides of the **impulsive/aggressive** type, please estimate the chance of suicide before age 25 given

    a. optimal treatment: $P(\text{suicide} \mid \text{PYS/IA}, T_2) = \underline{\hphantom{aaaa}}\%$

    b. suboptimal treatment: $P(\text{suicide} \mid \text{PYS/IA}, T_1) = \underline{\hphantom{aaaa}}\%$

Note again that the probability of suicide for a potential youth suicide given no treatment is 100% ($P(\text{suicide} \mid \text{PYS}, T_0) = 100\%$) because of our definition of "potential youth suicide."

With your answers to these questions, we can estimate how effective current treatment is in preventing suicides. We can also estimate the potential impact of interventions designed to upgrade treatment.

INTERVENTION 1: IMPROVED RECOGNITION AND TREATMENT OF DEPRESSION BY PROFESSIONALS

This section contains questions designed to estimate the impact of different treatment interventions. For example, a possible recommendation that could be made by the task force is to educate health care professionals so that once a potential youth suicide is seen by a professional, he will receive optimal treatment. (The intervention is described more fully in Appendix A.) To estimate the impact of such an intervention please focus now on potential youth suicides who are under the care of professionals. Imagine that the task force has created a large-scale national program designed to educate health care professionals. Imagine that the task force has created a large-scale national program designed to educate health care professionals about the referral and treatment of potential youth suicides. Such a program would elicit help from professional organizations such as the American Psychiatric Association and the American Psychological Association; produce textbooks to be used in medical schools; introduce special medical school courses in suicide identification, referral and treatment; develop continuing medical education programs on this topic; have questions on suicide identification, referral, and treatment included in Board examinations; develop peer review protocols; and make third-party payment for treatment of depression contingent upon meeting defined treatment standards.

Assume that such programs were in effect. Please estimate how this would change the proportion of potential youth suicides who would receive optimal treatment.

10. First, for **depressives,** please review your answers to Question 4 and re-estimate the proportion of potential youth suicides under professional care who would be offered and accept each of the levels of care, given the presence of an intensive professional education program.

    a. no treatment: $P(T_0 \mid \text{PYS/D, prof care, prof ed prog}) = _____\%$

    b. suboptimal treatment: $P(T_1 \mid \text{PYS/D, prof care, prof ed prog}) = _____\%$

    c. optimal treatment: $P(T_2 \mid \text{PYS/D, prof care, prof ed prog}) = _____\%$

11. For **manic depressives,** please review your answers to Question 5 and re-estimate the new proportions of potential youth suicides who would receive each level of care.

    a. no treatment: $P(T_0 \mid \text{PYS/MD, prof care, prof ed prog}) = _____\%$

    b. suboptimal treatment: $P(T_1 \mid \text{PYS/MD, prof care, prof ed prog}) = _____\%$

    c. optimal treatment: $P(T_2 \mid \text{PYS/MD, prof care, prof ed prog}) = _____\%$

12. For **impulsive/aggressives,** please review your answers to Question 6 and re-estimate the new proportions of potential youth suicides who would receive each level of care.

    a. no treatment: $P(T_0 \mid \text{PYS/IA, prof care, prof ed prog}) = _____\%$

    b. suboptimal treatment: $P(T_1 \mid \text{PYS/IA, prof care, prof ed prog}) = _____\%$

    c. optimal treatment: $P(T_2 \mid \text{PYS/IA, prof care, prof ed prog}) = _____\%$

A second benefit of this proposed intervention would be improved recognition and diagnosis of presuicidal conditions by all health care professionals (including pediatricians, gynecologists, internists, social workers, and others), leading to the referral of potential youth suicides to the appropriate specialists (psychologists, psychiatrists, etc.) for care.

Currently, some of these professionals, when they encounter a potential youth suicide of each diagnostic category, will identify them as needing treatment and will refer them to a specialist. To evaluate interventions designed to increase the identification of potential youth suicides, we must estimate how the existence of an intensive professional educational program would increase the proportion of identified youth suicides.

Thus, we need to estimate the increase or change in the probability that one of these health care professionals would identify and refer for treatment a potential youth suicide of each diagnostic category, if that professional encountered such an individual. To answer this, you might picture a potential youth suicide coming into contact with a pediatrician. There is a chance the pediatrician would recognize the suicidal nature of this child and refer him for definitive treatment, and we must estimate how an intensive professional education program would increase that probability. Thus, please estimate:

	Without Prof Ed Program	With Prof Ed Program
13. a. the proportion of potential youth suicides of the **depressive** type who, if seen by a health care professional, would be identified and referred for specific mental health treatment:		
P(referred by prof | PYS/D, seen by prof)	_____%	_____%
b. the proportion of potential youth suicides of the **manic depressive** type who, if seen by a health care professional, would be identified and referred for specific mental health treatment:		
P(referred by prof | PYS/MD, seen by prof)	_____%	_____%
c. the proportion of potential youth suicides of the **impulsive/aggressive** type who, if seen by a health care professional, would be identified and referred for specific mental health treatment;		
P(referred by prof | PYS/IA, seen by prof)	_____%	_____%

INTERVENTION 2: EARLIER IDENTIFICATION OF POTENTIAL YOUTH SUICIDES

One of the deficiencies of our current "system" for preventing youth suicide is that we do not identify potential youth suicides at all or as quickly as we might, and therefore, do not refer them to treatment as early as possible. To help correct this problem, we will identify three main groups of people who could "spot" or identify potential youth suicides: health care professionals, parents, and "gatekeepers" (described below). We have already considered the possible effects of a program intended to educate health care professionals to the symptoms and treatments of potential youth suicides. This section deals with interventions designed to help parents and gatekeepers improve their ability to spot potential youth suicides and refer them for treatment.

Parents. It might be possible to help parents become more alert to the signs and symptoms of depression, manic depressive illness, and impulsive/aggressive disorders that might indicate a potential youth suicide. This would increase the probability that a potential youth suicide will be spotted as such by his parents and referred to a professional. Interventions that might accomplish this would be an intensive campaign of public service announcements and informational programs on television and radio; coordinated presentations at parent-teacher association meetings; pamphlets delivered through the school system or mail; and newspaper stories, magazine articles, op-ed pieces, and so forth.

To answer the next set of questions, please focus only on those potential youth suicides who are **not** already being seen by a professional. At present, by definition, the parents who are the targets of this intervention are **not** identifying the signs and symptoms of potential youth suicides and are **not** referring their children to a professional; at present for these parents the probability of identification and referral is zero. We are interested in how an intensive parent education program will increase the probability that a potential youth suicide will be identified by a parent

and referred for professional help. Thus, please estimate:

	Without Program	With Program
14. a. the probability that a potential youth suicide of the **depressive** type who is currently not recognized or referred for help will be identified and referred by a parent for help:		
P(referred by parents | PYS/D)	0 %	____ %
b. the probability that a potential youth suicide of the **manic depressive** type who is currently not recognized or referred for help will be identified and referred by a parent for help:		
P(referred by parents | PYS/MD)	0 %	____ %
c. the probability that a potential youth suicide of the **impulsive/aggressive** type who is currently not recognized or referred for help will be identified and referred by a parent for help:		
P(referred by parents | PYS/IA)	0 %	____ %

Gatekeepers. Another category of people who could help spot potential youth suicides includes teachers, barbers, beauticians, bartenders, gym teachers, religious counselors, neighbors, relatives, and other adults who are neither parents of the potential youth suicide victim nor health care professionals. In some cases students could also be trained to identify their peers at high risk of suicide. As with the previous set of questions we are concerned here with potential youth suicides who are not currently being seen by professionals; our intention is to alert these "gatekeepers" to the signs and symptoms of potential youth suicide, so that they will refer the potential youth suicides for professional care. When estimating the impact of this intervention, keep in mind that achieving a referral by this route might well require several steps. First, the gatekeeper must spot the potential youth suicide; then the gatekeeper must inform either the individual or the parents of the individual; and third, either the gatekeeper, the individual, or the individual's parents must successfully refer the individual to a professional.

Specific interventions that might be used to increase the awareness of "gatekeepers" to the signs and symptoms of potential youth suicides include public service announcements on prime time television and radio, articles in the popular press and professional journals, mailings to the professional associations of teachers and other gatekeepers, and attention to these disorders in the professional education programs of all potential gatekeepers. In addition, educational programs for students in the schools would improve their ability to identify and refer their peers at high risk of suicide.

Assuming that such an intensive "gatekeeper education program" were put into effect, how would such a program change the chance that a gatekeeper would cause an otherwise unspotted potential youth suicide to be referred for professional care? Please estimate:

	Without Program	With Program

15. a. the probability that a potential youth suicide of the **depressive** type who is currently not recognized or referred for help will be identified and referred by a gatekeeper for help:

   P(referred by gatekeeper | PYS/D)   <u> 0 </u>%   <u>   </u>%

   b. the probability that a potential youth suicide of the **manic depressive** type who is currently not recognized or referred for help will be identified and referred by a gatekeeper for help:

   P(referred by gatekeeper | PYS/MD)   <u> 0 </u>%   <u>   </u>%

   c. the probability that a potential youth suicide of the **impulsive/aggressive** type who is currently not recognized or referred for help will be identified and referred by a gatekeeper for help:

   P(referred by gatekeeper | PYS/IA)   <u> 0 </u>%   <u>   </u>%

INTERVENTION 3: SCREENING SCHOOL-AGE CHILDREN

The third major set of interventions involves screening youths in high school to try to identify depressives, manic depressives, and impulsive/aggressives, and refer them to professionals for further evaluation and treatment. The screening intervention we envision consists of three stages. In the first stage, a one-page, machine-scorable questionnaire will be given to all students in all grades of high school. The questions will be designed to help identify high-risk youths from all three diagnostic categories: depressives, manic depressives, and impulsive/aggressives. It is likely that this questionnaire will be so general that it will erroneously identify a large proportion of children, most of whom are not potential youth suicides (these are called "false positives"). Thus, a second screen would be necessary for all the children who have a positive response to the first screen. This second screen will consist of a 20-minute consultation with a guidance counselor or social worker specially trained to identify the signs and symptoms of a potential youth suicide. Individuals who are still thought to be potential youth suicides would then be referred for a third screen by a specialist (psychologist or psychiatrist). This examination would take about one hour and should successfully identify youths who truly need treatment. The intervention is described more fully in Appendix A. One feature of the screening program that must be taken into account is that it will undoubtedly identify many youths who have signs of depression, manic depression, or impulsive/aggression and need treatment, but who are not in fact potential youth suicides (i.e., they would not actually commit suicide in the absence of an intervention). This is both a benefit and cost of the screening program. It is a benefit in that it brings these individuals to treatment, which we assume to be beneficial. It is a cost in that the treatment will cost money. These benefits and costs must be estimated, and will be addressed below. For now, let us focus on the effectiveness of this screening program in reducing potential youth suicides. That is, focus on the "potential youth suicides," those individuals who would commit suicide in the absence of any intervention, who are not already under the care of a professional.

In order to estimate the effectiveness of this screening program, we must estimate the sensitivity and specificity of the three different screening levels. For convenience, we will use the symbols S_1, S_2, and S_3 to identify the three screening levels as described above, and will use the super-

scripts plus ($^+$) or minus ($^-$) to denote whether or not a particular screening test (S_1, S_2, or S_3) indicates that an individual has signs or symptoms suggestive of potential youth suicide (e.g., depression, manic depression). The flow chart described in Figure 3 will help you understand how the three levels of tests relate to one another, and how they concentrate the youths into smaller and smaller subsets containing a higher and higher fraction of potential youth suicides. For this figure, we have used totally hypothetical numbers to illustrate how the calculations will be performed.

Our task in this questionnaire is to get your best estimates of the probabilities that describe the performance or accuracy of these three levels of screening tests. Because the screening tests might have different accuracies in detecting the three basic types of diagnostic categories for potential youth suicides (depressive, manic depressive, and impulsive/aggressive), the accuracies must be estimated separately for each type.

16. a. For **depressives**, estimate the probability that the first screening test will be positive, given that it is administered to a potential youth suicide of the depressive type who has not yet been identified (i.e., is not under the care of a professional).

   $P(S_1{}^+ \mid PYS/D) =$ _____%

   b. Now focus on youths who have a positive result on the first screening level, what proportion of them will be positive on the second level?

   $P(S_2{}^+ \mid PYS/D, S,^+) =$ _____%

   c. Finally, we need the sensitivity of the third level of the screening program. Given that a potential youth suicide of the depressive type has been picked up (positive) by the first and second levels of the screening test, please estimate the chance he or she will be positive on the third level.

   $(S_3{}^+ \mid PYS/D_1 S_1{}^+, S_2{}^+) =$ _____%

The preceding three questions pertain to potential youth suicides of the depressive type. Now we must focus on potential youth suicides of the manic depressive type who, again, have not yet been identified and are not yet under the care of professionals.

17. a. For **manic depressives**, estimate the probability that the first screening test will be positive, given that it is administered to a potential youth suicide of the manic depressive type who has not yet been identified (i.e., is not under the care of a professional).

   $P(S_1{}^+ \mid PYS/MD) =$ _____%

   b. What proportion of manic depressive youths who have a positive result on the first screening level will be positive on the second level?

   $P(S_2{}^+ \mid PYS/MD, S_1{}^+) =$ _____%

   c. Given that a potential youth suicide of the manic depressive type has been picked up (positive) by the first and second levels of the screening test, estimate the chance he or she will be positive on the third level.

   $P(S_3{}^+ \mid PYS/MD, S_1{}^+, S_1{}^+) =$ _____%

Finally, we must ask these questions for potential youth suicides of the impulsive/aggressive type.

18. a. For **impulsive/aggressives**, estimate the probability that the first screening test will be positive, given that it is administered to a potential youth suicide of the impulsive/aggressive type who has not yet been identified (i.e., is not under the care of a professional).

   $P(S_1{}^+ \mid PYS/IA) =$ _____%

   b. What proportion of impulsive/aggressive youths who have a positive result on the first screening level will be positive on the second level?

   $P(S_2{}^+ \mid PYS/IA, S_1{}^+) =$ _____%

SCREENING SCHOOL-AGE CHILDREN

High School Youth
Age: 15 - 18

Stage 1
(written test)

Stage 2
(guid. couns.)

Stage 3
(therapist)

Treatment

Effective?

No   Yes

Saved

PYS/total youth

**Hypothetical
Figures
(for illustration)**

8.0/100,000 = 8/100,000

PYS   **(NSY)**

75%   (25%)   6.0/25,000 = 24/100,000

67%   (10%)   4.0/2,500 = 160/100,000

75%   (20%)   3.0/500 = 600/100,000

85%   2.55 = 32% of youth suicide

PYS = Potential Youth Suicide

NSY = Nonsuicidal Youth

Figure 3.

   c. Given that a potential youth suicide of the impulsive/aggressive type has been picked up (positive) by the first and second levels of the screening test, estimate the chance he or she will be positive on the third level.

$$P(S_3^+ \mid PYS/IA, S_1^+, S_2^+) = \underline{\hspace{2cm}}\%$$

If you are not able to break down these answers by diagnostic category, then you can give the same answers above for each category of potential suicides (PS/D, PS/MD, and PS/IA).

"FALSE-POSITIVE" SCREENING TESTS

Screening will also find some depressives, manic depressives, impulsive/aggressives, and others who are not actually potential youth suicides in the sense that they would not definitely commit suicide in the absence of an intervention. The screening program will identify some of these individuals and cause them to be referred for treatment. This has the benefit of treating these individuals, but also generates cost. To estimate the number of such nonsuicidal depressives, nonsuicidal manic depressives, nonsuicidal impulsive/aggressives, and others, we can estimate the following probabilities for each of the three levels of screening tests.

Depressives:

19. a. What percent of nonsuicidal depressives will be positive on the first level of the screen?

     $P(S_1^+ \mid$ nonsuicidal depressives$) = \underline{\hspace{2cm}}\%$

   b. What percent of nonsuicidal depressives will be positive on the second level of the screen?

     $P(S_2^+ \mid$ nonsuicidal depressives, $S_1^+) = \underline{\hspace{2cm}}\%$

   c. What percent of nonsuicidal depressives will be positive on the third level of the screen?

     $P(S_3^+ \mid$ nonsuicidal depressives, $S_1^+, S_2^+) = \underline{\hspace{2cm}}\%$

Manic Depressives:

20. a. What percent of nonsuicidal manic depressives will be positive on the first level of the screen?

     $P(S_1^+ \mid$ nonsuicidal manic depressives$) = \underline{\hspace{2cm}}\%$

   b. What percent of nonsuicidal manic depressives will be positive on the second level of the screen?

     $P(S_2^+ \mid$ nonsuicidal manic depressives, $S_1^+) = \underline{\hspace{2cm}}\%$

   c. What percent of nonsuicidal manic depressives will be positive on the third level of the screen?

     $P(S_3^+ \mid$ nonsuicidal manic depressives, $S_1^+, S_2^+) = \underline{\hspace{2cm}}\%$

Impulsive/Aggressives:

21. a. What percent of nonsuicidal impulsive/aggressives will be positive on the first level of the screen?

     $P(S_1^+ \mid$ nonsuicidal impulsive/aggressives$) = \underline{\hspace{2cm}}\%$

   b. What percent of nonsuicidal impulsive/aggressives will be positive on the second level of the screen?

     $P(S_2^+ \mid$ nonsuicidal impulsive/aggressives, $S_1^+) = \underline{\hspace{2cm}}\%$

   c. What percent of nonsuicidal impulsive/aggressives will be positive on the third level of the screen?

     $P(S_3^+ \mid$ nonsuicidal impulsive/aggressives, $S_1^+, S_2^+) = \underline{\hspace{2cm}}\%$

Normal Risk:

22. a. What percent of nonsuicidal normal risk youth will be positive on the first level of the screen?

$P(S_1{}^+ \mid$ nonsuicidal normal risk) = _____%

b. What percent of nonsuicidal normal risk youth will be positive on the second level of the screen?

$P(S_2{}^+ \mid$ nonsuicidal normal risk, $S_1{}^+$) = _____%

c. What percent of nonsuicidal normal risk youth will be positive on the third level of the screen?

$P(S_3{}^+ \mid$ nonsuicidal normal risk, $S_1{}^+$, $S_2{}^+$) = _____%

INTERVENTION 4: CRISIS CENTERS

One of the most prominent antisuicide interventions currently used is the crisis center with a hotline. An intervention introducing such a crisis center into a community is described in Appendix A. In order for such a crisis center to be effective in reducing youth suicides, several things must occur. First, a potentially suicidal youth must be aware of the hotline and able to locate the telephone number in a time of crisis. Second, the suicidal youth must be inclined to call such a hotline in a time of crisis. Third, if the potential youth suicide makes contact with the crisis center, then to be effective the crisis center must actually persuade the suicide victim to not commit suicide. When this occurs, at the very least, an immediate suicide will have been deterred. Finally, in order for the crisis center to **prevent** the youth suicide rather than just **defer** it, it must "cure" the potential youth suicide by helping him past a unique crisis (and into a period free of future suicide crises) or by bringing him into a successful treatment program that helps him cope with future crises. The flow chart depicted in Figure 4 may help to clarify this progression. The crisis center can also help a family member or friend of the troubled youth learn how to refer the youth to an appropriate treatment program.

We will ask some of the following questions separately for each of the four diagnostic categories of potential youth suicides. In addition, in order to help assess costs and spinoff benefits, we will also ask questions for nonsuicidal youths who might call the crisis center out of loneliness, desperation, or curiosity. We will abbreviate nonsuicidal youth by NSY. If you do not feel that youth of the various categories differ for one or more of the questions, feel free to enter the same number for each category.

23. a. Of those potential youth suicides of the **depressed** type, what proportion would be aware of a well-publicized suicide hotline and would be able to find the telephone number in a time of crisis?

P(access | PYS/D) = _____%

b. Of those potential youth suicides of the **manic depressive** type, what proportion would be aware of a well-publicized suicide hotline and would be able to find the telephone number in a time of crisis?

P(access | PYS/MD) = _____%

c. Of those potential youth suicides of the **impulsive/aggressive** type, what proportion would be aware of a well-publicized suicide hotline and would be able to find the telephone number in a time of crisis?

P(access | PYS/IA) = _____%
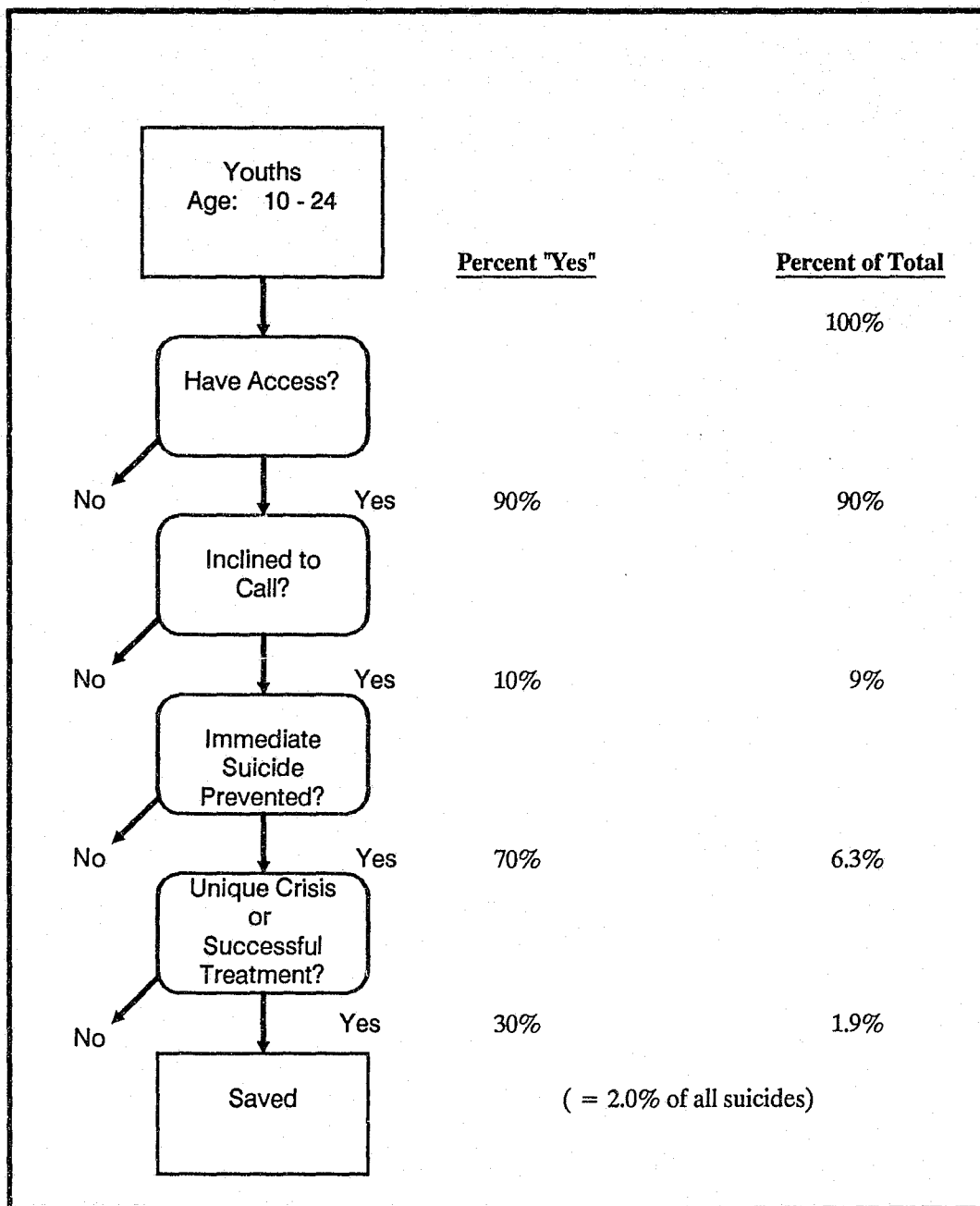
Figure 4.

d. Of those potential youth suicides of the **normal risk** type, what proportion would be aware of a well-publicized suicide hotline and would be able to find the telephone number in a time of crisis?

P(access | PYS/NR) =   _____%

e. Of those youths who are not potential youth suicides, what proportion would be aware of a well-publicized suicide hotline and would be able to find the telephone number in a time of crisis?

P(access | PYS/NSY) =   _____%

24. a. Of those potential youth suicides of the **depressed** type who are aware of how to reach a suicide hotline, what proportion would call in a time of crisis?

P(call | PYS/D, access) =   _____%

b. Of those potential youth suicides of the **manic depressive** type who are aware of how to reach a suicide hotline, what proportion would call in a time of crisis?

P(call | PYS/MD, access) =   _____%

c. Of those potential youth suicides of the **impulsive/aggressive** type who are aware of how to reach a suicide hotline, what proportion would call in a time of crisis?

P(call | PYS/IA, access) =   _____%

d. Of those potential youth suicides of the **normal risk** type who are aware of how to reach a suicide hotline, what proportion would call in a time of crisis?

P(call | PYS/NR, access) =   _____%

e. Of those youths who are not potential youth suicides and who are aware of how to reach a suicide hotline, what proportion would call in a time of crisis?

P(call | PYS/NSY, access) =   _____%

25. a. Of those potential youth suicides of the **depressed** type who call a suicide hotline in a time of crisis, what proportion will survive the immediate crisis?

P(immediate survival | PYS/D, call) =   _____%

b. Of those potential youth suicides of the **manic depressive** type who call a suicide hotline in a time of crisis, what proportion will survive the immediate crisis?

P(immediate survival | PYS/MD, call) = _____%

c. Of those potential youth suicides of the **impulsive/aggressive** type who call a suicide hotline in a time of crisis, what proportion will survive the immediate crisis.

P(immediate survival | PYS/IA, call) = _____%

d. Of those potential youth suicides of the **normal risk** type who call a suicide hotline in a time of crisis, what proportion will survive the immediate crisis?

P(immediate survival | PYS/NR, call) = _____%

Some potential youth suicides who survive a crisis will be "cured," that is, will survive to age 25, while others will go on to commit suicide at a later date. The crisis center could contribute to such a cure either by helping the potential youth suicide to survive a unique crisis brought on by an especially traumatic experience unlikely to be repeated, or by helping to bring him into a successful treatment program. You might wish to consider separately the likelihood that potential youth suicides of each of the four diagnostic categories might be cured in this fashion.

26. a. Of those potential youth suicides of the **depressed** type who survive a time of crisis by calling the hotline, what proportion will survive to age 25 as a result of the call?

P(cured | PYS/D, call, survive crisis) = ____%

b. Of those potential youth suicides of the **manic depressive** type who survive a time of crisis by calling the hotline, what proportion will survive to age 25 as a result of the call?

P(cured | PYS/MD, call, survive crisis) = ____%

c. Of those potential youth suicides of the **impulsive/aggressive** type who survive a time of crisis by calling the hotline, what proportion will survive to age 25 as a result of the call?

P(cured | PYS/IA, call, survive crisis) = ____%

d. Of those potential youth suicides of the **normal risk** type who survive a time of crisis by calling the hotline, what proportion will survive to age 25 as a result of the call?

P(cured | PYS/NR, call, survive crisis) = ____%

27. a. Some troubled but nonsuicidal youths might also call the crisis center, and some of those will be brought into treatment. What proportion of the calls received by a crisis center hotline would be by nonsuicidal youths?

P(NSY call | call by PYS or NSY) = ____%

b. What proportion of nonsuicidal youths who call would be brought into a treatment program?

P(treatment | NSY, call) = ____%

INTERVENTION 5: AFFECTIVE EDUCATION

The fifth set of interventions is affective education. These are educational programs designed for school children to help them "get in touch with their feelings," to understand better the types of problems that could lead to suicide, to learn the signs and symptoms that could indicate serious psychological problems, and to understand how they might receive help. These programs would also educate the friends of potential youth suicides about the signs and symptoms of suicide, and help them understand how they might be able to either treat or get help for their friends.

The specific interventions that might be designed to conduct affective education in high schools, are described in Appendix A. To estimate the effect of these interventions, we must again focus on potential youth suicides who are not yet in treatment, and who are not yet spotted by parents, adults, or gatekeepers for referral to treatment. As just indicated, affective education can decrease suicides in two main ways. First, the affective education itself might be sufficient to help an individual treat himself–recover from an acute suicide crisis and permanently keep himself out of danger of actually committing suicide. Affective education could also help treat a potential youth suicide through a friend; it could educate a friend about not only the signs and symptoms of suicide but about steps that could be taken by friends to help a potential youth suicide victim avoid suicide. The second main way affective education could decrease suicides is to cause either potential youth suicides or their friends to refer the potential youth suicide to a professional for definitive treatment. Let us first focus on the "treatment" effect of affective education. The "referral" effect of affective education will be discussed later.

Focusing now on the impact of affective education in either helping suicide victims treat themselves, or helping the friends of suicide victims to treat their friends, we need to estimate how the existence of an affective education program would change the probability of suicide in a potential youth suicide victim by either of these treatment routes. Recall that, by definition, a potential youth suicide will commit suicide (with 100% probability) in the absence of intervention. Thus, we are concerned here with how the affective education program will change that probability by decreasing it to a number below 100%. Thus, for each of the four major categories of

suicide (depressive, manic depressive, impulsive/aggressive, normal risk), please estimate the proportion of potential youth suicides who would still commit suicide if the affective education were put in place:

	Without Program	With Program
28. a. What proportion of potential youth suicides of the **depressive** type would commit suicide? P(suicide | PYS/D) =	100 %	____ %
b. What proportion of potential youth suicides of the **manic depressive** type would commit suicide? P(suicide | PYS/MD) =	100 %	____ %
c. What proportion of potential youth suicides of the **impulsive/aggressive** type would commit suicide? P(suicide | PYS/IA) =	100 %	____ %
d. What proportion of potential youth suicides of apparently **normal risk** would commit suicide? P(suicide | PYS/NR) =	100 %	____ %

The other possible effect of an affective education program is that it can cause either a potential youth suicide or his friend to refer the potential youth suicide for treatment. Again, these programs will only be of help to potential youth suicides who are not already under the care of a professional. Therefore, focusing on potential youth suicides who have not yet been identified and referred for treatment, please estimate:

	Without Program	With Program
29. a. With an affective education program, what percent of potential youth suicides of **depressive** type would be successfully referred? P(successful referral | PYS/D) =	0	____ %
b. With an affective education program, what percent of potential youth suicides of the **manic** depressive type would be successfully referred? P(successful referral | PYS/MD) =	0	____ %
c. With an affective education program, what percent of potential youth suicides of the **impulsive/aggressive** type would be successfully referred? P(successful referral | PYS/IA) =	0	____ %
d. With an affective education program, what percent of potential youth suicides of the **normal risk** type would be successfully referred? P(successful referral | PYS/NR) =	0	____ %

When answering these last four questions, remember that referral can occur either because the potential youth suicide himself or a friend caused the referral. Furthermore, keep in mind the fact that not all children, especially not all youths who are potential youth suicides, will attend all four years of high school. In general, the dropout rate in high school is about 1.7% at age 14, 9.7% at age 15, 8.1% at age 16, and 6.4% at age 17. Thus, only about 76% of youths who start

high school actually complete it. These dropout rates might well be higher for youths who are potential youth suicides. Thus, potential youth suicides will be exposed to an affective education program for variable lengths of time and also will be exposed for different lengths of time to school friends who might help by either treating or referring them for care.

INTERVENTION 6: RESTRICTING ACCESS

The last category of interventions to be considered is the restriction of youths' access to the instruments of suicide. We will consider three main groups of suicide instruments: firearms, drugs, and high places (e.g., bridges, towers). When answering these questions, you can consider the entire group of potential youth suicide victims, including both those under the care of professionals and those not currently under care. Thus, this set of professionals and those not currently under care. Thus, this set of interventions will be aimed at those who, whether or not they are under care, are "treatment failures" in the sense that they have decided, at least for the moment, to commit suicide and are merely seeking a means by which to accomplish it. A possible intervention is that if access to the means of suicide could be restricted, the immediate suicide threat would at least be postponed, with the hope that postponement would last long enough so that the individual could either get past a unique suicide crisis or could gain sufficient insight to seek professional help, which in turn might be successful in curing the basic problem.

We are contemplating a broad spectrum of public and private activities for restricting access to these three groups of suicide instruments. For example, to restrict access of youths to guns, we would implement specific activities such as banning the sale of firearms to minors. In addition, many youths have access to firearms in their own homes or in the homes of friends; a licensing and registration requirement might decrease the availability of handguns in youths' homes.

To restrict access to drugs, we would consider activities such as limiting prescriptions for potentially lethal drugs to small (e.g., seven day) supply. And to restrict access to high places, we would implement activities such as erecting barriers on bridges and requiring locks on doors giving access to the roofs of tall buildings. The proposed interventions are described more fully in Appendix C.

The questions that must be answered in order to estimate the impact of any of these activities are as follows. First, what proportion of suicides are committed currently by each of these methods? Second, if access to any of these particular methods were eliminated for potential youth suicides who would have committed suicide by that means, what proportion of them would merely find other methods and proceed to commit suicide? Thus, an important factor that should be considered when answering the questions is the impulsivity of potential youth suicide victims; if we could restrict their access for a short time, would the impulsive period pass and would the potential youth suicide by "out of danger"? On the other hand, it is likely that some potential youth suicides are so troubled and their problems so chronic that even if immediate access to a method of suicide were restricted, the individual would persist and find another method. To assist you in answering these questions, we can provide the following data on the proportions of suicides that are currently committed by various means (Table 2). However, keep in mind that if an individual cannot commit suicide by a particular method, it is possible that he would merely choose a different method.

To provide further assistance in answering these questions, experts at the CDC have estimated the extent to which each of the three main categories of activities would actually decrease the proportion of potential youth suicides who have access to each particular method of suicide at the time the suicide is being contemplated. For activities designed to restrict access to firearms, the CDC experts estimate that the program defined above would deny access to firearms for about 50% of suicide cases, for at least two weeks. The CDC experts estimate that the activities designed to restrict access to drugs would accomplish that for at least 75% of potential youth suicides who would choose that method for at least two weeks. For the activities designed to restrict access to high places, it is estimated that the activities for this method would restrict access to high places for about 25% of potential youth suicides who would use this method.

Given these estimates of how each of the sets of activities would restrict the proportions of suicide victims who have access to that particular method of suicide, we need your help in estimating, for **those individuals whose access is restricted at least temporarily,** how the probability of suicide will be decreased. Notice that for individuals who did not actually have their access restricted, the probability of suicide (in the absence of any other intervention) will be 100%. We are focusing here only on those potential youth suicides whose access to a particular method of suicide is restricted, and trying to estimate how that will decrease their long-term probability of committing suicide (i.e., before age 25).

For firearms, please estimate the decrease in the long-term probability of suicide (by any method) that would occur if a potential youth suicide victim of each diagnostic type had his or her immediate access to guns restricted. That is, estimate:

	Without Program	With Program
30 a. What proportion of potential youth suicides of the **depressive** type would still commit suicide despite restricting access to firearms?		
P(suicide | PYS/D)	100%	____%
b. What proportion of potential youth suicides of the **manic depressive** type would still commit suicide despite restricting access to firearms		
P(suicide | PYS/MD)	100%	____%
c. What proportion of potential youth suicides of the **impulsive/aggressive** type would still commit suicide despite restricting access to firearms?		
P(suicide | PYS/IA)	100%	____%
d. What proportion of potential youth suicides of the **normal risk** type would still commit suicide despite restricting access to firearms?		
P(suicide | PYS/NR)	100%	____%

Methods Employed by Youth Suicides	
Firearms[1,2]	62.5%
Poisoning by all medications[2] (tranquilizers and psychotropic agents, including antidepressants: 1.8%)	5.9%
Jumping from high places	2.8%
Other (including hanging, poisoning by carbon monoxide and other means, etc.	28.8%

1. Handguns have been estimated to constitute about 80% of the firearms used in suicides (and about 50% of the means for all youth suicides). Only about 7.6% of death certificates indicating suicide as the cause of death specify handguns as the instrument.

2. Firearms are used more frequently by males and poisoning more frequently by females than these composite statistics indicate.

Table 2.

Please estimate similar figures for how restricting access to potentially lethal medications would decrease the chance of eventual suicide (before the age of 25).

	Without Program	With Program
31.a. What proportion of potential youth suicides of the **depressive** type would still commit suicide despite restricting access to lethal medication?		
P(suicide | PYS/D)	100%	____%
b. What proportion of potential youth suicides of the **manic depressive** type would still commit suicide despite restricting access to lethal medications?		
P(suicide | PYS/MD)	100%	____%
c. What proportion of potential youth suicides of the **impulsive/aggressive** type would still commit suicide despite restricting access to lethal medications?		
P(suicide | PYS/IA)	100%	____%
d. What proportion of potential youth suicides of the **normal risk** type would still commit suicide despite restricting access to lethal medications?		
P(suicide | PYS/NR)	100%	____%

Finally, please estimate how eliminating access to high places will decrease the chance of suicide in those who would first choose to jump from high places as their method of suicide. That is, please estimate:

	Without Program	With Program
32. a. What proportion of potential youth suicides of the **depressive** type would still commit suicide despite restricting access to high places?		
P(suicide | PYS/D)	100%	____%
b. What proportion of potential youth suicides of the **manic depressive** type would still commit suicide despite restricting access to high places?		
P(suicide | PYS/MD)	100%	____%
c. What proportion of potential youth suicides of the impulsive/aggressive type would still commit suicide despite restricting access to high places?		
P(suicide | PYS/IA)	100%	____%
d. What proportion of potential youth suicides of the normal risk type would still commit suicide despite restricting access to high places?		
P(suicide | PYS/NR)	100%	____%

THANKS

We greatly appreciate your time in answering these questions. We understand that they are exceedingly difficult questions. Nobody knows the answers; we all feel great discomfort when trying to estimate answers to these types of questions. However, we also appreciate that the only possible way to begin to develop a rational strategy for reducing this terribly important problem is to make our best estimates of the facts, make preliminary judgments about programs, design pilot projects, and get better information. The answers you have provided in this questionnaire will be indispensable in helping us accomplish these tasks.

We will send you the results of this questionnaire, and send you the analysis of each of these interventions as soon as they are available.

Please complete your name, address, and telephone.

_____

Name

_____

Department

_____

Institution

_____

Address

_____

City, State, ZIP

Telephone:

W ( )_____

H ( )_____

ECONOMIC IMPACT OF YOUTH SUICIDES AND SUICIDE ATTEMPTS

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SUMMARY

In economic and human terms, youth suicide in the United States is a public health problem of the first magnitude, and one that is growing rapidly. Each youth suicide in the United States results in the loss of 53 years of human life and $432,000 of economic productivity. The national costs of youth suicides in 1980 included 276,000 years of life lost, 217,000 years of productive life lost before the age of 65, and economic costs of $2.26 billion. With the costs of youth suicide attempts added in, the figures rise to 262,000 years of productive life lost, and economic costs of $3.19 billion.

The costs of youth su   des are concentrated disproportionately among males, in the west, and in non-metropolitan areas. Suicides by firearms and explosives account for nearly two-thirds of the national toll.

By the year 2000, if present trends continue, the cost of youth suicide will increase from 276,000 to 346,000 years of life lost, and from $2.26 billion to $2.65 billion, even with a shrinking population base in the 15 to 24 year range.

If heart disease and cancer are regarded as the major public health problems in the United States, then youth suicide ranks closely behind. In terms of years of life lost, suicides in the 15 to 24 age group take a toll equivalent to 70 percent of the loss due to heart disease in the 35 to 44 age group, 60 percent of the loss due to cancer in the same age group, and 25 percent of the loss due to each disease in the 45 to 54 age group. In terms of years of productive life lost, youth suicides take a toll equivalent to 83 percent and 75 percent of the losses due to heart disease and cancer, respectively, in the 35 to 44 age group and 38 percent of the losses due to each disease in their decade of peak impact, the 45 to 54 age group.

