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Acquired Immune Deficiency Syndrome

A demographic profile of AIDS, ARC, HIV cases, and AIDS Mortalities within the California Department of Corrections (1984 - 1986)

JANUARY 1987



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### EXECUTIVE SUMMARY

The typical AIDS inmate in the California Department of Corrections during the 1984-1986 study period, is 33 years old, Black or White, heterosexual male with a history of I.V. drug abuse. He is likely to have been convicted of robbery, burglary or other property crimes to obtain money for drug related activities and be committed from southern California. He will most likely contract the opportunistic infection pneumocystis carinii pneumonia in combination with other opportunistic infections and die after an average final hospitalization stay of 120 days.

### DEMOGRAPHIC CHARACTERISTICS

#### AIDS

- 97.6% of inmates with AIDS in CDC are male.
- 60.2% have a history of I.V. drug abuse.
- 48.7% admit to engaging in homosexual or bi-sexual activity
- 43.9% of cases are Black, 41.4% White, and 14.6% Hispanic.
- Average age is 33, 60% are between 26 and 36 years old.

### ARC

- 100% of inmates with ARC are male.
- 64% have a history of I.V. drug abuse.
- 34% admit to engaging in homosexual or bi-sexual activity.
- 47% of cases are Black, 42% White, and 11% Hispanic.
- Average age is 30, 57% are between 20 and 31 years old.

### ΗIV

- 100% of inmates with HIV are male.
- 62% have a history of I.V. drug abuse.
- 48% admit to engaging in homosexual or bi-sexual activity.
- 41% of cases are Black, 45% White, and 14% Hispanic.
- Average age is 22, 52% are between 20 and 31 years old.

### AIDS Mortalities

- 96% were male, 4% were female.
- Average age at death 34.5, 84% were between 26 and 46 years old.
- 84% had a history of I.V. drug abuse.
- 52% admitted to engaging in homosexual or bi-sexual activities.
- 32% of cases are Black, 44% White, and 24% Hispanic.
- 64% were single, 20% married, 16% divorced.
- 68% were from southern California (52% L.A.), 28% from northern California,
  4% from central California.
- 44% were convicted of burglary, 24% robbery, 12% receiving stolen property,
  8% forgery, and 12% other crimes.
- 56% of the cases had been in CDC 1-18 months, 20% 19-36 months, 12% 37-54 months.
- 68% died in CDC hospitals, 32% in community hospitals.
- 44% had a final hospitalization of less than 1 month, 12% 1-2 months, 16% 3-6 months, 12% 6 months-1 year, 12% 1 year-18 months.
- 44% died from pneumocystis carinii pneumonia plus one other infection.

### HOUSING OF AIDS, ARC, HIV CASES

- All cases are housed at California Medical Facility, Vacaville.
- 74 beds currently available in L-1.
- 88 beds N-1 to be converted to AIDS unit.
- Community hospitals utilized when necessary.

### PROJECTIONS

AIDS - 60 new cases are projected for 1987.

ARC - 95 new cases are projected for 1987.

HIV - 44 new cases are projected for 1987.

AIDS Mortalities - 37 deaths are projected for 1987.

#### GENERAL ISSUES RELATED TO AIDS

- Uncertainties in prevalence and rate of transmission are substantial.
- Estimates are that 25 to 50 percent of HIV cases will develop AIDS within 5 to 10 years.
- By the end of 1991 there will be more than 270,000 AIDS cases in the United States.
- By the end of 1991 there will be more than 179,000 deaths from AIDS.
- Neither vaccines or drug therapies are likely to be available in the near future.
- Estimated cost for diagnosis to death is between \$50,000 to \$150,000.
- AZT may soon be available to the Department.
- Drawbacks of AZT therapy are: transfusion dependency, toxic side effects and availability of the drug.

The following definitions were extrapolated from the Departmental Administrative Manual Section 6107 and were utilized in the development of this report:

#### AIDS:

A disease at least moderately predictive of a defect in cell mediated immunity, occurring in a person with no known cause of diminished resistance to that disease. Such diseases include Pneumocystis Carinii Pneumonia, Kaposi's Sarcoma and other serious opportunistic infections.