Relative to its social and economic importance, youth suicide is currently receiving a disproportionately small share of public health resources.

INTRODUCTION

In 1980, 5,239 young Americans between the ages of 15 and 24 committed suicide. The risk of suicide in this age group has increased steadily, from 4.5 per 100,000 per year in 1950 to 12.3 per 100,000 per year in 1980, suggesting that the problem is worsening. One in 400 males who are 15 years old will commit suicide before reaching the age of 25.

The burden of youth suicide (that is, suicide between the ages of 15 and 24) on society is

enormous. The loss of life expectancy and the associated loss of economic productivity, while perhaps the major impacts, are not the only costs. The direct medical and legal costs of suicides, as well as the effects of these events on the quality of the lives of parents, siblings, friends, teachers, and others also must be considered. In addition, suicide attempts (estimated at 8-10 for each completed suicide) impose medical costs as well as substantially impaired quality of life, and cause lost economic productivity because of residual chronic disabilities.

This economic impact analysis of youth suicide shares two underlying objectives with similar analyses of other public health problems. First, an economic impact analysis can be used to assess the potential benefits of prevention. Because the cost of a youth suicide represents potential savings for an effective suicide prevention program, these data are key elements in cost-effectiveness and cost-benefit analyses of preventive interventions. Second, comparative analyses of economic impacts across disease categories can help guide priorities for prevention research among public health problems that compete for resources.

We define the scope of economic impact analysis to include both health and economic dimensions. Among the health dimensions, measured in demographic units, are lives lost, **years** of life lost, and years of impaired health (physical, occupational, social, and emotional). The health consequences of youth suicides are best reflected in the number of years of life lost, whereas suicide attempts often result in impaired years of life. The measure known as quality-adjusted life expectancy (1) may be used if a single summary statistic incorporating both loss of life expectancy and impaired quality of life is desired.

The purely economic consequences of youth suicides and suicide attempts include direct medical care costs (for those who are treated before death) and direct medico-legal costs, such as autopsies and criminal investigation. Premature death and disability also result in lost economic productivity for the society.

These "indirect" costs may be measured in monetary terms by the value of the earnings that would have compensated the deceased or disabled individuals for their contributions to society's output, or they can be measured in demographic terms by the number of **productive** years of life lost (e.g., years lost up to age 65). We employ both measures in our analysis.

The choice of measures on which to focus depends on the decisions that are to be informed by the data. Cost-effectiveness evaluations of preventive interventions would make use of data on lost life expectancy (or quality-adjusted life expectancy) and direct economic savings. Cost-benefit evaluations, which require that all consequences be measured in economic terms, would rely on data on lost earnings to translate health impacts into economic values. Priority-setting decisions about research may consider both public health consequences and their economic counterparts. In this paper, our purpose is to provide a broad range of measures that permit the user of the data to focus on the most pertinent measures for the decisions being faced.

Our measures of economic impact of youth suicide are incidence-based, not prevalence-based. Incidence-based measures of the cost of disease capture the consequences, over time into the future, of events (i.e., suicides and suicide attempts) that occur in a given time interval. Prevalence-based measures reflect the consequences, during a given time interval, of events that occurred in the past. For purposes of evaluating preventive strategies, we regard the incidence-based approach as more appropriate, because it measures the future stream of potential savings attributable to reducing suicide rates during a given time interval. Our data, therefore, are presented in the incidence-based format.

The consequences of youth suicide can be calculated for the entire U.S. population, aged 15 to 24, or disaggregated into several subpopulations. We made stratified estimates based on the following variables: age

subrange (15-19 vs. 20-24), sex, race (white vs. nonwhite), geographical region (northeast vs. northcentral vs. south vs. west), location in metropolitan area (SMSA vs. non-SMSA), and method of suicide or suicide attempt (firearms/explosives vs. hanging/strangulation/suffocation vs. poisoning by solid or liquid vs. poisoning by gas vs. other methods). Because of data limitations, we were unable to stratify by other, potentially informative, variables such as socioeconomic status, education of the suicide victim or parents, or presence or absence of mental disorder in the suicide victim or parents.

Each measure of health or economic burden in a population can be expressed in many ways. We have used three such measures: burden per event (i.e., per suicide or suicide attempt), burden per 1,000 population, and total burden. Measuring the burden per event may be the most useful way to evaluate the benefits of a preventive intervention for individuals at risk; burden per 1,000 population may be the most useful way to evaluate the benefits of a population-based preventive program or to compare the burden of suicide in different subpopulations; and total burden may be the most useful way to guide priorities for research and to direct public attention to the problem.

A definitional problem arose in considering precisely for what events the economic impact is to be measured. Are we to consider the event to be only the suicide or suicide attempt itself, or also the condition(s) (such as depression, drug abuse, or personality disorders) that may culminate in a suicide or suicide attempt? We chose to focus on suicides and suicide attempts *per se*. We note, however, that preventive interventions may also reduce the costs and consequences of these underlying conditions, or they may result in increased costs of treating these conditions.

Before turning to our methods and findings, a comment is in order about the availability of data. Epidemiologic data on suicides through 1980 were generally available,

thanks to the Violence Epidemiology Branch of the Centers for Disease Control (CDC) (2). Data on remaining life expectancy (3) and age-specific earnings (4) were also available. There were, however, notable gaps in the data. Quantitative information on the effects of suicide on families, including effects on ability to work, and reduced quality of life, was unavailable. Data on direct costs, especially medico-legal costs, were not generally available, although we were able to make some estimates from local (and possibly idiosyncratic) sources. Perhaps most important, data on the epidemiology and consequences of suicide attempts are generally nonexistent. Our philosophy has been to lay out a framework for evaluating the economic impact of suicides and suicide attempts, to supply preliminary estimates from available data where possible, and to supplement sparse data with many assumptions and extrapolations for illustrative purposes. The obligatory caveat that the findings presented should be regarded as preliminary and suggestive, rather than final and definitive, must not be taken lightly.

METHODS AND DATA SOURCES

We performed analyses of four basic types. First, we calculated the health and economic consequences of a single youth suicide. Second, we used these estimates, together with epidemiologic data on the national incidence of youth suicide, to estimate the aggregate national consequences of youth suicides, both in the year 1980 and projected to the year 2000. Third, we estimated the economic consequences of youth suicide attempts. Finally, we compared the health and economic impacts of youth suicides with the corresponding impacts of other major causes of death during comparable periods of life. Our methods, assumptions, and data sources are described in the following paragraphs.

Consequences of single youth suicide. We calculated four measures of impact per youth suicide: years of life expectancy lost (YLL),

years of productive life expectancy lost (YPLL), lost economic productivity measured by earnings lost, and direct economic cost. The first three were calculated separately by age subrange (15-19, 20-24), sex, and race.

Years of life expectancy lost were estimated from 1980 United States life tables (3) by sex and race. For this purpose, suicides were assumed to occur at the midpoint of the relevant age subrange. We assumed that individuals who commit suicide would otherwise have had the same life expectancy as other persons of the same age.

Years of productive life expectancy lost are defined as the expected number of years of life lost up through the 65th year. These calculations were also based on 1980 U.S. life tables (3).

Lost earnings, a measure of "indirect" economic cost of youth suicide, were calculated by the method of Rice et al. (4). Age-sex-specific annual earnings in 1980, including supplemental benefits such as retirement contributions, were added to estimates of the value of housekeeping services (4). For each age and sex, these annual earnings were multiplied by the sex-specific probability of survival to that age (3), increased by an annual productivity growth factor (based on the ratio of per capita compensation growth to growth in consumer prices during 1970-84) (5,6), and discounted to present value at an annual rate of 4 percent. We assumed that individuals who commit suicide would otherwise have had the same expected productivity during the rest of their lives as other persons of the same age.

The direct cost of a youth suicide includes medical care cost and medico-legal cost. Medical care cost is the sum of hospital cost and physician fees. Suicide victims who die in a hospital were assigned to Diagnostic-Related Groups (DRGs) most closely corresponding to the method of suicide. The unit hospital costs for these DRGs were based on the New Jersey hospital reimbursement schedule for 1982 (7), adjusted for in-

flation to 1980. The percentages of youth suicides by method were obtained from CDC data (2). We assumed that 10 percent of youth suicide victims would die in hospitals (8), regardless of method. Finally, we added 5.7 percent of hospital costs to account for physician fees (9).

Medico-legal costs per suicide may include the cost of autopsy, estimated in Rhode Island to be $1,000, and the cost of investigations, estimated to require an average of 15 hours at $50 per hour (W. Sturner, personal communication). We obtained estimates that 43.2 percent of male suicides and 51.0 percent of female suicides result in autopsies (8), and assumed that 70 percent of all suicides result in investigations (which are compulsory in approximately half the States).

National consequences of youth suicide in 1980. Data on the numbers of youth suicides, by age subrange, sex, and race (2) were multiplied by each of the measures of impact per suicide to yield national estimates of years of life lost, years of productive life lost, lost economic productivity, and direct economic cost.

The distribution of the national impact of youth suicides according to geographic region, metropolitan location, and suicide method was also estimated. The distribution by geographic region was expressed in terms of total impact and impact per thousand population, as was the distribution between metropolitan (SMSA) and non-metropolitan (non-SMSA) areas. The distribution of impact by suicide method was calculated in aggregate national terms only. In these calculations, the numbers of suicides by region, location, and method were obtained from CDC data (2), and multiplied by each measure of the average impact per youth suicide for the nation as a whole (Table 1). (Tables appear at the end of this chapter.) No adjustments were made to account for differences in life expectancy or earnings by region, location, or method.

Projections to the year 2000. Projections of the national impact of youth suicides in the year 2000 were based on three successive extrapolations. First, trends in youth suicide rates per capita during 1970-1980 (2) were extrapolated to 2000, according to a smoothed linear growth curve. Next, we extrapolated the 15 to 24 year old population according to Census Bureau projections (10). Finally, we extrapolated trends in life expectancy observed between 1975 and 1983 (11). No changes in the mix of youth suicides by age subgroup, sex, race, or method were assumed.

Economic consequences of youth suicide attempts

The costs of suicide attempts include medical costs, and time lost from work with associated earnings losses. We assumed that eight youth suicide attempts occur for each youth suicide, that 20 percent of these attempters are hospitalized, and that 5 percent of attempts result in permanent disability (9). Hospital costs were based on New Jersey hospital reimbursement rates for DRGs corresponding to the associated methods of suicide attempt. Methods of attempt were assumed to be distributed, according a combination of different figures from the literature (12-16), as follows: 70 percent drug poisoning, 10 percent firearms, 20 percent other. As for the medical costs of suicides, an additional 5.7 percent was added for physician fees.

We assumed an immediate loss of 2.9 productive days lost per attempt (9), plus residual permanent disability in 5 percent. Numbers of years of productive life lost and earnings lost because of permanent disability were estimated in the same way as for successful suicides.

Lost productivity and other costs incurred by family members were not evaluated in this analysis.

Comparisons with other diseases

To place youth suicide in perspective as a public health problem, we compared its health and economic impacts with those of other major diseases during other decades of life. In particular, we compared the impact of suicide during ages 15 to 24 with the impact of heart disease and cancer during the decades 35 to 44, 45 to 54, and 55 to 64. Measures used were years of life lost and years of productive life lost.

Discounting and inflation

All monetary amounts are expressed in 1980 U.S. dollars. Adjustments for inflation were based, as needed, on the Consumer Price Index. Future amounts, once expressed in 1980 dollars, were discounted to present value at 4 percent a year, the rate most commonly used in cost-of-illness studies (4). For most calculations, present values were calculated as of 1980, with the exception of the projections to 2000, which were calculated as of the year to which the projection was being made. Years of life lost were not discounted, although cost-effectiveness analyses of preventive interventions should use discounted values.

Quality of life

No attempt was made to estimate losses of quality of life to the victim, family, friends, or others. Such an estimate would require survey data on psychosocial impacts not presently available.

FINDINGS

The consequences of a single youth suicide, by age, sex, and race, are displayed in Table 1. The average number of years of life lost is 52.7, and the average number of years of productive (<65) life lost is 41.5. These figures are somewhat higher for females than males, whites than nonwhites, and 15 to 19 year olds than 20 to 24 year olds, owing to the greater life spans of the former subgroups. The loss of economic productivity attributable to each suicide averages $431,600, in 1980 dollars. The direct economic cost per suicide (not shown in the table) is $1,067, of

which $96 is medical cost ($961 for each of the 10 percent who are hospitalized), $446 is for autopsies, and $525 is for criminal investigations.

The national economic impact of youth suicides in 1980 is displayed by age, sex, and race in Table 2. In total, 275,900 years of life were lost as a result of suicides in that year. Of those lost years, 217,400 would have been under the age of 65. The amount of economic productivity forgone was $2.26 billion as a consequence of youth suicides in 1980 alone. The direct economic costs were small by comparison, $5.6 million.

The distribution of economic impact by geographical region is shown in Table 3. Whereas youth suicides have their greatest aggregate impact in the South, this is attributable to the population size; the greatest per capita impact is in the West, the least is in the Northeast.

The distribution of economic impact by metropolitan versus nonmetropolitan location is given in Table 4. Evidently, youth suicide has its greatest aggregate impact in metropolitan areas, where most of the population lives, but has more impact on a per capita basis in nonmetropolitan areas.

Table 5 distributes the economic impact of youth suicides by method. Firearms alone accounted for more than 170,000 years of life lost in 1980, and more than $1.4 billion of lost productivity.

Projections of the national economic impact of youth suicides to the year 2000 are presented in Table 6. The top half of the table shows the only variable that is projected to change, the rate of youth suicide in the 15 to 24 year old population. The bottom half of the table also reflects trends in population size and gains in life expectancy. The economic costs of youth suicide will exceed 350,000 life years and $2.6 billion in the year 2000, despite a declining population in this age group.

The economic costs of suicide attempts are substantial, as shown in Table 7. The direct medical costs, $6 million in 1980, are comparable to the direct medical and legal costs of suicides. The indirect costs associated with disability are 44,236 years of productive life lost and $914.2 million in lost earnings. Suicide attempts, therefore, add 20 percent and 40 percent respectively, to these two measures of societal impact of youth suicides.

Finally, we compare the economic impacts of youth suicides (ages 15-24) with other major causes of death in 10-year age intervals (Table 8). The number of years of life lost from suicides, ages 15 to 24, is 70 percent of the corresponding number for heart disease deaths, ages 35 to 44, and 60 percent of the corresponding number for cancer deaths, ages 35 to 44. The years of productive life lost are 83 percent and 75 percent, respectively, of the figures for heart disease and cancer deaths, ages 35 to 44. Even comparing youth suicide to the peak decade for years of productive life lost due to heart disease and cancer (ages 45-54), youth suicide accounts for 38 percent of the years of productive life lost from each of those diseases. We note that while mortality from heart disease is declining, mortality from youth suicide is rising.

RECOMMENDATIONS

The magnitude of the economic and human impacts of youth suicide and suicide attempts are sufficiently great, both in absolute terms and relative to other major causes of death and disability, to justify major programmatic efforts comparable to those applied to heart disease and cancer. Specific recommendations are as follows:

1. Based on the criterion of social and economic impact, the problem of youth suicide should be receiving a substantial share of public and private health resources in relation to other causes of death and disability.

2. Research leading to the development of effective preventive programs against youth suicide should be given the highest priority. Only modest effectiveness rates

would be needed to produce enormous human and economic savings.

3. Evaluations of the cost-effectiveness of available interventions should begin immediately, even in the absence of definitive evidence of their efficacy. The cost of delay in implementing such programs should be weighed against the cost of implementing programs that later prove to be ineffective.

4. Additional data in the following areas are needed to complete an assessment of the social and economic costs of youth suicides and suicide attempts:

- effects of youth suicides and attempts on the quality of life of family, friends, and others;

- economic effects of youth suicides on families, including indirect costs attributable to reduced work productivity, and costs of treating psychological disorders secondary to the suicide of the family member; and

- epidemiology of suicide attempts, including trends over time, and distribution by method of attempt.

Consequences of a Single Youth Suicide, United States, 1980

	YLL[a]	YPLL[b]	Lost Productivity[c]
Ages 15-19			
Males	54.5	44.3	$417,300
Females	61.8	46.3	344,600
Total 15-19	55.8	44.7	404,600
Ages 20-24			
Males	49.8	39.6	464,500
Females	56.9	41.3	354,800
Total 20-24	51.0	39.8	445,700
Ages 15-24			
White Males	52.4	41.9	456,400
Nonwhite Males	46.0	38.7	425,500
All Males	51.7	41.6	453,100
White Females	59.4	43.5	356,800
Nonwhite Females	54.3	41.9	347,700
All Females	58.9	43.3	355,900
All Suicides	52.7	41.5	431,600

[a] Years of life expectancy lost.

[b] Years of productive life expectancy (up to age 65) lost.

[c] Present value of expected earnings plus value of household services, in 1980 dollars, discounted to present value at 4% per annum.

Table 1.

National Economic Impact of Youth Suicides, United States, 1980, by Age, Sex and Race

| | YLL[a] | YPLL[b] | Economic Costs ($millions)[c] | | |
			Direct Costs	Lost Earnings	Total
Ages 15-19					
Males	80,888	65,736		618.89	
Females	19,404	14,523		108.21	
Total 15-19	100,292	80,259		727.10	
Ages 20-24					
Males	142,068	112,863		1325.24	
Females	33,504	24,299		208.98	
Total 20-24	175,571	137,162		1534.22	
Ages 15-24					
White Males	202,210	161,206		1749.94	
Nonwhite Males	20,746	17,392		194.19	
All Males	222,956	178,598		1944.13	
White Females	47,938	34,990		285.62	
Nonwhite Females	4,970	3,832		31.57	
All Females	52,908	38,822		317.19	
All Suicides	275,864	217,420	5.59	2261.32	2266.91

[a]Years of life expectancy lost.

[b]Years of productive life expectancy (up to age 65) lost.

[c]In 1980 dollars. Lost earnings discounted to present value at 4% per annum.

Table 2.

National Economic Impact of Youth Suicides, United States, 1980, by Geographic Region

	YLL[a]	YPLL[b]	Lost Productivity[c]
Total Region			
Northeast[d]	48,481	38,488	$400,773,000
North Central[e]	70,674	55,725	577,426,000
South[f]	93,733	73,876	768,287,000
West[g]	62,626	49,340	514,835,000
Total U.S.	275,864	217,420	$2,261,321,000
Per 1000 Population			
Northeast	0.99	0.78	$8,157
North Central	1.20	0.95	9,809
South	1.24	0.98	10,193
West	1.45	1.14	11,925

[a] Years of life expectancy lost.

[b] Years of productive life expectancy (up to age 65) lost.

[c] Present value of expected earning plus value of household services, in 1980 dollars, discounted to present value at 4% per annum.

[d] Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont

[e] Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin

[f] Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia

[g] Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming

Table 3.

National Economic Impact of Youth Suicides, United States, 1980, by Metropolitan versus Nonmetropolitan Location

	YLL[a]	YPLL[b]	Lost Productivity[c]
Aggregate			
Metropolitan	196,617	154,891	$1,617,799,000
Nonmetropolitan	79,247	62,538	643,523,000
Total	275,864	217,420	2,261,321,000
Per 1000 Population			
Metropolitan	1.16	0.91	$9,548
Nonmetropolitan	1.39	1.09	11,267

[a] Years of life expectancy lost.

[b] Years of productive life expectancy (up to age 65) lost.

[c] Present value of expected earnings plus value of household services, in 1980 dollars, discounted to present value at 4% per annum.

Table 4.

National Economic Impact of Youth Suicides, United States, 1980, by Method of Suicide

	YLL[a]	YPLL[b]	Lost Productivity ($ millions)[c]
Firearms and Explosives	171,800	135,427	1,406.79
Hanging, Strangulation, Suffocation	46,765	36,917	378.82
Poisoning by Solid or Liquid	20,788	16,360	172.35
Poisoning by Gas	17,518	13,772	144.93
Other	19,014	14,953	158.42
Total	275,864	217,420	2,261.32

[a]Years of life expectancy lost.

[b]Years of productive life expectancy (up to age 65) lost.

[c]Present value of expected earnings plus value of household services, in 1980 dollars, discounted to present value at 4% annum.

Table 5.

Projected National Economic Impact of Youth Suicides, United States, 1980-2000

			Suicide Rate Projected Only		
			Economic Costs ($ millions)[c]		
	YLL[a]	YPLL[b]	Direct Costs	Lost Earnings	Total
Year					
1980	275,864	217,420	5.59	2,261.32	2,266.91
1990	330,361	261,666	6.66	2,725.13	2,731.79
2000	384,319	304,404	7.75	3,170.23	3,177.98
		Suicide Rate, Population, and Life Expectancy Projected			
Year					
1980	275,864	217,420	5.59	2,261.32	2,266.91
1990	296,383	234,524	5.74	2,347.23	2,352.97
2000	345,591	273,708	6.44	2,645.71	2,652.15

[a]Years of life expectancy lost.

[b]Years of productive life expectancy (up to age 65) lost.

[c]In 1980 dollars. Lost earnings discounted to present value at 4% per annum.

Table 6.

National Economic Impact of Youth Suicides and Youth Suicide Attempts, United States, 1980

| | YLL[a] | YPLL[b] | Economic Costs ($ millions)[c] | | |
			Direct Costs	Lost Earnings	Total
Youth Suicides	275,864	217,420	5.59	2,261.32	2,266.91
Youth Suicide Attempts		44,236	6.03	914.20	920.23
Total	275,864	261,656	11.62	3,175.52	3,186.14

[a]Years of life expectancy lost.

[b]Years of productive life expectancy (up to age 65) lost.

[c]In 1980 dollars. Lost earnings discounted to present value at 4% per annum.

Table 7.

Youth Suicide, Heart Disease, and Cancer: Years of Life Lost (YLL) and Years of Productive Life Lost (YPLL), United States, 1980

	Number of Deaths	YLL Per Death	YPLL Per Death	Total YLL	Total YPLL	Youth Suicide as % of YLL	Youth Suicide as % of YPLL
Suicide							
Age 15-24	5,239	52.7	41.5	275,864	217,420	100	100
Heart Disease							
Age 35-44	11,433	34.3	22.8	392,605	261,110	70	83
Age 45-54	41,078	25.9	13.8	1,065,395	564,971	26	38
Age 55-64	107,244	18.6	4.6	1,997,770	493,322	14	44
Cancer							
Age 35-44	12,470	36.6	23.3	456,072	290,211	60	75
Age 45-54	41,030	27.4	13.9	1,124,222	571,173	25	38
Age 55-64	94,645	19.4	4.7	1,832,947	445,697	15	49

Table 8.

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SUICIDE ATTEMPTS IN TEEN-AGED MEDICAL PATIENTS

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SUMMARY

Adolescents (aged 13-18) attending free clinics in 10 large cities were interviewed. They were asked whether they had attempted suicide in the current year or previously. Four percent of the 2,792 interviewed had made an attempt in the current year, and 8 percent at some time in their lives. Patients who were female, white, and 15 or older had the higher rates of suicide attempts. Seventeen percent of white girls 15 to 18 had made an attempt, while none of the younger black boys had.

Factors strongly associated with suicide attempts included multiple depressive symptoms, living apart from parents (often after running away from home), having a history of conduct problems, having psychiatrically ill family members, repeated drunkenness, use of drugs other than marijuana, and being assaulted, arrested, or incarcerated. No association was found with parents' occupational level, illegitimate pregnancy, and experiencing a family member's death.

The correlates discovered were combined into a guide for clinic personnel to help them recognize youngsters at risk of suicide attempts. Such a guide appears necessary because few attempters voluntarily mention their suicidal ideation to their clinic physicians.

A program of research is suggested that could evaluate the effectiveness of the suggested screening device.

RELEVANCE OF SUICIDE ATTEMPTS TO SUICIDE

The relationship between suicide attempts and completed suicides is puzzling. Populations of suicide attempters and completers differ demographically (Clayton, 1983; Stengel, 1965). Men have higher rates of completed suicides (Rich et al., 1986) but women have higher rates of suicide attempts. Suicide attempts are rare in children, increase from early adolescence through young adulthood (Fisher and Shaffer, 1984), and then decline; suicides are similarly rare in children and increase through adolescence into young adulthood, but they do not then decline, and for white men, the group with the highest suicide rate, rates increase with age through at least age 75. Whites have higher rates of both attempts and completions than blacks.

Attempters and completers may differ considerably in their motivations. While most suicides probably intended to die, it is less clear that this is true of suicide attempters. While some appear to be persons who tried to kill themselves but failed, there are those who report that their attempt was meant to punish persons they felt had mistreated them or to avoid responsibility for their own mis-

behavior.

Despite the demographic and motivational contrasts between the populations of suicides and attempters, the two groups do overlap. Many completed suicides were preceded by suicide attempts in both adults (Wang et al., 1985; Schmidt et al., 1954) and young people (Otto, 1972; Cohen-Sandler et al., 1982), and the chances of dying later by suicide are much higher for attempters than for the general population. Attempters are therefore a relevant population to study, particularly because they offer an opportunity to study attempts both retrospectively and prospectively, and to study suicide prospectively. Because attempters are alive and able to be interviewed, investigators may discover precursors of their past attempts and predictors of subsequent suicide attempts or suicides that might not be detected in retrospective studies of completed suicides where informants are limited to surviving friends, relatives, or others, such as the suicide's physician. By following attempters prospectively through death records, it should be possible to learn which characteristics best predict actual suicides. If we can identify risk factors for the suicide attempts that precede actual suicides, it may be possible to design interventions to reduce these risks, and thus reduce the number of future completed suicides.

PROBLEMS IN STUDYING SUICIDE ATTEMPTS

Most previous studies of suicide attempts have been restricted to people whose attempts received medical attention. These treated attempters are probably not representative of the total population of attempters, in as much as their attempts caused injury sufficient to bring them to medical attention.

A second issue in studies of treated cases lies in the choice of a comparison group. Identification of risk factors requires finding characteristics that occur more frequently among the group who attempt suicide than among a comparable group of nonattempters. To which nonattempters should the treated attempters be compared. Other patients of the same medical facility may be inappropriate. Suicide attempts even by middle class persons often lead to their hospitalization in public hospitals. They enter through emergency rooms after being discovered unconscious or too impaired to make other arrangements. Patients who enter the same hospitals in a less urgent fashion are likely to be of lower social status and to have quite different backgrounds. Differences found between the two may therefore have more to do with choice of usual treatment source than with suicide attempts. If the comparison group is restricted to fellow emergency room patients to make the social backgrounds more comparable, the choice may still be a poor one, because the victims of violence and accidents treated there may share with suicide attempters risk factors that apply to violence of all kinds. These shared factors will be missed as predictors of suicide attempts because they will not differentiate the two groups.

Suicide attempters found in surveys of general population are representative of the whole population of attempters, those whose attempt did and those whose attempt did not result in medical care. Studies in the general population also provide natural control groups in persons of similar age, sex, and race who have never made an attempt. Unfortunately, general population studies are expensive to carry out because finding a sufficient number of cases of events as rare as suicide attempts requires large samples. In addition, respondents in a typical area survey may be more reluctant than patients to admit attempts, because the interview will usually take place at a time remote from the crisis surrounding their attempt.

A useful alternative may be clinic samples. By attending a clinic, a youth has already demonstrated a willingness to discuss personal problems, and clinics treat young persons both in and out of school. Contacting youths on the clinic premises often makes it

possible to approach them directly, without having to go through a suspicious parent. If risk factors for suicide attempts are also risk factors for clinic attendance (as pregnancy, psychiatric problems and interpersonal problems might be) the clinic population would also be particularly rich in attempters, overcoming the problem of the rarity of attempts. One drawback is that some youths attending clinics are acutely ill, making them unwilling or unable to tolerate a detailed interview. However, as we will demonstrate below, adolescent clinic patients for the most part attend for checkups, for information about birth control, for pregnancy tests and prenatal and postnatal care, and for non-serious upper respiratory infections. The proportion with illnesses that preclude participating in an interview is small.

Whereas clinic populations may make attempters more accessible, these populations are not representative of all youngsters. Youngsters seen by private physicians are omitted, as are youngsters who have little or no contact with medical services of any kind. In addition, patients with more frequent attendance will be overrepresented in any sample based on attendance on selected days, since the more frequently a youngster attends, the greater the chance that he or she will be present on the day selected for patient recruitment. This explains why the adolescent clinic patients we describe below are predominantly female and in the higher teen ages: Pregnancy is the prime reason for frequent visits to clinics.

METHODS

A study of youthful attenders at free general medical clinics provided interviews with 2,792 clinic attenders aged 13 to 18. It was carried out in 1984-85 in 10 cities, including New Haven, Boston, Dallas, Chicago, Buffalo, Indianapolis, Los Angeles, St. Louis, New Orleans, and Jackson, Mississippi. The clinics were located in independent buildings, in hospitals, or in schools. In seven cities, the clinics were for teenagers only, were affiliated with pediatrics departments of medical schools, and were supported by the Robert Wood Johnson Foundation to organize consolidated services for this age group; in three cities, the clinics served adults as well as adolescents, and were supported by local governments.

Youngsters were invited to participate as they appeared at the clinics, and fewer than 4 percent refused. Interviews were generally carried out at the clinic immediately before or after the medical appointment; when there was insufficient time, the interview was carried out within a few days of the clinic attendance at a mutually agreed-on location. The patients understood that they were participating in a research study, and that the information they gave would not be shared with the clinic staff or parents. This understanding probably increased their honesty. (The interviewers were instructed to violate this understanding, first informing the youngster that they were doing so, if they learned of currently active suicidal ruminations or plans; however, no such instance occurred.)

Well-trained professional interviewers administered the fully structured interview. It lasted about 45 minutes and covered the young person's living situation, physical and mental health, social and school adjustment, behavior problems, recent life events, and treatment experience. The question about suicide attempts was the fourth in a sequence of related questions that immediately followed the review of symptoms of depression. The set of four questions were:

Has there ever been a period of two weeks or more when you thought a lot about death--either your own, someone else's, or death in general?

Has there ever been a period of two weeks or more when you felt like you wanted to die?

Have you ever felt so low you thought of committing suicide?

Have you ever attempted suicide?

Those who answered the last question positively were considered to have attempted

suicide, and they were then asked when their first and last attempts occurred. We did not determine how serious the attempt was or how lethal the method used, although such questions were included in the followup interview a year later. This paper will discuss three groups of attempters: those who had made **any** attempt in the past year, those whose **first** attempt was in the past year, and those whose last attempt was more than a year prior to interview.

The current report will discuss the proportion of the teen-aged sample who reported suicide attempts (i.e., answered "yes" to the last of the four questions above) and search for correlates of these attempts that might serve as criteria for selecting high risk samples for intervention. A method will be suggested by which clinic personnel could utilize these correlates to systematically review records of clinic attenders and by asking a minimal number of questions to identify most of the youngsters in danger of attempting suicide.

THE CLINIC SAMPLE

Demographics

These inner city clinics were attended predominantly by blacks (71%); the rest were largely non-Hispanic whites, with 8 percent "other" (principally Hispanics). Females made up 77 percent of our sample, and predominated in all except the school-based clinics.

The sample clustered at the upper end of the age range. Fewer than 15 percent were under the age of 15. Only 24 percent were still living with both biological parents, and the occupations of their parent(s) were predominantly blue collar (66%); 9 percent of the heads of their households were unemployed.

Expected Effects of Demographic Distribution on Attempt Estimates

Because, as noted above, suicide attempts are higher in females than males and increase

with age through adolescence, the fact that clinic patients are predominantly females in the later teen years should tend to raise their rates as compared with the general population. However, because attempts appear to be more common in whites than blacks, the fact that the clinic is mostly black should tend to lower rates. Less is known about the association between living predominantly in broken homes or residing in inner cities and suicide attempts. However, suicide attempters have been found to have an excess of stressful life experiences shortly before their attempts (Robins et al., 1957). Since life in impoverished one-parent homes might be expected to be associated with stress, one might anticipate a high rate of suicide attempts in response to such stress. There is an apparent inconsistency, however, between the finding that social stress often precedes suicide attempts and the relatively low rate in blacks, who suffer more objective stress through poverty and overcrowding. This suggests that suicide attempts may be more influenced by sudden changes in one's level of social stress than in its absolute level. If so, long term stress such as broken homes and inner city residence should be relatively less important than acute changes.

Clinic Attendance as a Factor

Finally, there is the question of how suicide attempts might be related to whatever health problems brought the adolescents to the clinic. In general, psychiatric and physical problems have been shown to be intercorrelated. Since clinic attenders have more physical and psychiatric illness than the general population, they should also have more suicide attempts, although Shaffer found little physical illness among his sample of children who had completed suicides (Shaffer, 1974).

RESULTS

Overall, 4 percent of clinic patients had attempted suicide within the year prior to their selection for study, and 8 percent had attempted at some time in their lives. While

the finding that one of every 12 patients said they had tried to kill themselves might lead one to think that this is a population at particularly high risk, this figure is almost identical to that obtained in a survey of 382 intellectually gifted high school students aged 14 to 18 in New York (Harkavy and Asnis, 1985), suggesting that the clinic sample may not have an unusual rate compared to some other adolescents.

The chance of having made an attempt within the past year was particularly high if the young person had made a previous attempt. Among the 138 who had made an attempt more thaNn a year before interview, 22 (16%) had also made an attempt in the current year. Among those with no previous attempt, the proportion who attempted in the past year was only 3 percent.

There seemed to be little direct connection between having made a recent attempt and the occasion of this particular clinic attendance. Most clinic attendance was for a general checkup (25%), care for pregnancy (22%), or seeking birth control advice (17%). The frequency of recent attempts was particularly low for those present only for checkups (2%), but average (4%) for the other two common reasons for attendance (Table 1). About 5 percent of the adolescents came for psychiatric problems, and, as might be expected, they had the highest rate of recent suicide attempts (15%). Presenting with a psychiatric complaint, therefore, is grounds for concern about possible suicide risk, although in this clinic, such patients accounted for only 17 percent of the recent attempters. Those seen for physical illness had higher rates than those who were well, but lower than psychiatric cases. Their rates varied from 4 percent of those with infections to 8 percent of those with an upper respiratory illness or some chronic illness.

MAJOR PRESENTING COMPLAINTS*
AS A CLUE TO SUICIDE ATTEMPT

Presenting Complaint (in order of frequency)		Percent Who Attempted Within Year	Percent of Recent Attempters Accounted for by this Complaint
General checkup	(707)	2	11
Pregnancy Care or Follow-up	(619)	4	21
Birth Control	(465)	4	15
Pain	(216)	7	13
Flu or Cold	(158)	8	11
Infection	(133)	4	4
Psychiatric	(127)	15	17
Information	(97)	5	4
VD	(92)	7	5
Injury	(80)	6	4
Dental Care	(63)	0	0
Chronic Health	(63)	8	4
Menstrual	(46)	2	1

* More than one may be listed.

Table 1.

Since the attempt itself was seldom the reason for attendance, and since so few of the attempters presented with psychiatric symptoms, attempts by young clinic attenders appear unlikely to come to the attention of the medical personnel without direct questioning.

Demographic Correlates of Ever Having Attempted Suicide

As previous studies suggested, rates of suicide attempts at some time in their lives were highest in older adolescent patients (9% vs. 6%), in girls (9% vs. 5%), and in whites (15% vs. 12% of "others" and 8% of blacks) (Table 2). Youths occupying all three high risk demographic categories (i.e., white females above the age of 15) had a rate of 17 percent; when all three were absent (i.e., black males below the age of 15), there were no attempts.

Like a lifetime history of attempts, attempts within the current year were more common in whites than blacks (7% vs. 3%) and higher in females than males (4% vs. 2%). However, whites did not exceed "others" in frequency of current year attempts (both were 7%), and current year attempts were at least as common among younger as among older adolescents (5% vs. 4%). The group with the highest frequency of a recent attempt was white females aged 13 or 14 (12%). Reflecting their having just entered the years at risk of attempts, all but one of the attempters below age 15 had made an attempt in the current year.

Because of the small numbers of "others" in these clinics, ethnic comparisons will be between blacks and whites.

Family Background

Living Arrangements. At the time of interview, only a minority (24%) of these teenagers were still living with both their biological parents. More than half (59%) were living with only one parent--almost always the mother; 9 percent were living with other relatives; 5 percent were married and living with a spouse; and 4 percent were in

DEMOGRAPHIC CORRELATES OF SUICIDE ATTEMPTS

			Percent Ever Attempted
AGE:	Over 15	(2369)	9
	Under 15	(418)	6
RACE:	White	(589)	15
	Other	(220)	12
	Black	(1978)	6
SEX:	Male	(637)	5
	Female	(2150)	9

AGE	RACE	Females N	Females %	Males N	Males %
Older	White	(426)	17	(76)	11
	Other	(124)	13	(51)	16
	Black	(1294)	7	(400)	3
Younger	White	(65)	12	(22)	5
	Other	(34)	9	(12)	0
	Black	(208)	7	(77)	0

Table 2.

nonfamilial arrangements, i.e., with peers, alone, or on the streets.

Residence with two biological parents was associated with the lowest rates of recent suicide attempts (Table 3). (We will consider only recent attempts, because the living arrangements may well have been different at the time of earlier attempts.) The rate rose from 2.5 percent in those living with two biological parents to 14 percent among those in nonfamilial arrangements.

These results are consistent with results both from a Swedish study (Bergstrand and Otto, 1962), which found father's absence to be associated with suicide attempts, and from an American study of attempters seen in an emergency room (Garfinkel et al., 1982), which found attempters to have high rates of absent fathers and child placement in extra-familial settings.

A high rate of attempts among adolescents living in nonfamilial settings and a low rate among those in intact families was found for both younger and older adolescents, both boys and girls, and both blacks and whites. However, for older adolescents, there was no difference in rates when residing with only one biological parent vs. other relatives, and for whites, residence with a spouse was associated with a lower rate than residence with a single parent or other relatives. For blacks, all arrangements involving living with relatives--whether in an intact family, with a single parent, or with other relatives--had a similarly low rate. Blacks' highest rate was found among those living with a spouse.

Social Status. The social status of the adolescent was judged, where possible, by the occupation of the male head of the household in which he or she had resided for the longest time. If there was no male parent in that home, but there was one in the current home, the occupation of the current father figure or if he was unemployed, the mother's occupation was used, similarly choosing the mother figure in the household in which the young person had lived longest, or the current household if there had been no mother figure in the household resided in longest. Because this measure of social status referred to the longest residence rather than the current residence, we will look at its influence on lifetime, rather than recent, suicide attempts.

Parental occupation was not strongly related to suicide attempts, and to our surprise, the rate of attempts was positively correlated with the parental occupational level (Table 4). When the parental occupation was skilled or higher, 9 percent to 10 percent had attempted suicide; when parental occupation was unskilled the rate was 4 percent and when the parent was typically unemployed, it was 5 percent. This trend held for both males and females. However, it did not apply to younger adolescents, for whom the highest rate was when the parent was unskilled or unemployed. The fact that there were very few unskilled or unemployed parents of white adolescents may account in part for the in-

CURRENT LIVING ARRANGEMENTS AND RECENT SUICIDE ATTEMPTS		
	Percent with Attempts in Last Year	
Current Residence	N	%
Both parents	(637)	3
One parent	(1596)	4
Other relatives	(23)	4
Spouse	(139)	5
No biological relatives	(103)	14

Table 3.

stability of the effect of parental occupation. Presumably, the association with high status reflects the fact that adolescents from high status families who attend public clinics that typically serve the poor are those who have left the parental home because of problems in the home or because of their own problems; it is these problems, rather than the relatively high occupational status of their fathers, that explain their high rate of suicide attempts.

The inverse correlation between occupational status and suicide attempt may suggest that being in financial straits plays no role in suicide attempts. However, not all families with a breadwinner in a low status job are seriously poverty-stricken, and adolescents reared in high status homes but who are currently living on their own may be in dire financial straits. Although we have no quantitative estimate of adolescents' available funds with which to assess poverty, we did ask whether the adolescent had had serious financial problems in the past year, for example not having enough money for food, rent, clothes, etc. Twenty-five percent reported financial problems of this severity. There was an increase in risk of recent suicide attempts associated with financial problems, with 8 percent having attempted suicide in the last year, compared with 3 percent of those who denied such serious financial problems.

Home Atmosphere and Family Pathology.

In addition to asking for an objective description of the household in terms of the persons with whom the adolescent lived, the head of the household's occupation, and financial problems, we asked about family pathology and home atmosphere. We asked whether there had been suicide attempts by nuclear family members and whether any had actually died as the result of attempts, and whether any family member had shown various kinds of psychiatric or behavioral problems. We identified these problems by asking first whether family members had had professional care for psychiatric problems; next, whether they had been impaired by such problems in terms of work or hospitalization; and finally, after presenting thumbnail sketches of persons with various types of psychiatric disorders (depression, mania, schizophrenia, alcoholism, drug abuse, antisocial personality, and mental retardation), whether anyone in the immediate family had had each of these disorders. We will discuss the relation of these family problems to adolescents' suicide attempts at any time, since the problems might have occurred at any time.

Suicide attempts by family members were reported by 5 percent of the patients. Having a suicidal family member was associated with a high risk of having made an attempt themselves. While 7 percent of those without a suicidal family member made an attempt, 26 percent of those with one did so. (The high

PARENT'S OCCUPATION AND SUICIDE ATTEMPTS

Percent Ever Attempted Suicide

Parental Occupation	N	Total	Whites N	Whites Total	Blacks N	Blacks Total
Unskilled	(293)	4	25	0	225	5
Skilled	(1445)	9	344	18	978	6
Lower white collar	(451)	9	131	13	297	7
Higher white collar	(226)	10	51	16	151	7

Table 4.

rate of familial attempts among attempters was also found by Garfinkel, 1982.) Interestingly, attempts were more common in those whose relative survived than in those whose relative died as a result of the attempt (27% vs. 15%), suggesting that knowing that it is possible to survive an attempt may encourage trying it oneself.

Fourteen percent of these adolescents had a family member who had sought professional treatment for psychiatric problems, and 7 percent had a family member impaired by psychiatric illness. Of those whose family member had been treated for psychiatric problems, 18 percent had attempted suicide; of those with a psychiatrically impaired relative, 17 percent had attempted suicide.

A much larger proportion of patients (33%) recognized symptoms of mental illness in their immediate family when the thumbnail sketches were read to them than reported psychiatric treatment or impairment in these family members. Among those with an affected family member, 14 percent had attempted suicide. Rates were still higher when there were multiple diagnoses in the family. When two or three of the diagnostic pictures were recognized, the suicide attempt rate was 19 percent; when four or more were recognized, the suicide attempt rate was 33 percent. (The association of parental psychiatric disorder with suicide attempts again agrees with results of the Swedish study (Bergstrand and Otto, 1962) noted above.) The association of a familial psychiatric disorder with suicide attempts was found for both age groups, both ethnic groups, and both sexes.

To assess family atmosphere, we asked whether there had been much quarreling or fighting in the adolescent's home over the last year. About one-fourth reported such an atmosphere at home, and among those who did, 11 percent had attempted suicide in the last year, compared with 2 percent of the remainder. Suicide attempts were particularly common if the adolescent had been personally involved in the fighting (12% vs. 7% if only others had been involved.)

These results show a clear association between family pathology and suicide attempts. Although each of these factors was associated with an increased risk, the proportion attempting among those exposed to each of these risks was never more than one-third, showing that most young people with these adverse family situations did not attempt suicide. To learn whether the concurrence of different types of family pathology might have a more potent influence, we created a family pathology scale by giving a score of 1 to each adverse factor discussed above: familial suicide attempts, quarreling, treatment for psychiatric disorder, impairment, and presence of disorder. The results are presented in Table 5. When at least four of these adverse family factors were present, as was true in 1 percent of the sample, the risk of ever having attempted suicide increased to 36 percent. When none of these signs of family pathology was present, the rate was 3 percent.

Because this was a powerful monotonic relationship, we considered whether this index of family pathology might be sufficient to select a clinic sample for intervention. We found, however, that most of the adolescents whom the scale would have defined as at risk had not attempted suicide, and those who did attempt in the context of a pathological family constituted only a minority of the attempters. If, for example, we should select for intervention those whose families had three or more signs of pathology, this would involve 10.5 percent of the sample in the intervention program, and would reach only 29 percent of the suicide attempters.

Psychiatric Disorders and Their Symptoms

Completed suicides in adults are much more common in persons with a diagnosis of depression, alcoholism, or drug abuse than in the general population, and persons with one of these three disorders make up most of the completed suicides. Schizophrenics also have an elevated risk of suicide, but the disorder is so rare that schizophrenics form a

negligible proportion of all suicides (Robins, 1984). Suicide attempts are also common in persons with each of these diagnoses, as well as in persons with a history of acting-out behaviors (antisocial personality) and in women with a diagnosis of somatization disorder (Robins et al., 1957). Child suicide attempters are distinguished by dysphoria, substance abuse, and by aggressive behavior (Garfinkel et al., 1982). Little is known thus far about how comorbidity--having more than one of these disorders affects suicide risk, nor do we know whether either depression or behavior problems must necessarily be present (Carlson and Cantwell, 1982; Shaffer, 1974). However, recent work has suggested that it is the intersection of depression or substance abuse with an impulsive personality that creates the highest rate of risk (Weissman et al., 1973). Kovacs and Puig-Antich (1986) have called attention to the possible importance of the overlap between depression and aggression or impulsivity in suicide attempts.

To assess the importance of these symptom patterns in adolescents, we will look at the relationship of depressive symptoms (other than suicidal ideation), substance abuse, somatic symptoms without medical explanation, and conduct problems with suicide attempts. We will then look at the overlap between depressive and conduct symptoms to see whether both are required, and if not, whether the combination of the two is particularly virulent.

Depressive Symptoms. Adolescents were asked whether they had ever suffered from each of 23 depressive symptoms, in addition to suicide attempts. Three of these symptoms--thoughts of death, wanting to die, and thinking of suicide--seem likely to be part of the preparation for the attempt itself. And indeed, two of these symptoms were very highly associated with suicide attempts (Table 6). Of those who had a two-week period of wanting to die, 40 percent attempted suicide; and of those who felt so low that they thought of suicide, 46 percent attempted it. However, a small number of attempters (9%) did not describe a preliminary period of depressed contemplation.

The remaining 20 symptoms, each less obviously associated with suicide, included depressed mood for two weeks or more, loss of interest, loss of enjoyment, inability to work because of low mood, irritability, loss of appetite, loss of weight, sudden weight gain, insomnia, oversleeping, fatigue, feeling worthless, feeling physically slowed down, feeling mentally slowed down, being restless

FAMILY PATHOLOGY AND SUICIDE ATTEMPTS

Number of Adverse Family Factors*	N	Percent Who Attempted Suicide %
None	(1423)	3
One	(730)	9
Two	(344)	17
Three	(188)	20
Four	(82)	27
Five	(22)	36

* Out of:

1. Suicide attempt by relative
2. Quarreling and fighting at home
3. Psychiatric disorders in relative
4. Relative treated for emotional impairment
5. Relative impaired by psychiatric problems

Table 5.

and overactive, hopelessness, trouble concentrating, crying spells, and avoidance of social interaction. Each of these symptoms was associated with an increased risk of suicide attempts. Rates varied from 16 percent in the presence of weight gain to 35 percent in the presence of low mood lasting 2 years or more. Other symptoms with particularly high rates were hopelessness (33%), loss of enjoyment (28%), feeling physically slowed down (28%), feeling worthless (27%), and irritability (26%). Hopelessness has previously been found to be an excellent predictor of suicidal intent in both children who were psychiatric inpatients (Kazdin et al., 1983) and adults (Beck et al., 1975).

Having multiple symptoms among the 20 depressive symptoms that are not clearly prodromata to attempts greatly increased the risk of attempts. In the presence of a single one of these 20 symptoms, the rate of attempts was 4 percent; when the number of

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DEPRESSIVE SYMPTOMS AND SUICIDE ATTEMPTS

Preparatory Symptoms	N	Percent Who Attempted
Thought of suicide	(459)	46
Wanted to die	(378)	40
Thought a lot about death	(701)	23

Other Depressive Symptoms		
Depressed 2 years	(159)	35
Hopeless	(434)	33
Lost all enjoyment	(345)	28
Moved slowly	(143)	28
Felt worthless	(351)	27
Irritable during depressed episode	(498)	26
Work impaired	(427)	24
Thoughts slow	(272)	24
Slept too much	(293)	24
Restless	(194)	23
Lost interest	(405)	23
Insomnia	(467)	21
Crying spells	(555)	21
Withdrew	(562)	21
Low mood	(777)	21
Fatigue	(388)	20
Poor concentration	(451)	19
Poor appetite	(320)	19
Weight loss	(303)	18
Weight gain	(272)	16

Number (Excluding Prep.) Symptoms		Percent Ever Attempted
None	(1254)	2
One	(473)	4
Two	(292)	7
3-4	(328)	3
5-8	(331)	22
9+	(113)	46

Table 6.

symptoms experienced reached nine, more than 45 percent of adolescents attempted suicide; when it reached 12, the rate rose to 50 percent.

Although having a large number of depressive symptoms was an excellent predictor of attempts, it by no means accounted for all suicide attempters. However, a cut-off of five depressive symptoms would have identified half (55%) the attempters. This cut-off is associated with a high rate of attempts in all demographic subgroups. Indeed, this level of depressive symptoms in men creates a risk of attempts equal to that in women (27% for males with five or more depressive symptoms vs. 28% for females with five or more depressive symptoms). Among whites, this level of depressive symptoms also removes the effect of age. The effect of ethnicity, however, is not removed in the presence of five or more depressive symptoms. For whites older than 15 with five or more depressive symptoms, the rate of attempts is 37 percent; for blacks older than 15, it is 25 percent; for whites younger than 15, the rate is 36 percent; for blacks younger than 15, it is 17 percent.

Depressive symptoms are clearly an excellent indicator of suicide attempt risk. Nonetheless, use of five or more depressive symptoms as the single criterion would still miss almost half of the attempters. Therefore, it is worth looking for other indicators as well.

Substance Abuse

Alcohol. About half the teenagers interviewed reported having had alcoholic drinks, but few (8%) had become regular drinkers, defined as drinking an average of once a week or more over the last year or having had a sustained period of very heavy drinking in the last year. Regular drinking was a striking predictor of suicide attempts. Among those drinking regularly in the past year, 12 percent had attempted suicide in that period, compared with 3 percent of the remainder. An elevated rate of attempts was associated with regular drinking for each of the sub-populations identified by age, sex, and race. The

groups most strikingly affected were the young, whites, and females. Only 17 of the young had been frequent drinkers, but 24 percent of them had attempted suicide in the last year. Among white frequent drinkers, 15 percent had made a recent attempt; among female frequent drinkers, 14 percent had. Among the eight frequent drinkers who were young, white, **and** female, three (38%) had attempted suicide in the last year.

Few of these young people had been drinking long enough to develop drinking problems, but among the 2 percent who in the last year had at least two problems of the kind used to make a diagnosis of alcohol abuse or dependence (e.g., missing school because of drinking, binges, or blackouts), 17 percent had attempted suicide.

Getting drunk was more common than either regular drinking or alcohol problems. Seventeen percent of these young people had been drunk at least once during the preceding year. If they drank without ever getting drunk, the rates of recent attempts were only slightly higher than rates for those who did not drink at all (5% vs. 3%). If they had been drunk once or twice in the last year, 7 percent had recent attempts; among those who got drunk three times or more in the last year, the rate was 13 percent. Almost half (46%) the attempters in the last year had been drunk three or more times that year.

Drugs. One-third of these young people had used marijuana. Use of other illicit drugs was much less common; the next most frequently used drug was amphetamines (7%).

While use of any drug was associated with an increased risk of suicide attempt, the association was particularly strong with the use of drugs other than marijuana (Table 7). The single predictor producing the highest rate of having ever attempted suicide was PCP use; two-thirds (67%) of the 30 PCP users had made a suicide attempt. Rates were also above 40 percent for users of barbiturates (N = 85), hallucinogens (N = 82), and glue (N = 66). (Rates were also very high among the few users of heroin (N = 12) and "T's and

blues" (N = 11), but they are omitted from Table 7 because of their small number.)

Weekly use of any drug in the last year was associated with a suicide attempt during that period (13% vs. 3% of the rest of the sample). Drug use of this frequency was associated with elevated rates for each of the demographic subsamples, but particularly among the young. Only 27 of those under 15 had been weekly drug users in the prior year, but 30 percent of them had attempted suicide during that year. Effects of frequent drug use also tended to be greater in whites and girls. Combining these demographic factors, we find that 38 percent of the 13 young white girls who were weekly users had attempted suicide in the last year.

Somatic Symptoms. The interview explored 17 somatic symptoms that could be attributed to physical illness or that might have no physi-

cal basis. They included pain in the abdomen, back, joints, limbs, chest, and head; urinary symptoms; fainting; palpitations; dizziness; weight change; menstrual symptoms including excessive pain, excessive bleeding, or irregularity; and more global physical symptoms such as perceiving oneself to be sickly and having to give up activities because of poor health. An abundance of such symptoms without a physical basis (formerly called "hysteria," more recently "somatization disorder") has been reported as associated with suicide attempts in adult women (Schmidt et al., 1954).

While each of the symptoms explored was associated with an increased rate of ever having attempted suicide, for only a few symptoms (joint pain, chest pain, urinary problems, palpitations, dizziness, excessive menstrual bleeding, weight change, and general sickli-

ILLICIT DRUG USE AND SUICIDE ATTEMPTS

	N	Percent Ever Attempting When Any Use of This Drug %
Total Sample	2787	8
No marijuana	1978	4
Marijuana	803	17
Amphetamines	198	27
Cocaine	123	37
Hallucinogens	82	40
Glue	66	42
Barbiturates	85	45
PCP	30	67

	N	Percent Attempting Recently When Drug Taken Frequently This Year %
Total Sample	2798	4
No marijuana	2598	3
Marijuana	183	14
Amphetamines	80	25
Cocaine	63	22
Hallucinogens	47	30
Glue	24	33
Barbiturates	45	36
PCP	21	43

Table 7.

ness or giving up activities) did it seem to matter whether there appeared to be a physical basis for the symptom. Four percent of the sample had at least three somatic symptoms not explained by physical illness. Among these, 25 percent had ever attempted suicide, but they represented only 11 percent of all attempters. Thus, somatic symptoms were associated with suicide attempts, but they were a less powerful risk factor than depression or substance abuse.

Conduct Problems. Respondents were asked whether they had ever done any of 13 acts that are commonly used to make a diagnosis of conduct disorder. The behaviors investigated included disciplinary problems at school that led to expulsion or suspension, stealing, repeated truancy, repeated lying, running away from home, prostitution, fighting, tormenting animals, robbery, arson, vandalism, breaking into locked buildings, and use of weapons. Almost all (85%) of these inner city adolescents had committed at least one of these acts, and three-quarters (76%) had committed one or more of them at least three times. One out of 11 (9%) had done at least four of these acts three times or more.

With each increase in the number of acts carried out repeatedly, the risk of having ever attempted suicide increased (Table 8). Only 2 percent who had committed none of these acts had ever attempted suicide; when four or more acts had been committed repeated-

ly, the suicide attempt rate was 24 percent. Adolescents with four or more repeated behavior problems accounted for one-quarter of all attempters.

Their higher rate of behavior problems seems to have accounted for the higher rate of suicide attempts in older adolescents. When the number of behavior problems repeated was held constant, the age difference essentially disappeared; with no such repeated behavior problems, the rate of suicide attempts was 1 percent in younger and 2 percent in older adolescents; when there were four or more, the rate of suicide attempts was 22 percent in the younger and 24 percent in the older group. For all demographic subpopulations, attempt rates were elevated when behavior problems were elevated.

Each of these behaviors used as evidence for conduct problems was associated with an increased risk of suicide attempts. Particularly striking was the association with running away from home. Of those who had ever run away, 24 percent had attempted suicide, as had more than a third of those who had run away more than three times and almost half of those who had run away 10 times or more. And among attenders at free clinics, running away is a much more common behavior (18%) than in the general population. Because running away is both common and a potent predictor in this sample, runaways ac-

BEHAVIOR PROBLEMS AND SUICIDE ATTEMPTS

Proportion Attempting Suicide Ever

Number of Problems Occurring:	At Least Once N	%	Three Times or More N	%
None	429	2	670	2
One	551	2	859	4
Two	615	5	676	10
Three	463	9	322	16
Four or more	729	19	260	24

Table 8.

counted for one-third of the suicide attempters. Clearly, when the "street kid" seeks medical care, an important opportunity is presented for suicide attempt prevention.

Depression Combined with Conduct Problems. One of our goals was to learn whether a combination of depression or drug abuse with symptoms typically associated with high impulsivity was a requisite for suicide attempts, or if not, whether this combination greatly increased the risk. To find this out, we looked at rates of attempts in depressives with and without conduct problems, since the latter have been found to be highly related to impulsive behavior.

The results show that a combination of depression with conduct problems of this degree of severity is **not** required, but the effects of conduct problems and depressive symptoms are independent and additive (Table 9). When neither was present at the levels set (three or more depressive symptoms and five or more repeated conduct problems), 3 percent attempted suicide. When conduct problems were present without depression, the rate of attempts was 9 percent. When depression occurred without conduct problems, 20 percent attempted suicide, and finally, when both were present almost half (46%) attempted suicide. Clearly, depressive symptoms are the more potent factor, but the risk is greatly increased if the individual is also impulsive. This pattern held for both boys and girls. For boys the rate of attempts was only 1 percent when neither depressed nor with conduct

problems, 4 percent with only conduct problems, 13 percent with only depression, and 50 percent when both occurred. For girls, the comparable figures are 4 percent, 17 percent, 21 percent, and 44 percent. Girls' rates were higher than boys' with either syndrome alone, but girls were less affected than boys by the concurrence of depression and behavior problems.

Given the high suicide attempt rate when depression and conduct problems were both present, it is of interest to see how often they concur. There was a time when it was believed that conduct problems were a "defense against depression," suggesting that their concurrence would be very rare. In fact, this is not the case; they are positively correlated. In nondepressed adolescents, conduct problems of this severity occurred in 2 percent; in depressed adolescents, they occurred in 8 percent. A positive association between depression and conduct problems was found for both boys (5% vs. 16%) and girls (1% vs. 7%), even though base rates of conduct problems are higher in boys and base rates of depression are higher in girls. If adolescents with both syndromes were selected for intervention, 2 percent of the population would enter care and 13 percent of the attempters would be reached.

Life Events

So far, we have considered demographic factors, family factors, and symptoms as predictors of suicide attempts. While these serve as

CONCURRENCE OF DEPRESSION AND BEHAVIOR PROBLEMS IN PREDICTING SUICIDE ATTEMPTS			
		Percent Attempting Suicide	
Depressive Symptoms	Repeated Behavior Problems	N	%
0-2	0-4	(1971)	3
	5 or more	(46)	9
3 or more	0-4	(707)	20
	5 or more	(63)	46

Table 9.

the background that provides a vulnerability to attempts, the immediate trigger often appears to be some adverse life event. The events about which we have information include the presence of a chronic illness, being arrested, being jailed, being hurt or threatened, being raped, failing in school, learning that one has a sexually transmitted disease, experiencing a death, and being pregnant.

Because youngsters were asked whether each of these events had occurred within the past year, but not about their previous occurrence, the events could be analyzed as possible causes only of suicide attempts within the past year. Finding that the occurrence of these events in the past year is associated with more attempts in the same time period need not mean, of course, that they triggered the attempt. We do not know whether the event preceded the attempt, but even when it did, both may have been explained by some unidentified earlier determinant. We can come closer to being convinced that the event played a role in the suicide attempt if it was associated with a **first** suicide attempt.

EVENTS IN THE CURRENT YEAR
ASSOCIATED WITH RECENT SUICIDE ATTEMPTS

	Any Attempt				First Attempt (of those with no previous attempt)			
	Males		Females		Males		Females	
	N	%	N	%	N	%	N	%
Chronic Illness								
Present	139	5	513	7	131	4	472	6
Absent	498	2	1637	4	492	2	1551	3
Rape								
Present	-	-	2	7	-	-	19	5
Absent	-		2129	4	-	-	2008	4
If attending school								
Failed	53	6	26	10	50	6	113	6
Passed	563	2	182	4	557	2	1736	4
Arrested	66	6	130	15	60	3	117	15
Not arrested	569	2	2013	4	559	2	1903	3
Jailed	28	7	52	25	26	4	43	23
Not jailed	605	2	2088	4	593	2	1975	3
VD	37	5	103	10	37	5	89	7
No VD	591	3	2025	4	577	2	1917	4
Death of someone close	233	3	757	5	225	2	724	4
No death	393	3	363	4	387	3	1275	4
Hurt or threatened	89	11	284	12	84	10	241	11
Not hurt	542	1	1858	3	533	1	1779	3
Event caused PTSD symptoms	37	8	234	14	36	6	204	11
No PTSD symptoms	597	2	1906	3	584	2	1814	3

Table 10.

Results are shown in Table 10 for boys and girls separately with respect to risk of a suicide attempt in the same year as the event and also of a first suicide attempt in that year. Youngsters' first attempts are calculated for those exposed to each event who had no attempt prior to the current year. Rates of first attempts are slightly lower than rates of any attempt in the same year. This should be expected, given our earlier observation that having had a previous attempt increases the risk of a subsequent attempt.

Having someone close to you die was not related to suicide attempts. For girls, there seemed to be little or no effect of being raped or getting pregnant on the rate of subsequent suicide attempts. All other adverse events were associated with some increase in attempts in the past year. Particularly strong relationships were found for being assaulted or threatened. These relationships were found for both boys and girls. The increased risk of suicide attempt associated with being the victim of a physical attack should alert emergency room personnel to offer reassurance that having been battered is no cause for shame or for feeling hopeless about preventing future attacks, and to recommend further care if the young person's reaction appears intractable to such reassurance.

Another type of life event showing a strong association with suicide attempts was trouble with the law. Twelve percent of those arrested and 19 percent of those incarcerated in the last year had attempted suicide. Girls were more vulnerable than boys to contacts with the law. Fifteen percent of girls arrested and 25 percent of those incarcerated in the prior year attempted suicide, compared with 4 percent of the remainder. Although we do not know whether these excess attempts occurred during the period of incarceration, these results suggest that the precautions commonly taken in detention settings to protect males from suicide should probably be extended to females as well.

Putting these Results to Use

We have found that 8 percent of the young persons seen in inner city medical clinics reported having attempted suicide at some time in their lives, 4 percent within the year preceding the interview. Attempts appear to be recurrent, since attempts in the last year were more frequent in those who had made earlier attempts.

We have found a variety of correlates of suicide attempts. They are summarized in Table 11. The proximal depressive symptoms of thoughts about death and thoughts about suicide and the use of exotic drugs are the best single correlates, but there are many others that are also strong.

These correlates can be used as indicators of which clinic patients appear to be at risk of suicide attempts. They may also serve to identify high risk individuals in the general population, although we do not yet know how generalizable our findings are. Nor do we know how well suicide attempts in individuals with a particular set of characteristics can predict actual suicides. Putting these multiple indicators to practical use in clinics requires that clinic personnel have a plan for systematically uncovering their presence in a manner that is not unduly intrusive and that does not require asking an excessive number of questions of those at low risk. In Table 12, we suggest a plan of inquiry that should alert clinic personnel to suicide risk as rapidly and unobtrusively as possible. It begins with information routinely collected at intake, such as the presenting complaint and the people with whom the adolescent lives. It then adds predictors that can be assessed with only a question or two. If used in this clinic sample, these questions would have rapidly identified more than 90 percent of the youngsters in our study who reported to us having attempted suicide. The first positive response would trigger exploration of suicidal ideation, leaving each successive question to be asked of a smaller number of patients. How far down the list of indicators clinic personnel would want to proceed would vary with the facilities for care and the degree to which they felt that the assistance to be offered would actually resolve the youngsters' problems.

The indicators we suggest in Table 12 are not necessarily causes of suicidal behavior, but some of them may be causal. To the extent that they are causal, it should be useful to

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GOOD PREDICTORS OF SUICIDE ATTEMPTS IN ADOLESCENT CLINIC PATIENTS

5 + x Population rate	Used barbs, PCP, hallucinogens, T's & blues, glue
	Wanted to die
	Thought of suicide
4-5 x Population rate	Depressed 2 years or more
	Attempt before this year
	Hopelessness
	4 or more family diagnoses
	Runaway
	Alcohol problems this year
	Incarcerated this year
	Not living with relatives
	Psychiatric chief complaint
3-4 x Population rate	Relative attempted
	Specific depressive symptoms ever
	loss of enjoyment
	felt slowed down
	felt worthless
	irritable
	5 or more depressive symptoms
	Ever incarcerated
	3 or more somatic symptoms not medically explained
	4 or more behavior problems
	Fighting at home involving patient this year
	Has been drunk at least 3 times in the last year
	Hurt or threatened this year
	Arrested this year
2-3 x Population rate	White female aged 15-18
	Has thought often about death
	Any depressive symptom ever
	Ever in trouble with the law
	Severe poverty
	5 or more post-traumatic symptoms

Table 11.

design interventions that would reduce their prevalence. Treating youngsters for depression, helping them to resolve conflicts with family members, encouraging them to stay and work out family problems rather than run away, helping them to reduce their alcohol and drug intake may well be interventions that would also reduce the frequency of suicidal behavior. Other indicators, such as being assaulted or having suicidal family members, may not be possible to eradicate, but it could be useful to warn youngsters that such experiences and family settings put them at risk of harboring suicidal thoughts, and to urge them to seek help should such

thoughts appear.

RECOMMENDATIONS

Because suicide attempts frequently precede actual suicides and are, in any case, signals of profound distress, an important intermediate step in preventing youth suicide should be learning what factors were related to suicide attempts and attempting to prevent further attempts.

Adolescent clinic patients are an accessible population for identifying those at risk of suicide attempts. This paper has used such a population to develop a set of markers that

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HOW TO IDENTIFY 90 PERCENT OF SUICIDE ATTEMPTERS EFFICIENTLY

	Percent Asked the Question	Percent of Attempters Added if Positive	Cumulative Percent of Attempters Identified
Is presenting complaint psychiatric?	100	11	11
Does R live with no relative or spouse?	95	13	24
Was R drunk 3 times or more last year?	89	17	41
Has R ever runaway from home?	84	25	66
Has R ever used hallucinogens, T's & blues, PCP, barbiturates, or glue?	72	3	69
Did R use illicit drugs most weeks last year?	71	2	71
Has anyone in R's family attempted suicide?	68	5	76
Has R ever had a period of two weeks or more of feeling worthless?	66	7	83
Has R ever been arrested?	60	3	86
Has R ever been beaten or threatened in the last year?	57	3	89
Has R ever had 2 weeks or more of feeling hopeless?	53	2	91

Table 12.

might assist pediatricians, obstetricians, and other medical personnel in clinics to recognize those at risk so that they can be asked about their suicidal ideation and so that interventions can be instituted. While the results provide no direct information about what interventions might work, it is at least worth trying interventions that would lower the risk profile and then evaluating their effectiveness. Likely candidates for interventions would seem to be treatment for depression and substance abuse, efforts to reconcile runaways with their families, and development of crisis centers for youths who are victims or perpetrators of crime. Once interventions have been developed, the following program of intervention and its evaluation should be undertaken:

1. Use the correlates of suicide attempts found in this and other studies to develop a set of indicators of risk that can be used nonintrusively and rapidly with adolescent clinic patients.

2. Encourage the systematic use of these indicators by clinic personnel to select patients for questioning about suicidal ideation. Identification requires direct questioning because youths seldom volunteer their suicidal thoughts in routine clinic visits.

3. Offer youths with high risk profiles interventions that might reduce the prevalence of these indicators. Where reduction is not possible, inform them that they may be at heightened risk for suicide attempts, and advise them to seek services in crisis situations. Provide them a list of sources to contact.

4. Institute prospective studies using followup interviews and searches of death records after instituting the interventions suggested above to compare three groups with respect to their subsequent suicide attempts and completed suicides: (1) youths whose risk profiles remained high despite selection for intervention because of noncompliance with treatment offered or treatment failure, (2) youths for whom intervention succeeded in improving their set of risk indicators, and (3) youths not offered intervention because they were assessed as being at low risk of future attempts. This study will both evaluate the predictive power of the risk profiles and test the effectiveness of the interventions.

5. Use the results of prospective studies such as the one described above to improve the set of indicators and interventions being offered in clinic settings, and repeat the evaluation.

6. When identification has been demonstrated to lead to successful intervention, expand the settings in which identification and subsequent interventions can be carried out. Likely sites include emergency rooms and police stations.

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SUICIDAL IDEATION AND ATTEMPTS: THE EPIDEMIOLOGIC CATCHMENT AREA STUDY

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ABSTRACT

Data from the five sites of the National Institute of Mental Health Epidemiologic Catchment Area Study were examined for lifetime prevalences of thoughts of death, desire to die, suicidal ideation, and suicide attempts. Of 18,571 adults aged 18 years and older who participated in the study, 21.7 percent reported that there had been a period of 2 weeks or more some time during their lives when they thought about their own or another's death, 7.1 percent reported that they had "felt so low" they wanted to die, 10.2 percent reported that they thought about committing suicide, and 2.9 percent reported that they had attempted suicide at some time in their lives. Females, persons aged 25 to 44 years, separated or divorced persons, whites, and persons with low socioeconomic status were more likely to have either thought of committing suicide or attempted to commit suicide. Persons who had a diagnosis of a psychiatric disorder were more likely to have either thought about suicide or attempted suicide than were persons with no psychiatric diagnosis (odds ratios = 6.0 and 8.4, respectively).

INTRODUCTION

The epidemiology of suicide in the United States has been analyzed in detail for the general population (1-4) and for the nation's

youth (1,5-10). These analyses are based on death certificate information and, although the problem of misclassification of suicides is an important one, the descriptive epidemiology of those deaths that are coded as suicides may be considered as descriptive of the entire population and relatively accurate.

The same is not true of suicidal ideation and attempted suicide (parasuicide). Most studies addressing the prevalence or the descriptive epidemiology of suicidal ideation or attempted suicide have been based on limited or special populations, such as all admissions to a particular hospital or specialty service for attempted suicide in a particular time period (11,12). Results from such studies, although extremely useful to the clinician, cannot reliably be generalized to the general population. Random population surveys have often been based on fairly small samples from a single locale.

The available epidemiologic information on the population prevalence of suicidal ideation and attempts comes predominantly from four major surveys conducted in North America (13-16). Paykel and his colleagues (13), in a general population survey of 720 adults from a population of 72,000 in New Haven, Connecticut, reported that 8.2 percent of the respondents answered "yes" to the question, "Have you ever wished you were dead--for instance, that you could go to sleep and never wake up?" However, very different results were reported by Ramsay and Bagley (16) from another population survey in Calgary, Alberta, Canada, in which the question was asked using Paykel's exact wording. Of 679 adults surveyed from a population of 350,000, 32.3 percent reported that they had, at some time in their lives, wished they were dead.

Regarding suicidal ideation, Schwab and his colleagues (14) found that 15.9 percent of 1,645 adults from a random sample of 37,000 households in north Florida reported some degree of suicidal ideation when asked, "How often do you think about suicide? Would you say--never, seldom, sometimes, often, all of the time?" Vandivort and Locke (15) asked

a random sample of 3,935 adults from Kansas City, Missouri, and Washington County, Maryland, how often they thought most other people thought about suicide: 18.1 percent of the respondents said "several times a year" and 9.1 percent said at least once a month. Paykel asked about suicidal ideation with two questions of differing intensity: "Have you ever thought of taking your life, even if you would not really do it?" and "Have you ever reached the point where you seriously considered taking your life, or perhaps made plans how you would go about doing it?" In this survey, 4.8 percent of the respondents answered "yes" to the former question, and 2.6 percent answered "yes" to the latter. Ramsay, using the same two questions as Paykel, reported much higher prevalences of 37.8 percent and 13.4 percent, respectively.

Although very few population surveys have addressed the lifetime prevalence of attempted suicide, those that have been done have generated estimates that are basically of the same order of magnitude--about 1\percent to 4 percent. Paykel found that 1.1 percent of the respondents in his sample reported having, at some point, "made an attempt to take (their) life" (13). Again, Ramsay found a higher lifetime prevalence in his survey (4.2%), using the same wording as Paykel (16). Schwab found an intermediate lifetime prevalence: 2.7 percent of his sample reported having tried to commit suicide (14).

The crude annual incidence of attempted suicide has been estimated in a number of studies in which various methodologies were used. Weissman (11), in a review of English language studies from 1960 to 1971, reports a range of crude annual incidence rates for suicide attempts from a low of 0.04 percent in New Delhi, India, to a high of 0.73 percent in London, Canada. Again, very few population surveys have addressed this question. Schwab reports an incidence rate of 0.36 percent in his sample (14); Paykel's estimate is somewhat higher, at 0.56 percent (13); and Ramsay's estimate is higher still, at 0.80 per-

cent (16). All three of these incidence rate estimates are of the same order of magnitude. Notably, studies in which general practice physicians were sampled (17) or prospective studies in which multiple sources (including jails) were used (18) have yielded estimates similar to those reported by these population surveys.

For this paper, we present epidemiologic data on the distribution of suicidal ideation and suicide attempts in the general community. We report here the results of interviews with 18,571 adults from five sites, conducted as part of the National Institute of Mental Health Epidemiologic Catchment Area Study.

MATERIALS AND METHODS

Epidemiologic Catchment Area. The Epidemiologic Catchment Area (ECA) Study is a five-site, two-wave community survey of selected mental disorders (19-23). Detailed descriptions of the study design and sampling procedures have been published (19,20,24). Briefly, complex, multistage probability samples of households were drawn in each of the five participating sites of New Haven, Connecticut, Baltimore, Maryland, St. Louis, Missouri, the Piedmont region of North Carolina, and Los Angeles, California. Elderly persons were over-sampled in New Haven, Baltimore, and the Piedmont. Blacks were oversampled in St. Louis, and the Baltimore site selected some neighborhoods in the catchment area that were predominantly black. The Los Angeles site selected some neighborhoods in the catchment area that were predominantly Hispanic; most of these residents were Mexican American. In general, one adult was interviewed per household, resulting in more than 3,000 adults 18 years old and older from four sites and more than 5,000 in the New Haven site. An additional 500 subjects were interviewed in institutions. At four sites, respondents were interviewed in the

household in two waves, 1 year apart. Respondents in New Haven were interviewed in three waves at 6-month intervals.

Data collection included information on symptoms of affective, anxiety, and schizophrenic disorders, other psychiatric disorders, substance abuse, health service utilization for mental health problems, and sociodemographic characteristics. Diagnoses of selected mental disorders were made on the basis of standardized diagnostic criteria of the American Psychiatric Association (25). These criteria were operationalized in the Diagnostic Interview Schedule (DIS), a highly structured instrument developed specifically for use in community surveys by trained lay interviewers (26,27). Responses regarding the presence or absence of selected symptoms were entered into a computer algorithm that assigned a specific diagnosis to each respondent who met criteria for mental disorders. Although the DIS continues to undergo validity and reliability checks, it is generally considered to be an acceptable instrument for use in community surveys (28-31).

The weighted sociodemographic characteristics of the combined sample by site are shown in Table 1.

Suicidal ideation and suicide attempts. The DIS contains four questions on death and suicide that were asked of each respondent as part of the symptom cluster for diagnosis of major depressive episode:

1) *Has there ever been a period of 2 weeks or more when you thought a lot about death-- either your own, someone else's, or death in general?*

2) *Has there ever been a period of 2 weeks or more when you felt like you wanted to die?*

3) *Have you ever felt so low you thought of committing suicide?*

4) *Have you ever attempted suicide?*

Sociodemographic characteristics (% distribution) of respondents, by site Epidemiologic Catchment Area Study, Wave 1, 1981-1984

Characteristic (n)	Total (18,571)	New Haven (5,034)	Baltimore (3,481)	St. Louis (3,004)	Piedmont, NC (3,921)	Los Angeles (3,131)
Total	100.0	100.0	100.0	100.0	100.0	100.0
Sex						
Male	41.0	41.0	38.0	40.0	39.5	47.3
Female	59.0	59.0	62.0	60.0	60.5	52.7
Age*						
18-24	12.1	8.5	14.5	15.7	9.6	15.3
25-44	35.1	24.4	34.8	41.1	31.4	51.5
45-64	22.0	16.0	24.2	24.0	27.4	20.7
$\geq$ 65	30.7	51.2	26.5	19.2	31.7	12.3
Ethnicity**						
Nonblack/ Non Hispanic	68.8	90.3	65.2	61.0	63.9	51.1
Black	23.4	8.4	34.0	38.5	35.8	4.6
Hispanic	7.8	1.3	0.8	0.5	0.3	44.3
Marital Status						
Married	46.8	49.5	42.2	45.7	51.1	43.3
Never married	20.5	15.7	22.8	22.5	15.3	30.2
Sep./Divorced	14.9	10.3	18.4	18.5	11.6	19.3
Widowed	17.7	24.5	16.4	13.3	22.1	7.2
Socioeconomic status in quartiles						
Lowest	24.3	20.6	30.3	22.7	29.5	18.3
Medium low	33.5	32.9	39.6	35.6	31.1	28.5
Medium high	28.2	⸱30.6	24.9	27.8	26.1	31.2
Highest	14.0	16.0	5.2	13.9	13.2	22.0
Employment status***						
Employed	47.1	38.8	40.0	48.7	46.3	65.4
Not employed	52.9	61.2	60.0	51.3	53.7	34.6
Psychiatric diagnosis (ever in lifetime)						
No	67.1	75.4	61.2	65.4	64.8	64.8
Yes	32.9	24.6	38.8	34.6	35.2	35.2

* The elderly were oversampled in New Haven, Baltimore, and Piedmont.

** Blacks were oversampled in St. Louis; the Baltimore site selected some neighborhoods in the catchment area that were predominantly black; the Los Angeles site selected some neighborhoods in the catchment area that were predominantly Hispanic

*** "Not employed" includes homemakers; total number not responding to this question = 1,313.

Table 1.

All four questions were asked of each respondent at both the baseline (Wave 1) and followup (Wave 2) interviews. In addition, respondents at three of the five sites (Baltimore, the Piedmont, and Los Angeles) were asked at both interviews about the recency of the symptoms. Suicidal ideation was represented by an affirmative response to Question 3, and suicide attempt was represented by an affirmative response to Question 4.

Analyses. In this paper, we present analyses based on data from the Wave 1 household interview at all sites. All analyses took into account the complex sampling procedures used in the study. The data were weighted by age, sex, and race/ethnicity (black/Hispanic/non-black, non-Hispanic) to standardize the combined five-site population to the United States household population as determined by the 1980 Census (24).Responses to each of the four questions were tabulated by sex, age, race, marital status, socioeconomic status, employment status, site, and psychiatric diagnosis. Weighted prevalence estimates and standard errors were generated by using PROC SESUDAAN (32). Significant differences in bivariate comparisons were determined by using a standard Z-statistic.

Four weighted logistic regression models, one for each death/suicide question, were constructed with SAS PROC LOGIST (33), with sex, age, race, marital status, socioeconomic status, employment status, site, and psychiatric diagnosis as the independent variables. The model parameters produced by PROC LOGIST were then entered into PROC RTILOGIT (34), along with the stratification variables from the sampling design. This procedure made it possible to produce tests of significance of the model parameters by taking into account the complex sampling design of the ECA Study. The overall alpha level was set at 0.05 for each regression analysis. Because the analyses estimated 18 regression coefficients, statistical significance for each was tested at a probability level of 0.0028 (0.05/18), based on the Bonferroni inequality (35). Odds ratios and confidence limits were computed for the variables found to be significant, based on the coefficients and their standard errors derived from PROC RTILOGIT.