### AIDS Related Complex (ARC):

AIDS Related Complex or ARC is a recently created definition to include those patients with less severe disease (prodromal period). ARC criteria are any two clinical and two laboratory abnormalities as defined.

### HIV Positive:

This category is a recently defined category which includes those patients whom may or may not be symptomatic clinically or may or may not have other laboratory abnormalities who none the less do have a positive HTLV-III blood test. It is not known if these patients will become symptomatic at a later time or if they are merely vectors of this disease. The issue of this category lies in the transmission of the virus as well as the risk of developing AIDS or ARC. As such, the epidemiological aspects of these cases become significant, especially in institutional settings such as prisons and as such, considered potentially infectious.

### ORGANIZATION OF THIS REPORT

This report describes and presents brief analyses of salient demographic characteristics of AIDS, ARC, HIV and AIDS mortalities within the California Department of Corrections from January 1, 1984 through December 31, 1986. However, of significant importance, this report presents information relative to ARC and HIV cases which are not reportable conditions and are not generally included in reports of inmate populations.

Part I, II, and III provides the most common demographic characteristics of all reported AIDS, ARC and HIV cases in the Department from January 1, 1984 through December 31, 1986. The profiles presented include a breakdown by number of cases per year, age, I.V. drug abuse history, sexual orientation, and race. Additionally, each section provides the incidence rate by category as well as the projected number of new cases for 1987.

Part IV of this report describes the same common demographic characteristics as above plus breakdowns for marital status, conviction offense, county of conviction, time in CDC, hospital at time of death, period of final hospitalization, and primary cause of death for all AIDS mortalities.

Part V of this report provides a summary of the history, current status and plans for the housing of these inmates within the Department.

Part VI provides general information relative to AIDS as extrapolated from the publication; Confronting AIDS, Directions for Public Health, Health Care, and Research, copywright 1986 by the National Academy of Sciences. Additionally, this section summarizes the drug therapy AZT.

The format follows the March 1986, "Acquired Immune Deficiency Syndrome, A Demographic Profile of New York State Inmate Mortalities 1981-1985."

PART I

DEMOGRAPHIC PROFILE OF ALL AIDS CASES (1984 - 1986)

### PART I

### DEMOGRAPHIC PROFILE OF ALL AIDS CASES (JANUARY 1, 1984 - DECEMBER 31, 1986)

### Introduction

This section provides a descriptive statistical profile of four demographic characteristics; age, sex, I.V. drug abuse, and race of the 41 reported cases of AIDS. Additionally, this section provides the incidence rate for the Department as well as a projection for the number of new cases for 1987.



NUMBER OF CASES REPORTED BY YEAR

FIGURE 1.1

### Number of New Cases by Year

Figure 1.1 above demonstrates the distribution of AIDS cases reported over the last three years. This data indicates an increase of 20 new cases, or 667 percent from 1984 to 1985; and from 1985 to 1986 an increase of 18 new cases or 78.2 percent.

### Incidence Rate

The standard methodology utilized to determine this rate is that which is used by the National Centers for Disease Control:

Incidence Rate = Total Number of Cases Reported x 100,000 Average Population

Therefore for this Department:  $\frac{41 \times 100,000}{*44,516}$  = 92 cases per 100,000 (or 1 case for every 1,086 inmates)

### Projected New Cases

The projected 1987 average population is 65,760 inmates. Therefore:  $65,760 \div 1,086 = 60$  new cases for 1987 and a total of 101 cases reported by the end of 1987.



### FIGURE 1.2 AIDS CASES BY AGE GROUP (1984-1986)

### Number of AIDS Cases by Age Group

Figure 1.2 above displays the age range at diagnosis. The youngest case was 20; the oldest was 52. The average age was 33. Sixty-three percent of these cases were between 26 and 36 which is the most common age group afflicted in the general population.

\* Average population for 1984, 1985, and 1986.