RESULTS

Prevalence. Table 2 shows the overall

Weighted prevalence per 100 of thoughts of death, desire to die, suicidal ideation, and suicide attempt, by recency Epidemiologic Catchment Area Study, Wave 1, 1981-1984

Time of occurrence*	Thoughts of death	Desire to die	Suicidal ideation	Suicide attempt
Ever (lifetime)**	22.2	7.2	10.7	2.9
Ever (lifetime)***	20.7	6.7	10.2	3.0
More than 1 year ago***	20.6	6.7	10.1	3.0
Last year***	10.1	2.6	2.6	0.3
Last 6 months***	8.7	2.1	1.8	0.2
Last month***	6.0	1.4	0.8	0.1
Last 2 weeks***	4.6	1.1	0.6	0.1

*Overlapping time categories.
**Includes all five sites.
***Excludes New Haven and St. Louis.

Table 2.

weighted prevalence of thoughts of death, desire to die, suicidal ideation, and suicide attempts by recency. Recency questions were not asked at the Yale and St. Louis sites, and these sites are therefore not represented in the estimates for 1 year, 6 months, 1 month, and 2 weeks. Most suicide ideation experiences and attempts occurred more than a year before the interview. "Thoughts of death" was the most frequently reported outcome, and suicide attempts were the least common outcome. The prevalence of suicidal ideation was higher than the desire to die when respondents reported having experienced this symptom more than 1 year before the interview; the desire to die was more prevalent than suicidal ideation when respondents reported its occurrence within 6 months or less of the interview.

Table 3 shows the weighted prevalence of thoughts of death, desire to die, suicidal ideation, and suicide attempts by sociodemographic characteristics, psychiatric diagnostic status, and site. Standard errors for each estimate appear in parentheses. All four outcomes were significantly more frequent among women and persons with a psychiatric diagnosis. Persons 25 to 44 years of age had significantly greater rates for all four outcomes than did older persons. Persons 18 to 24 years of age had significantly greater rates of thoughts of death, suicidal ideation, and suicide attempts than did persons 45 years of age and older. Non-Hispanic/nonblack (predominantly white) persons had the highest rates of thoughts of death and suicidal ideation, whereas Hispanics had the highest rates of desire to die and suicide attempts. Within marital status categories, separated or divorced persons had significantly higher rates of desire to die, suicidal ideation, and suicide attempts. Thoughts of death were most common among widowed individuals. Persons with higher socioeconomic status had the highest rates of suicidal ideation, but persons with lower socioeconomic status had the highest rates of suicide attempts. Persons not currently employed had higher rates of thoughts of death, desire to die, and suicide attempts.

Finally, there was considerable variation in the outcomes by site, with generally lower rates in Baltimore and the Piedmont and highest rates in Los Angeles, particularly for suicidal ideation and suicide attempts.

Because Los Angeles was the only site that sampled a large proportion of Hispanics, it was also necessary to compare the rates for this group with rates for blacks and others (non-Hispanic/nonblack) within Los Angeles. Table 4 shows the results of these rate comparisons. The rates for thoughts of death and desire to die for Hispanics were not significantly different from the rates for blacks and others in Los Angeles, which contrasts with the significantly greater rate for desire to die that was seen in Table 3 when rates were compared by ethnic status across all five sites. Rates of suicidal ideation were not significantly different for Hispanics and blacks in Los Angeles, but the rates for both minority groups were significantly lower than the rates for the non-Hispanic/nonblack group. Similarly, Hispanics did not differ significantly from blacks in the rate of reported suicide attempts, but their reported rates were significantly lower than those reported for non-Hispanics/nonblacks.

Table 5 shows the odds ratios derived from the four logistic regression analyses on thoughts of death, desire to die, suicidal ideation, and suicide attempts. Regardless of outcome, psychiatric diagnosis was the strongest risk factor, followed by female gender. The significantly low odds ratios for persons aged 65 and older indicate that this age group was at lowest risk, with the two youngest age groups (18-24 and 25-44) at increased risk for morbid or suicidal thoughts. Age was not a significant factor for either desire to die or suicide attempts. Non-Hispanics/nonblacks (essentially whites) were at significantly higher risk for suicidal ideation than were either blacks or Hispanics and were at higher risk than blacks for suicide attempts. Widowed marital status was a significant risk factor for thoughts of death and desire to die, but not for the other outcomes. Divorced or separated persons were ap-

Weighted prevalence per 100 (and standard errors) of thoughts of death, desire to die, suicidal ideation, and suicide attempts, by sociodemographic characteristics
Epidemiologic Catchment Area Study, Wave 1, 1981-1984

Characteristic	Thoughts of death		Desire to die		Suicidal ideation		Suicide attempt	
Total	22.2	(0.4)	7.2	(0.3)	10.7	(0.3)	2.9	(0.2)
Sex								
Male	17.9	(0.6)	4.7	(0.3)	8.8	(0.4)	1.5	(0.2)
Female	26.1	(0.6)	9.4	(0.4)	12.4	(0.5)	4.2	(0.3)
Age								
18-24	22.8	(1.2)	6.3	(0.6)	12.1	(0.9)	3.4	(0.5)
25-44	24.7	(0.7)	8.4	(0.4)	14.6	(0.5)	4.0	(0.3)
45-64	20.3	(0.9)	6.7	(0.5)	7.8	(0.5)	2.1	(0.3)
$\geq$ 65	18.4	(0.7)	5.7	(0.4)	4.0	(0.4)	1.1	(0.2)
Ethnicity**								
Nonblack/ Non Hispanic	22.6	(0.5)	7.2	(0.3)	11.3	(0.4)	3.0	(0.2)
Black	19.5	(0.8)	5.8	(0.5)	6.8	(0.6)	2.3	(0.3)
Hispanic	19.4	(1.1)	8.5	(0.7)	8.3	(0.9)	3.3	(0.6)
Marital Status								
Married	20.6	(0.5)	5.4	(0.3)	8.4	(0.4)	2.0	(0.2)
Never married	22.4	(1.0)	7.4	(0.6)	13.7	(0.8)	2.9	(0.3)
Sep./Divorced	25.6	(1.1)	14.3	(1.0)	20.9	(1.1)	8.5	(0.8)
Widowed	27.6	(1.1)	9.6	(0.8)	5.5	(0.6)	2.0	(0.4)
SES in quartiles								
Lowest	20.8	(1.0)	8.1	(0.6)	8.5	(0.8)	3.9	(0.6)
Medium low	21.7	(0.8)	7.7	(0.4)	10.4	(0.5)	3.6	(0.3)
Medium high	23.6	(0.8)	7.4	(0.5)	11.1	(0.5)	2.6	(0.3)
Highest	21.6	(1.0)	5.0	(0.6)	11.9	(0.8)	1.5	(0.3)
Employment status								
Employed	21.0	(0.6)	5.8	(0.3)	10.9	(0.4)	2.4	(0.2)
Not employed	23.5	(0.7)	8.6	(0.4)	10.4	(0.5)	3.7	(0.3)
Psychiatric diagnosis (ever in lifetime)								
No	15.7	(0.4)	2.7	(0.2)	4.6	(0.3)	0.8	(0.1)
Yes	37.4	(1.0)	16.5	(0.7)	23.4	(0.7)	7.4	(0.5)
Site								
New Haven	22.9	(0.8)	8.4	(0.5)	10.2	(0.6)	2.4	(0.3)
Baltimore	21.4	(0.9)	6.2	(0.4)	7.6	(0.6)	3.4	(0.4)
St. Louis	23.1	(1.1)	6.5	(0.5)	10.6	(0.7)	3.1	(0.4)
Piedmont, NC	20.4	(0.9)	5.2	(0.6)	10.0	(0.9)	1.5	(0.4)
Los Angeles	21.8	(0.9)	8.5	(0.6)	14.6	(0.7)	4.3	(0.4)

Table 3.

Weighted prevalence per 100 (and standard errors) of thoughts of death, desire to die, suicidal ideation, and suicide attempts, by ethnicity Los Angeles site only, Epidemiologic Catchment Area Study, Wave 1, 1981-1984					
	Non-Hispanic/ Non-Black		Black		Hispanic
Thoughts of death	22.6	(1.1)	20.7 (5.2)		19.2 (1.1)
Desire to die	8.2	(0.7)	8.4 (2.8)		8.7 (0.7)
Suicidal ideation	17.1	(0.8)	11.4 (2.3)		8.2 (1.0)
Suicide attempt	4.6	(0.5)	3.7 (1.6)		3.1 (0.6)

Table 4.

proximately twice as likely to report desire to die, suicidal ideation, or suicide attempts as were married persons. Persons in all marital status categories except married had significantly higher odds ratios for desire to die. The never married were also at increased risk for suicidal ideation. Lower socioeconomic status was a significant risk factor for suicide attempts, but not for the other outcomes. Those persons not currently employed had a significantly higher odds ratio for desire to die, but not for the other outcomes. Finally, there were significant differences between sites for each death/suicide outcome. In general, persons surveyed in Baltimore had lower odds of thoughts of death, desire to die, and suicidal ideation, whereas persons surveyed in Los Angeles had significantly greater odds of suicidal ideation and attempts.

DISCUSSION

Limitations. The data reported here have several limitations that need to be noted. First, the data are based on cross-sectional findings. Although the significant associations between the outcomes and various risk factors are provocative, no conclusions can be drawn with respect to causality. Second, the data were collected from catchment areas in five different communities. Although each sample was population-based, they are representative only of the Catchment Area from which they were drawn. Third, because the ECA Study was not specifically intended

to be a survey of morbid or suicidal thoughts and behavior, the outcomes were not clearly defined for the respondent by the interviewer. "Suicide attempt" could thus have been interpreted by the respondent as an act of deliberate self-harm without the intention of dying, a genuine (and failed) attempt to end one's life, or as something else (perhaps an "accident" had been explained to them by a physician that had seen it as an unconscious suicide attempt). Suicidal ideation, similarly, may mean very different things to different people. This issue will be discussed in more detail later. Fourth, the data are based on self-reports, not observations. The ECA Study shares a problem common to all surveys that rely on self-reported data--recall bias (36). Respondents tend to recall events that have occurred recently more readily than they do events that have occurred in the more distant past. Thus lower rates among the elderly could be due to forgetting, differences over time in labeling behaviors, or the results of surveying a population from which those most likely to have attempted suicide had already died (i.e., differential mortality). This is likely since the cumulative lifetime risk of suicide increases with age and some of the suicide attempters in the older age groups may have already committed suicide. Fifth, it was not possible to collect data on other issues previously identified as being related to death/suicide outcomes--for example, the number of attempts, social isolation, method of attempt, or family history of suicide or suicidal behavior. Finally,

Logistic regression analysis: odds ratios for thoughts of death, desire to die, suicidal ideation, and suicide attempt, by psychiatric status and sociodemographic characteristics
Epidemiologic Catchment Area Study, Wave 1, 1981-1984

Characteristic	Thoughts of death	(CIs)*	Desire to die	(CIs)	Suicidal ideation	(CIs)	Suicide attempt	(CIs)
Psychiatric diagnosis	3.56**	(3.05-4.15)	7.04**	(5.34-9.29)	6.03**	(4.86-7.48)	8.43**	(5.27-13.49)
Female	1.76**	(1.50-2.07)	2.42**	(1.83-3.20)	1.89**	(1.51-2.36)	3.29**	(2.11-5.14)
Age								
18-24	1.00		1.00		1.00		1.00	
25-44	1.02	(0.79-1.32)	1.32	(0.94-1.85)	1.24	(0.93-1.66)	1.08	(0.61-1.93)
45-54	0.90	(0.68-1.19)	1.23	(0.81-1.87)	0.84	(0.56-1.18)	0.63	(0.29-1.36)
≥65	0.72**	(0.53-0.99)	0.84	(0.51-1.38)	0.44**	(0.26-0.74)	0.34	(0.11-1.06)
Ethnicity								
Nonblack/Non Hispanic	1.00		1.00		1.00		1.00	
Black	0.82	(0.67-1.00)	0.74	(0.52-1.04)	0.49**	(0.36-0.67)	0.59**	(0.36-0.97)
Hispanic	0.85	(0.65-1.11)	1.04	(0.67-1.62)	0.43**	(0.27-0.68)	0.56	(0.26-1.20)
Marital status								
Married	1.00		1.00		1.00		1.00	
Never married	1.02	(0.83-1.26)	1.44**	(1.01-2.06)	1.57**	(1.17-2.11)	1.13	(0.63-2.01)
Sep./Divorced	1.02	(0.82-1.26)	1.88**	(1.32-2.69)	2.02**	(1.56-2.61)	2.48**	(1.50-4.09)
Widowed	1.65**	(1.28-2.13)	1.84**	(1.19-2.84)	0.97	(0.62-1.51)	1.21	(0.51-2.85)
Socioeconomic status in quartiles								
Lowest	0.75	(0.55-1.02)	1.15	(0.71-1.86)	0.78	(0.48-1.28)	2.24**	(1.01-4.94)
Medium low	0.84	(0.65-1.09)	1.30	(0.86-1.97)	0.85	(0.61-1.19)	2.32**	(1.21-4.45)
Medium high	1.02	(0.79-1.32)	1.35	(0.89-2.05)	0.92	(0.67-1.26)	1.80	(0.96-3.39)
Highest	1.00		1.00		1.00		1.00	
Employment status								
Employed	1.00		1.00		1.00		1.00	
Not employed	1.15	(0.96-1.37)	1.43**	(1.08-1.88)	1.14	(0.89-1.45)	1.51	(1.00-2.28)
Site								
New Haven	1.00		1.00		1.00		1.00	
Baltimore	0.79**	(0.63-0.99)	0.52**	(0.36-0.75)	0.64**	(0.46-0.89)	0.95	(0.54-1.66)
St. Louis	1.03	(0.81-1.31)	0.77	(0.54-1.09)	1.08	(0.79-1.47)	1.18	(0.62-2.23)
Piedmont, NC	0.84	(0.67-1.05)	0.55**	(0.35-0.86)	0.98	(0.66-1.46)	0.58	(0.26-1.27)
Los Angeles	0.93	(0.73-1.18)	0.93	(0.62-1.39)	1.60**	(1.20-2.14)	1.84**	(1.06-3.19)

* The Bonferroni correction was used to establish a confidence interval of 99.72%.
** $p \leq 0.0028$.

Table 5.

we have no data on completed suicides with respect to antecedent experience of suicidal thoughts and behavior.

Problems with self-definition of suicidal ideation and suicide attempt. As noted previously, some of the variation among different surveys in the prevalence of suicidal ideation may be due to the differing ways in which various investigators asked about this phenomenon; that is, in essence, the definition of "suicidal ideation" varied among the studies. This issue is particularly important for determining the prevalence of attempted suicide. When public health planners consider surveillance for attempted suicide, they often consider emergency medical services (EMS) and emergency rooms as the most likely sources of data; each of these sources sees primarily those attempts associated with relatively serious injury or at least with the perception of serious injury by EMS personnel or the self-admitted patients. However, the respondent in a population survey may have a very different definition that may not necessarily involve injury at all. For example, in a recent survey of a high school population between the ages of 14 and 18 years, 9 percent of the respondents reported that they had made at least one suicide attempt (37). Some portion of this very high prevalence may be due to a liberal definition of "suicide attempt" on the part of the student. This suggestion is supported by the preliminary findings of a survey in another school population in which several students who reported having attempted suicide revealed only vivid suicidal ideation when describing their "attempts" (personal communication).

Prevalence. Very few community surveys of morbid or suicidal thoughts or acts have been done with which the prevalences reported here for thoughts of death, desire to die, thoughts of committing suicide, and suicide attempts might be compared. Those studies that have addressed these issues have frequently asked about morbid and/or suicidal thoughts in different ways, making comparison even more difficult. However, when comparisons are possible, the prevalence

rates have generally been of a similar order of magnitude.

In our survey, 10.1 percent of the respondents said that they had, at some time in their lives, "felt so low (they) thought of committing suicide." Other surveys of suicidal ideation have also given prevalences in this range. Schwab's (14) estimate of 15.9 percent is higher than ours possibly because his question presupposes the existence of suicidal ideation, making it somewhat easier for the respondents to report such thoughts. Similarly, Vandivort and Locke's (15) question about suicidal ideation is asked so as to allow for the projection of the respondents' suicidal ideation onto others. Their prevalence estimate of 18.1 percent is also higher than that reported here. Paykel's (13) estimates of 4.8 percent and 2.6 percent are lower than ours, possibly reflecting the increased specificity of his questions. This interpretation is supported by the observation that, in our survey, a higher proportion of respondents reported suicidal ideation (10.1%) than reported having ever wanted to die (7.1%).

Risk factors for suicidal ideation and behavior. The risk factors for suicidal ideation and behavior in our study are similar to those found in the few previous epidemiologic surveys of suicidal feelings. Paykel et al. (13) reported that suicidal feelings of any degree were found significantly more among women and were significantly associated with 23 psychiatric symptoms. When subjects reporting suicidal feelings were compared with nonsuicidal controls, they were significantly more likely to have had a hospital admission in the previous year, to have had a hospital admission for a psychiatric disorder, and to have taken tranquilizers or sleeping pills. The authors considered that these findings probably reflected treatment for a psychiatric disorder related to the suicidal feelings.

Vandivort and Locke (15) also noted, as did Paykel, that individuals reporting suicidal ideation also reported significantly more psychiatric symptomatology. Similarly,

Goldberg and Huxley (38) found that suicidal ideation among 18 to 24 year olds was significantly associated with psychiatric symptoms as measured on the Center for Epidemiologic Studies Depression Scale (CES-D) and the Langner 22-Item Mental Health Status Questionnaire.

We found that the lifetime prevalence of suicidal ideation was higher in younger than older age groups. This finding was also reported in previous surveys (14,15). Although only adult populations were surveyed in these studies, there is evidence that the prevalence of suicidal ideation of some degree is also quite high (6%-12%) among children and adolescents (39,40).

In the present study, the significant correlates of attempted suicide were female sex, lower socioeconomic status, a disrupted marital status, and a psychiatric diagnosis, whereas being young was significantly associated with suicidal ideation. These correlates are strikingly similar to those reported from hospital studies of individuals who were admitted for attempted suicide. For example, Weissman (11) reported that the preponderance of female over male attempters was found in all the countries reviewed, that about 50 percent of suicide attempters were under 30 years of age, that age-standardized population comparisons revealed an excess of divorced persons among attempters, that the lower social classes were overrepresented, and that a diagnosis of depression was made in between 35 percent to 79 percent of all attempters. Furthermore, Kreitman (12), reporting on parasuicides admitted to the Regional Poisoning Treatment Centre in Edinburgh between 1962 and 1974, noted that it was the youngest women, the lower social classes, and the divorced who had the highest rates of parasuicide and that past psychiatric care and current psychiatric disorder were found in about 40 percent of suicide attempters.

In general, social risk factors for psychiatric disorders are best identified by population studies that look at population prevalence, rather than clinical studies which examine only treated population prevalence. This type of identification is best because results from clinical studies may reflect differences in the "filters" in the health care system that determine who consults a doctor, whether that doctor refers the patient to a psychiatrist, and whether the psychiatrist admits the patient to a hospital. However, the similarity in the correlates for suicide attempts between the present (and previous) population and clinical studies probably reflects the fact that most individuals in the general population who attempt suicide necessarily come into contact with hospital and psychiatric services (though up to 30% may not) or, those that come into contact with hospital or psychiatric services are representative of the total suicide attempter population (11). Interestingly, when Kreitman compared parasuicides who were and were not admitted to the Edinburgh Regional Poisoning Treatment Centre, he found that the two groups were very similar (12).

Implications of a hierarchical response pattern. Although one might suppose that completed suicides are simply a (fatal) subset of all attempted suicides, it appears that, demographically at least, completed suicides and attempted suicides represent distinct, although overlapping, populations (41). This same issue is relevant for morbid and/or suicidal thoughts and acts. Are these thoughts and acts independent of one another, or is there a stepwise hierarchy of increasingly suicidal thoughts and actions? The series of four questions asked in this survey seems to imply at least the possibility that these phenomena--thoughts of death, desire to die, thoughts of committing suicide, and attempted suicide--lie on a continuum from less serious to more serious and from the "normal" to the pathologic. To some extent, this is supported by our findings. Of those who reported having had thoughts of death, 24.8 percent also reported having wanted to die; 15.5 percent reported also having had thoughts of suicide; and only 5.7 percent reported having attempted suicide. Of those who reported having wanted to die, 57.1 per-

cent reported having had thoughts of suicide and 20.6 percent reported having attempted suicide. Of all those who reported having had thoughts of suicide, 26.9 percent reported having attempted suicide.

This issue appears in a different light when examined from the opposite perspective, however. Of those who reported having attempted suicide, 90.2 percent reported having had thoughts of suicide, but only 54.0 percent reported having wanted to die, and only 43.7 percent reported having had thoughts of death. Of those who reported having had thoughts of committing suicide, 44.7 percent reported having wanted to die and 35.2 percent reported having had thoughts of death. Of those who reported having wanted to die, 72.3 percent reported having had thoughts of death.

There is no simple, consistent, graded relationship between the morbid and suicidal thoughts and acts inquired about in this survey. The most similar populations appear to be those who think about and those who attempt suicide: 90.2 percent of the latter group are contained in the former. However, even here, Schwab reports a very different finding: almost two-thirds of the respondents in his survey who reported having attempted suicide answered "never" to the question, "How often do you think about suicide?" (15).

These proportions have implications for predicting, for example, who is likely to report having attempted suicide. Although 90.2 percent of those who attempt suicide have had thoughts of committing suicide, only 29.9 percent of those who report suicidal ideation will also report a suicide attempt. In fact, this latter proportion is probably an overestimate because suicide attempts might be recalled more easily than suicidal ideation. "Wanting to die" is almost as predictive as having thoughts about committing suicide-- that is, 20.6 percent of those reporting they had wanted to die also reported a suicide attempt.

Of course, these numbers cannot be used to predict who will attempt suicide because they are not prospective. There is no way to determine from these data whether, for instance, the reported suicide attempt came before or after the suicidal ideation or the reported desire to die. We do intend to examine this question in the future, however, using ECA data from the Wave 2 followup. If future studies can demonstrate that responses to questions such as these can indicate which individuals are at high risk for suicide, then they might be used to screen for high-risk individuals (e.g., in the setting of an apparent suicide cluster) so that resources for counseling or other preventive interventions could be appropriately targeted.

Implications for prevention of youth suicides. The findings of this study have implications for preventing youth suicide and parasuicide. First, this survey gives us some idea of what levels of morbid and/or suicidal thoughts might be expected in the general population. Such knowledge may be very useful, for example in investigating apparent clusters of suicide or attempted suicide among teens by providing a baseline against which individual community prevalences may be compared. Second, this survey allows us, for the first time, to reliably estimate the incidence of attempted suicide. In general, 300 per 100,000 persons per year attempt suicide (0.3% in the past year). Third, this survey gives us some ability to direct available prevention resources. Attempted suicide is most prevalent among women, the young, the lower socioeconomic strata, separated or divorced persons, the unemployed, and persons with a psychiatric diagnosis. These risk groups, in general, might be targeted for some sort of screening or intervention. Particular prevention interventions might be targeted toward the young, given that the incidence of attempted suicide is high in this group and that the completed suicide rate has increased dramatically in this population since 1950. Finally and most importantly, this survey generates hypotheses for further research. In particular, the associations noted in this cross-sectional analysis need to be explored to determine whether a positive

response to a particular question is in any way predictive of future suicidal behavior. Such a finding would have enormous implications for high-risk individuals.

Areas for further research. This study has highlighted several areas that merit further investigations. First is the need for more detailed analyses of psychiatric status with respect to ideation and attempts. We recognize that there may be a confounding effect between psychiatric diagnosis and suicidal ideation and attempts because these are criteria for some psychiatric diagnoses. We intend to examine this further. In addition, it is likely the relationship between psychiatric status and suicidal ideation and attempts varies by diagnosis. This, too, must be examined in more detail.

A second area that must be explored is the relationship between the dependent variables themselves. In a cross-sectional analysis such as this, which variables are "dependent" and "independent" is decided by the investigator. Indeed, when thoughts of death, desire to die, and suicidal ideation are considered together as independent variables, they are strongly associated with a history of attempted suicide. However, the utility of questions about morbid and/or suicidal thoughts as **predictors** of future suicide or parasuicide remains to be established.

A third area that must be addressed by future studies is a comparison of the general profile derived from psychological autopsies of suicide completers with the profile of suicide attempters. What correlates do these two groups share? In what respects do they differ? Finally, the similarities in the present study among the correlates of the four questions on death and suicide suggest that these questions may be inquiring about phenomena that lie on a continuum, if they do not in fact overlap. Prospective studies are needed in which individuals with and without these risk factors are compared for subsequent suicidal behavior. This is not new; indeed, clinical studies of psychiatric patients have been published (42,43). Fol-

lowup studies of suicide attempters in the general population, however, remain to be done.

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DEVELOPING A SUICIDE SCREENING INSTRUMENT FOR ADOLESCENTS AND YOUNG ADULTS

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SUMMARY

A major problem in trying to reduce the incidence of suicide is the difficulty in identifying individuals at risk of suicide. In addition, there is the problem of assessing the degree of suicidal risk so that individuals can be directed to appropriate treatments.

Almost all mental health professionals and many other service providers report that they look for indications of suicide risk. Their approach is often informal and subjective, with reliance on clinical experience, judgment and "feel" for the person, to detect warning signs. A more formalized technique for screening would systematize and objectify this task of detection, and likely increase the accuracy of diagnosing suicide risk.

A suicide risk screening instrument constructed from empirical data and utilizing known and presumed correlates of suicidal behavior, would be useful to clinicians involved in screening and assessment. Such an instrument could also educate parents, teachers, and others, to help them recognize the suicide-prone individual.

A Suicide Screening Checklist has been developed and needs to be field-tested to determine its sensitivity and specificity. This instrument would help most clinicians, especially less experienced ones, in their complex task of trying to identify suicidal persons and to assess their suicide risk.

The recorded suicide rate of the adolescent/young adult age range (15-24 years) has increased substantially over the past few decades and now ranks second as a cause of death, with accidents being the number one cause of death in the United States. Many fatal accidents and "accidental" injuries have a sub-intentional self-harm or self-destructive component. Many suicides are unrecorded or misclassified as accidents because of social stigma, hence the total number of suicides far exceeds the recorded rate.

The need to increase accuracy in screening techniques is a vital step towards reducing needless deaths and injury among young people.

Statement of Problem and Definition of Terms

The major task of this paper is to develop a sensitive screening instrument for identifying youth at high risk of suicide. Such a screening instrument does not currently exist in published form. "Screening" means to assess an individual for the purpose of the identification of suicidal potential. Suicidal potential (or suicide risk) refers to the likelihood that such a person will engage in behavior that will directly or indirectly lead to self-destruction. By "sensitive" we mean the capability of the instrument to accurately identify a large proportion of the truly

suicidal individuals in the population tested.

An ideal screening instrument should have items that can be quantified, so a total score can be derived, and the degree or severity of suicide risk determined. Establishing severity of risk allows the instrument not only to identify the suicidal person, but also to identify the level of self-destructive intent. The screening instrument's specificity is the degree to which it accurately differentiates those youth not at risk for suicide from those youth who are suicidal.

Such a screening instrument must be broad in scope, to cover the multitude of intentions inherent in suicidal behavior. (Intent may be self-destructive, self-harm, attention seeking, punishment of others, etc.) Yet it must also minimize "false positives," i.e., a score falsely indicating high suicide risk when the person is actually nonsuicidal. These varied objectives make the task of sensitive screening quite difficult, particularly when screening for such a statistically infrequent event. It is likely, for example, that such an instrument may well include the identification of self-harm behavior, as well as self-destructive behavior. This would increase the frequency of identification by at least eight-fold since suicide attempts occur 8 to 20 times as often as suicides. It would be important to be able to detect individuals at risk of suicide attempts, since suicide attempts can have serious, long-lasting sequelae for both the attempter and family members, in addition to the often permanent physical injury to the attempter. Equally important, self-harmful behavior is often a precursor for subsequent, more lethal attempts (1). Thus, while the major aim is to identify individuals at high risk for self-destructive behavior, a good screening technique should also identify those at risk for suicide attempts (2,3).

Some claim they can accomplish this task of identifying suicidal persons by using interview questions. If we can identify degree of suicide risk from several interview questions, why do we need a screening instrument? For one thing, such identification is bound to be highly subjective, and a more formal screen-

ing instrument is necessary to establish--in a more comprehensive, sensitive, focused, and specific manner--the criterion validity of the identification variable (1).

Most clinicians working with latently suicidal young people continuously complain that one of their most exasperating challenges is being able to identify accurately suspected suicidal potential, as well as to assess its degree of risk. Failure to accomplish this task creates more anxiety in clinicians than any other diagnostic challenge in behavioral assessment, as it is the only area in mental health which deals with a life and death issue (4,5,6).

Because of the complexity of the behavior that we are screening, we may well need to develop a multi-level, screening procedure, in which the initial screening instrument will be a first stage, and may yield results that indicate a need for further assessment. Thus, initial screening may be followed by a second stage, using even more precisely-focused assessment instruments.

Such sequential screening should especially help reduce false negatives (a score falsely indicating low suicide risk when a person is actually a high risk suicide), and false positives. These incorrect classifications often occur as a function of an intent to manipulate, i.e., to try to create an image of being highly suicidal, or of using extensive denial to hide suicidal intent. The degree of validity of the instrument may also play a role in this problem.

Another major purpose of such a screening instrument is to allow earlier detection, diagnosis, and treatment and thereby serve to prevent suicidal ideation or threats from turning into actual, overt behavior. Early intervention and appropriate treatment could reduce the likelihood of immediate suicidal behavior and allow youth to develop more constructive coping skills to deal with stress, minimizing suicidal urges as problemsolving behavior.

A final purpose in developing such a screening instrument is to give more structure to the education and training of professional and paraprofessional personnel in suicide

centers, crisis "hotlines," hospital emergency rooms; to psychotherapists and school counselors; to personnel in school nursing offices; and to persons in other evaluation and treatment environments. The screening instrument will help to focus their attention on areas known to be correlated with suicidal behavior.

A screening instrument will supplement clinical judgment and provide a more comprehensive approach to assessment. This is an added rationale for developing such a screening device, since the complexity of the task is obvious, and the varying clinical skill levels of persons involved in this assessment task are considerable.

The screening instrument will be aimed at the age group under 24, but different parallel forms may be needed for children (up to 15 years) and adolescents/young adults (15-24 years), because some correlates of suicide in younger age ranges have been found to be different from those of adolescents and young adults (2).

This proposal will emphasize developing an adolescent/young adult screening form, a more immediately needed instrument, since the current recorded suicide rate for that 15 to 24 year old group is ten times higher than the 10 to 14 year old age group (3), and currently ranks second as a cause of death in the United States, even though many suicides are not recorded as such (3).

Requirement for a Screening Instrument

The development of a screening instrument must meet several practical criteria in addition to being valid and reliable. It must be easy to administer by a wide variety of personnel, whose clinical training will vary widely. It must be usable by the school counselor or nurse, emergency room staff, the volunteer crisis worker, and the more specifically trained mental health professional. It must be relatively easy to score objectively and to be interpreted meaningfully. Techniques for quantifying responses need to be established with as much empirical support as possible.

These tasks all need to be accomplished in a relatively short period of time, since decisions of disposition often need to be made quickly.

Brevity in administration and interpretation is also vital for purposes of readministration to evaluate change. Thus, the screening instrument should focus on the current condition of the person, to establish a baseline for evaluating suicide risk at a subsequent time.

The screening instrument should allow a less experienced clinician to make a more accurate and rapid diagnosis and decision about the nature of the intervention and subsequent treatment. Increasing the accuracy of such a critical task will be more cost-effective in saving of lives and reducing injury from suicide attempts, as well as lessening the frequency of unnecessary costly hospitalizations.

Suicide screening techniques can have a strong public health/mental health impact, by offering a more structured screening (identification) procedure to deal with the widespread problem of youth suicide.

Such suicide screening instruments can also provide more structure to education and training programs; by increasing the effectiveness of clinical services and by lessening inaccurate assessments and diagnoses, they can increase the cost-effectiveness of mental health care.

The less experienced clinician or paraprofessional would have their screening and diagnostic skills enhanced, although care must be taken to conceive of the screening instrument as an effort to organize and supplement clinical judgment, not substitute for it. Thus, a high score on the screening instrument, meaning high suicide potential, is a vital guideline, to be incorporated into one's clinical judgment, to help decide what kind of intervention and subsequent treatment is needed. As such, the highly experienced clinician's ambivalence in using such a screening instrument, should be reduced.

The added structure of having more effective screening and assessment tools should also significantly upgrade and expand the delivery

of more accurate and broadly available diagnostic and treatment services. Hopefully, such advancement will encourage private business and philanthropy to view this new screening technique as progress, and, consequently, encourage a higher level of financial support, to facilitate the much needed longitudinal, followup studies.

Since no published youth suicide screening assessment instrument currently exists, studies of adult suicidal persons were surveyed to collect a series of empirically-derived variables that have been found to correlate highly with suicidal behavior. In addition, the clinical experiences of seasoned clinicians who work with suicidal young people have also been translated into variables, and incorporated into the proposed screening instrument. A comprehensive approach must not only identify psychological variables that correlate highly with overt suicidal behavior, but also must identify and include other significant parameters, such as age, sex, physical and mental health, prior suicidal history, peer, family and school environments, and socioeconomic factors.

The initial screening instrument likely will be lengthy and therefore cumbersome, but it could be refined by extensive field testing with clinical and nonclinical (control) populations. Such testing could be implemented in collaborative research projects to assure samples large enough to evaluate the short term predictive validity of suicidal behavior.

To actually develop the screening instrument, we have formed a Test Development Team (TDT), of five highly experienced clinicians who have worked extensively with suicidal children and young adults. This Team contributes variables, based on their clinical experiences, which they feel correlate highly with suicidal behavior. Those variables having the strongest consensus are incorporated into the initial version of the screening instrument. This procedure has been piloted, with success, in developing suicide assessment measures with adult populations (4).

Adequacy of Data Base

The empirical data currently available as a basis for designing a screening instrument have numerous serious flaws. Most studies have failed to separate persons who actually intended to commit suicide from those who were only seeking attention or only seeking to hurt, but not kill, themselves. Such research studies fail to distinguish between persons at low risk for suicide and those at high risk.

Lack of attention to providing more careful definitions of risk in a defined suicidal population has impaired the adequacy of data in many published studies. A careful definition of terms and selection of populations can help to deal with this issue and refine the meaning of research data.

It would also be highly desirable, for purposes of future research, to develop and use a more refined nomenclature of suicidal behavior, to distinguish among varying degrees of intentionality more precisely (e.g., self-harmful versus self-destructive). Previous attempts at such classification have been lacking in clinical relevance.

A focused interview (i.e., eliciting data in specific areas) with the suicidal person is necessary to obtain many categories of reliable data. With younger children this task may be especially difficult, and data from parents and/or siblings will have to be utilized. Data are often inadequate because of incomplete interview procedures. The reported low suicide incidence level of very young children (below 10 years of age) will probably require different screening procedures, hence our initial focus on the 15 to 24 year age group. Suicides at the very young age range are underreported, because many States do not even have a suicide category for cause of death in the under-10 age range.

Most of the literature cited does not define degree of severity of the suicide attempt or injurious behavior which is related to risk. The need for quantification of relevant variables is a key factor and total score of a screening instrument should reflect severity. "Middle range" scores are often ambiguous in

their meaning.

Another inadequacy of the research surveyed is distinction of "long term" vs. "short term" risk potential. By short term we mean immediate or in the next few days. How can we distinguish immediate and chronic or long term suicidal tendencies? An accurate suicide/accident history and careful delineation of the duration of the current crisis should provide adequate data for determining chronicity. Self-abusive lifestyles and indirect self-destructive behavior (e.g., long term, severe eating disorders, "accident" proneness, refusing life-sustaining medication, etc.) are indications of longer-term risks. We need to collect data pertinent to both kinds of risk. Many so-called "accidents" (the leading cause of death among adolescents) are clearly subintentional self-injury or self-destructive in intent. Much suicide-prone behavior is lost in research data that does not properly examine such behaviors. Short term or immediate risk is usually addressed more easily in existing research but is often not defined adequately.

Adequacy of data also can be affected by the degree of interactional rapport attained in the individual interviews. The fullness of cooperation and involvement of the interview or test responses, the degree of confidence regarding the candidness and the honesty, or the degree of manipulation of the respondent--these elements have rarely been addressed and are especially important with children and adolescents, who may be trying to make a certain impression. One procedure to evaluate manipulation is to establish "too high" or "too low" cut-off scores, which indicate attempts at trying to "create an image." A lie scale, based on a set of a pattern of responses to specific items, has been found useful in other assessment devices, but not incorporated in existing suicidal assessment techniques. Such a lie scale would help minimize the false positives and false negatives, i.e., the person who wants to create an image of being suicidal but actually is not, or the one who tries to hide or deny suicidal intent. This is a requirement to develop an adequate data base and to ascertain predic-

tive validity.

Adequate test-retest procedures, to establish reliability and record change over longer durations of time, are vital to evaluate these important issues; however, such procedures are rarely addressed in the literature.

The often subjective sources of data being incorporated, i.e., self-report data vs. clinical inference data, must be kept in mind in examining the results and in interpreting research findings.

Another shortcoming that affects previous studies is the lack of followup studies to ascertain both criterion and predictive validity. Such studies are of critical importance.

All these factors affect the adequacy of research data, and we must employ a step-by-step assessment procedure to incorporate techniques to correct, or, at least, more stringently limit these defects.

Incorporating these various techniques and considerations into our screening methods is important. If these features cannot be incorporated in a single primary instrument, then a "sequential screening process," can be used to funnel our identification of the suicidal person, and an assessment of the degree of risk to a high level of accuracy, preferably no more than 20 percent false positive or false negative, a percentage of error which is considered reasonable (1,5) given the complexity of the task.

First, however, we should detail an initial method to construct a primary suicide screening technique.

Construction of a Screening Instrument

The compilation of a series of specific variables could be most simply set forth in the format of a Suicide Screening Checklist (SSC). Such an instrument would be utilized by the clinician or interviewer, indicating presence or absence of the variable, on the basis of interview data from the patient and/or relatives. In some instances, hopefully infrequent, certain interview data would have to be subjectively inferred, rather than

objectively tabulated, such as some of the psychological variables (e.g., mistrust, despair, hopelessness, etc.).

At this stage in developing a screening technique it is reasonable to ask only those questions that can be answered "yes" or "no," and avoid questions that would require specifying a degree of severity. Such a Checklist would be easier to administer and complete. Also, severity could be measured by the total score. The indication of a level of confidence in the task, by the clinician, helps evaluate the degree of certainty in responding to each of the items.

The degree to which a variable derived from empirical studies (and from a consensus of clinical experiences of our Test Development Team) is consistently found to be a strong correlate of suicidal behavior, is used as a basis to assign a weight (or a multiplier) to each item in the Checklist, inasmuch as some variables are determined to be more consistent, and deserve a higher valence, than others. Such weights are further evaluated for their power to differentiate suicidal from nonsuicidal persons in the field testing phase, and revised on the basis of their relative contributions to the suicide potential, based on followup study.

Assessing the predictive validity would require following the tested persons for a long period, following a population large enough to have an adequate number of persons who tested positive, and evaluating the effect of any treatment given.

A lengthy followup period of at least two years is needed. Long term risks are covered by this time span (1). Such followup also helps to ascertain the adequacy of the intervention and treatment methods used. It is also desirable to follow those persons whose screening scores indicated low suicidal potential, for comparative purposes, as another form of a control group.