(Total Cases = 41)

### Number of AIDS Cases with an I.V. Drug Abuse History

Figure 1.3 above clearly illustrates the relationship between AIDS and a history of intravenous drug abuse. Based upon inmate records, 60.2 percent of the inmates with AIDS had a history of this type of lifestyle. This is in contrast to the 17 percent reported by the general population. Also, 94 percent of New York inmates with AIDS have a history of I.V. drug abuse.



FIGURE 1.4 INMATE SEXUAL ORIENTATION

### Number of AIDS Cases by Sexual Orientation

Figure 1.4 above shows that 51.2 percent admit to engaging only in heterosexual activities. 48.7 percent admit to engaging in homo/bi-sexual activities which is significantly lower than the 73 percent of general population. The New York system, on the other hand, records only 13 percent of their cases admit to other than heterosexual orientation.



FIGURE 1.5

(Total Cases = 41)

### Number of AIDS Cases by Race

Figure 1.5 above clearly demonstrates Blacks and Whites represent the largest numbers of reported cases, specifically, 43.9 percent Black and 41.4 percent White. In comparison to the ethnic group breakdown for the Department whereby Blacks are 34.8 percent and Whites are 32.6 percent, these breakdowns are consistent with about a 2.5 percent greater number of Blacks. However, there is great disparity in the Hispanic group in that only 6 percent of the AIDS cases are Hispanic as opposed to 28.5 percent of the inmate population.

### PART II

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## DEMOGRAPHIC PROFILE OF ALL ARC CASES (1984 - 1986)

### PART II

### DEMOGRAPHIC PROFILE OF ALL ARC CASES (JANUARY 1, 1984 - DECEMBER 31, 1986)

### Introduction

This section provides a descriptive statistical profile of four demographic characteristics of the 64 reported cases of AIDS Related Complex. Additionally, this section provides the incidence rate for the Department as well as a projection for the number of new cases for 1987.





### Number of New Cases by Year

Figure 2.1 above demonstrates the distribution of ARC cases reported over the last three years. This data indicates there were no cases in 1984, 18 cases in 1985, and 46 cases, or an increase of 255 percent in 1986.

### Incidence Rate

The incidence rate for ARC cases can be calculated as follows:

 $\frac{64 \text{ cases x } 100,000}{*44,516} = 143.7 \text{ cases per } 100,000$ (or 1 case for every 695 inmates)

### Projected New Cases

The projected 1987 average population is 65,760 inmates. Therefore:  $65,760 \div 695 = 95$  new cases for 1987, and a total of 159 cases reported by the end of 1987.



FIGURE 2.2 ARC CASES BY AGE GROUP

### Number of ARC Cases by Age Group

Figure 2.2 above displays the age range at diagnosis. The youngest case was 21; the oldest was 51. The average age of this diagnosis was 30 years old. Fifty-seven percent of ARC cases were between 20 and 31 years old, in comparison to 47 percent of AIDS cases in this age group.

\* Average population for 1984, 1985, and 1986.



(Total Cases = 64)

### Number of ARC Cases with an I.V. Drug Abuse History

Figure 2.3 above, as in AIDS cases, clearly illustrates the relationship between ARC and I.V. drug abuse. Based upon inmate records, 64 percent of the inmates with ARC had a history of an I.V. drug abuse lifestyle. National and state statistics are not available for comparison in that ARC is not a reportable disease.



FIGURE 2.4 INMATE SEXUAL ORIENTATION

### Number of ARC Cases by Sexual Orientation

Figure 2.4 above shows that 66 percent or 42 cases admit to engaging only in heterosexual activities whereas 34 percent or 22 cases admit to engaging in homo/bi-sexual activities. National and state statistics are not available for comparison in that ARC is not a reportable disease.



(Total Cases = 64)

### Number of ARC Cases by Race

Figure 2.5 above clearly demonstrates Blacks and Whites represent the largest numbers of reported ARC cases; specifically, 30 cases or 47 percent Black, and 27 cases or 42 percent White for a combined 89 percent of these cases. While the departmentwide ethnic breakdown indicates about 2.5 percent more Blacks, these cases demonstrate a 5 percent greater margin of Blacks over Whites. Additionally, the Hispanic case group is far below the departmentwide proportion of 28.5 percent.