Large-scale, collaborative studies, using known high-risk population samples, helps ensure a relatively more homogeneous group with a sufficiently high incidence of highly lethal suicidal behavior, and permit a suffi-

cient number of evaluations to allow refinements of our assessment technique(s). Classification of intention needs to be defined for each person (e.g., attention seeking, self-harm, hurting others, self-destruction).

In seeking high-risk samples, one might look for communities at higher than average risk, such as those hit hard by unemployment, or where a suicide had occurred in a defined school district since "contagion" may play a role in increasing the risk other youth face (2). High risk samples are also likely where known smaller-scale family stresses were ongoing (school failure, serious illness, death/divorce in family, history of drinking or other drug usage, poor impulse control, criminal record, irreversible loss, etc.). Examination of previous collaborative studies (8), employment statistics, and contacts with local school counselors helps secure such data.

With over more than a thousand members in the American Association of Suicidology (AAS), and their respective individual clinical affiliations, it is possible to enlist aid from a few dozen of such affiliations, to accomplish a collaborative endeavor, even though AAS is not primarily a research organization. (As a chairperson of the AAS Risk Assessment Committee, this writer can facilitate such cooperation and subsequent collaboration.)

Literature Survey

There have been no defined assessment or screening instruments published whose focus was in the cited age range of 24 and under.

There have been some unpublished children's rating scales developed, but these mainly measured depression, not suicide. Since many suicidal persons, especially in younger age ranges, are suicidal without being depressed, it is important not to rely on scales of depression to evaluate suicide risk. An example of one such scale is by Poznanski (9), but it has only a few items that relate to suicide.

A suicide scale for adolescents has been

developed very recently by G. Val (10), but it has not been extensively field-tested, nor has there been any criterion validation of its items. The items aim at the adolescent age range and elicit information about suicide ideation, feelings and intent.

A number of adult suicide assessment techniques have been developed, but most of these techniques have lower age limits of 18 or 21, so they can be considered to relate only to part of the age range in question. Also, the test items in these techniques have not been constructed with a younger age range in mind. But more important to our objectives, none of these instruments have been aimed at screening per se. These instruments are aimed primarily at assessing severity of known suicidal persons and not at identification of latently suicidal persons.

Tuckman and Youngman (11) have found 14 factors that differentiate clearly between suicidal high risk and low risk categories. Among the most discriminating factors were living arrangements (living alone) and demographic variables (divorced, unemployed).

Cohn, Motto and Seiden (12) found 19 of 22 demographic factors to distinguish low and high risk suicidal persons, many of these similar demographic factors defined by Tuckman and Youngman (age, marital status, and sex).

An earlier effort to assess immediate and long-range self-destructive personality is reported by Litman and Farberow (13), as well as Tabachnick and Farberow (14).

McNeal and Johnston (15) surveyed existing paper-and-pencil tests, concluding that such techniques have yet to improve on frequently used clinical signs of suicide.

Miskimins and Wilson (16) developed a suicide potential scale consisting of 23 demographic and personality items from psychiatric inpatients who committed suicide, a modest predecessor to the more extensive study by Motto, who most recently developed a clinical risk inventory of suicidal correlates derived from a large sample of adults who committed suicide (17). Both

these studies have a high value in terms of consistently identifying common correlates of suicidal behavior.

Clinical scales and schedules, almost always aimed at assessing suicide risk in adults, have been developed over the years by numerous additional investigators (Los Angeles Suicide Prevention Center (18), Zung (19), Beck (20), Cull (21), Diggory (22), and others). Some have selected a specific dimension, such as time perspective, and have developed an assessment tool around the specific concept (Yufit, 23; Melges, 24). Others have used style, such as rigidity in thinking (Neuringer, 25) and problemsolving, or have incorporated suicide rates within the context of other widely used techniques, such as the Rorschach (26,27,28,29) and the MMPI (30). These latter techniques are too elaborate in administration, scoring and interpretation and too nonspecific in spite of special internal "suicide scales" which often give false negative results.

Robins (31) compiled guidelines to help clinicians recognize suicide potential, emphasizing the diagnosis of chronic alcoholism as being prevalent in her study of completed suicides. This study has high value, as alcoholism in the family or in the suicidal person is a frequent correlate but not a causal factor for suicide.

Hendin's study in Scandinavia (32) has cited as important such developmental practices as child-rearing techniques, guilt and dependency producing behavior, and achievement values instilled by parents.

Early loss of an important love object as a precursor to later suicidal behavior has been a finding in a number of studies (33,34,35) and also may be an important etiological factor.

In an ongoing collaborative study on depression, Fawcett and colleagues (36) have found hopelessness, inability to have fun, and not having a sibling under 18 living in the household as correlates of suicidal behavior.

Findings and Proposal

At this point, the surveyed literature does not promote any solution to the problem of developing a usable screening or assessment technique for young people. Nor has any one assessment technique for evaluating adult suicidal persons met the criteria of sensitivity, specificity and severity, and therefore has not been given widespread recognition or acceptability (37,38).

The research findings thus far published have been inconclusive, although some promising starts have been made. We are going to use the findings with highest consensus of specific variables, based on surveyed research, and develop our screening technique using these empirical findings, plus our own combined clinical experiences derived from the consensus of experienced suicidologists (4).

A proposed paper screening instrument for assessing high risk suicidal behavior in young people could well take the format listed below. A focused clinical interview is used to provide the data. Many items have a provisional "weight" assigned, as discussed. These weighted items (or individual multipliers) are added to the total score as being proportionally more important in the screening task, based on the level of consensus from surveyed research and clinical consensus.

The clustering of certain weighted items will serve as a more comprehensive multiplier of risk potential, and will thereby heighten suicide risk when data to support such a cluster of items are present. The assignment of weights, which give a proportional aspect of each item to the total score, is also a form of a concentrator, and the presence of a positive response to such a series of clusters of these weighted items, significantly increased the risk factor of suicidal behavior (1,5).

Thus the total score of the SSC is not the only avenue of interpretation. Subscores, based on weighted item clusters, provide added information. It may be possible, pending subsequent refinement of the screening instrument, to condense the SSC to the most significant of these clusters.

This Screening Checklist is completed mainly on the basis of a focused clinical interview. Other available sources (family, friends accompanying the patient, previous school or hospital records and tests) should also be utilized, in making every attempt to complete the Checklist with a broad spectrum of data and thereby with as much certainty as possible. When data are conflicting, such as parents indicating suicidal concern about their suicidal child, who in turn denies such feelings, the overall comprehensiveness of the score of the multidimensional screening instrument, plus one's clinical judgment, should provide more of an objective "answer," than current more subjective, less comprehensive methods allow.

The sequential process in screening in a clinical setting could take the following steps. If clinical judgment should conflict with SSC score, use secondary screening indicated below. For a research setting, the ultimate decision will be made by the primary caretaker, and recommendation based on findings should be made accordingly.

1. Referral of troubled person.
2. Interview, using SSC (consult other records, significant others, when available).
3. Score SSC using above resources.
4. Indicate level of confidence.
5. Interpret data--using total score and significant item clusters with high weights.
6. If high score with high confidence (i.e., high suicide risk), make decision to hospitalize.
7. If low score (i.e., low suicide risk) with high confidence rating, consider discharge from immediate intervention procedure; follow with recommendation to school counselor or involvement in outpatient psychotherapy. Followup to determine if recommendation was actually implemented.
8. If low score with low confidence rating, use secondary screening instruments, which could include existing adult suicide assessment techniques (some need to be modified for adolescents), such as Beck's SIS Time Questionnaire, or Actual/Ideal

Q-sort technique*. These kinds of supplementary techniques should provide additional data to assist decisionmaking (especially about the need for hospitalization).

9. If high score with low confidence rating, examine weighted clusters of items. If most of these are positive, consider hospitalization to allow more extended evaluation.

10. Scores in middle ranges will need secondary assessment level techniques. Examine weighted clusters for added information.

A Proposed Screening Instrument

The SSC that follows will be accompanied by a Manual of Directions to facilitate scoring and interpretation. A brief version of such a manual is included in the Appendix. Field testing should verify whether the specific clusters of items, scored as currently existing, are to be considered special danger signs in the suicide screening process. If these empirically derived clusters are positive, they should correlate with a high total score and subsequent suicidal behavior to ascertain the sensitivity of the instrument and establish criterion validity. These independent criteria need to be established in initial pilot studies since the existing literature has not provided consistent support for these criteria.

The SSC is to be used by trained mental health professionals or volunteers who have been trained by mental health professionals, such as State-licensed clinical psychologists, psychiatrists, school counselors, nurses, or social workers. Ideally, the persons using the SSC should have formal college courses in interview techniques, individual supervision in establishing rapport, and in data interpretation. Psychologists who have had formal test-

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* Beck's instrument taps degree of suicidal ideation (39). The Time Questionnaire gives time profiles that differentiate suicidal persons from nonsuicidal persons (40,41). The Q-sort is a self-descriptive sorting of descriptive statements on a defined continuum to indicate self-perception of current (actual) self and hoped for, idealized self. The two Q-sorts are inter-correlated to give an indication of congruence (4,42).

ing supervision in APA-approved internships would be the best qualified to score and interpret the response patterns. A work setting formally certified by the American Association of Suicidology would be an optimal level of accreditation. Training programs at suicide prevention centers that have been so accredited by AAS offer the ideal context for the training of volunteers and professionals.

There is still another advantage to using such screening procedures.

Such screening procedures are likely to lessen liability claims. Even if such procedures should occasionally provide misleading results, their usage reflects the intent of the clinician to apply the most systematic, research-supported procedures currently available. Courts look favorably on such efforts, and negligence based on not using supplementary technique assessment is less likely to be an issue.

One dimension not yet included in the SSC is biological in content. For example, there is evidence that specific CSF metabolites may change in proportion when suicide potential is high. The possibility of affective change, such as depression or anger, may affect the metabolites.

The work of Traskman and associates (43) on a serotonin metabolite (5-HIAA) and by Bunney and Fawcett (44) on 17 OHCS could add another dimension to screening for suicide potential, and make the SSC an even more broadly conceived multidimensional instrument. Similar biological correlates might be added to the demographic, psychological, medical, sociological, environmental, and historical correlates. At this time, however, the biological findings are too provisional to be formally included, and their practicality as a screening measure, especially for younger persons, would pose some medical problems. For example, testing CSF for serotonin would entail a costly and risky test--a spinal tap--to obtain a specimen from each person.

The SSC begins with more empirical demographic/historical/ epidemiological

components that have been deemed important (3,45). A continuum of decreasing objectivity is found in subsequent SSC sections. The rationale for including each of the items is based on the accumulated consensus of empirical research support and the consensus of experienced clinicians. Theory also serves as a source for items.

One of the items (#39-belonging) is related to this writer's theoretical notion of underlying psychodynamics of suicide (48). Erik Erikson's eight stages framework (49) also serves as a theoretical framework for several items, as does the work of Farber (50).

Each item weighted by a "2" has been cited by more than one research study. A weighting of "3" has been cited by more than one study, plus consensus of our TDT. Weightings of "4" are items which are supported by at least three research studies and consensual clinical experiences. Item clusters with extra weighting are emphasizing both research and strong consensus by clinicians regarding the combined relevance of several variables as a cluster correlate of suicidal behavior. These clusters receive these extra weightings proportional to the more extensive research and experiential empirical support.

The result of these efforts is the Suicide Screening Checklist which follows in the appendix.

Further Considerations

We are trying to assess a complex behavioral syndrome/level of ideation which has a potential death consequence.

The use of the proposed Suicide Screening Checklist could improve screening and assessment efforts by helping to objectify, systematize and focus the highly subjective, idiosyncratic, inconsistent, and often vague evaluation methods currently in use.

The SSC will have to undergo a series of revisions to increase its power to make consistently accurate differentiations among suicidal and nonsuicidal persons. Cut-off score ranges need to be empirically evaluated, primarily by followup studies.

The immediate implementation of the SSC, even in a relatively crude present form, should help both the experienced and, especially, the inexperienced clinician, in the task of identifying and assessing suicide potential.

Experienced clinicians may be reluctant to use such screening techniques. A survey, undertaken by the Health and Human Services Office of Analysis and Inspections, indicates that many experienced clinicians tend to rely only on their clinical judgment as a primary source of decisionmaking (51). The survey by HHS reveals that 42 percent of 268 health care providers surveyed expressed interest and would use such a screening tool (51). Another 42 percent indicated "maybe" to usage. There was strong consensus that such screening instruments would be very helpful in training, and also be especially useful to less clinically experienced personnel.

Accurate identification of suicidal persons more likely to be accomplished by the use of the SSC, than the equally important task of risk assessment, which will require field testing to establish empirically derived cut-off scores. Persons who reveal an over-indulgence and/or neglect in everyday abusive living styles, which clearly indicate an indirect self-harm or self-destructive consequence (extreme eating disorders, heavy drug usage, high accident rate), should also be evaluated by the SSC, to determine its ability to discriminate the truly self-destructive from those who intend to injure (or punish) themselves via abusive lifestyles.

To the degree that we can have sufficient field testing of the SSC, to establish valid cut-off scores, and evaluate the value of the weighted clusters of items, we can move towards a valid, reliable assessment of risk. The effectiveness of this test must await long term followup studies. This screening instrument could be of value in three ways:

1. Allow us to concentrate treatment resources on those at highest risk

2. Permit earlier intervention

3. Teach healthcare providers what to look for

The greater confidence level of the health care provider, on the basis of being able to use a more systematic approach, may also improve the entire diagnostic screening/intervention/treatment process.

Recommendations

The following recommendations should be implemented as soon as possible, to meet the rising incidence of suicide in the young.

1. Develop the proposed Suicide Screening Checklist to deal with the immediate problem of identifying high risk youth suicide potential. The SSC will complement and improve the validity of clinical judgment. Apply the SSC in a pilot study format of collaborative projects: a series of extensive field tests with high risk, low risk suicide, and nonclinical (control) populations. Train relevant personnel in the use of the screening instrument, scoring and interpretation.

2. Revise the SSC after field testing on appropriate populations. Re-administer SSC to comparative clinical and control populations for further fine tuning. The refined instrument should aim to be sensitive, specific, and be able to assess severity. It should not be too time-consuming or expensive to administer, score, and interpret. Decide whether "sequential screening" or a "screening battery" may be necessary, if a single procedure is not accurately identifying a large majority (80%) of high risk suicidal young persons. Determine whether parallel forms will be needed for children (below 15 years of age), and for adolescents and young adults (15-24 years).

3. Conduct intermediate (2 year) and long term followup studies. We need re-administration of SSC and other developed instruments, to further evaluate predictive and criterion validity as well as reliability. The SSC must have valid items and cut-off scores to assess severity and aid decisions about intervention and treatment.

4. Introduce the SSC into education and training programs in schools, community clinics, crisis centers, hospital emergency rooms, and any setting where known or suspected suicidal young persons may be present. Give special emphasis to education program for parents and teachers, using the SSC as a context of "what to look for" in assessing potential self-destructive behavior.

5. Study control groups of nonsuicidal children, adolescents, and young adults to determine how they cope and adapt to change. This is especially important to explore effects of unexpected negative change to ongoing stress, and how much importance needs to be given to the respective value of internal mechanisms of defense, as compared with external support systems.

   Whatever adaptive modes of coping can be identified should be defined, and attempts made to develop such coping strategies in suicide-prone young people, via their therapy and other treatment programs. Low scoring persons on the screening might also serve as another level of such a control group.

6. These recommendations should be undertaken as soon as possible. Funding should be made available to field test screening instruments such as the SSC and others which may be in the process of development, such as those cited on the HHS Survey (51). With collaborative studies, such field testing can be completed in a year or less. The followup studies could continue as revisions on the screening technique are made and further field testing is done.

7. Parents and teachers must be educated, if we are to create a better milieu and more awareness of this problem. We need to reduce the social and personal stigma of suicide, and also teach parents, teachers, and students to recognize the danger signals. Screening instruments can provide guidelines to such danger signals. Adequate screening gives the mental health clinician or trained volunteer a chance to

identify suicide-prone persons and facilitate prompt intervention to reduce suicide intent and to help develop the desire to live.

8. Enlist the involvement of several institutions to collect a large data base more rapidly. AAS can be of help in this task.

9. These recommendations should be implemented now for the purpose of allowing more accurate and effective screening, intervention, and subsequent treatment of our suicidal youth, thereby lowering the incidence level of completed and attempted suicides, reducing injuries, saving lives, and reducing the suffering of survivors.

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APPENDIX: An Example of a Screening Instrument

Suicide Screening Checklist (SSC) for Adolescents and Young Adults

	Yes	No	Uncertain

Suicide history: (max. = 18)

1. Prior attempt
2. 2 or more prior attempts in past year (highly lethal = x 2)
3. Prior suicide threats, ideation
4. Suicidal attempts in family (X 2)
5. Completed attempts in family (X 3)
6. Current suicidal preoccupation, threats, attempt (X 2); detailed, highly lethal* plan (X 2); access to weapon, medication in home (X 4); all three 'yes' = 8
7. Preoccupation with death

Psychiatric History: (11)

8. Psychosis and hospitalization (X 3)
9. Diagnosis of schizophrenia or manic depressive illness (X 3)
10. Poor impulse control (current = X 3)
11. Explosive rage episodes (underline: chronic, single, recent, single past)
12. Accident-proneness (frequency, examples)

School (when relevant): -(9)

13. Grade failure
14. Rejection
15. Poor social relations
16. On probation or dropped out of school (X 2)
17. Disciplinary crisis (X 2)
18. Anticipation of severe punishment
19. Unwanted change of schools

Family: (27)

20. Recent major negative change, usually a loss (death, divorce, serious health problem); (irreversible loss = X 3; divorce = X 3; both 'yes' = X 6)
21. Loss of emotional support, estranged; early loss of parent (X 3)
22. Loss of employment (parent or self)
23. Major depression in parent, sibling (X 2)
24. Alcoholism in family member (X 2)
25. Psychiatric illness in family member (X 2); (23-25 Yes = 6 X 2)
26. History of sexual abuse

Societal: (3)

27. "Contagion" suicide episode
28. Economic down-shift in community
29. Loss of major support system (group, job, career problems)

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* "High lethality" defined as method with low degree of reversibility, low risk for rescue (46,47), substantial medical injury, e.g., comatose.

Personality and Behavior; cognitive style: (60)

	Yes	No	Uncertain

30. Anger, rage (intense = X 2; held in X 4; Both = 6)
31. Depression (intensely depressed = X 2; agitated depression = X 4; Both = 6)
32. Hopelessness (X 4) (30, 31, 32, all Yes = 6 + 6 + 4 = 16)
33. Mistrust (paranoid = X 2)
34. Disgust, despair
35. Withdrawn, isolate (2)

36. Low "future time" perspective (X 2)
37. High "past" orientation (X 2) (yes on 36, 37 = 4 X 2 = 8)
38. Rigidity or perfectionism (X 2) (Both = 4)
39. Lack of belonging (X 2)
40. Indifference, lack of motivation (boredom = X 2)
41. Worthlessness, no one cares
42. Shame or guilt (Both = X 2)
43. Helplessness
44. Inability to have fun (X 2)
45. Extreme mood or energy fluctuation (Boch = X 2)
46. Giving away valuables

Physical: (14)

47. Male (X 3); Caucasian (X 2); (both 'yes' = 5)
48. Significantly delayed puberty
49. Recent physical injury resulting in deformity, impairment (permanent = X 2)
50. Marked obesity (+20%)**
51. Marked recent underweight or anorexia (-15%)** (more than 20% = X 3)**
52. Sleep disturbed (onset, middle, early awakening)
53. Ongoing physical pain

Interview behavior: (20)

54. Non-communicative, encapsulated (X 4)
55. Negative reaction of patient to interviewer (X 4)
56. Negative reaction of interviewer to patient
57. Increasing "distance" during interview (X 3)
58. Increasing hostility, non-cooperation (X 2)
59. Highly self-critical, self-pitying (Both = X 2)
60. Discusses death, suicide (X 4)

Total Score: _____ (Max. = 162)

Suicide Potential Range Risk Guidelines:

(Tentative ranges - to be evaluated by field-testing):

Severe	(110 to 162)
Moderate	(60 to 109)
Low	(below 60)

.Confidence Level: _____High _____Low   Reasons for low confidence rating:

** Use standard height-weight tables per appropriate age-range

Manual For Use and Scoring The Suicide Screening Checklist (ssc):

(Abbreviated Version)

The SSC is completed during and following an interview that includes major focus on areas to be evaluated. When necessary, available friends or relatives may be utilized to collect relevant data to supplement the primary source of patient interview data.

It is critical, initially, to develop as good a level of rapport as possible to ensure maximal amount of involvement and candidness. Inability to develop a high level of rapport is often important data in itself, as lack of cooperation or disruptively high anxiety may be symptomatic of the current level of coping and adaption, as well as ego function.

Care must also be taken to watch for manipulative behavior, in which the person may be desiring to create a negative image to elicit sympathy, attention, etc., or to create a positive image of good psychological health, either due to denial, or because the person is trying to hide their suicidal intent. The degree of manipulation may also be seen in a positive light, as a reflection of the person's maneuverability and skills at seeking control and mastery.

Scoring

Each item is to be scored as present (yes), absent (no), uncertain or unclear (unc).

Weighted items are scored according to the number (multiplier) in parenthesis. If the data fits the highest weighted score when there is more than one score listed, the higher multiplier should be used. For example, if #36 and #37 are both "yes," the total score for the two items is 8 (2 + 2 = 4 X 2 = 8). In #6, a "detailed, highly lethal plan" would be scored a "3," whereas "preoccupation" alone is scored a "2."

Total the scores of all 60 items.

Try to minimize the number of "uncertain" scores. (Each "uncertain" score receives a zero score.) Use the cut-off score ranges as guidelines to clinical judgment. A high score should be considered ominous, even if not supported by your own clinical judgment.

On the other hand, a low SSC score that is not supported by clinical judgment needs careful exploration to ascertain if a "false negative" has been obtained. An examination of positive scores on key "item clusters," when a low overall score has been obtained, merits special close scrutiny of the total picture. Secondary (i.e., sequential) screening is usually indicated.

"Low level of confidence" must be evaluated, as this rating raises the question of the validity of the total score. Added sources of data are usually needed.

With successive SSC revisions, based on criterion validity, the total scores and cut-off score ranges should assume increasing levels of objectivity.

A SSC score above 120 or below 20 should be viewed with skepticism, and suggests that responses are being slanted to create a "sick" or "healthy" profile. Until a formal "lie scale" is developed, it is sometimes useful to repeat the same questions at a later point in the interview, to determine the reliability of the original response.

Be wary of the effects of licit or illicit drug usage on mood and level of involvement. Verify amounts consumed if possible and be aware of side effects.

Attempt to corroborate questionable response data by questioning accompanying family members or close friends. Usually a sufficient degree of trust can be established in the interview to minimize doubts about degree of manipulation. Establishing an adequate rapport is important, so that the pattern and total score of an adequate screening instrument can provide decisive data in the diagnostic process, which is a vital reason for its incorporation into decision-making.

PREVENTIVE INTERVENTIONS IN THE HEALTH AND HEALTH-RELATED SECTORS WITH POTENTIAL RELEVANCE FOR YOUTH SUICIDE

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Summary

The purpose of this paper is to review the usefulness of interventions that have been applied to health problems other than suicide, and to discuss their possible relevance for the prevention of suicide among youths.

Interventions are characterized as altering one of three sectors: the health services sector, the general physical or social environment, or the behavior of individuals at high risk of the problems under consideration. Interventions are also distinguished by their intended influence on populations ("societal level") on services, or on individuals within populations.

The health service system has the potential for greater impact on prevention of suicide than is the case at present. To realize this potential, however, it will be necessary to improve access (both financial and organizational) to services, to improve the consistent utilization of a regular source of primary health care, to improve the recognition of psychosocial problems by means of screening and case-detection, and to improve the management of such problems when they are detected.

The review of the literature concludes that interventions that do **not** require individuals to make choices of activities ("passive" interventions) are likely to have greater benefit in reducing suicide than interventions that depend upon individuals choosing to change their behavior ("active" interventions). As many suicides are unpremeditated and impulsive, efforts to reduce access to or use of the means of suicide are critical. Some of the interventions for reducing access and use require changes at the societal level (regulation of firearms); others take place at the services level (educational and occupational opportunities to reduce feelings of hopelessness and desperation, or provision of barriers to the implements of suicide), and others take place at the individual level (opportunities for rechanneling impulsivity).

Concerted efforts to develop and/or evaluate alternative interventions to accomplish the goal of suicide prevention are urgently needed.

Preventing Youth Suicide: An Eclectic Approach

Question: *Why is it necessary to take an eclectic approach toward suicide prevention?*

Answer: Information that would be required for a more definitive approach is lacking.

1. Little is known about either the etiologic basis of suicide or the circumstances that trigger suicide.

2. There is no widely accepted preventive strategy.

3. Even if there were a strategy, it is not clear that it would be practical, effective, or cost/beneficial, particularly considering the other health needs that are pressing.

The aim of this paper is to draw inferences from preventive interventions that have proven successful in health-related conditions **other** than suicide. Viewing these interventions simultaneously exposes underlying principles that can be applied to suicide prevention, at least until such a time when specific knowledge about the phenomenon of suicide makes a more definitive approach possible.

This paper will first define a model for prevention, present evidence for intervention within the model (pointing out where the challenges of suicide are similar to the situation under consideration), and suggest an agenda for research that can inform the development and choice of alternative strategies.

A MODEL FOR PREVENTION

The health of a population or of an individual is determined by four types of factors: genetic composition and biologic structure, the social and physical environment, behavioral traits, and the health care system. These four factors are all mutable and hence potential targets for preventive strategies. As technologies to alter genetic structure are still in their infancy, only approaches based on the environment, the health care system, and behaviors can be considered at this time as feasible interventions. Each of these can be divided into strategies that are targeted at society in general, at services, or at individuals. Furthermore, strategies within these subcategories can be further divided into those that prevent risk, those that detect risk early, and those that decrease the probability of adverse outcome even when the effects of risk are manifested.

Table 1 presents the first two axes of the matrix, with examples of the type of intervention in each of the nine resulting cells.

For the most part, societal approaches are passive; that is, they do not require individuals who are affected or for whom prevention is intended to chose between alternative behaviors. Their effect depends upon reaching populations rather than specific individuals, such as through prohibiting the sale of alcohol to all people under age 21. Service interventions may be either passive or active; where the intervention is active, the behavioral changes involve "interveners" rather than the individuals who stand to benefit from the intervention. In some cases, an intervention in the services sector may be both passive and active, as in the case where a pediatric practitioner makes car seats available to new parents (passive on the part of the recipient) but the parents must install it (active). Interventions at the individual level are directed at altering the choices of individuals whose activities are dysfunctional.

In the ensuing discussion, interventions are discussed by category as follows:

I. Health Systems Approaches.

   A. Societal level

      1. Organization and financing of services

         a. improving accessibility

         b. improving continuity and comprehensiveness.

      2. Products or procedures intended for specific purposes.

   B. Services level

   C. Individual level

II. Environmental Approaches

   A. Societal level

   B. Services level

   C. Individual level

III. Individual Behavior Approaches

   A. Societal level

   B. Services level

   C. Individual level

In all of the above categories, subcategories denoted by bullets (●) distinguish the different types of prevention (prevention of risk, early detection of risk, and reducing the likelihood of adverse outcome.)

HEALTH SYSTEMS APPROACHES TO PREVENTION

A. Health System: Societal Level

Interventions in this class of approaches involve strategies that are targeted to the population as a whole. They are characterized by legislative, organizational, regulatory, or financial mechanisms designed to reduce the occurrence of an adverse effect or several adverse effects. Successful interventions have been of two main types: those designed to alter the organization of delivering health services by improving accessibility to services and/or continuity and comprehensiveness of services, and those designed to

provide a product intended for a specific purpose.

1. Organization and Financing of Services

a)Improving accessibility to services. Access to services is an obvious prerequisite to effectiveness of services, because no benefit can occur if there is an inability to reach the services. It may not be obvious, however, that either an increase or a decrease in accessibility to services will improve or reduce the effectiveness of prevention, given levels of access already attained within the health system in the United States.

Evidence does indicate that a dramatic increase in the accessibility of services in recent times occurred with the passage of the Social Security Amendments in the mid-1960s. This legislation was followed by marked changes in the use of services by individuals in population groups that had been relatively disadvantaged before that time. Medicare increased use of services by the elderly, and

Approaches to Prevention with Examples of Types

	Health Systems	Environment	Individual Behavior*
Societal level	Primary care (improved access, continuity coordination, and comprehensiveness) Safety procedures (medication packaging)	Physical/environment modification (airbags, gun control)	Seatbelt laws, helmet laws
Services level	Improvements in providers recognition of patients' needs (better medical records, "activated patients," standardized screening procedures)	Risk assessment (as in school)	Smoke detector distribution**
Individual level	Better risk management; reducing amounts of medication prescribed, home visiting	Early intervention program (e.g., Headstart)	Health education (TV, newspaper, pamphlets)

* In some circumstances, individual behavior may change the environment, as in the case of installation of smoke detectors. The critical step, however, is in the decision of the individual who is at risk to act to change the risk.

** Where such devices (including smoke detectors, car seats, safety plugs and similar items) are distributed within health facilities, they may be considered under the health systems rubric.

Table 1.

Medicaid (Title 19) increased use of services by the poor (Davis and Schoen, 1978). This increased access improved health in children by facilitating all three types of prevention: preventing risk, early detection of risk, and reducing the likelihood of adverse outcome (Starfield, 1985).

- **Preventing risk.** Notable in this category were the programs to reduce the likelihood of births to teenagers. Births to teenagers subject the mother to a variety of adverse effects; in addition, their offspring are at markedly increased risk of both increased mortality and morbidity. Rates of teenage births have been falling for the past two decades, initially coinciding in time with the initiation of organized family planning activities in the public sector in the early 1960s. Marked declines in the rate of births to teenagers followed the legalization of abortion in a succession of States from 1968 to 1973. These legal acts provided access to services that had heretofore been accessible only to those with the financial resources to obtain abortions by illegal means. Teenagers were special beneficiaries of legalized abortions: although they comprise about 20 percent of the population, they account for one-third of all abortions. Since legalization, teenagers whose first pregnancy ended in an abortion were only half as likely to become pregnant again within a year than was the case for teenagers whose pregnancy resulted in a live birth. Despite the legal availability of abortions, gaps still remain in access. Only 23 percent of counties in the United States have facilities for abortions, and teenagers are more likely than older women to delay in obtaining abortions during pregnancies.

  A second example of the importance of accessibility to services on a societal level concerns the reduction in frequency of postneonatal mortality (death in infants more than one month but less than one year of age). Reductions in postneonatal mortality rates have been erratic over

this century, largely coincident with the initiation of legislation or administrative action on a Federal level. In recent times, the most important of these programs were Medicaid (which provided a means to pay for services for those who previously had difficulty affording them) and funding of community health centers. Postneonatal mortality fell dramatically in the late 1960s but the rate of decrease slowed in the 1970s and especially in the early 1980s. In 1982-84, rates did not decrease at all, in a time characterized by reduced access to care for the poor as a result of reductions in the Medicaid program. The importance of access to services is highlighted by evidence that the excess in postneonatal mortality in the United States, as compared with many other industrialized nations, is a result of an excess in deaths due to infectious causes and accidents. Deaths due to infectious illnesses, and at least some of the deaths associated with injuries, are largely preventable with early receipt of health services.

- **Early detection of risk.** Accessibility to certain services is important for the early detection of risk. Evidence indicates that effective detection of risk resulting from conditions such as phenylketonuria and congenital hypothyroidism requires organizational arrangements to facilitate obtaining specimens for testing, rapid transport and analysis, and efficient reporting of abnormalities and followup. A cross-national comparison of newborn screening indicated that health systems that have unambiguous lines of responsibility and centralization of laboratory facilities provide more rapid institution of treatment when it is indicated. In the United States, States that provide testing free of charge are more likely to have a State laboratory as the sole site of testing. Public support of these facilities is, of course, required for the establishment and maintenance of such services (Egbuonu and Starfield, 1985).

- **Reducing the likelihood of adverse outcome.** Efforts to regionalize perinatal services have been rewarded with declines in both infant mortality and morbidity at one year of age. This decline is linked to shifts in the hospital where delivery occurs, resulting, in turn, from more adequate antepartum risk identification and transfer of high risk pregnancies to tertiary medical centers. Regionalization of such services in the United States is widespread; evaluation of a demonstration project failed to show better performance in the demonstration areas than in comparable control areas, because centralization of high risk deliveries is an organizational change that has occurred in many areas (McCormick et al., 1985).

b) Improving continuity and comprehensiveness of services. In most other industrialized nations, health services are organized by levels of care such that primary services, secondary (consultative) services, and tertiary (specialty services) are deployed geographically according to the extent of need for services. Primary services provide the point of entry into the health system for new problems, comprehensive services (including referral to other care when indicated), continuity of care, and coordination of care (if care is received from other sources). Evidence indicates the usefulness of continuity and comprehensiveness for all three types of prevention.

- **Preventing risk.** Reductions in low birth weight rates and neonatal mortality (deaths within the first month of life), following improved continuity and comprehensiveness, are examples of the usefulness of such approaches to prevention. An analysis of the impact of comprehensive (as compared with standard) prenatal services as provided by a Maternity and Infant Care Program authorized and funded at the Federal level concluded that inclusion of nutrition counseling, social services, and dental care were associated with better birth weight

distributions (Sokol et al., 1980). The experiences of at least certain large prepaid group practices is also instructive (Shapiro et al., 1960, Quick et al., 1982). In New York City, low birth weight ratios were lower in births to patients in such practices regardless of the trimester in which care was sought, and within groups varying in prior pregnancy outcomes. Prepaid group practice patients also had lower frequencies of low birth weight than patients receiving their care from other private practitioners (Shapiro et al., 1960). Other experience in Portland, Oregon (Quick et al., 1982), showed a small advantage to prepaid group practice patients, despite a longer delay in seeking prenatal care and smaller number of prenatal visits. In these organizations, prenatal care is but one component in the ongoing and comprehensive care of the woman who is enrolled.

- **Early detection of risk.** Legislation in the mid-1960s facilitated the organization of facilities to provide comprehensive services to children living in high-risk areas. An evaluation of the benefits of such services showed that children in areas with such organizations were less likely to develop acute rheumatic fever than were comparable children living in areas without such facilities, because of early detection of streptococcal pharyngitis (Gordis, 1973).

- **Reducing the likelihood of adverse outcome.** A variety of studies in clinical facilities demonstrate the advantages of care that is continuous over time, either with regard to a particular practitioner, or a particular practitioner team. For example, two studies concerning children with asthma showed the importance of an ongoing source of care for management of the illness. Children who sought their care from an emergency room had higher hospitalization rates than children receiving care from a private physician (Mak et al., 1982). A much larger proportion (45%) of asthmatic children

whose regular source of care was a health maintenance organization reported having ongoing care for their asthma, as compared with only 26 percent for children whose predominant source of routine care was a hospital outpatient clinic (German et al., 1976).

Having and using a particular source of regular care is associated with more timely visits in an illness (Steinwachs and Jaffe, 1978), improved taking of prescribed medications (Charney et al., 1967), better satisfaction with care (Wasson et al., 1984), lower utilization for illness care (Alpert et al., 1976), and fewer hospitalizations (Wasson et al., 1984; Moore, 1979).

Why are these data on the importance of health system factors of relevance to the reduction of youth suicide? To the extent that suicidal children are children who are troubled, and perhaps have been troubled for a long time, organizational and financial arrangements that enhance access to care and the development of a relationship with an ongoing source of care might be expected to facilitate seeking of care in a presuicidal stage. In a study of male adolescents who had been hospitalized, Motto (1984) found that those who subsequently committed suicide generally had sought medical help, and were able to communicate with health professionals, although not very well. A study of clinical records of adolescents who were admitted to a mental health service found that patients began to refer themselves in significant numbers at mid-adolescence (ages 15-16) suggesting that improved access to services might reach not only these youths but also others who are not now coming for services. The importance of parents as referral sources decreased with age, whereas medical and school sources were important at all ages (Mitchell and Smith, 1981). Although it is not yet possible to efficiently screen populations for suicidal predispositions,

it is possible to reduce the likelihood of suicide in individuals who demonstrate presuicidal behavior or attempt suicide unsuccessfully (Maltsberger, 1986). Organizational and financial arrangements mandated at the societal level and conducive to the building of long term relationships between health services personnel and patients can also be expected to enhance the extent to which practitioners recognize and deal with patients' problems, as will be indicated later in the discussion of "service level" approaches to preventing problems.

2. **Products or procedures intended for specific purposes**

- **Preventing risk.** Preventing the occurrence of contagious diseases by means of immunizations is an example of such an activity. Both incentives and deterrents have been employed to great advantage. Laws in every State require that children be completely immunized upon school entry. As a result, between 75\percent and 90 percent (depending on whether completeness is considered for all conditions together or for each condition separately) of school age children are completely immunized (Egbuonu and Starfield, 1985). For preschool-age children, who have no legal requirement for immunization unless they are registered in a licensed day care center or preschool, the percentages are much lower, i.e., 50-60 percent completion of immunization for each of the conditions.

The success of incentives to immunize children is shown by evidence of the importance of Federal support for vaccination programs. Over the most recent decade, illness rates of measles have waxed and waned following the input or withdrawal of Federal funds to support immunization campaigns (Blendon, 1983).

Another type of health system intervention to reduce risk at the societal level is safety packaging legislation. After pas-

sage of the Poison Prevention Packaging Act, there was a 35 percent decrease in the number of children taken to emergency rooms after ingesting products regulated by the Act; during the same period (1973-76), poisoning by unregulated products increased by 20 percent (Baker, 1981). Since the introduction of the childproof container and the reduction in the number of aspirin tablets per container (done voluntarily by manufacturers in 1968), the incidence of childhood poisoning from baby aspirin has decreased by about half (Rivara, 1982).

- **Early detection of risk.** Neonatal screening, diagnosis, and prompt treatment are very efficacious in preventing the occurrence of congenital conditions such as phenylketonuria and hypothyroidism, as noted earlier. After the development of a test for screening populations of newborns, however, widespread screening did not occur until the passage of legislation to require the test. In this case, as in other similar cases, the passage of a law was required to convert an efficacious medical procedure into one that would be applied when it was needed and in a timely fashion (Committee for the Study of Inborn Errors of Metabolism, 1975).

- **Reducing the likelihood of adverse effects.** The prototype of such an activity is found in the international campaign to eradicate smallpox. The success of this effort depended on identifying all cases of the disease in all countries of the world and in all parts of these countries, and the tracing and vaccination of all contacts of the diseased individual. Case-finding was facilitated by the development of a network of contact among villagers, and included the payment of a "bonus" for the reporting of a case (Henderson, 1976).

The development of specific products or procedures **within the health services system** may have no direct parallels for reducing suicide because it is unlikely that a specific "immunization" would be feasible or that an efficient case finding network would be useful. However, a societal commitment to design specific approaches for detecting individuals at high risk may be necessary to implement other strategies with more direct applicability. The next section deals with the effectiveness of interventions that are undertaken at the level of facilities or groups (rather than at the societal level), for the purpose of reducing risk, detecting it early, or preventing the occurrence of adverse outcomes.

B. Health System: Services Level

In order to be effective, available services must be translated into the actual provision of services. In providing medical care, practitioners first undertake activities that enable them to recognize that the patient has a problem ("needs recognition"). Prevention at the "services" level starts with the second level of prevention (early detection of risk) rather than the first level (prevention of risk), as facilities usually (and perhaps unfortunately) do not intervene in the chain between etiology and illness (except for immunization procedures). Conceivably, medical facilities could do more to undertake primary prevention, such as by helping schools and other community facilities to provide safer facilities, to maintain standards for healthful behaviors, or to develop curricula for suicide prevention, but there is no well recognized example of the undertaking and evaluation of such activities.