### PART III

# DEMOGRAPHIC PROFILE OF ALL HIV CASES (1984 - 1986)

### PART III

### DEMOGRAPHIC PROFILE OF ALL HIV CASES (JANUARY 1, 1984 - DECEMBER 31, 1986)

### Introduction

This section provides a descriptive statistical profile of four demographic characteristics of the 29 reported cases of HIV. Additionally, this section provides the incidence rate for the Department as well as a projection for the number of new cases for 1987.



FIGURE 3.1 NUMBER OF CASES REPORTED BY YEAR

### Number of New Cases by Year

Figure 3.1 above demonstrates the distribution of HIV cases reported over the last three years. This data indicates there were no cases in 1984, 3 cases in 1985, and 26 cases, or an increase of 866 percent in 1986.

### Incidence Rate

The incidence rate for HIV cases can be calculated as follows:

 $\frac{29 \text{ cases x } 100,000}{*44,516} = 65 \text{ cases per } 100,000$ (or 1 case for every 1,535 inmates)

### Projected New Cases

The projected 1987 average population is 65,760 inmates. Therefore:  $65,760 \div 1,535 = 44$  new cases for 1987, and a total of 73 cases reported by the end of 1987.



FIGURE 3.2 HIV CASES BY AGE GROUP

### Number of HIV Cases by Age Group

Figure 3.2 above displays the age range at diagnosis. The youngest case was 21; the oldest was 51. The average age of these cases was 28 years old. Seventy-two percent of these cases were between 20 and 31 years old which is greater than the ARC cases, however, the ages of these cases are the lowest of all case groups, on the average 5 years younger than average AIDS cases.

\* Average population for 1984, 1985, and 1986.



(Total Cases = 29)

### Number of HIV Cases with an I.V. Drug Abuse History

Figure 3.3 above, as with AIDS and ARC cases clearly demonstrates the relationship between these cases and I.V. drug abuse. Additionally, as with AIDS and ARC, records indicate these cases have a history of an I.V. drug abuse lifestyle.



FIGURE 3.4 INMATE SEXUAL ORIENTATION

### Number of HIV Cases by Sexual Orientation

Figure 3.4 above shows that 51.7 percent or 15 cases admit to engaging only in heterosexual activities whereas 48.3 percent or 14 cases admit to engaging in homo/bi-sexual activities. National and state statistics are not available for comparison in that HIV is not a reportable disease.



(Total Cases = 29)

### Number of HIV Cases by Race

Figure 3.5 above once again clearly demonstrates Blacks and Whites represent the largest numbers of these cases, however, for these cases Whites are a greater proportion than Blacks by 4 percent. Additionally, this group of cases includes the largest percentage of Hispanics of the three case categories at 14 percent.

### PART IV

### DEMOGRAPHIC PROFILE OF ALL AIDS MORTALITIES (1984 - 1986)

#### PART IV

### CDC AIDS MORTALITIES DEMOGRAPHIC PROFILE (1984 - 1986)

### Introduction

This section provides a descriptive statistical profile of 13 major demographic characteristics of the 25 AIDS mortalities in the California Department of Corrections from January 1984 through December 1986.

The profile includes a breakdown of: (1) AIDS mortality by year, (2) sex, (3) age, (4) intravenous drug abuse history, (5) sexual orientation, (6) race, (7) marital status, (8) county of commitment, (9) primary conviction offense, (10) time in CDC, (11) CDC or community hospital at time of death, (12) period of final hospitalization, and (13) primary cause of death.

Additionally, a projection of AIDS mortalities for 1987 is provided.



### FIGURE 4.1 CDC AIDS MORTALITIES BY YEAR

13

#### Number of AIDS Mortalities by Year

There have been a total of 25 inmate deaths in the California Department of Corrections since the first mortality in July 1984. Figure 4.1 illustrates the number of inmate AIDS mortalities for the years 1984-1986. This data indicates an increase of six deaths, or 300 percent, in 1985 from the two mortalities in 1984. A comparison of 1986 to 1985 shows an increase of 17 deaths or 283 percent over the preceeding year.

The 25 AIDS deaths as of December 31, 1986, represents an AIDS mortality rate of 56 deaths per 100,000 population<sup>\*</sup>. This is based on an average inmate population of 44,516 between 1984 and 1986.

Sex	Number of Cases	Percent of Cases
Male	24 cases	96%
Female	1 case	4%
TOTAL	25 cases	100%

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### Number of AIDS Mortalities by Sex

AIDS in California's correctional system is predominantly a disease of males. Table 4.1 shows that only one woman has died from AIDS during the study period.

FIGURE 4.2 AGE OF INMATE AT DEATH



### Number of AIDS Mortalities by Age Group

The average age at death of an AIDS inmate is 34.5 years. Figure 4.2 displays the age range of death. The youngest decedent was 24; the oldest 47. The only female was 28 at death. Eighty-four percent of the mortalities were between the ages 26 and 46.



### Number of AIDS Mortalities with I.V. Drug History

Figure 4.3 above clearly illustrates the relationship between AIDS inmate mortalities and a history of intravenous drug abuse. Based on inmate admissions and case documents, 84 percent of inmates, 20 males and the one female, admitted to this lifestyle.



### Number of AIDS Mortalities by Sexual Orientation

Figure 4.4 shows that 52 percent or 13 of the inmate AIDS mortalities admitted to an other-than-heterosexual orientation.

Ten or 40 percent of the 25 inmates AIDS mortalities were in both the above risk factor categories.



### Number of AIDS Mortalities by Race

The race of the AIDS fatalities is shown in Figure 4.5. White and Black inmates represent over 75 percent of the AIDS deaths in CDC. The Department's demographic profile of inmates in the facilities during the three year study period indicates 33 percent were White, 35 percent were Black, 28 percent Hispanic, and 4 percent other.

An examination of the 25 cases shows little difference between the groups as to rates of I.V. drug abuse; 91 percent of Whites, 83 percent of Hispanics, and 75 percent of Blacks.



FIGURE 4.6 INMATE MARITAL STATUS

### Marital Status of AIDS Mortalities

The majority of inmates who died from AIDS were not married, as shown in Figure 4.6. Sixty-four percent were single; compared to 20 percent who were married, and 16 percent who were divorced.

The high proportion of individuals not married correlates with a drug abuse profile.

FIGURE 4.7 COUNTY OF COMMITMENT



### AIDS Mortality by County of Commitment

The 25 inmate AIDS mortalities were committed to CDC from eight of the 58 counties in the state; as shown in Figure 4.7. Fifty-two percent of the cases had Los Angeles as their County of commitment.

By major region of the state, 68 percent had been committed from southern California, 28 percent from northern California, and 4 percent from the central portion of the state.



FIGURE 4.8 PRIMARY CONVICTION OFFENSE

**Conviction** Offense

### AIDS Mortality Conviction Offense

It is not suprising, given the high ratio of I.V. drug abusers, that their criminal conviction profile is one associated with "money-seeking" crimes. Supporting national (studies on the relationship between I.V. drug abuse and crime (National Commission on Marijuana and Drug Abuse, 1973), Figure 4.8 shows that the 25 AIDS inmates were primarily convicted of burglary (44%), robbery (24%), receiving stolen property (12%), and forgery (8%). It should also be noted that one primary conviction offense was a sex crime.

Only 20 percent of the AIDS mortalities had a previous commitment in CDC.



FIGURE 4.9 TIME IN CALIFORNIA DEPARTMENT OF CORRECTIONS

#### Months in System

Fifty-six percent of the inmates had been in CDC 1-18 months at the time of their death (Figure 4.9). Another 20 percent had completed 19-36 months. Twelve percent served 37-54 months or up to four and one half years. Four percent or one case had been in the system 4.6-6 years (55-72 months), and two individuals had served 7 years and 8 months.

While the period of incubation ranges from 6 months to 7 years, the average incubation period is 29 months (2.4 years)<sup>\*</sup>. Since inmates who were continuously incarcerated for more than 5 years had no access to high risk groups outside the correctional system, with the possible exception of family visits, and were far beyond the average incubation period, the possibility of transmission within facilities may be a cause of concern.