- **Early detection of risk.** Several criteria are required to justify this form of prevention, which is commonly known as "screening." The problem must be important enough to justify the efforts, which are generally directed at individuals in a given age-sex class, or at least at all individuals judged to be at high risk of a condition. Screening, by definition, is the search in an apparently healthy population for individuals at risk of a disease or problem. The natural history

of development of the condition must be known, since screening cannot be justified if it detects individuals at a time when little can be done to reduce the progression of the condition. The population to be screened must accept the procedures involved, and the testing procedure must reach all for whom it is intended. Certain test properties should be maximized: reliability, sensitivity, specificity, and timeliness. An intervention to reduce the likelihood of progression to overt disease must be available and it must be acceptable and efficacious. Finally, the procedure must be cost-effective, i.e., it must produce more benefit than it costs in monetary and non-monetary terms.

Several screening procedures in the care of children fulfill these criteria. Among them are hearing and vision screening at defined periods throughout childhood, screening for lead poisoning in populations at risk for it, and screening for hypercholesterolemia in individuals with a family history of it (Diaz et al., 1982).

There are, however, several conditions that do not fulfill all of the criteria for screening. Despite common practice in some locales, screening cannot be currently justified for scoliosis (Berwick, 1985), urinary tract infection (Diaz, op cit) hypertension (ibid), non-familial hypercholesterolemia (ibid) or congenital conditions other than phenylketonuria and hypothroidism (ibid).

- **Reducing the likelihood of adverse outcomes by improving the quality of care.** A variety of studies have shown that health personnel frequently fail to recognize problems, even when they are explicitly conveyed by patients. The deficit is particularly striking in the case of psychological (Starfield and Borkowf, 1969) and social conditions (Chamberlin, 1971) but it also occurs when the problems are frankly organic in nature. For example, a study in several different facilities indicated that patients and prac-

titioners agreed only half the time on the problem for which the patient was being followed (Starfield, 1981a). Several modifications made in the operation of clinical facilities can improve this aspect of the quality of care and hence reduce the likelihood of an adverse outcome. The introduction of teams of health personnel who remain constant in caring for defined groups of patients has been found to improve the extent to which behavior problems of children are recognized (Becker et al., 1974). The employment of an "ombudsman" who helps patients to articulate their concerns to practitioners helps practitioners recognize these concerns (Roter, 1977). Certain modifications made in medical records also improve this aspect of care. These include the highlighting of abnormalities by means of fluorescent tape that obscures the abnormal information and must be removed to reveal the abnormal finding (Williamson et al., 1967) and the incorporation of an "at risk" form such as the Framingham Safety Surveys in which potentially adverse home situations are highlighted for the practitioner (Bass et al., 1985). Other mechanisms to enhance the ability of practitioners to recognize patients' problems include problem lists incorporated into medical records. These lists help practitioners to recall important problems and to followup on them (Simborg et al., 1976).

Another approach to improving the quality of care involves giving practitioners profiles of their care (for example, a list of patients with their diagnoses) and profiles of other practitioners working in similar settings. Differences in the proportion of patients with particular problems can serve to highlight possible deficits in the extent of recognition of patients' needs, if no particular reason for these differences is evident (Starfield, 1980).

In general, the greater the collegiality of organization of practitioners in a par-

ticular facility, the better the quality of care in that facility. In a review of the literature on determinants of quality of care, Palmer and Reilly (1979) found that the most consistent correlates of high quality are the extent to which practitioners work as a group and have their work visible to their peers, the length of postgraduate training in their speciality, and the volume of work they do in the subject for which quality of care is assessed.

Risk assessment done within health facilities is of potentially great relevance to reducing frequency of youth suicide. Although the relative importance of depression vs. other types of psychosocial behavior disorders in predisposing to suicide is still debated (Behar and Stewart, 1981; Felice, 1981), it is likely that screening for psychosocial problems will soon reach a stage where it can be justified for general use. Studies have found that pediatricians generally do not know the children who committed suicide in their communities (Hodgman and Roberts, 1982) and there is wide variability in the criteria that physicians use to diagnose depression and other child behavior problems. Although there is currently no instrument that has been shown to accurately predict self-destructive behavior, the development of a variety of tools (Fine et al., 1984; Hankin and Starfield, 1986), with subsequent widespread testing and validation, may change this situation in the relatively near future.

Other aspects of the quality of care also have relevance to suicide prevention. Between 1971 and 1976 in Australia, there was a 50 percent decline in suicides attributable to barbiturates, at the same time that the number of prescriptions written for barbiturates declined from 40 million to 20 million. In the United States, an increase in multiple drug use, especially when combined with the use of alcoholic beverages, was associated with

an increase in drug-related suicides (Eisenberg, 1984). In a study in Australia, an increase in rates of suicides in young females was associated in time with a relaxation in prescribing standards in that country (Markush and Bartolucci, 1984).

- **Reducing the likelihood of adverse outcome by improving access to facilities.** There are many examples of the importance of accessibility to medical facilities and the development of arrangements to facilitate it. The institution of special telephone lines, 24-hour access, and neighborhood satellite clinics led to marked reduction in the rate of hospitalizations of individuals with diabetes (Starfield, 1985, pp. 97-102). The effect presumably was due to the early management of infection and prevention of diabetic ketoacidosis. Earlier receipt of care also reduces the likelihood of complications in bacterial meningitis (Starfield, 1985, pp. 109-19). A notable demonstration of the importance of medical care on deaths from bacterial meningitis was provided by a study (Fraser et al., 1975) in Vermont. In that study, child deaths from obscure causes were highest in towns with fewer medical resources and lower rates of diagnosis of meningitis (presumably due to diagnoses that were not being made because of the poor access to medical practitioners).

Another successful effort to improve the accessibility and effectiveness of care for individuals with problems concerned the reduction of pregnancies among teenagers. Several evaluations have shown that community (and often school-based) programs result in a decline in the rate of repeat pregnancies, and an increase in the pregnancy rates when the programs are discontinued (Starfield, 1985, pp. 37-47).

Thus, various aspects of the practice of medical care have direct relevance to attempts to reduce the frequency of suicides in youth. Many aspects of medi-

cal care practice are effective in improving care. Evidence of the potential of at least one of the modifications in health services (institution of special facilities to reduce the likelihood of adverse outcome) has already been demonstrated in the case of suicide reduction, although the magnitude of the effect was relatively small. From 1968 through 1973, the years of the greatest growth in suicide prevention facilities, counties with these facilities showed greater reduction in suicides in young white females, and a lesser increase in suicide rates in young white males, than counties without such facilities (Miller et al., 1984).

C. Health System: Prevention at the Individual Level.

In prevention at the individual level, the target of intervention is the particular individual who is at risk of problems or already suffering from problems. Detection of this risk requires alertness in dealing with individuals entering the health sector, and in helping individuals to marshal resources to deal with circumstances that predispose them to adverse outcomes. There are several prototypes of successful interventions at this level.

- **Preventing risk.** As noted above under strategies at the "services" level, this type of prevention is rarely undertaken by health facilities or clinical practitioners, at least during the course of their ordinary professional activities. (Public health practitioners are distinguished from clinical professionals, as they generally work at the societal level rather than the facilities or individual level.)

- **Early detection of risk.** In addition to interventions initiated at the services level (summarized in Section B above), mechanisms to detect children at risk can be applied at the individual level rather than to groups of individuals. Recent research has identified children who are at high risk of relatively heavy burdens of mortality and morbidity. Among these

are children in low income families (Egbuonu and Starfield, 1982), who are at two to four times the risk of many types of conditions as compared with children from higher income families (Starfield and Newacheck, in press). Others at high risk, regardless of social class, include children with persistently high use of health services. These children are at more than twice the risk of having high burdens of morbidity of various types including mental health problems. In studies of the relationship between utilization and morbidity over several years of time, high burdens of morbidity are defined as the presence of several types of morbidity rather than multiple episodes of one type (Starfield et al., 1985). The major types of morbidity under consideration include acute but self-limited conditions, acute but likely-to-recur conditions, chronic medical conditions, chronic nonmedical (such as ophthalmologic, dermatologic, or orthopedic) conditions, and psychosocial or psychosomatic conditions (Starfield et al., 1984). No study has yet been conducted to demonstrate the benefits of identifying such children in a clinical setting. However, it is possible that identifying these children early and subsequently trying to determine the source and etiology of increased morbidity, could help prevent progression to subsequent morbidity and dysfunction.

- **Reducing the likelihood of adverse outcome.** Home visiting to reduce the occurrence of problems in high risk pregnancies is one example of an intervention that has proven successful, at least in some aspects. In one careful evaluation (Olds et al., 1986) of a home visiting program targeted at women who were teenagers, unmarried, or of low socioeconomic class, birthweight and length of gestation were increased among those at particularly high risk of adverse outcome: young teenagers and smokers. Other examples of interventions to reduce undesirable outcomes in

children at risk for deviant development are summarized by Rolf (1985). Unfortunately, the range of possibilities has not, as yet, been subjected to demonstration with appropriate evaluation of results.

Individual approaches, within the health services sector, to the prevention of suicide in youths has intuitive appeal. High rates of stress have been reported among children who attempt or commit suicide; these findings have been reported from abroad as well as the United States (Michaud, 1983-1985; Kitamura, 1983-1985; Kosky, 1983; Eisenberg, 1984). Suicidal children have been found to have higher rates of prior hospitalization than comparably disturbed but nonsuicidal children (Kosky, 1983), and adverse social experiences such as family suicide, broken families, other familial loss, school failure and abusive home situations (Eisenberg, 1980; Pfeffer, 1984). By pooling data from many studies, Paykal (in Garmezy and Rutter, 1983, p. 3) estimated that life events involving threat led to a six-fold increase in the risk of suicide during the subsequent six months. These findings raise the possibility of intervention by health professionals who are sensitive to the situations that tend to predispose disturbed children to suicidal attempts. This sensitivity to the needs of individuals who seek care, may go a long way to reducing the frequency of suicidal attempts, if recognizing problems leads to effective action of the types described in this section.

The potential ability of the health care system to identify and deal with individuals at high risk of suicide cannot be assumed. Some studies have found suicidal behavior to be relatively frequent in the child population, e.g. Pfeffer found that 9% of preadolescent children expressed suicidal ideas, 2% expressed suicidal threats, and 1% had made an attempt (Fine et al., 1986);

however, many pediatricians do not appear to know the major risk factors for suicide (ibid). The fact that younger pediatricians had more accurate knowledge (ibid) provides encouragement for the future. However, improvements in health services at the individual level cannot be expected to take place without changes at higher levels (societal and services levels) that improve both access to health services for individuals who need them and use of those services by children who have reason to believe that these services have something to offer them.

ENVIRONMENTAL APPROACHES TO PREVENTION

In this category are interventions to modify the environment that do not require intentional behavior change on the part of individuals at risk.

A. Environment: Societal level

- **Preventing risk.** The literature is replete with examples of successful reduction of risk by environmental modification mandated at the societal level. Federal statutes to reduce the amount of lead in gasoline had a major impact in reducing body burdens of toxic lead among both children and adults (Mahaffey et al., 1982). As is the case with suicides, damage from elevated lead levels is a problem that crosses social class (Bellinger et al., 1986). There is a 50-70 percent reduction in motor vehicle fatality rates when occupants of cars are equipped with air cushions that inflate on impact (Berger, 1981; Insurance Institute for Highway Safety 1978). The Flammable Fabrics Act of 1977 requiring children's clothes to be flame retardant led to a reduction in the number and severity of burns in children (Iskrant, as cited in Rivara, 1982) and a dramatic decline in sleepwear-related flame burns (Berger 1981). Babies in the United

States are no longer asphyxiated by small pacifiers as a result of regulation of the manufacture of pacifiers; the pacifiers are now required to be sufficiently large so that babies won't inhale them (Baker and Fisher, in Baker, 1981).

Swimming pool barriers also prevent risk by modifying the environment at the societal level. When regulations required barriers around swimming pools in Australia, swimming pool deaths declined 80 percent (Rivara, 1985). In Canberra, pools must be fenced but this is not the case in Brisbane; although the number of swimming pools per 100 homes is similar in the two cities, the swimming pool death rate is 14 times as high in Brisbane (Baker, 1981).

Similarly, fireworks legislation is a prototype of an environmental modification at the societal level. The rate of injuries in States allowing many types of fireworks was more than seven times greater than that in States that ban all fireworks or allow only sparklers or snakes; the rate of fireworks-related injuries was 53 times greater (Berger, 1981).

The potential for societal actions to reduce risk has not been fully exploited. Tap-water scalds, which are estimated to result in more than 400,000 hospital admissions annually, could be prevented by designing hot water heaters so that they cannot discharge water at scalding temperatures (Baker, 1981). Modifying housing codes to require installation and maintenance of smoke detectors would greatly reduce deaths from fires (as will be noted below under interventions to alter behavior).

Societal actions to reduce risk have relevance for the prevention of suicide. Available information indicates that gun play by young children promotes antisocial behavior (Turner and Goldsmith, as cited in Christoffel, 1985) thus raising the possibility that regulation of their

manufacture could reduce such behavior. Most of the three million air guns and rifles sold each year in the United States are sold to children under age 15; they are estimated to cause more than 25,000 injuries each year. Prohibition of their sale has potential for reducing injury rates as well as reducing the likelihood of progression from non-power weapons to the more lethal guns (Christoffel, 1985). Requirements that houses be built with cabinets in which to place hazardous implements such as guns could reduce the extent to which impulsive youths succeed in killing themselves. Codes of behavior on the part of the press could reduce suicides, as vivid newspaper and television reports of successful suicides have been followed by epidemics of suicide among those exposed to them (Eisenberg, 1983; Eisenberg, 1984; Gould and Shaffer, 1986; Phillips and Carstensen, 1986).

A societal commitment to decreasing violence in television broadcasting has the potential to reduce aggressive behavior among children. Although current evidence suggesting that the effect of television, while adverse, is relatively ill-defined, a focus on this subject not only will help to elucidate the nature of the relationship but also will provide a better understanding of why children are spending so much time watching television rather than being more productively engaged (Committee on Research on Law Enforcement, 1982).

A dramatic decline in suicide rates among the elderly followed the societal commitment to the elderly that occurred in the mid-1960s as a result of Federal legislation (Preston, 1984). Marked declines in evidence of alienation among the elderly ensued, manifested at least in part by their increased voting rates. No similar commitment has been made to children, and recent national surveys show increasing alienation among the young. As suicide is the ultimate expres-

sion of alienation (Eisenberg, 1980), improved societal commitment to reduce alienation and improve the extent to which individuals see value in their own futures may have a large untapped potential for reducing suicide among children.

- **Reducing the likelihood of adverse effects.** A prototype of this type of activity is housing ordinances that require the de-leading of homes in which children are found to have elevated or borderline blood lead levels (Farfel, 1985).

The analog to prevention of suicide through reducing adverse effects by environmental means at the societal level is handgun control. The increasing rates of suicide since the 1950s among youths of ages 15 to 24, and the increasing rates among children of ages 10 to 14 since the mid-1970s are associated with rising proportions of suicides by firearms; two-thirds of the suicides in older youths and one-half the suicides in the younger group are now accounted for by firearms (Moscicki, 1985). Although elimination of handguns will not necessarily reduce the rate of suicide attempts since other means may be substituted (Westermeyer, 1984), control of this highly lethal mechanism can be expected to reduce fatalities resulting from such attempts. Areas with stricter restriction of handgun ownership have fewer gunshot deaths (Wilson, op cit; Markush and Bartolucci, 1984). Effectiveness of handgun control depends upon the strength of the legislation; a law that merely mandated a one-year jail sentence for anyone convicted of violating the firearm licensing and registration laws failed to decrease the frequency of suicide in Massachusetts (although it did reduce the rate of homicides) (Mahler and Fielding, 1977).

B. Environment: Services level

A prototype intervention at this level is found in the area of early educational intervention. In these programs, young children from high risk families are provided educational experiences to compensate for deficits in their biological status or social situation. In recent years, a variety of these programs have been evaluated and demonstrated to be effective in accomplishing their purpose. Although design weaknesses reduce the strength of the conclusions, interventions to overcome biological handicaps in infants appear to be of considerable value (Simeonsson et al., 1982). Stronger conclusions are reached from evaluations of interventions to reduce the impact of social disadvantage. Careful long term studies of early intervention reveal persistent effects including improved school function, less need for special education, less grade retention, and less dropping out of school for children in these programs (Darlington et al., 1980).

Early educational intervention encompasses prevention in all its aspects: prevention of risk, early detection of risk, and prevention of adverse outcome from risk. The design of the intervention prevents risk in the individual children and provides a mechanism for early detection of deterioration. Well developed linkages with other social and health agencies prevents the progression of deterioration by active channels of referral to other types of services when required.

The applicability of educational services to suicide prevention is primarily in the reduction of suicide among population groups for whom the interventions are designed, i.e., Headstart for the socioeconomically disadvantaged. Although few studies include a socioeconomic variable, suicide appears to be more common among poor youth than among their more affluent peers. For example, in Maine, death rates from suicide among children in families receiving Medicaid are higher than those for other children, although small numbers precluded assessment of statistical significance (Nersesian et al., 1985). Other evidence suggests a similar conclusion. Among children who were hospitalized for mental problems in Australia, a higher proportion of suicidal children were from families that were solely

dependent for income on social benefits than was the case for children with other types of psychiatrically ill but nonsuicidal children (Kosky 1983). To the extent that suicide attempts are more common among socially disadvantaged youths, the wider dispersion of early interventions such as Headstart should decrease the incidence of problems that predispose to suicides.

C. Environment: Individual level

A potentially useful intervention to detect risk and/or reduce the likelihood of adverse outcome is suggested by evidence that school teachers are able to recognize pathology in children and, in some cases, to do so better than physicians. One study (Starfield and Sharp, 1974) compared teacher observations with physician examinations, both for somatic and behavioral problems. Whereas physicians detected more problems from their observations and tests on routine examination, teachers detected more problems in functioning, both with regard to somatic ailments and behavioral problems. Teachers are also in a position to recognize abnormalities that may not be recognized by the child's parents. Several studies have indicated that teachers' and parents' ratings of behavior problems are complementary in that different children are identified as impaired because of differences in the types of behavior that are manifested at home and at school (Hankin and Starfield, 1986). Unfortunately, physicians are poor at recognizing problems that have been detected by others (Starfield et al., 1976) and, as noted above in the discussion of health system interventions, improvements in organization to facilitate the process of "needs recognition" are required coincident with efforts to capitalize on the contributions to prevention that could be made by teachers.

BEHAVIORAL APPROACHES TO PREVENTION

In this category are activities that require intentional behavior change on the part of individuals who are at risk.

A. Behavior: Societal level

Behavioral change at the societal level include activities targeted at populations but requiring intentional behavioral change on the part of individuals to reduce exposure to risk.

* **Preventing risk.** In this category is the passage of legislation to alter behavior that puts individuals at risk of motor vehicle accidents. Legal imposition of the 55-mph speed limit was followed by a reduction of fatalities from 1973-1979, at least half of which were saved by the reduced speed limit (Rivara, 1982).

  Window guards are another example of prevention of risk by societal means to alter individual behavior, although, when mandated by law or housing code, they fall in the category of environmental modification at the societal level. In New York City, reported falls from windows declined 50 percent after installation of guards on windows in areas with high rates of reported falls. About 25 percent of the guards were actually installed by health department personnel; in all cases, personnel inspected the windows to assure their proper installment. As a result of this successful program, the New York City Board of Health amended its health code to require owners of multiple dwellings to provide window guards in apartments where children 10 years of age and under reside (Speigel and Lindamen, 1977).

* **Reducing adverse outcomes.** The effectiveness of laws directed at altering individual behaviors about seat belt use has been demonstrated. In 1978, the Tennessee Child Passenger Protection Act mandated that children under age 4 travel in restraint devices. The observed use of restraints increased at the same time that occupant death decreased in the protected group. Deaths that did occur were found disproportionately in children traveling unrestrained (Wilson, op cit).

The usefulness of legislation to require helmets in motorcyclists has been well shown. About three-quarters of motorcycle fatalities are a result of head injury. Helmets decrease the likelihood of this outcome by about 75 percent. The 27 States that revoked their helmet laws after a 1976 change in the Federal requirements had a drop in helmet use and a 40 percent increase in deaths (Rivara, 1985). In Australia, legislation requiring the wearing of helmets reduced motorcycle fatalities by about two-thirds (McDermott, 1983-1985).

B. Behavior: Services level

This category consists of two types of interventions: those that require a single act and those that are general in nature. As will be evident from this review, interventions that require only one action are far more effective than those that are general in nature. All of the reviewed activities operate by reducing the likelihood of adverse outcome.

After an increase in rates of deaths related to fires in 1982, the Baltimore City Health Department gave away almost 4,000 smoke detectors to households that requested them. A subsequent evaluation (Gorman et al., 1985) found that smoke detectors had been installed in 92 percent of those homes and were operational in 88 percent. Households requesting the alarms were in the census tracts at highest risk for fires. In a white, middle class pediatric practice in Pittsburgh, a brief educational message and offer to purchase a smoke detector succeeded in purchase and installation of the detectors in over one-third of experimental families, compared with none of the families not offered the opportunity (Miller et al., 1982). These were successful interventions requiring that individuals voluntarily change one specific behavior.

A Danish firm voluntarily replaced the cord of a popular vacuum cleaner that had caused mouth burns in toddlers. Twenty thousand households requested replacements, with a consequent decline in the number of mouth burns (Wilson, op cit). A similarly effective targeted invention involved the distribution of free covers for unused electrical outlets in the home; this was followed by an increase in use of such devices (ibid). Similar in concept is the voluntary boycott or withdrawal of dangerous toys (ibid).

Several studies evaluated the effectiveness of efforts to increase the use of seat restraints. The studies had mixed results. In one program, car seats were offered free to mothers on a postpartum ward; this failed to convincingly increase the rate of use of such devices. On the other hand, all Vermont hospitals delivering babies participated in a program that required active commitment to the use of car seats by charging a rental fee; the result was a relatively high rate of use of the devices (ibid).

C. Behavior: Individual level

Interventions at this level are directed at rechanneling dysfunctional behavior of all types. Individuals who feel themselves under great stress or uncomfortable about their own behaviors could enroll in activities such as community workshops, sports programs, or theater groups (Michaud, 1983-1985). As the evaluation of these programs to prevent suicidal behavior directly are reviewed elsewhere in this series of papers, they are not discussed further here.

CONCLUSIONS

In drawing conclusions from the data, certain working assumptions are made even though some of them remain to be proven.

1. Suicide is not a unique disease, condition, or disorder. No unifactorial etiology is likely to be found, and predisposing factors and mechanisms will continue to vary with time and across population groups, even within the child and youth age group.

2. Children differ in important ways from adults, and in ways that have implications for suicide prevention. Children have fewer means of coping with adversity, both

because of their dependency and because of their less developed fund of accumulated knowledge about the environment and their place in it. Children also have fewer options regarding the means of committing suicide.

3. The correlates of suicide differ from the correlates of suicide attempts, although there is undoubtedly an overlap of some characteristics. In childhood, however, the difference is probably not as great as in adults (Kosky, 1983).

4. The choice of strategies to prevent suicide should be dictated by considerations of both practicality and costs (as well as, of course, potential effectiveness). The intervention must reach those for whom it is intended and be accepted by them, and the costs must be weighed against the costs of strategies to attack other health problems of high priority. The effectiveness, as well as the practicality and costs, will vary depending on whether the intervention is at the population, services, or individual level.

5. The choice of strategies would be facilitated if certain types of information were available. There should be a research strategy that involves the continued and augmented collection of information about the epidemiology of suicides in children and youth, and all interventions should be accompanied by an evaluation. Research and evaluation are needed to fill the gaps in knowledge, eliminate ineffective solutions, and devise better ones. An international perspective is helpful in gaining insight that would not be possible in the United States alone.

6. Passive strategies are much more likely to succeed than are those that require individuals or groups to alter their behavior (Etzioni and Kemp, 1972).

7. Traditional psychotherapy has not been demonstrated conclusively to be effective in reducing the occurrence of suicide among youth attempters, and there is no known method of detecting those in the general population who are at risk of suicide attempts or suicide itself. On the other hand, a large proportion (at least 20% and perhaps as much as 95%) of youths who commit suicide have a history of at least one psychiatric disorder and there are current efforts to identify characteristics that distinguish suicide attempters from matched controls (Holden, 1986).

RECOMMENDATIONS

Although the relevance to suicide prevention of many of the interventions discussed in this paper may be tenuous, certain principles are applicable and certain strategies may offer promise. Those strategies that appear especially promising are underlined; Table 2 summarizes some of the interventions by type of approach.

1. Interventions within the health sector, while of potentially great impact, require many modifications within the health system to be ready solutions. Primary health services generally have more to offer than psychiatric services (Hankin and Starfield, 1986), if for no other reason than psychiatric services are not widely available to children and youth, either geographically or financially. Another reason for the relatively greater importance of primary care as compared with psychiatric care is that childhood suicide is much less often associated with psychiatric symptomatology (such as depression) than is the case in adults. Behavior problems, which may be more likely antecedents (at least in some child and youth population subgroups), are more likely to be noticed and managed within the home, school, or, at most, the primary care setting (Behar and Stewart, 1981; Motto, 1984). Furthermore, many, if not most, adolescents who committed suicide had seen a physician recently (Felice, 1981).

   The contributions that could be made by primary care are three-fold. Instruments to screen children for behavioral and so-

Approaches to Suicide Prevention by Type of Intervention

	Health Systems	Environment	Individual Behavior*
Societal Level	Improved access to services (hotlines)	Gun control laws and regulations	Assessment of fines on individuals who own weapons used in suicide attempts
	Societal commitment to assuring financial and organizational access to ongoing primary care and needed mental health referral services	Mandated installation of locked cabinets for lethal devices and products More constructive television programming	
Services Level	Testing and dissemination of effective procedures to screen for behavioral problems related to risk of suicide Ongoing monitoring of the quality of services provided.	Educational programs, job training, provision of employment to improve the extent to which children and youth see value in planning for productive role in society Greater availability of organized exercise, recreation, or arts programs	Availability of cabinets designed to make guns and other lethal implements & substances inaccessible
Individual Level	Better recognition and management of individuals at high risk by virtue of overt behavior problems, high levels of morbidity, or suicidal attempts Better use of community resources (including home visiting educational services and recreational services) to involve children and youth at high risk of alienation, depression, or violent behavior	Better recognition of individuals at risk by community resources, including schools	Opportunities for rechanneling dysfunctional behavior into constructive activities such as sports or the arts

*In some circumstances, individual behavior may change the environment, as in the case of installation of smoke detectors. The critical step,however, is in the decision of the individual who is at risk to act to change the risk.

Table 2.

cial problems have been well tested and are now available, at least for experimental use (Hankin and Starfield, 1986). Some of the instruments have already been used in large, national demonstrations (Valdez et al., 1985), although in this case they were used for the purpose of detecting changes in health status rather than for screening. Priority should be given to the widespread testing of alternative devices to screen children and adolescents for serious psychosocial problems. Such testing should be conducted under rigorous protocols, and criteria for acceptance of a screening program should be set so as to achieve cost-effectiveness. Primary care could also be of value in advocating for programs of early intervention for children or groups of children who could benefit from them. Funding for health services research and evaluation should be provided to facilitate the identification of the most useful methods of intervention.

Despite their potential, health systems, including primary care, have little to offer unless they improve access to services, expand efforts in the behavioral arena, and capitalize on new technologies to recognize unusual patterns of morbidity and utilization among children. Greater commitment in medical education, in financing of care, and in monitoring the effectiveness of care will be required before the potential of health services can be approximated. Mental health problems are the most common medical problems in childhood and adolescence (Starfield and Newacheck, 1986). Much greater attention in undergraduate and postgraduate medical education to their epidemiology, cause, detection, and management is warranted. All programs of quality assessment and assurance should explicitly address the recognition and management of psychosocial problems whether they exist concurrently with somatic problems or by themselves.

Many insurance programs do not cover mental health services, impose large deductibles on coinsurance, or severely limit the number of services that can be reimbursed (Kasper 1986). All public programs for financing services (such as Medicaid) or providing services (such as Title V programs) should have mandated mental health benefits. All programs that receive governmental assistance (such as HMOs receiving contracts to provide care to designated populations) should include mental health services in their benefit packages. The effectiveness of these services, as well as services directed at somatic problems, should be regularly assessed with modifications made as indicated by the results of the assessment.

The potential for improved care that results from having an ongoing regular source of primary care should be exploited in the development of newly emerging "gatekeeper" arrangements. Although these new systems of care are being implemented primarily as mechanisms to reduce unnecessary referrals to specialty services, they have the potential to greatly improve the effectiveness of care (including mental health care and prevention of suicide) through the attainment of long term personal relationships between patients and providers. For such potential to be realized, however, mechanisms to regularly review access to services, comprehensiveness of services, quality of care, and satisfaction with care will have to be devised and implemented (Starfield 1986, pages 186-7).

2. Social stresses, many of which are amenable to reduction by concerted efforts, are unlikely to be substantially reduced within the foreseeable future. There is also growing evidence, however, that physical exercise can be used to promote well-being; such activities can be as effective as traditional psychotherapy for the treatment of moderate depression

or anxiety (Gerberich et al., 1985). Communities should be encouraged to develop and evaluate programs of sports, exercise, and recreation that are not only easily available but also actively encourage the participation of distressed and potentially distressed youth.

Despite these efforts, there will continue to be many suicides resulting from impulsive behavior following stress that is perceived to be unbearable; many adolescent suicide deaths are impulsive and unpremeditated (McIntyre and Angle, 1980; Holden, 1986). For example, in a study of 100 hospitalized cases of self-poisoning in New Zealand, only five patients stated that they obtained a specific substance with which to poison themselves; the vast majority ingested an available substance on impulse (Trinkoff and Baker, 1986). For these individuals, and for others who may be ambivalent about a suicide attempt, the availability of a ready mechanism to commit suicide is critical (Eisenberg, 1980). Successful suicide among youth is increasingly associated with the use of firearms and explosives, both in males and females, and in white as well as other racial groups (CDC, 1985, page 20). Therefore, reducing access to firearms and explosives is a major immediate priority. Controlling the sale and licensing of guns is the most straightforward approach. Less satisfactory but still useful alternatives include providing incentives to make household weapons and potentially lethal substances less accessible by providing deterrents to their accessibility. Incentives could be provided to contractors to include locked safes in homes that they design or build. All public housing should contain such a facility. Fines could be assessed on owners of weapons that are used in suicide attempts. Even if reducing access to this means of suicide were followed in time by an increase in other methods, time will have been bought, with reduced rates of suicide, until there are improved

methods of detecting and managing those who are at risk of suicide behavior.

3. The advice of Haddon and Baker (1981) is eminently appropriate to the prevention of suicide. A combination of strategies should be attempted simultaneously. The interventions need not address the most obvious casual factor but there must be at least some evidence or reason to believe that the strategies will be effective. All phases of prevention should be included, and passive methods should be given preference. The most protection for the most people with the available resources should drive decisions about the choice of strategy, and all interventions should be evaluated.

Lack of knowledge about the etiology of suicidal behavior should not be the deterrent to attempts at prevention. The removal of the pump handle with consequent control of the spread of cholera antedated knowledge about the cause of cholera. Moreover, knowledge of the causal agent is not always useful, as was demonstrated by the increase in deaths from bubonic plague when attempts to eradicate the causative bacillus drove flea-carrying rats out of sewers into homes (Robertson 1978). The decision to undertake preventive strategies should be made according to the principles enunciated above: potential effectiveness, practicality, and cost/benefit calculations.

The design and implementation of a research agenda should be of high priority. Elemental epidemiologic data about youth suicide are lacking. Distribution by social class is largely unknown. Quantification of risks associated with substance abuse is not available, yet is important in understanding antecedents of suicidal behavior. Information about the extent to which suicide victims have sought medical care, the type of care sought, and the nature of the problems prevented and the management employed is unknown. Little if anything

is known about the extent to which suicide is thwarted, and under what circumstances these unsuccessful attempters eventually succeed.

As suicide is a relatively rare event, case control studies are a useful strategy for research on the identification and quantification of various risk factors. They are also useful in evaluating approaches to prevention and treatment within medical care settings (Kramer et al., 1984). New approaches to research also offer promise. Meta-analysis, a technique for combining the results of several studies, is one such strategy. The conditions under which it is appropriate and the benefits of such an approach are summarized in Louis et al. (1985). Another promising strategy is collaborative research among medical practices. Collaborative research networks have been developed or are being developed across the country by organizations of family physicians (Wood et al., 1986) and pediatricians (Narkewicz, 1986); such research networks might be suitable for research to understand the distribution of suicide-related problems within the population that receives care from private practitioners.

Research would be greatly facilitated by the adoption of standardized systems for coding problems in primary care. One such system for characterizing mental health problems has been suggested by Burns et al. (1982). A more general system for all problems in primary care is being developed and tested in several countries of the world (Lamberts et al., 1984).

Last, but not least, there is an urgent need to plot a strategy for evaluation of all interventions that are attempted. Alliances between mental health researchers, epidemiologists, primary care physicians, and health services researchers should be forged to plot such a strategy for the prevention of suicide among youths.

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THE CONTRIBUTION OF SOCIAL SERVICES TO PREVENTING YOUTH SUICIDE

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The Social Services Field

Social services are varied and are offered under many auspices: public, non-profit private, for-profit private. They are provided by agencies whose sole purpose is social services and by agencies whose primary purpose is some other field: health, public assistance, job training. Providers range from the very formal, such as a public agency, to the very informal, such as a self-help group. Social services can be middle class oriented or can focus on the poor.

The boundaries between social services and some other sectors is unclear. Mental health may be called a social service or it may not. Social services blend into many other helping fields.

Social services address a wide range of problems and populations. The list, which can go on indefinitely, includes child welfare; protective services for children and adults; supportive services for the aged and for the disabled; concrete services such as day care, homemakers, and feeding programs; drug and alcohol treatment; runaway services; recreation; teen pregnancy programs; and family counseling programs.

Among services funded by the Federal government are several major programs administered by the Department of Health and Human Services (DHHS) (dollars are Fiscal Year 1986 estimated expenditures):

- The Social Services Block Grant - $2.7 Billion
- Head Start - $1.086 Billion
- Child Welfare Services - $207 Million
- The Community Services Block Grant - $366 Million
- Foster Care - $507 Million
- Child Abuse and Neglect Program - $30 Million
- The Older American Act - $668 Million
- The Runaway Youth Act - $23 Million
- ADAMHA Service Block Grant - $490 Million
- Adolescent Family Life Program (teen pregnancy) - $14.6 Million

In addition, other major sources of social services funding and resources are other Federal departments, State and local governments, United Ways, other philanthropy, self-help, fees, third-party payments, and volunteers.

Social Services and Youth Suicide

The social services field, although generally not equipped to treat youth at risk of suicide, can contribute a number of perspectives to the problem. Among these are:

- **Population at risk** - Many social service providers see or serve troubled youth and their families. From programs that serve

youth who have identified high-risk symptoms, such as running away, to programs that see many young people, such as foster care, the field has the potential to be a resource for identifying at-risk youth.

- **Targeting** - Social service programs are often based where the most serious social problems are found, in the inner cities and other low income areas. Probably more than any other sector, some social service providers see people who do not make it into other sectors. Although we do not know how the risk of youth suicide related to income, we can expect that the social pathologies of the poor are expressed in some part through suicide.

- **Interrelatedness of problems** - Comparing research on youth suicide with that of other problems of young people suggests that these problems have many origins in common. Family dysfunction is often a common risk factor. So, too, is a history of child abuse. Social services at its best has a holistic and multidimensional perspective.

- **Family focus** - There is a growing recognition in the field that a family focus is most important for helping young people. In child welfare services for children and youth, there has been a strong movement toward stressing the role of the natural parents. In runaway programs, the better programs now consciously direct their efforts toward involving parents. Social services can bring this perspective to youth suicide.

- **Networking** - Bringing a variety of providers and orientations together is central to the social services. In fact, coordination of services is sometimes called a social service.

Since each community should develop approaches to addressing the issue of youth suicide, the social service field in local communities can often play a key role in facilitating this process.

There are some limitations in the field that bear on serving at-risk youth:

- **Fragmentation** - Social services can be fragmented and narrow in approach. Too often, providers address only the problems that they are familiar with. A foster care program may not look too deeply if the placement is stable. A program working with an adult problem may not probe the problems of youth in the family. There are likely to be many young people at risk of suicide who pass through or near a social service program without anyone paying attention.

- **The invisible young** - Most programs, in the social services field and in other fields, do a poor job in reaching troubled youth. Teenagers are usually difficult and troubled youth are worse. If they are not the primary mission of a provider, it is most likely that they will be sloughed off. Among social services, this is usually the case in protective services, foster care, family services, recreation, and pregnancy programs. This is also true in health services, mental health services, and drug and alcohol treatment. Young people tend to be the forgotten population.

- **The inner city** - Whereas many social service providers are in the inner cities and other low income areas and serve poor families, as with many things, the poor tend to get an inferior array of services. Of course, we don't know how many poor kids commit suicide. It may be that suicide is a middle class phenomenon and homicide and drug overdose are a low income phenomena. Yet, programs that serve the poor need to be more alert to this problem.

- **Families** - Social service programs, just like other sectors, can do a much better job of incorporating a family focus. This is important both because it is through other family members that at-risk youth can sometimes be identified and because it may be that strengthening troubled families can save troubled youth.

Recommendations

1. The Department should take the lead in bringing together leaders from various social services disciplines to explore ways and to develop plans for (a) educating practitioners about youth suicide and (b) improving the targeting of existing services to potentially at-risk youth.

2. DHHS should use its dissemination mechanisms to circulate widely the approaches developed under Recommendation 1, as well as by other groups.

3. The Office of Human Development Services should make the development of effective strategies for identifying, in various social services settings, youth at risk of suicide a high priority under its Coordinated Discretionary Funds Program for Fiscal Year 1988 and for several subsequent years.

4. The Youth 2000 initiative should be used to disseminate promising approaches, such as those which would be identified under Recommendation 1, to energize the social services field toward youth suicide.

5. The Department and other organizations with local counterparts should encourage social services leaders at the community level to join with others in developing community-specific plans to address the problem of youth suicide.

6. The Department should ensure that some of its youth suicide research be directed toward determining (a) the extent to which youth at risk of suicide are the same children seen in other social services settings, and (b) the extent to which low income and minority youth are at risk of suicide.

PREVENTING YOUTH SUICIDE THROUGH EDUCATION

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SUMMARY

A number of questions underlie any efforts to enlist schools and colleges in suicide prevention programs. The questions include matters such as: what challenges for education are implicit in the rising youth suicide rates; are there current education practices contributing to the problem; what solutions have been proposed; what are the merits of such approaches; what solutions may be more appropriate; and how can desirable solutions be more widely applied?

Special significance should be attributed to the fact that the increase in youth suicide has broadly paralleled other striking, measured increases in youth disorder, e.g., homicide, out-of-wedlock births, and drug and alcohol use.

This paper applies an analysis founded on the work of Durkheim to interpret these developments. That analysis argues that the rise in disorder is generally due to a decline in the quality of environments surrounding young Americans. This paper suggests that those environments have become less communitarian, less powerful, and less able to guide, direct and control young persons in a wholesome fashion. A variety of changes that have brought this about are identified, and appropriate long term research strategies and intervention efforts are proposed. The implications of these measures for Federal policies in general, and measures for Federal policies in general, and Health and Human Services in particular, are indicated.

INTRODUCTION

This paper will focus on potential interventions and research in the educational sector to prevent youth suicide. Our knowledge about these matters is relatively incomplete. Therefore, the analysis necessarily involves elements of opinion, plus recommendations for further research to try to fill in the many blank spots. Since my charge is to be activist-this is the implication of "intervention"--I will offer prescriptions even when the current pool of information is inadequate to scientifically justify them completely.

Several questions arise when the issue of youth suicide and education is considered. We should list these questions, before considering the ways education and relevant research can moderate youth self-destruction.

- What challenges for education are implicit in the rising rates of youth suicide?

- Are there ways current practices in education are contributing to the aggravation of the youth suicide problem?

- What education-related solutions have been proposed?

- What are the implications and the merits of the education-related solutions that

have been proposed?

- What other solutions may be more appropriate, and why are they desirable?

- How can the desirable solutions be more widely applied in education?

The Problem

We must start with a trite, but essential truism: a sound problem statement is the first step to solving a critical issue. Unfortunately, in the area of youth suicide, this truism has often been ignored.

It has frequently been reiterated that we must moderate the youth suicide rate. The problem, presumably, is how to attain this goal. But this statement fails to recognize that the long term increase in youth suicide- -it has been growing for about 25 years--is only one of a number of indicators of rising youth disorder (1). Of course, this rise in youth suicide is a terrible tragedy. But focusing largely on that phenomenon provides an inadequate perspective. During the same years that the youth suicide rate has been increasing, we have simultaneously witnessed remarkable increases in the rates of youth death by homicide, rates of out-of-wedlock births to female adolescents, rates of youth arrests and crime, reported levels of youth drug and alcohol use, and the frequency of adolescent premarital sexual intercourse. While some of these shifts affected minority youths more than whites--and vice-versa-- the overall tendencies have prevailed for both young whites and minority groups.

One should not, or cannot, deny the importance of youth suicide per se. Still, it is significant that the absolute numbers of youths (and infants and adults) affected by the many forms of disorder just outlined, far surpass the number of youth suicide victims. The afflictions visited on these youth range, in severity, from death by homicide or bearing an out-of-wedlock child (or having been an infant born in such a situation) to dangerous experimentation with drugs or alcohol and low level delinquency.

All the preceding measured increases in disorder, over periods of 20 or more years, make allowances for changes in levels of the youth population. The increases are often in the 200+ percent range. For instance, the rates of out-of-wedlock births to adolescent white females increased 461 percent between 1940 and 1983--the most recent year for which data are available (2). It is also relevant that, over the same long haul, government programs at all levels to assist the young and improve education have generally grown in scope: the pupil/teacher ratio has improved; more and better trained counselors have been added to our schools; the number of years of higher education attained by typical teachers has increased; the average number of years of education (including higher education) attained per pupil has risen; and (with reference to out-of-wedlock births) the supplies of contraceptive materials and abortion resources available to young females have increased (3).

In many instances, these rates of youth disorder have attained their highest levels on record at this moment, or in the recent past (about 1980). None of these measures of disorder were nationally tabulated before the twentieth century. However, it is noteworthy that, to a degree, many of the measures are indirectly associated with urbanization. Since American urbanization has become more intense during this century, the recent apogees of these disorders may represent the highest points in our whole national history--since 1607. These disorders have increased at faster rates among youth than among adults. Over most of these same years, there has also been a steady decline in the academic ability of adolescents, as measured by scores on various objective academic tests (4).

Patterns of youth disorder--intensifying over the past 20 years--have also afflicted other industrial countries. This suggests that some overall phenomenon may be affecting youths in all "modern" societies. Such international developments were a major theme in a special report to the Organization for Economic Cooperation and Development. The two

distinguished authors of the report, James S. Coleman and Torsten Husen, are perhaps among the world's most prominent researchers focusing on youth issues. They asserted, "There has been a long term growth in deviant behavior among youth in [these countries--including the United States]" (5). They concluded that a fundamental change had occurred in youth behavior that would not be corrected by an automatic revision to earlier conditions.

Potential Causes

There are no definitive data available, or widespread professional agreement, as to the causes or cause of the disorder. And it will take many years to untangle the variety of potential variables related to the disorder, e.g., mass media, family instability, the prolongation of formal education, changing popular values, shifts in sex role definition, changing patterns of school and college operation. However, it seems inherently implausible to assume that each of the many different forms of disorder are related to entirely separate and discrete variables: that suicide is clearly related to one pattern of variables, drug abuse to another discrete and separated pattern, sexual experimentation to a third, and so on. And it is implausible to assume that there is no significant overlap between each group of variables. Such a hypothesis also flies in the face of many earlier studies of multiproblem families, where complex interrelations have been found to prevail among different disorders and diverse causal factors.

If we wish to intervene in schools to moderate youth suicide, it is necessary to restate the initial definition of the problem: "the problem," as it exists for schools and other youth-serving agencies, is not particularly the rise in youth suicide rates; instead, the problem is the overall increase in youth disorder; suicide is "merely" one element of that increase. It is true that researchers, and government agencies may, for some purposes, focus solely on suicide, or sexual experimentation or drug use, or delinquency.

However, responsive parents, teachers, or counselors do not operate in such a segmented manner. They must also consider such young persons vis-a-vis their activities regarding sex, alcohol, delinquency, academic competence, and overall social efficacy.

The preceding restatement of the general problem is buttressed by the available data about predicting youth suicide. Putting it simply, we do not know how to make efficient long-range predictions about which youths are at highest risk with regard to suicide (6). Experienced clinicians can make useful short-range (2-5 day) judgments about extraordinarily vulnerable patients. But assume that we try and develop criteria to try and identify youth at more long-range risk-- youths who may attempt suicide in the next six months, or two years. As of now, it seems that such criteria will incidentally also identify vast numbers of youths who will not attempt suicide. In other words, a long term suicide prevention program focused on "potential" attempters will include high proportions of low-risk persons. These very same persons are also probably at risk for other forms of disorder, e.g., drugs, premature sexual experimentation. Under such circumstances, it would seem more logical to try to generally improve the emotional health of these pupils, as compared to solely focusing on their suicidal potential.

An implication of this problem restatement is that "suicide prevention" programs should not be primarily directed at preventing adolescent suicide. Instead, they should aim more broadly to holistically improve student mental health. And, if such programs are efficacious, one of their incidental effects will be to moderate the youth suicide rate. Naturally, any proposal for "holistic" improvement requires further definition. And this important matter will be considered in greater detail later.

One other element of the problem statement should also be considered. The restatement emphasizes the role of schools (and colleges) in moderating youth suicide, or overall youth

misconduct. But, in addition to preventing disorder, we should consider that, since disorder has been steadily increasing, it is highly possible that the schools are now doing some things that are causing or aggravating the disorder. In other words, long term trends have been for youths to spend increasing proportions of their time in schools and colleges. Data disclose that these institutions have become increasingly impersonal (e.g., school and college size has increased, school district size has increased, more teachers are covered by union contracts, teachers have attained increased years of "professional" training). Could these changes in schools and education norms have actually aggravated the youth disorder situation? We must consider what schools have been doing that might make things worse. It may be more important to stop schools from doing bad things, as compared to persuading them to begin entirely new remedial activities.

One such current failing of our schools may be their failure to present to young adults optimistic interpretations of the world around us. A letter to the Editor in the *New York Times* offered striking evidence on this point (7). The writer was one of several judges for a national writing contest for high school seniors. The judges considered over 600 poems, plays, short stories, and other materials. Many of the pieces revealed substantial talent and commitment by the authors. The letter writer was distressed by the young authors' persistent fixation with suicide and nuclear war The tone of the pieces was extremely pessimistic. They provided a dramatic and distressing picture of the intrapsychic life of some talented adolescents. Of course, the students' high school literature courses were not the sole cause of their unfortunate fixation. However, from my impressions about what is sometimes taught in such courses, the subject matter often has an overemphasis on morbidity and other overly pessimistic elements. Too few such courses and teachers of literature strive to foster a wholesome optimism in pupils. (Contrast this pattern with the advice of Cicero: "Take care that the environment of the child is elevating, and allow only pure and ennobling examples to be reflected before him.") I realize that there are "objective" causes for distress about contemporary society and our world. However, even such judgments have many subjective elements. Thus, with respect to nuclear weapons, such weapons have existed for 40 years, and none have been exploded in anger since 1945. While no one should be overjoyed as to the existence of such devices, one could well say that 40 years of relative success augers relatively well for the future.

Education-Related Solutions Now Proposed

Some existing anti-suicide programs in schools are deliberately organized emergency efforts. These programs aim to assist students in particular schools to deal with the tensions generated by one or more local, recent, and well-publicized youth suicide incidents (8). Undoubtedly, such one-shot programs can be well or poorly managed. Moreover, we can benefit from evaluating the operation of some educators--perhaps at the State level--to design stand-by emergency support programs, for use in particular emergencies. But this paper will direct its focus on programs of deliberate, routine prevention, as compared to emergency intervention.

Essentially, the concept of a routinized suicide prevention program for schools currently envisages that discrete amounts of class time will be set aside for the consideration of certain anti-suicide materials (9).

Exactly what such programs should include is not widely understood. For example, one program description recommended that a program should "present facts about suicide in a manner that leads both to an understanding of, and an empathy with, the suicidal person and to an improved ability to identify and respond to those who may be in danger" (10). Such objectives are commendable. However, they are also so general as to leave

enormous room for interpretation. Furthermore, the objectives are intermingled with critical, and problematic assumptions such as the assumptions that we can "teach" thirteen year olds to understand such activities, and that the benefits of this learning will be greater than the possible anxieties and distress they may generate.

The materials may either be taught by the students' regular teacher, or by a specialized teacher, perhaps certified in the area of health education. The programs are designed for either the elementary, junior high, or high school level. It is difficult to obtain evidence as to how many schools are now applying such programs. Still, it is safe to say that they are the subject of growing public and professional interest. In addition to such routinized in-school programs, some popular television and print media presentations on youth suicide have offered advice to parents and young persons largely congruent with the perspectives applied in such programs.

Given the importance of both the youth suicide issue and the in-school suicide prevention programs, it is natural to ask: "Do such programs work? Are they good things?"

Unfortunately, the available evaluative data are limited. To review the literature, a computer search was conducted in the ERIC system, under the headings "Suicide Prevention" and "Suicide Prevention and Evaluation." Several thousand documents and publications were identified. However, no evaluations of school-related programs were disclosed. Letters were sent to several persons prominently identified with school-based suicide prevention efforts. Through this means, one unpublished evaluation was identified (11). That evaluation administered pre- and post-tests to 181 students who had taken a four-hour suicide prevention program in a California school. The instruments were also administered to a control group. The instruments measured attitudes and cognitive knowledge relating to suicide and also solicited students' opinions about the strengths and weaknesses of the program. The report did not indicate whether the students and faculty of the program were randomly selected, or if they were, in some way, self-selected. The report provided no description of the material presented to students under the subject matter of suicide prevention, nor was it clear what structures, if any, were established to determine what teachers in different classrooms were actually presenting.

The students and staff involved in the program almost all regard it as helpful. The measures of attitudinal change show that the participants in the program had moderate, but statistically significant changes (at the $p<.01$ level) in their attitudes in "favorable" directions--while the attitudes of the control group stayed constant.

It would be impossible to estimate the relationship between the attitude changes apparently caused by the program and any changes in the students' propensity towards suicide. As the report recited, "It would be presumptuous to expect that a youth suicide prevention program consisting of a relatively small sample and maximum of four hours of instruction would result in a reduction in rates of youth suicide." We should also note that even the question "What attitudes and information are most likely to prevent suicide?" is not now susceptible to a definite answer. For example, another interesting piece of research has reported a negative correlation between young subjects' degrees of "introspection" and their general level of efficacy (12). It would be premature to determine whether such introspection was a cause or effect of inefficacy. Still, findings of this nature caution us about the problems of determining what package of information and values will actually foster desirable patterns in the young (13).

To sum up the matter of evaluation, one publication critical of in-school suicide prevention programs quoted Dr. David Shaffer, Chief of Child Psychiatry, New York State Psychiatric Institute, to the following effect:

> is significant that in an area where there's been a recent outbreak of

youth suicide Westchester County in New York, in 1984 , they have a highly developed preventive approach. My view is that, faced with an increasing willingness to talk about suicide, coupled with increasing rates, there's reason to suspect the two may be linked. If you can assume you can lower the threshold of the vulnerable kids by making the act seem less bizarre, horrific, or unnatural, you might also predict that talking about suicide in a matter-of-fact way...would lower the taboo against suicide....I think people are making rash generalizations. They are not admitting to themselves how much knowledge they don't have and they're basing programs on that which may or may not be harmful, never mind helpful (14).

Other Programs to Change Pupils' Attitudes

Formal evaluations of educational programs directed at suicide prevention are scarce. Furthermore, the character of the programs proposed is relatively indefinite. There is little general agreement about what programs should contain, or what their thrust should be. Because of such uncertainties, there is merit in considering the other recent examples of in-school programs (not concerned with suicide) to change pupil attitudes and values. And there have been a variety of such programs. Their history may be instructive.

Drug education programs in schools are one prominent example. There have been many such programs, and they have often been evaluated. A thorough review of such evaluations--covering 20 years of research--concluded that the relationship between such programs and actual avoidance of drugs is only problematic (15). There is evidence of changes only in pupils' knowledge and, sometimes, attitudes. There is little evidence of programs moderating pupils' actual drug use. Again, most public schools, over the

past 20 years, have introduced programs of "sex education." Many controversies have arisen over the contents and goals of these programs. It is recognized that during the spread and persistence of such programs, there have been notable increases in the levels of expressed adolescent sexuality, out-of-wedlock births, abortions, and venereal disease. Some critics have even contended that such programs, far from moderating adolescent sexuality, have even aggravated the problem (16). Finding clear evidence about such complex issues is as difficult as it is important.

The controversies around drug and sex education may provide a cautionary note. If there is not yet firm evidence about what works (or is even harmful) in those fields after 20 years, we should be pessimistic about rapidly taking constructive, properly evaluated steps in the area of deliberate suicide prevention.

We can also turn from the area of publicly controverted questions, to more "academic" disputes. Over the past 10 to 15 years, there has been interest among educators and researchers in a series of in-school programs aimed at constructively affecting pupils' values and attitudes. Popularly, such programs are referred to as "values education" (17). Professionally, some of the programs have been classified as "values clarification," and others as "cognitive developmental" in their approaches--and associated with the work of Lawrence Kohlberg and his colleagues. Values education programs are designed to be inserted into standard school curriculums, and be presented for 10 to 30 hours. And it is also generally recognized that the philosophies underlying values education have affected many other curriculum areas in schools. In effect, the contents of these areas have generally shifted towards being less supportive of traditional adult values. Because of such developments, the programs have excited considerable research and public controversy.

In general, the research has found that for-

mal values education programs have sometimes generated statistically significant, but small, attitudinal changes in pupils' responses to pre- and post-tests. And oftentimes, the programs have had no measured effects. There is little or no evidence of changes is pupil conduct. There has been considerable difficulty in clearly characterizing what pedagogical practices relating to the programs have been effective or ineffective in particular classrooms. As for the controversy, the programs have been attacked in Congress, been the implicit subject of restrictive Federal legislation (the Hatch Amendment to the Elementary and Secondary Education Act), and been otherwise criticized both in accurate and inaccurate fashions. Speaking as someone informed about trends in elementary and secondary education, I would say that such programs, by now, are seen as a subject of declining interest. They have generated little evidence of desirable results and a great deal of controversy.

On a more positive note, there is evidence that anti-smoking educational programs and materials do affect both pupils' knowledge and conduct. But we recognize that the main point of such programs is transmitting certain cognitive knowledge, e.g., the bad things about tobacco. Furthermore, there is a genuine scientific consensus about the factual basis of anti-tobacco programs. In suicide prevention, students already know the one uncontroversial fact about suicide--it is forever. As for the other appropriate elements of such a course, we can predict there will be a medley of differing informed opinions. We are not sure what variables we can and should change, or how to go about it in any direct fashion.

Based on the preceding information, several general principles can be articulated about the development and evaluation of in-school suicide prevent programs--particularly programs designed to provide pupils with additional curriculum materials:

1. The programs should clearly articulate the hypotheses (and, to the extent possible, the research base) on which they are grounded.

2. The programs should identify the problematic or controversial elements of their approaches.

3. The programs should be specified with enough precision so evaluators and users can determine whether the designers' directions are being followed.

4. The program designers should specify their criteria of success. Where such criteria are not as direct as lowering the rate of youth suicides (and this will often be the case), a justification should be provided for the proxy measures recommended.

5. The program designers should indicate some general familiarity with the voluminous previous research (briefly summarized herein), regarding other programs to change pupils' values, and indicate ways their proposals are similar or different from such programs.

6. Program development should be paced to permit users to take advantage of the predictable feedback from formative evaluation.

Being More Holistic: An Environmental Approach

The preceding discussion has focused on discrete programs, essentially directed at preventing youth suicide. But there has also been mention of more holistic approaches. Such approaches can be characterized as "environmental" in their thrust. They would consider the total environment of the school, during the whole period of a student's attendance and enrollment. They would be concerned with generally moderating all forms of youth disorder--as compared with focusing particularly on suicide--and being time-limited. In effect, this approach would strive to improve student mental health by making sure the total school is a wholesome emotional environment. The approach would not necessarily rule out appropriate, discrete, well-conceived courses in suicide prevention; however, such brief and limited ac-

tivities would be of limited importance, compared with the general efficacy of the whole, continuing school environment.

The environmental approach is not novel. Many educators and social scientists have criticized emotionally dysfunctional elements in contemporary schools, and offered appropriate proposals to form more constructive environments.(18)

Few authorities on the environmental approach have directly considered the relationship between better or worse school environments and youth suicide--although some commentators have made such connections (19). The authorities have generally applied more expeditious measures of school efficacy, e.g., student rates of cognitive learning, levels of pupil discipline. Furthermore, the authorities have not been suicidologists--persons largely concerned with the issues of youth suicide. They have typically simply lumped youth suicide among a medley of problems encompassed under the rubric of increasing youth disorder. Finally, the application of suicide rates as an evaluative variable is complicated; since the incidence rate of suicide in one or several schools would be relatively low, researching the relationship between suicide and school environments provides serious technical challenges.

It is significant that an environmental approach is consistent with the work of the nineteenth century French sociologist Emil Durkheim (20). Putting it succinctly, Durkheim proposed that, in Western society, suicide is an affliction largely caused by not feeling immediately needed by others. Thus, when we reflect about the pressures that impel adolescents towards suicide, Durkheim would say that the preponderant pressure is that of not being immediately needed by other human beings. While Durkheim's analysis was directly focused on suicide, its rationale can be easily adopted to other forms of disorder. Thus, he would propose that young people engage in promiscuous sex or drug use because they don't feel themselves immediately necessary to the people around them; they seek reassurance by means of casual sex and pregnancy, or through the withdrawal provided by drug use. Durkheim did not contend that such estrangement is the sole cause of suicide. However, his theory has special relevance for the current situation--where many forms of youth disorder have been increasing, while the social environment around the young has simultaneously been dramatically changing.

A personal friend told my wife and me a story which nicely illustrates Durkheim's theory. This friend, a female, recalled how some years back, she had been in psychotherapy. At the same time, she was getting divorced, was the guardian of a young son, and was afflicted with serious emotional distress. During one therapy session, in a moment of despair, she remarked to the therapist, "I guess I might as well kill myself. There seems to be no other way out of this situation." The therapist cooly responded, "That's too bad, since you realize that the children of adults who have committed suicide tend, themselves, to become suicidal." Our friend responded, "Gee. That takes care of that. Guess I'll have to live." It's one thing to choose to extinguish one's own life; it's another matter to selfishly leave an infant to whom you have given birth exposed to the vicissitudes of the world, and especially to render him subject to suicide. Durkheim's point is that our tangible, immediate responsibilities to others help us to want to stay alive.

The data underlying Durkheim's analysis have been attacked by later commentators, partly because of his necessarily primitive statistical techniques (21). Despite such criticism, it is evident that Durkheim's overall theory still has substantial validity. Thus, even in our era, suicide is more related to wealth than being middle-income, to bachelorhood than marriage, and to female childlessness than motherhood--just as Durkheim originally argued (22). In other words, being at suicidal risk may be more a function of not being immediately and personally needed by others, as opposed to being nonaffluent, or suffering the constraints of

marriage or the tensions of childrearing. None of this is to say that all bachelors commit suicide, or that no mothers do. Durkheim's proposition was probabilistic: when the conduct of large numbers of persons is analyzed, the persons with more elements of vulnerability--of perceived irrelevancy--would be more likely to commit suicide, and vice-versa.

Durkheim's analysis provides an important perspective on the issue of contemporary youth disorder. After all, if not being needed makes one prone to self-destruction, being "useless" might also make people prone to other irresponsible acts of self- or other-destruction. The state of "being needed," in a sense, is a metaphor for being surrounded with supports and constraints. Durkheim's analysis also provides us with a framework for considering integrated remedies, as well as identifying existing in-school causes for suicide.

Useless Youth

It is easy to see how American adolescents and children have become increasingly irrelevant in the ordinary affairs of adult life. We have had a long term decline in the proportion of children and adolescents living on farms and in small rural communities-- where young people often had substantial chores to do to help their families. There has been a decline in family size and the tradition of older brothers and sisters caring for their siblings. Homes have become increasingly filled with cleaning, cooking, and food preparation equipment--and more families eat out--so the proportion of household chores for the young has been moderated. The average number of years young Americans spend in school and college has steadily increased--and school is necessarily an environment where young people are segregated from the immediate responsibilities of typical adult life. The effects of such in-school isolation have been intensified by the increasing sense of emotional distance that has developed between faculty and pupils. Because of this distance, students

see their lives as further isolated from typical adults and adult values. It is not so much that the pupil/teacher ratio has gotten worse-- there are really more adults now serving pupils than in the past. However, the increased size of typical schools and colleges, and the increased levels of departmentalization and depersonalization have led to more formal and transitory relationships among adults and pupils (and even among many pupils) (23).

We also cannot ignore the role of values in providing young people with principles that give relevance to their conduct. (It is not coincidental that Durkheim also wrote an important book called *Moral Education*) (24). The acceptance of certain general values enables young persons to attribute relevance to particular conduct; and, thus, such conduct becomes more satisfying to them. This matter of the attribution is nicely illustrated by the old story of the three men chipping a block of stone. When asked what they were doing, one replied, "Chipping a stone," the next, "Carving a statue," and the third, "Building a cathedral." Our personal interpretation of our conduct--whether it seems trivial or magnificent--largely comes from the information transmitted to us by our environment.

The topic of shifts in popular values over years is susceptible to objective discussion. One can eventually present data about trends in values, just as one can measure shifts in the rates of death by suicide, or changes in the average size of schools, or the number of years education received by typical pupils. But, given the space limits of this paper, one must necessarily be more summary. But the matter of shifting values should not be by-passed, since values and attitudes are important components of suicidal conduct.

I propose that, over the intermediate past, young Americans have been increasingly surrounded with values that attribute a heightened legitimacy to at least a moderate level of relatively trivial hedonism: the models provided by the media; the unwillingness of many adults, or adult institutions, to

Figure 1.

School and College Policy Changes Which Have Affected Youth Feelings

Change	Effect on Conduct	Effect of Feelings
More segmentation in school academic programs; specialized teachers; students progressing through several schools; larger schools; more diverse courses; and more varied programs.	Pupils have less continuous contacts with each other and/or particular teachers.	Pupils do not feel close to the children and adults around them.
More segregation of schools from families; schools more remote from homes, e.g., bussing; more different schools for individualized families to relate from, and larger schools with more different families to relate to.	Schools more likely to encourage values dissonant with family traditions.	Pupils do not feel at ease with (a) the values of their school and/or (b) the values of their family.
Greater disassociation of pupils from teachers; specialized, subject-oriented teachers; assumption of mentoring roles largely by school counselors.	Adults regularly working with pupils in schools (i.e., teachers) less likely to become engaged with pupils.	Pupils are surrounded by many adults (i.e., teachers) who do not want to be engaged with them, and by some adults (i.e., counselors) who say they want engagement, but who manifestly cannot and perhaps should not undertake such engagement.
Toleration of higher levels of pupil indiscipline; changing adult value structures; judicial decisions; and less engagement between pupils and teachers.	Educators less able and willing to supress pupil anti-social and disordered conduct.	Pupils are prone to participate in or be victimized by school-related disorder.
More in-school responsibilities assigned to adults; less authority granted to pupils over other pupils; and more school maintenance and chores assigned to adults.	Pupils provided with fewer occasions to feel needed by their schools and by other pupils and adults.	Pupils feel less "related" to their school or pupils or teachers.
Less concern for the ceremonial and community-building aspects of schools; court decisions supporting individual rights versus symbolic activities (e.g., salute to the flag, semi-religious activities); college entrance criteria focusing solely on academic test scores, and deprecation of the value of "school spirit."	Schools are less able to rely on powerful and traditional means of building sense of collective unity.	Pupils feel less "related" to their school or pupils or teachers.
Less authority for school administrators to compel teachers to work as team; teacher unionization; and court decisions strengthening tenure and "teachers rights."	Principals and other administrators have less ability to encourage teachers to promote appropriate values.	Teachers feel less related to other adults in schools, and pupils feel disengaged from teachers.
Young people tending to spend more time in school and college, as average levels of years of attendance steadily rise.	Youths spend increasing lengths of time in an environment where it is inherently hard for them to be "needed"--compared to typical work site.	Pupils feel irrelevant for longer periods of time.
Growing proportions of alienated and highly individualistic curriculum materials, e.g., literature and readings which overvalue deviant and alientated conduct and persons.	Harder for pupils to see themselves particularly in traditional life patterns; thus, they feel irrelevant.	Pupils feel more uncomfortable about choosing among alternatives ahead in adult life, e.g.,should they be superwomen, should they be males who keep house, should they choose not to be married and rear children.

assert strong, direct control over youth conduct; the secular and relativistic themes pervading many formerly traditional religions; the rising adult divorce rate, which evinces a higher evaluation of personal fulfillment than other, group-oriented values; and the popular unwillingness to reinstate the military draft, partly on the grounds that it would be an unjustified imposition on the young (25).

The values transmitted by such patterns make it harder for young persons to comfortably commit themselves to goals congruent with wholesome adult life (e.g., applying themselves to learning, maintaining sexual chastity, obeying legitimate authority). Furthermore, even when young people engage in such constructive pursuits, they often receive only moderate reinforcement from significant adults. Finally, the undermining of traditional adult values among the young makes many young persons vulnerable to temptation by self- and other-destructive values systems (e.g., drug and alcohol abuse, irresponsible sexual experimentation, enlistment into dangerous peer groups). In sum, all too often the young either unenthusiastically engage in doing right, or fall into risky misconduct. Neither of these alternatives is emotionally sound. While it is unquestionab-

ly better to do right rather than wrong, even doing the right thing is unrewarding when the prevailing structure does not reinforce such conduct.

The general information about school and college changes that have affected pupil feelings is outlined in Figure 1. The relationship between such changed feelings and patterns of youth disorder have been explicated in the preceding discussion.

A striking cross-cultural survey suggests some of the roots of the peculiar emotional tensions now facing many young Americans. The survey compared the different reasons given by parents in Mexico, South Korea, and the United States for having children. The patterns of answers are in Figure 2 (26).

Evidently, American parents are more concerned with getting emotional gratification from their children than are parents in other, more traditional cultures. From a Durkheim perspective, this is disturbing. The data mean that American children are largely needed by their parents to make them happy. Unfortunately, acting to make others happy provides ambiguous and obscure objectives for human conduct. It is hard to say what typical American children and adolescents should do to really satisfy such a parental

Reasons for Having Children; Mexico, South Korea, U.S.A.

MEXICO — 12%, 16%, 72% — High birth-rate

South Korea — 9%, 21%, 7%, 44%, 19% — Medium birth-rate

USA — 8%, 26%, 15%, 47%, 4% — Low birth-rate

KEY TO REASONS
Various
Psychological benefits to parents
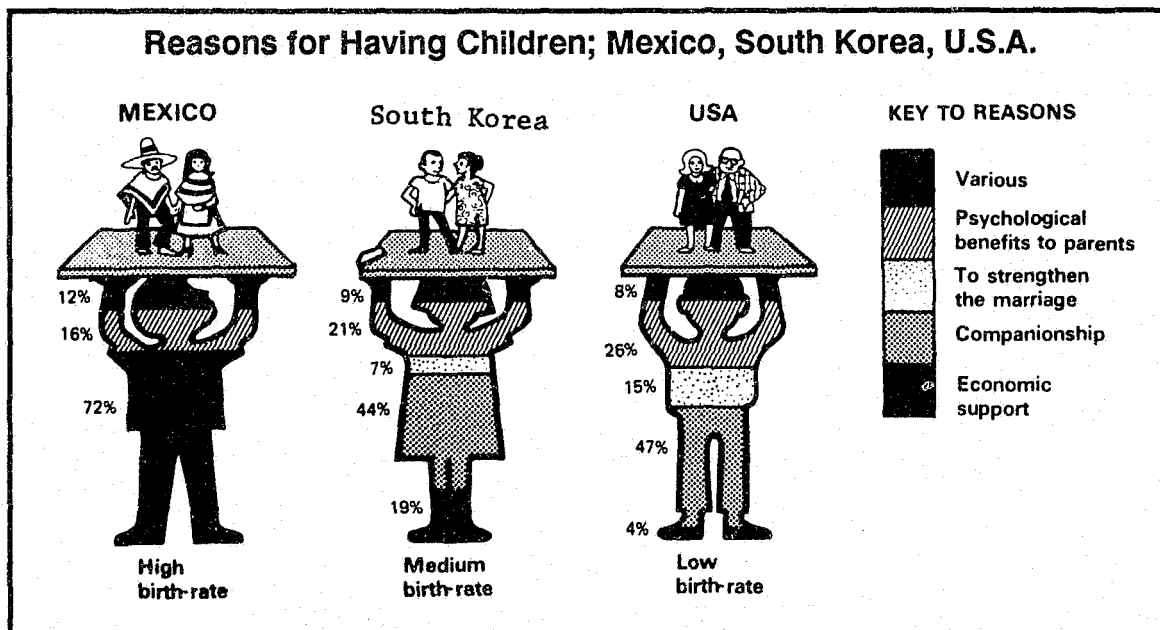To strengthen the marriage
Companionship
Economic support

Figure 2.

need. Obviously, parental happiness is generated by the overall, long term competency and affection of their children. But the pursuit of such a long term goal inevitably generates innumerable tensions around short term and intermediate issues. And it is hard to tell what short and long term goals are appropriate. Indeed, a depressed American child may even conclude that his death, in the long run, may even add to family happiness by ridding the family of an evident disability. Contrarywise, in more traditional situations, children encumbered with responsibilities for chores, caring for siblings, and even with the burden of maintaining family prestige (through acting lawfully) know they are immediately needed.

The typical goals of contemporary American families for child-rearing provide relatively ambiguous guides regarding discipline and parent/child responsibilities. Too often, many American parents withdraw from imposing responsibilities or discipline on their children, since such engagement leads to tension (and unhappiness for the parents). Conversely, parents in more traditional situations impose responsibilities and discipline just because their children serve certain immediate, tangible family needs.

Recent Improvements

In the recent past, we have been blessed with a moderation, and even a decline, in certain measured rates of youth disorder. For instance, the rate of death of young white males by homicide began declining in the year 1980, and the youth suicide rate has stopped rising. Interestingly enough, a Durkheimian approach can even provide an explanation for such fortunate improvements. Readers will probably recognize that recently, there has apparently been a mild increase in the appeal of traditional values, e.g., patriotism, among young and adult Americans. This shift approximately coincides with the improvements in the rates of disorder. Presumably, Durkheim would say that the reinvigoration of traditional values represents a heightening of the bonding forces throughout the

country. The resulting sense of "relatedness" would foster the rise in orderly conduct-- since, when we are related to others, our conduct is more necessary to them. It is also noteworthy that the improvements in conduct occurred during just the years when funding for many social programs has been lessened.

I would not forecast an indefinite increase in such improvements due to raw ideological change. Too many of the social arrangements and values affecting our young have continued to follow their previous patterns-- many of our youth-serving institutions, popular media, and family values still apply principles which became prominent during the 1960's and 70's, and even earlier. In the final analysis, the minds of young persons are shaped by both tangible social arrangements and ideas.

Since evaluation has been an important theme of this paper, something should be said about the formal evaluation of the preceding pro-Durkheim position: do the data indicate that contemporary young persons from more traditional environments are less likely to commit acts of disorder than young persons from more advanced environments? In a careful analysis Carlson conclude "Yes, that's what the data say" (27). But this answer must be extremely qualified. Statistically speaking, "traditional families" are the composite of a large number of elements: stable, two parent families deeply involved in traditional formal religion; families in rural areas; families whose children usually attend certain types of public or private schools; and families which apply particular values in their home.

Because of the many characteristics underlying the concept of "traditional," we rarely directly compare wholly traditional versus wholly modern families. Usually, we consider the interrelationship of particular variables, e.g., intact, two parent families; families who regularly apply certain values; families who maintain certain religious practices. In general, the data do show that children in environments associated with

such variables display lower levels of disorder--e.g., drug use, delinquency, out-of-wedlock children--than more modern families. Many of the studies reported by Carlson--for understandable reasons--do not explicitly apply to youth suicide. But one or two of them did make that connection, and the general thrust of his overall evidence is also relevant. (Incidentally, it is also true that children from some very lower class groups, e.g., the "underclass," display very high levels of disorder; it is interesting to speculate whether such children come from pre-traditional or post-modern environments.)

In sum, the data generally show that a Durkheim analysis is an appropriate tool for attacking the problem of youth disorder. This does not preclude further, and more focused, research. In the meantime, some corrective measures must be taken by schools and colleges, because of the pervasive and serious nature of the problem. And Durkheim's hypothesis is a useful tool for identifying remedies affecting education-- and even identifying problem-aggravating policies now being applied in education.

Constructive Educational Environments: The Specifics

The characteristics of wholesome educational environments can be specified theoretically, and also from a moderate body of site research--though, as mentioned, this research has not been focused on the topic of youth suicide (28).

The environments are managed probabilistically: a body of principles is applied, but not always with 100 percent consistency, nor do the principles always succeed. These principles (derived from the current theory and research) are summarized:

1. Adults clearly maintain responsibility and authority for school management.

2. The school is dedicated to fostering cognitive learning, good discipline, and wholesome pupil emotional development.

3. Pupils are put under significant pressure to actively pursue the goals established by the school.

4. The adults in the school work together closely to attain its goals, and accept the leadership of an effective and dedicated principal.

5. Pupils spend substantial periods of time in discrete, smaller, persisting groups, under general adult direction; such groups foster both learning and emotional support; the groups, depending on the ages of the pupils, can take a diversity of forms, e.g., self-contained classrooms, homerooms, athletic teams and other extra-curricular activities.

6. Pupils are given a sense of being needed by being encouraged and required to perform a variety of activities of service to other pupils or to the local community.

7. The school maintains a powerful system of reward and punishment, which encompasses academic learning plus good and bad pupil conduct.

8. Pupils, depending on their age, have notable input in school policies; however, such input is directed into discrete areas, appropriate to the maturity of pupils, and the inescapable responsibilities educators must accept.

9. The school maintains relative pupil and staff stability, and keeps both categories of persons under its umbrella for periods of years.

10. The school uses ceremonies and rituals as one means to enhance the sense of community of the pupils, staff, and often times, parents.

11. The preceding goals and practices are generally understood and accepted by almost all adults and pupils concerned with the school.

The development of a good school environment is only moderately related to the economic resources available to a school or community. The environment is more determined by the community values in which the school is embedded, and the values and

abilities of the key adults setting school policies. For example, without an appropriate vision of school policies, extra money available to the school may simply be spent to increase the number of elaborately trained (and costly) specialists working in the school; and these may simply lead to greater fragmentation in adult-to-adult and youth-adult relationships, or in interprofessional conflicts about school priorities.

Apropos of specialization, I recall some research of mine in a highly reputed, well-financed suburban public high school. The school's social workers believed they should not tell parents if their children were using drugs; they felt that the confidentiality principle should be applied. Eventually, the principal became concerned, since some drug-using pupils were seriously at-risk. Then, the school hired a highly skilled staff member whose job was to by-pass the social workers, and discreetly tell parents if he and the principal deemed a certain pupil was engaged in serious substance abuse. Eventually, after several years, the school decided that all pupils known to be illegally using drugs or alcohol would automatically be reported to parents and the police. The costs of the "anti-drug" program dropped 50 percent.

Research and Policy Recommendations

1. There is insufficient information now available for the Federal government to clearly approve any particular focused program of school-related suicide prevention.

2. The government should clearly and publicly recognize, as a policy matter, that the issue of increased rates of youth suicide is quite possibly related to other notable increases in rates of measured youth disorder. This likelihood should be stressed in public statements, research and evaluation proposals, and the dissemination of information.

3. The government should fund research directed at the design and evaluation of discrete, experimental programs of suicide prevention, presenting predetermined curriculums. This process should keep in mind the qualifications recited earlier in this paper.

4. The available research data indicates that wholesome school environments, as described earlier in this paper, are generally benign in their influence, though their particular effects on suicide are not yet known. However, one can offer a defensible hypothesis about the beneficial effects of such schools on youth suicide, and the effects of the schools are otherwise desirable. Therefore, government policies should encourage educators and other concerned persons to move towards transforming "environmentally disordered" schools in appropriate directions.

5. The government should fund research directed at more precisely determining the relationship between wholesome school and college environments and diverse forms of youth disorder, including youth suicide. Parallel research should also explore the potential relationship between existing "undesirable" school and college environments (recited earlier in this paper) and increased disorder.

6. The government should fund data collection, research, and theoretical analysis directed at exploring the potential overall causes and correctives for our long term rise in youth disorder (i.e., causes not related to education policies).

7. The issue of youth disorder cuts across many institutional and disciplinary lines of jurisdiction. The government, in giving this topic greater priority, should strive to insure that these inevitable boundaries do not frustrate collective engagement with a real world problem, whose effects inevitably transcend such boundaries.

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INTERVENTIONS IN THE MEDIA AND ENTERTAINMENT SECTORS TO PREVENT SUICIDE

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SUMMARY

The print and broadcast media have neither taken explicit actions nor devised specific guidelines to address how they might work to prevent youth suicide. In part, this reflects a conflict inherent in formulating guidelines for media coverage of the news. The news media see their role as defender of First Amendment rights and the public's right to know, not as vehicle for social change. In addition, there has been no attempt to evaluate the effectiveness of these public service activities which the media do attempt.

Those social and behavioral scientists who have examined the possible role of the media in contributing to youth suicides have focused on the media primarily as a negative influence, particularly with regard to the impact of violent and aggressive stimuli on the young. The result has been a generally defensive and adversarial relationship between the media and the social sciences.

An effective strategy for change should aim to increase collaborative efforts between the social science community and the media to (a) identify the problem and (b) develop voluntary, coordinated attempts at solutions. Specific steps include the following:

1. Conduct research into identifying the problem and the specific mechanisms by which any media models present a negative influence for imitative behavior.

2. Increase awareness among media decisionmakers of the potential role of the media in youth suicide, thereby increasing their sensitivity to the public concern and facilitating the development of voluntary guidelines.

3. Use the media to present models to solve problems, give information, and educate.

INTRODUCTION

Suicide is an intensely complex, personal event mediated by a number and variety of forces ranging from psychological to sociological to biological. As a significant part of the sociocultural milieu of today's adolescent, the mass media serve to increase the attention given to youth suicide. For example, by 1970, one out of every eleven commercial films produced in the United States included a suicide, almost three times the proportion in evidence in the 1920's (1). Furthermore, it has been estimated that today's high school senior has been witness to approximately 800 suicides on television (2).

Several recent studies have suggested that news (print and television) and dramatic (television) presentations of suicide can cause significant increases in suicide (3,4). The extent of this increase is similar in magnitude to that caused by unemployment (5).