\* Center for Disease Control, AIDS Program, March 1986.

TABLE 4.2 HOSPITAL AT TIME OF DEATH

Sex	CDC	Community
Male	17 cases	7 cases
Female	0 case	1 case
TOTAL	17 cases	8 cases

### Hospital at Time of Death

Table 4.2 shows that approximately one-third of the 25 AIDS mortalities died in local community hospitals. The remaining 68 percent died in correctional hospitals at California Medical Facility and San Quentin.



FIGURE 4.10 PERIOD OF FINAL HOSPITALIZATION

### Period of Final Hospitalization

Figure 4.10 presents the final period of hospitalization for the sample. This ranged from one day to 20.8 months. Forty-four percent of the inmates were in the hospital less than one month; 12 percent, 1 - 2 months; 16 percent, 3 - 6 months; 12 percent, 6 months - 1 year; 12 percent, 1 year to 18 months; and 4 percent, 20 months.

Overall, these 25 cases consumed 2,997 acute hospital patient days during their terminal hospitalization, with an average length of stay of 120 days.

FIGURE 4.11 OPPORTUNISTIC INFECTION AT TIME OF DEATH



### Primary Cause of Death

Figure 4.11 portrays the relative portions of the eight primary causes of death of the 25 AIDS mortalities. Sixty-four percent were due to infection from Pneumocystis Carninii Pneumonia (PCP) alone or PCP in combination with other opportunistic infections (PCP+), the most common of the opportunistic infections which strike AIDS victims. Thirty-two percent of the remaining deaths reflect less common infections associated with AIDS. One case included is an AIDS patient who committee suicide by an overdose of drugs.

### 1987 Projection - AIDS Mortalities

Based on the AIDS mortality rate of 56 cases per 100,000 population during the three-year history of AIDS deaths in CDC it can be anticipated that an average of one death for every 1,781 inmates can be expected in 1987.

The average inmate population for 1987 is expected to be 65,760<sup>\*</sup> inmates, therefore, CDC's projected AIDS mortalities is 37 deaths for the year.

### Summary

Based on the analysis of demographic statistics, the typical AIDS inmate mortality in the California Department of Corrections was a White or Black, single, heterosexual male, 34.5 years of age, with a history of intravenous drug abuse prior to incarceration. He committed a burglary or robbery in the southern California region, had not been in CDC before, spent an average of two years in the system prior to death, and from the onset of symptoms to death the average was 7 months. He was typically hospitalized at California Medical Facility and most likely to have contracted Pneumocystis Carinii Pneumonia in combination with other opportunistic infections. He died after an average final hospital stay of 120 days.

### PART V HOUSING OF AIDS, ARC, AND HIV CASES

#### PART V

#### HOUSING OF INMATES WITH AIDS, ARC, & HIV

### History

The first reported case of AIDS within the Department was in July 1984. The departmental policy relative to the placement of these cases was developed and implemented in 1983 and required every case to be transferred to the California Medical Facility (CMF) at Vacaville. These first cases were housed in G-2 the Acute Hospital Ward. As the number of cases increased, the Department began evaluating options for housing within the Department's facilities. The following factors were considered in evaluating various options:

- 1. The need for isolation of AIDS, ARC, and HIV seropositive individuals.
- 2. The demand for bed space throughout the Department's facilities.
- 3. The demand for acute hospital beds within the Department.
- 4. The availability of acute hospital services.
- 5. The availability of program services.
- 6. Custody needs of the individual inmates.

This evaluation resulted in a four phased implementation plan for activation of housing units at CMF. Phase I was activated in October 1985. This phase involved making physical plant modifications to an existing housing unit at the California Medical Facility (A-1) and placing 20 inmates with AIDS, ARC, and HIV seropositivity in a dormitory setting. All inmates placed in special housing were "well" and required no skilled nursing care.

As Phase I of the Department's Housing Plan (A-1) reached capacity, Phase II (L-1) was implemented. Unit (A-1) was deactivated and reverted back to general population use as an overflow for the Northern Reception Center.