If only because of the great potential for impact on youth suicide, the role of the media must be a significant focus in developing a

system of preventive interventions to attenuate the risk of youth suicide. This paper reviews what is and what is not known about the impact of print and televised suicide stories, then presents a survey of current policies and practices about the coverage of suicide by these media. Last, this paper explores potential interventions for decreasing the precipitating influence the media may have and for using the media more effectively as a prosocial influence toward this end. After reviewing the obstacles to implementing these interventions, the paper addresses specific strategies for implementing the recommended interventions, including the formulating collaborative goals between behavioral scientists and media representatives.

Review of Research: What is Known?

Two earlier DHHS Task Force papers on youth suicide and the media (6,7) outlined the research to date on media effects.

Coverage of Actual Suicides

With regard to the print media, two lines of research have been pursued and reported: (a) comparing suicide rates during periods of normal news coverage of suicide and periods of no coverage because of newspaper strikes, and (b) examining the effects of specific suicide information on observed suicide rates.

Newspaper Strikes: The absence of print media, therefore the absence of news about suicide, appears related to a specific effect: a decline in youthful female rates of suicide. Motto (8) first reported no significant differences in rates of suicide in seven U.S. cities during newspaper strikes when compared with rates during years when there were no strikes. However, a followup study within a single city (9) noted a significant decline in the rate of suicide among women under age 35. This finding was partially replicated by Blumenthal and Bergner (10), who noted a significant effect only for women under age 35.

Newspaper Coverage: Research findings have been more consistent in relating the presence of information about suicide to observed increases in aggregate rates of suicide. Barraclough, Shepherd, and Jennings (11) found a significant association between published reports of coroners' inquests into suicide and later suicides among males under age 45. Phillips (12-15) has shown that U.S. suicides increase just after front-page suicide stories (the Werther effect). This effect (a) is proportionate to the amount of publicity given, (b) occurs primarily in the geographic area where the story was published, and (c) occurs after other forms of violent (and perhaps disguised suicidal) death (i.e., motor vehicle accidents and noncommercial plane crashes).

Wasserman (16) and Stack (5) have validated the Werther effect and describe it with greater specificity: (a) stories about celebrity suicides have the greatest impact on subsequent rates of suicide, (b) stories about entertainment celebrities have the most effect, and (c) those most likely to be affected are people of similar social role (to the model). Thus, in Los Angeles County, there were anecdotal, but unverified, reports of increases in young female suicides following the suicidal death of Marilyn Monroe and in young male Chicano suicides following the suicide of Freddie Prinze.

Nonfictional Broadcast Presentations

Bollen and Phillips (17) replicated their studies in the print media by demonstrating that significant increases in suicides also followed televised news reports of suicide, an effect that lasted for a period of about ten days. In the most recent of these studies, Phillips and Carstensen (4) found this effect to have a significant impact on American teenagers. The average increase in completed suicide during the first seven days after presentation of either nationally televised news or feature stories about suicide was 2.91 deaths. Additionally, they reported that the increase in suicides was greater, the more networks carried a story (i.e., amount of publicity); the increase was most notable for

teens (versus adults); and the increase was equally significant whether the presentation was a specific news report or a general information or feature story. In addition, Littman (19) studied the temporal relationship between suicide-related newspaper reports and subsequent subway suicides in Toronto and was unable to document such a connection. For that matter, while consistent with these observations, even the reputed rash of suicides following publication of *The Sorrows of Young Werther* remains unconfirmed. However, the exact role of media coverage requires further research. Some researchers have questioned the validity of Phillips' methods and findings (18).

Fictional Broadcast Presentations

Holding (20,21) reported on the impact in Edinburgh of an 11-part weekly television series, "The Befrienders," which depicted a suicidal person helped by the Samaritans. He documented a 140 percent increase in referrals over the subsequent year, but no change in the number of attempted suicides treated at/by the city's hospitals. The effect on suicidal (and undetermined) deaths (22) was inconclusive, according to a ten-week pre-post series comparison.

Gould and Shaffer (3) recently reported on the impact of four fictional, made-for-television movies dealing with suicide and broadcast in the fall and winter of 1984-1985. They found in the two weeks after these broadcasts, that there were significant increases in the number of attempts among youth receiving hospital services and a significant excess of completed suicides when compared with the number predicted for their metropolitan New York Study area. Ostroff, et al., (23) as well, noted significant increases in adolescent admissions to a suburban Connecticut psychiatric emergency service due to suicidal overdose in the two weeks following presentation of one of these films.

The effects of this same film were more intensively investigated on a national level by Berman (7). Using a two-week pre-post comparison of medical examiner records

from nine metropolitan centers, Berman found no differences in total suicides, youth suicides, or suicides by carbon monoxide (the method used in the TV film). However, his study did document a shift in the proportion of youth suicides by carbon monoxide. Psychological autopsies of these suicides after this film's presentation, however, suggested that significant predisposing factors were present in each of these suicides and that only two of five observed suicides were known to have even watched this television model. It was not clear whether the three other suicides saw or received information about the televised film.

What Needs To Be Known?

The research to date leaves either unanswered or inadequately addressed a number of important questions. These questions about how media coverage of suicide affects young people must be answered before making decisions about how such coverage should be limited or modified.

The following is merely a partial listing of some of these questions:

1. Are there possible beneficial outcomes to presenting suicide stories? If so, how might these be measured and weighed against the possible harmful effects of these stories? Increased referral rates and contacts to telephone crisis centers have been noted following televised movies on suicide. If such emergency room contacts for suicide attempts after the presentation of televised movies are nonlethal attempts to seek help, these movies may actually be beneficial in bringing to treatment young people who might otherwise go without help or even commit suicide.

2. What is the true magnitude and duration of the effects? Are some of the suicides that follow these presentations suicides that otherwise would have occurred at a later date due to some other precipitant? Time series analyses have not been conducted over sufficiently long periods of time to answer these questions, since

suicides that occur many months after a reported suicide may bear clear connections (e.g., through hoarded archives of newspaper articles about initiating suicides). In addition, clearly, not all young people who receive media stimuli respond with imitative behavior. How can these other types of impact be measured? How can we identify those young people most likely to react to the precipitating stimuli?

3. What are the specific mechanisms and pathways for any observed effect? As noted by Gist (24) (see Appendix), the theoretical mechanism for this effect is multifactorial. Intensive psychological autopsy studies of subsequent suicides, in contrast to sociological or epidemiological studies, are needed to better assess why some individuals, and not others, are so influenced. If subsequent suicides did not actually view the televised model (7), were there other indirect ways that the televised models might have influenced them?

4. Are there specific features of these presentations (e.g., content, amount of coverage, neutrality vs. glamorization, etc.) that determine whether the presentation's effect is harmful, nonharmful, or even beneficial?

There are significant questions about the observed effects of specific televised movies. For example, in the Gould & Shaffer study (3), one film with a significant post-presentation increase in completed suicides actually modeled proactive behavior by the adolescent who successfully talked his father out of attempting to take his life. Two other films, each with considerable attention to providing concurrent educational and preventive information to the potential viewing audience, had quite different consequent responses in observed suicidal behavior. Previous recommendations for not covering suicide stories or not presenting suicide dramatizations rest on assumptions about how these presentations cause an effect. These assumptions may appear valid, but they are unproven. Without more proof, their acceptance is unlikely.

5. Is there evidence to support arguments for more preventive activity on the part of the media? Presenting approaches to suicide prevention is costly and likely not to be viewed as worthy of effort by the media without both a research foundation and consumer support for such attention.

Obstacles to Implementation

Even if social scientists were in complete agreement that media presentations of suicide stories caused imitative deaths, this consensus by itself might not affect the presentation of these stories.

The media operate free from government-imposed standards and regulations. Any attempt to apply standards raises the threat of repressive censorship. This, in turn, could prompt a vigorous counter-reaction and vocal defenses of First Amendment rights. Self-imposed, industry-wide standards, in the form of codes of ethics (e.g., Code of Radio and Television Practitioners; Code of the Society of Professional Journalists) are written quite generally and essentially affirm "the public's right to know..[as] the overriding mission of the mass media" (25). More recently, (March, 1982) codes such as that of the National Association of Broadcasters have been abolished by court order as a violation of antitrust statutes. The result is that all issues of practices and standards, all decisions about how to present news or feature stories, vary from paper to paper, editor to editor, network to network, and local broadcast station to local broadcast station.

The position of the media perhaps can be illustrated best through their actual behavior and procedures. To clarify these behaviors and procedures, I conducted a brief standardized interview in early October 1986 with the managing editors (or their equivalents) at 15 daily newspapers. These 15 papers were selected randomly but stratified according to criteria of geographic diversity and as representative of a range of circulations, five

papers each at three levels: (a) large metropolitan (300,000+), (b) small city (40,000-99,999), and (c) rural (less than 39,999).*

The telephone interview asked questions about the criteria for the placement and amount of coverage given a news story and how these applied specifically to decisions made about coverage of suicide events. Responses were categorized thematically and, where relevant and possible, quantified by circulation size.

Placement and amount of coverage afforded a story generally are governed by the "newsworthiness" of a story. Newsworthiness is subjectively defined, determined by judgments about the story's perceived inter-

*As selected from the 1986 Working Press of the Nation, these were: (1) Metropolitan: The New York Times, The Atlanta Journal-Constitution, The Houston Post, The Chicago Tribune, and The Los Angeles Times; (2) Small City: The Lansing (MI) State Journal, The Tucson (AZ) Daily Star, The Register-Guard (Eugene, OR), The Portland (ME) Press-Citizen, and The Mobile (AL) Press; and (3) Rural: The Kalispell (MT) Daily Interlake, The Morristown (TN) Citizen-Tribune, The Lebanon (PA) Daily News, The Iowa City (IA) Press-Citizen, and The Bartlesville (OK) Examiner-Enterprise.

est, importance, and/or significance to the readership and/or by the number of people affected by the story. A particular suicide is newsworthy, therefore, if the perpetrator-victim of that suicide is newsworthy (i.e., is important, has prominence, etc.). Thus, the very kind of suicide report implicated by social science research as stimulating subsequent imitative events is the one most likely to be both deserving of report and reported on by the print media. To a lesser extent, other attributes may determine the newsworthiness of a suicide, e.g., suicides occurring on public property or those having unusual circumstances or characteristics.

The principle of newsworthiness is best operationalized through these editors' responses to a question of what coverage they would likely give to each of eight hypothetical suicides. As noted in Table 1, the prominence of the suicide victim (national entertainment or political figure) determines both that the death would be reported and the likelihood of front page coverage. Other youth suicides occurring either on public property (school grounds, jail) or sug-

Editor's Judgment About Whether His Paper Would Cover a Given Hypothetical Suicide Event

N = 15 Editors

Event	Would Cover	Would Place on Front Page/Other	No Coverage
National political celebrity	15	15/0	0
National entertainment celebrity	15	13/2	0
Eight year old uses father's gun on school grounds	14	9/5	1
Third adolescent suicide in last 2 weeks	13	9/4	2
Eighteen year old in city/county jail	15	6/9	0
Eight year old, at home leaves note	13	2/11	2
Valedictorian of High School class	10	2/8	5
Seventeen year old son of prominent local family	10	0/10	5

Table 1.

gesting evidence of a clustering effect appear more likely to be given significant coverage than those of a more personal/private nature.

However, communities define newsworthiness differentially. Whereas the suicide of an 18 year old in a city/county jail would be reported by all papers surveyed, all five of the rural papers likely would give such a story front page coverage (vs. only two of the other ten papers). Similarly, the suicidal death of an eight year old by his father's gun on public school grounds would be front page news for all five of the small circulation dailies, but only four of the ten larger papers.

It is important to note that print editors pride themselves on their ability to be tuned into the pulse of their own community. They believe that their own judgments about newsworthiness should transcend any imposed code of ethics about what should or should not be printed. However, many editors do use some guidelines in printing accounts of suicides. For example, while eight of these 15 papers routinely report cause of death in obituaries, one-half of these **exclude** the report of cause of death in the case of a child or at the request of a family. And when asked if a prominent family could pressure successfully to have the paper not cover the suicidal death of a family member, two editors believed this was possible at a higher level of authority (e.g., the publisher). Neither of these editors was among those who exclude cause of death from obituaries when requested by families.

Last, editors were asked how they might respond if the scientific community could prove that media coverage caused imitative suicides. At all three levels of circulation, responses were about equally divided between those affirming the freedom of the press ("no effect") and those who would respond with "greater caution," "take a low-key approach," and/or carefully "discuss and review existing policies on a case-by-case basis." Size of circulation does not appear to affect the impact of and response to this problem.

Almost all media exercise greater or lesser degrees of self-censorship over suicide-related issues (27). Even at the largest and most influential of dailies, differential decisions reflecting the type and amount of coverage are readily apparent. For example, in 1985, *The Washington Post* was almost twice as likely (73% vs. 46%) to place a suicide-related article in Section 1 and almost three times as likely (29% vs. 10%) to use an accompanying photograph as were either *The New York Times* or *The Los Angeles Times* (see Table 2). There is no discernible explanation for these differences. Assuming that it could be shown that media coverage of suicides led to imitative suicides, what would determine how news decisionmakers would respond? In part, the response would depend on the individual consciences of media decisionmakers, and the balance between their sensitivities to individual rights and the public's right to know. In addition, embedded in these individual decisions is a

Comparative Newspaper Coverage (1985) of Suicide Stories

Paper	Total Stories	Front Page N	Front Page %	Other 1st Sect N	Other 1st Sect %	Other Sect. Page 1 N	Other Sect. Page 1 %	Used Accompanying Pictures N	Used Accompanying Pictures %
NY TIMES	67	1	1.5	29	43	2	3	6	9
WASH POST	56	8	14	33	59	7	12.5	16	29
LA TIMES	25	3	12	9	36	6	24	3	12

Table 2.

concern about how the media can increase their readership or improve their ratings. Consequently, all decisions, in truth, are governed by a certain and unavoidable level of exploitation of that which promotes audience attention. If the stimulus for that attention has sufficient human interest--and suicide as an often tragic statement of the human condition does--then limited, rational control over the content, amount, and type of its media presentation will be difficult to accomplish at best.

That is not meant to imply that the media use total license or are insensitive to their impact. Freedom of the press is neither without restriction (e.g., the ban on cigarette advertising) nor without conscience (e.g., it is unlikely that the media would provide step by step instruction on how to take "crack"). Nor, perhaps, might the same decisions be made with regard to news vs. dramatic presentations of suicide stories. As stated by the Vice President for News and Public Affairs Programming of the Public Broadcasting System (28), although he would not hesitate to broadcast news reports, the decision to broadcast "Choosing Suicide," (7) a nonfictional presentation about a woman's decision to commit suicide, in 1980 was "the toughest decision I have had to make."

In order, then, to have an impact on these decisions, research must be methodologically sound, evidence reasonably consistent findings, and be widely disseminated to media decisionmakers to increase their awareness and potentially alter their decisions. The resultant behavior change, if it occurs at all, will reflect a complex interaction among many competing criteria and is more likely to occur if the decisionmakers feel they are part of the decision process.

Recommended Strategy I:

The role of the media in modeling suicidal behavior leading to imitative events needs to be better defined. Incentives for collaborative research between the nonprofit sector and broadcast media (offices of social re-

search) need to be developed. Government-sponsored requests for proposals, RFPs, should solicit joint submissions that address a range of significant questions, including what needs to be known, the magnitude of the effect, and how the effect can be modified.

Recommended Strategy II:

Increase the awareness among media decisionmakers of the research-based data and develop voluntary guidelines for the coverage of suicide in news, feature, and dramatic presentations. This could be accomplished through presentation and discussion at appropriate forums (meetings, conferences) and through government-sponsored programs.

Steps toward Implementation

Any strategies or recommendations to the media must be both pragmatic and feasible and appear to rest on building a cooperative rather than adversarial relationship between the social science and media communities. History suggests that this may not be accomplished easily.

In 1966, the Russell Sage Foundation and the Columbia University Graduate School of Journalism cosponsored a three-day conference, with 60 invited journalists and scholars, on the behavioral sciences and the mass media. The aim of this meeting was to explore "ways to achieve closer cooperation and interplay" (29). Among the stated concerns for this meeting was that the media were increasingly "anxious...to receive advice on utilizing behavioral science resources in dealing with issues in the news." However, issues of ethics, standards, and the influence of the mass media on human behavior were not addressed as significant factors for discussion at this meeting.

With the widely publicized conclusion of government-sponsored reviews of the research on the effects of televised stimuli on the aggressive behavior of youth who watch (30), has come an increasingly adversarial relationship between the media and research

communities. The media argued that the evidence was weak, derived from methodologically unsound studies, and was, at best, correlational. They felt attacked unjustifiably and marshalled their in-house offices of social research to counterattack (31).

An attempt to again open communication between the scientific and media communities occurred in September 1984 with a three-day workshop on the role of the media in the prevention of violence, a workshop sponsored by the National Institute of Mental Health and the Association for Media Psychology (32). The specific aims of this meeting were to explore: (a) alternatives to censorship, (b) prosocial uses of television, and (c) ways to develop an on-going collaboration (a "cooperative bridge"). As a significant outcome of these discussions, participants developed 32 action plans to meet these goals. To date, however, there has been no follow-through; no leadership from the government, the media, or the behavioral sciences; and no budgetary allocation to put into effect even one of these recommendations.

Therefore, it is **imperative** that the recommendations of the Secretary's Task Force on Youth Suicide incorporate long term planning and follow-through.

Last, attention needs to be directed toward increasing the use of the media proactively and interactively--as a mechanism for effecting desired changes. The following strategy, the background for which has been delineated earlier (7), also assumes that coordinated long term leadership by the government, the private sector (e.g., the Advertising Council), and the media can be accomplished.

Recommended Strategy III:

An on-going public information campaign using models admired by and attractive to youth needs to be established. Given current thinking, however, it perhaps is best that this campaign not focus on suicide, per se, but, rather on a variety of social skills and be-

haviors that serve to decrease the risk of suicidal behaviors. Significant attention must be given to extending the reach, duration, frequency, and timing of such public service messages in order to maximize their effectiveness (7). In addition, these messages should be supplemented and complemented by print material available through school and community outlets. These messages should focus at a minimum, on three areas:

1. Providing information on available services for potentially suicidal youth and on increasing help-seeking behavior,

2. Modeling nonsuicidal alternatives to situations of conflict and stress, and

3. Educating the public in techniques for safeguarding the home environment with particular concern for increasing the security of firearms in the home, and decreasing the ready availability of unnecessary medications and other instruments of potentially lethal harm.

CONCLUSION

To date, the media have been on the defensive in response to being seen as part of the problem. The possibility of effecting significant change in the role of the media in large measure depends on establishing a cooperative bridge with the media and encouraging a mind set directed toward becoming part of the solution. Any strategy designed to accomplish this end must recognize the autonomy of the media and attend, first and foremost, to the process of collaborative goal-setting.

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APPENDIX

Using Bandura's social learning theory, Gist (24) has succinctly outlined a framework of use to understand the role of modeling and observational learning in the generation of a complex human behavior such as suicide. This framework has four essential components:

1. Attention to Model: The model must be perceived, noted, and observed.

2. Retention/Reproduction: Predisposing conditions enhance the imaginal and verbal encoding of the model. Opportunities for cognitive rehearsal of the behavior to be modeled enhance both the encoding and the probability of the behavior.

3. Reproductive Capacity: Translation from observed behavior to idea into action requires the ability to actually perform the behavior (available means, knowledge/skill necessary to implement successfully, etc.).

4. Motivation/Reinforcement: Expectations regarding consequences (perceived outcomes/effects) help form both the intention to perform the behavior and reinforce its probability of occurrence.

INTERVENTIONS THROUGH BUSINESS AND PHILANTHROPY TO PREVENT YOUTH SUICIDE

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SUMMARY

Intervention to prevent youth suicide has not been a priority for foundations or businesses up to the present.

Foundation funding for both youth suicide research and prevention programs has been minimal. Examinations of the projects and programs that have been funded reveal that the personal experience of individuals, and not foundation grant guidelines, are most likely to have an impact on foundation funding.

At the worksite, businesses have provided little in the way of available support services. In some cases, employee insurance benefits cover counseling for suicide attempters and their families. Employee assistance programs also may provide assessment, brief counseling, and referrals for employees. Youth suicide has not been identified as a target for intervention at the workplace.

Coordinated community education and school-based research programs might provide a unique avenue for foundations, businesses, and service providers to work closely together. Where such efforts have been attempted, results have been positive. Unfortunately, these efforts have not been prolific.

Foundations and businesses do have an opportunity to become more involved in the prevention of youth suicide through a variety of strategies that are discussed in this paper. For the best effects, activities should be an extension of procedures already established for dealing with other youth-related problems.

INTRODUCTION

"Suicide is a major preventable cause of death. Prevention is facilitated by identification of populations at increased risk. It further requires the ability to estimate accurately the degree of risk in a given person at a given time and to intervene effectively" (1). In preparing the following comments and recommendations, the authors interviewed a variety of business leaders, foundation officials and suicide prevention center staff, and conducted a review of all relevant literature.

BACKGROUND

To date, foundations and businesses have been minimally involved in preventing youth suicide. Foundations and businesses seeking to provide funding and support for youth suicide prevention have the inherently dif-

ficult problem of identifying high risk factors leading to youth suicide. Because the potential target population is so large, it is also difficult to identify and evaluate cost-effective and efficient intervention programs. The funding and support that has been provided is due primarily to the personal involvement or interest on the part of a foundation official or a board member or a business executive. In some limited cases, funding is also available when a foundation already has made a commitment to adolescent issues, such as physical and mental health, substance abuse, teenage pregnancy, and employment and training.

Research

Research into the causes of youth suicide is divided between the somewhat overlapping populations of suicides and suicide attempters. Studies of suicides report that proven techniques have yet to be developed for reducing suicide rates. Motto, Heilbron, and Juster, experts in the field, state in the "Development of a Clinical Instrument to Estimate Suicide Risk": "...Whether improved accuracy and communication of degrees of risk will reduce the occurrence of unnecessary and preventable suicides is still to be demonstrated" (2). It is perhaps for this reason that the lion's share of foundation support has been for research rather than intervention.

Only in the area of attempted suicide do statistics offer some encouragement. One report says, "In a very well known French study focused on adolescents (Davidson, Choquet and Facy, 1976) the global incidence of repeats is 30 percent" (3). And the Samaritans in their pamphlet, "Suicide Prevention: A Guide for Students," comment that "four out of five persons who succeed in killing themselves have made at least one previous attempt" (4). Thus, work with suicide attempters has attracted funding sources through community-based prevention programs because there seems to be some hope of achieving and demonstrating success. As Trautman comments in "Treat-

ment of Child and Adolescent Suicide Attempters," "...well designed treatment studies are almost non-existent in the literature, yet there is evidence that treatment can favorably affect social adjustment, mental state and suicide reattempt rates. There is a great need for additional research in the treatment of the young suicide attempter" (5).

Community-Based Programs

The major service providers working to prevent youth suicide are community-based suicide prevention centers, located in communities throughout the country. Much has been done by individual suicide prevention centers, particularly those staffed by innovative people.

A good example is a foundation and business-funded program involving the Samaritans in Providence, Rhode Island, a local chapter of Samaritans USA, that focuses on efforts to prevent suicide and educate the public about issues relating to suicide. The Samaritans' program is exciting not only because of its logical progression from teachers' manual to General Assembly (State Legislature of Rhode Island), but also because of the way in which a wide variety of interdisciplinary health, education, and social service entities are linked to deliver results. The program was enthusiastically funded by the Rhode Island Foundation (a private foundation in Providence, Rhode Island, funding a variety of community issues) for several significant reasons:

- the use of a multidisciplinary approach to youth suicide prevention in the context of other adolescent problems;

- the implementation of a successful fund-raising drive to enlist broad community support for the program;

- a program evaluation component that identified and assessed the incidence of youth suicide in the target population; and

- the foundation's confidence in the strength of the administration of the

program.

The Samaritans played a key leadership role in a prevention program that:

- Secured a venture grant from United Way and Ocean States Charities Fund to pay for research and the development of a manual on suicide prevention for high schools.

- Obtained a National Conference of State Legislatures Grant to implement and assess a pilot Suicide Awareness, Identification and Prevention Program Model for State and National Utilization that trained teachers and students in high schools to deal with the issue of youth suicide.

- Assessed a methodology to determine suicide awareness, identification and prevention for the Rhode Island Task Force on Teenage Suicide Prevention and made recommendations to the Rhode Island State Legislature on the subject.

- Coordinated and secured funding from the Rhode Island Department of Health to implement the program with teachers.

- Worked with the Department of Education to incorporate suicide prevention into their mandatory health curriculum.

- In conjunction with the Rhode Island Task Force on Teenage Suicide Prevention, submitted a bill to the General Assembly for a Suicide Awareness Program for Public School Students, Grades 9-12 (6).

In addition to their multidisciplinary efforts with governmental and educational groups, the Samaritans also have been successful in developing a diverse private funding base for their programs. In their 1985 annual report (7), the Samaritans list their contributors as:

- 11 small local foundations contributing $23,000;

- 24 corporations contributing $7,100;

- 4 grants from public funds totaling $21,400;

- Individual contributions totaling $30,200;

- 61 contributions from religious organizations totaling $4,300; and

- 13 service clubs contributing $3,000.

This diversified funding base suggests that a variety of community resources can be involved to support youth suicide prevention programs. It would seem further to suggest the role of the suicide prevention centers as a key organizing element in cooperative programs between schools, government health and welfare agencies, as well as funding sources.

Similar emphasis on wide community involvement is indicated in a program initiated by the Suicide Prevention and Crisis Center of San Mateo County directed by Charlotte P. Ross. The staff of the crisis center met with representatives of 6 high school districts (involving 22 high schools and 4 continuation schools), 3 community college campuses, and 4 mental health centers. They participated in such activities as planning a teacher training program, reviewing materials, and cosponsoring training workshops within their institutions. "In addition, discussion groups were conducted, several television and radio specials on adolescent suicide were arranged, numerous newspaper articles appeared in the local press, and an educational film, *Suicide at Seventeen*, was developed and distributed" (8). While that effort was funded by the Legislature of the State of California, the approach clearly suggests wide possibilities for involving a variety of elements of the community, including foundations and businesses.

CURRENT STATUS

Foundation Activities

Private and corporate foundations to date have provided the largest percentage of foundation funding from the private sector in the area of suicide and youth suicide. Total

funding reported to the *Foundation Grants Index* in 1982, 1983, and 1984 from 12 private and corporate foundations was $807,632 representing $622,073 for research in youth suicide (77%), $11,809 for suicide prevention with the elderly (1.5%), and $173,750 for crisis intervention programs including services to youth (21.5%).

Research on the impact of private and corporate foundation funding of suicide prevention, either through research or intervention programs, reveals the following data:

1. Suicide was not listed as a subject category until the 14th edition of the *Foundation Grants Index*, A Cumulative Listing of Foundation Grants, compiled and published by the Foundation Center in New York in 1985 (9). Before that time, suicide was indexed with "mental health" or "medical research" categories. The Foundation Center reports the addition of the category of "suicide" in response to growing interest on the subject from users of the Foundation Center and its publications. Although suicide is now listed, youth suicide is currently not listed as a separate category in the 14th Edition of *The Foundation Grants Index.*

2. During 1982, 1983, and 1984, 12 foundations reported funding suicide research and/or intervention programs to *The Foundation Grants Index.* Those foundations were:

Atlantic Richfield Foundation, Los Angeles, California

Boston Foundation, Boston, Massachusetts

Dayton Hudson Foundation, Minneapolis, Minnesota

William T. Grant Foundation, New York, New York

Herman Goldman Foundation, New York, New York

Hartford Foundation, Hartford, Connecticut

Koret Foundation, San Francisco, California

Meadows Foundation, Dallas, Texas

Monsanto Fund, St. Louis, Missouri

New York Foundation, New York, New York

Retirement Research Fund, Chicago, Illinois

Rhode Island Foundation, Providence, Rhode Island.

3. The 12 foundations represent approximately .3 percent of the 4,402 foundations reporting to the Foundation Grants Index; those 4,402 foundations reported giving $4.1 billion annually, of which suicide funding accounts for approximately .02 percent.

4. The foundations listed previously reported providing a total of $807,632 to such programs during 1982, 1983 and 1984. For comparative purposes only, foundation giving in the area of "mental health" in 1984 was represented by 488 grants given by 172 foundations for a total of $26,192,792, and "children and youth" in 1984 were given 663 grants by 230 foundations for a total of $37,335,681.

5. Of the 12 foundations that reported funding in the area of suicide, 3 are corporate foundations. All three (Atlantic Richfield Foundation, Dayton Hudson Foundation, and Monsanto Fund) reported that funding for suicide prevention was made in all cases at the specific request of local executives within the corporations. In discussions with representatives of the 12 foundations about their funding in the area of suicide or youth suicide, the following points emerged:

• At the Monsanto Fund, Dayton Hudson Foundation, and the Atlantic Richfield Foundation, a percentage of funds is allocated to local operating companies and may be designated by local executives to support specific community activities. In all three cases, local executives with personal knowledge of a suicide or suicide attempt among family members or friends influenced the funding decisions. At the Dayton Hudson Foundation and at the Atlantic Richfield Foundation, suicide prevention services are not tradi-

tionally an area of grantmaking for the foundations. Dayton Hudson currently focuses on the abuse and neglect of children and women; the Atlantic Richfield Foundation focuses its funds to direct health and medical services aimed at wellness and cost containment issues. An executive at Atlantic Richfield Foundation stated that the foundation would not fund suicide or youth suicide programs, given current guidelines, without the influence of local executives on funding decisions. Suicide prevention programs are identified with school or community based educational programs.

- The Koret Foundation, San Francisco, California, one of the 50 largest foundations in the country, has changed its funding guidelines since it awarded the Marin Suicide Prevention Center $21,300 in two grants in 1982 and 1983. The emphasis of the foundation is now in the area of youth employment and education. A foundation official stated that under current guidelines, the foundation would no longer fund suicide prevention programs.

- The William T. Grant Foundation and the Herman Goldman Foundation, both of New York City, provided funds for suicide research. The Herman Goldman Foundation staff reported that the research funding was provided because of a personal interest on the part of a Board member and funding will not be continued. The William T. Grant Foundation provided $516,073 in research funding, the largest total amount of grants provided to suicide prevention in 1982, 1983, and 1984. The William T. Grant Foundation has continued to fund youth suicide research because the foundation's program focus is helping school-aged children cope with stress.

- The Rhode Island Foundation, the Hartford Foundation, the New York Foundation, the Koret Foundation, the Meadows Foundation, the Atlantic Richfield Foundation, the Monsanto Fund, the Dayton Hudson Foundation and the Boston Foundation provided a total of $173,750 in funding during 1982, 1983, and 1984 for suicide crisis intervention programs. This support represented allocations for school-based youth education programs, capital equipment, and general support.

- Our research identified the only other foundation with a keen and aggressive interest in youth suicide: the Boston Foundation, Boston, Massachusetts, that represents and directs the funds of the George Harrington Trust with its major focus on adolescent depression. The Trust is currently preparing a solicitation aimed at a major school-based program in adolescent depression and youth suicide. Currently, the foundation, in conjunction with Samaritan Hospital in Boston, is funding a $60,000 pilot series on youth suicide prevention on public television station WGBH. The Boston Foundation is currently focusing its efforts on health promotion for young people, including the prevention of youth violence and accidents.

In summary, the 12 foundations providing support to suicide prevention activities in 1982, 1983, and 1984 could be categorized as:

- 2 foundations funded applied research activities, one will continue this support and another will not.

- 9 foundations funded community-based intervention centers--3 due to local corporate executive designation; 1 as a primary focus area. 3 other foundations will not continue funding in the area of suicide prevention; 2 others funded as a result of board member's personal involvement with the issue.

- 1 foundation funded suicide prevention for elderly Hispanics only.

- 1 foundation placed a priority on the relationship between youth suicide, youth violence, and accidents.

Business Activities

Within the business community, corporations traditionally have contributed in three ways to the prevention of youth suicide.

1. Corporate foundation support (as discussed above in the previous section on Foundation Activities);

2. Employee health insurance benefit programs; and

3. Employee assistance programs.

Currently, little is done specifically to identify potential youth suicide issues with employer groups or employees. Most employee health education programs focus on stress on the job, alcoholism, drug abuse, and smoking cessation.

The following comments will refer specifically to employee health insurance benefit programs and employee assistance programs.

Employees can obtain assistance at the worksite in dealing with suicide in two ways. One is psychological or psychiatric counseling provided through the employee health insurance benefit program. In a majority of health plans, at least partial coverage exists for such counseling. In such a case, an employee or the employee's covered dependents could seek assistance outside of the worksite for suicide prevention or grief counseling. "At least 50 percent of the money (from health insurance for drug and alcohol patients) goes to employee's families, increasingly to children" (10). These services would be provided on a confidential basis by the practitioner of the employee's choice, as long as the benefits covered that practitioner. The business would be involved through its benefits division in the approval and payment of fees, appropriate to the specific coverage.

Where an employee assistance program exists (there are over 450 of these programs located at major companies throughout the country), consultation on employee behavior, health, and finances is provided by health professionals either at the workplace or at an external facility under contract for

such purposes. Employees can self-refer themselves to such counseling services or could be referred by supervisors because of change of behavior, depression, or lack of productivity on the job. Participation in the programs is strictly voluntary. Youth suicide is an area that the health professionals could be capable of discussing with the employee. However, the intervention typically focuses on the employee and not on the employee's dependents. The counselor would identify the problem, and its severity, and often set up brief therapy of usually no more than six sessions, in addition to making referrals for further treatment, if necessary. With the growth of corporate drug testing and treatment programs, activities and awareness in this area may begin to be utilized more effectively.

Business and insurance companies (many of the corporations listed as sponsors by the Samaritans are insurance companies) would seem to have a mutual interest in developing working models of intervention for suicide prevention in the workplace, perhaps with models jointly sponsored by corporate foundations. The benefits of intervention both to the employer and the insurance company could result in increased worksite productivity, lower absenteeism, and reduced health costs. At this time though, fear, stigma, and cost seem to act as barriers to further development in this area.

RECOMMENDATIONS

Foundations and businesses should be encouraged to consider support for the prevention of youth suicide. We suggest the following strategies:

For Foundations

1. Educate foundation officials to the alarming and increasing problem of youth suicide. Foundation program officials could be encouraged to understand more fully the problem of youth suicide and its place in adolescent problems. Perhaps the Council on Foundations could host informational ses-

sions on the topic as a direct result of the U.S. Department of Health and Human Services Secretary's Task Force on Youth Suicide.

2. Encourage private and corporate foundation contributions that are directed to other youth-related problems (i.e., adolescent depression, drug abuse, alcohol abuse, teen pregnancy) to include youth suicide as a related problem on which they can focus attention through the training of staff and volunteers and conducting community outreach activities. In this way, youth suicide would not be considered an isolated problem but rather would be integrated into an approach that teaches youth how to cope with a variety of physical and psychological issues. It seems particularly important to seek young people out where they are--particularly in the school setting--to discuss such issues as a part of school-based educational and counseling programs. Curriculum development with teachers and skill development for counseling staff could be a priority for funding by foundations already involved in school-based education.

3. Encourage additional research in the area of youth suicide with grants to research institutions, particularly those tied to direct service programs. Foundations that provide funding for research could emphasize the need for a coordinated effort between direct intervention services and academic research and could initiate the support of demonstration programs tied closely to effective program evaluation.

4. Encourage suicide prevention centers to initiate and coordinate community-wide educational programs, especially in the schools. Centers should seek opportunities to develop integrated approaches with other youth-servicing agencies, schools and government health and welfare agencies; efforts which would appeal to foundation involvement.

For Businesses

5. Encourage employee assistance program professionals to develop educational programs to help employees and family members become more aware of the problem of youth suicide and to develop clear and effective third party referrals.

6. Include the topic of youth suicide in programs on adolescent problems geared to the younger employee in companies where young people tend to work (i.e., fast food chains, retail stores). Invite suicide prevention counselors and outreach workers to come to the worksite for educational programs.

7. Develop awareness programs for employees and develop educational information for company newsletters to educate employees and their families about the warning signs and potential risk factors of youth suicide. Since youth suicide is generally an issue that most individuals avoid, much can be done to raise employees' awareness of the problem. Include youth suicide in a listing of services provided or referred by the employee assistance program.

8. At the worksite, encourage businesses to provide and continue to make available employee assistance counseling programs and insurance/ health benefits to cover psychological counseling and support programs for employees and their families where youth suicide has occurred or where other risk factors related to youth suicide have been identified. Such services can be targeted specifically to those individual cases where suicide attempters have been identified or where adolescent depression is apparent. Such services must be provided on a confidential basis. Finances or job security must not be barriers to service. Perhaps business and foundations could work together to fund research on what issues limit utilization of such services.

CONCLUSIONS

Youth suicide prevention currently is not an area of emphasis for foundation funding or business involvement.

Although 12 foundations nationwide have

reported funding youth suicide prevention and research, only 2 foundations can be said to have a program emphasis in this area. There is opportunity for foundations to direct funds both to (1) applied research in more specifically identifying risk factors in youth suicide and in evaluating the effectiveness of services provided, and (2) continued funding for community-based prevention programs.

Little, at the present, is being done by businesses. Both employee assistance programs and employee insurance benefit programs can raise awareness about youth suicide among employees and their families.

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APPENDIX

1. Interviews conducted with:

   a. Community-based Prevention Centers:
      (1) Robin Allen
          Marin Suicide Prevention Center
          San Rafael, California

      (2) Lois Guthrie
          Suicide Prevention and Crisis Center
            of San Mateo County
          San Mateo, California

      (3) Carolyn Drew
          The Samaritans
          Providence, Rhode Island

   b. Businesses and Related Professional
        Organizations:
      (1) Willis Goldbeck
          Washington Business Group on Health
          Washington, D.C.

      (2) Thomas Delaney
          Association of Labor-Management
            and Consultants on Alcoholism, Inc.
          Arlington, Virginia

      (3) Clarence Pearson
          Metropolitan Life Insurance Company
          New York, New York

      (4) Ed Markhesini
          Employee Assistance Program
          Metropolitan Life Insurance Company
          New York, New York

      (5) Ted Lucus
          New York Business Group on Health
          New York, New York

      (6) Clem Papazian
          Employee Assistance Program
          Levi-Strauss Corporation
          San Francisco, California

      (7) Paulette Wrede
          Benefits Coordinator
          Levi-Strauss Corporation
          San Francisco, California

      (8) Dr. William G. Durkin
          Employee Assistance Program
          Atlantic Richfield Corporation
          Los Angeles, California

      (9) Dr. Paul Roman
          Tulane University
          New Orleans, Louisiana

(10) Gary Atkins
Employee Assistance Program
Lockheed Missile and Space Corp.
Sunnyvale, California

c. Private and Corporate Foundations:

(1) Thomas Berg and Barbara Thatcher
Dayton-Hudson Foundation
Minneapolis, Minnesota

(2) Douglas Jansen
Rhode Island Foundation
Providence, Rhode Island

(3) Debbie Bauman
Herman Goldman Foundation
New York, New York

(4) Nancy Nelson
Meadows Foundation
Dallas, Texas

(5) Lois Johnson
Monsanto Fund
St. Louis, Missouri

(6) Tony Martinez
Atlantic Richfield Foundation
Los Angeles, California

(7) Jo Ann Vonte
Koret Foundation
San Francisco, California

(8) John Ramsey
Boston Foundation
Boston, Massachusetts

(9) Linda Pickett
William T. Grant Foundation
New York, New York

2. **Annual Reports:**

Atlantic Richfield Foundation
Los Angeles, California

Boston Foundation
Boston, Massachusetts

Dayton Hudson Foundation
Minneapolis, Minnesota

William T. Grant Foundation
New York, New York

Herman Goldman Foundation
New York, New York

Hartford Foundation
Hartford, Connecticut

Koret Foundation
San Francisco, California

Meadows Foundation
Dallas, Texas

Monsanto Fund
St. Louis, Missouri

New York Foundation
New York, New York

Retirement Research Fund
Chicago, Illinois

Rhode Island Foundation
Providence, Rhode Island

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