Phase II is a celled housing unit which can accommodate up to 80 inmates, inclusive of 7 segregation cells for management and protective custody inmates. This unit has space for a private dining room as well as a private Day/TV Room. Additionally, this unit provides access to a unit exercise yard.

#### Current Status

There are currently 55 inmates housed in (L-1) Inasmuch, the capacity of (L-1) is 74. CMF is currently in the process of relocating the existing general population of (N-1) to provide additional space for the growing number of AIDS, ARC, and HIV cases. G-2 Hospital continues to accommodate cases which require skilled nursing coverage. Additionally, community hospitals are utilized to house inmates who are in need of specialized care beyond the facility's capacity.

### Plan For Housing

Based upon the projected reported number of cases for all categories and in consideration of the average number of cases which have paroled or died over the last three years, there is expected to be approximately 124 new cases which will require special housing in 1987.

It is anticipated that housing for these cases will continue to be provided at CMF by converting existing general population units to special housing for these cases.

## PART VI GENERAL TOPICS RELATED TO AIDS

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### PART VI

### GENERAL TOPICS OF RELATED TO AIDS

### Problems in Making Projections

There are substantial uncertainties about such factors as the prevalence of HIV infection, the rate of transmission of the virus among various population groups, and the risks of disease among those infected. Accordingly, any projection of the future incidence and prevalence of AIDS will be subject to considerable uncertainty.

Nevertheless, empirical projections of the incidence, prevalence, and cost of AIDS, however crude or uncertain, are essential for planning a response to the epidemic. The critical issue is to identify the value and limitations of such projections and their policy implications so that improved projections of the burden of disease can be developed. Also, by assessing the limits of such models, the data that need to be collected can be identified.

### The Proportion of Seropositive Individuals Who Will Develop AIDS

Opinions vary widely regarding the proportion of seropositive persons who will eventually die of HIV-related causes. At this time, there are only five years of observations on which to base such predictions. The data now available show that the proportion of a cohort of seropositive individuals that have progressed to AIDS is still rising five years after infection. Furthermore, once infected, a person may well remain at risk of clinical disease for life. With some of the less common clinical manifestations, particularly those that are neurologic, there may be a very long delay after infection.

The estimate that 25 to 50 percent of seropositive persons will develop AIDS as defined by the CDC within 5 to 10 years of seroconversion, and that a higher percentage cannot be ruled out on the basis of present studies. This estimate is consistent with but goes beyond that of the Public Health Service, which projected that 20 to 30 percent of currently seropositive individuals will be diagnosed with AIDS within 5 years. In addition, there is an increasing number of reports of manifestations of HIV infection that fall outside the CDC definition of AIDS, which therefore modify projections upward.

#### The Future Course of the Epidemic

Estimates of the future course of the epidemic are important to the planning of health care, public health measures, and research. Following a June 1986 planning conference at Coolfront, Berkely Springs, West Virginia, the Public Health Service (PHS) issued projections of the course of the epidemic through 1991. Among the most important PHS estimates are the following:

- By the end of 1991 there will have been a cumulative total of more than 270,000 cases of AIDS in the United States, with more than 74,000 of those occuring in 1991 alone.
- By the end of 1991 there will have been a cumulative total of more than 179,∩00 deaths from AIDS in the United States, with 54,000 of those occurring in 1991 alone.

### PART VI

### GENERAL TOPICS OF RELATED TO AIDS

### Problems in Making Projections

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- Because of the typical time between infection with HIV and the development of clinical AIDS is four or more years, most of the persons who will develop AIDS between now and 1991 already are infected.
- The vast majority of AIDS cases will continue to come from the currently recognized high-risk groups.
- New AIDS cases in men and women acquired through heterosexual contact will increase from 1,100 in 1986 to almost 7,000 in 1991.

The populations at highest risk for HIV infection in the near future will continue to be homosexual men and I.V. drug abusers. HIV infection will probably continue to spread in homosexual males, although possibly at a slower rate than in the past because of increased avoidance of anal intercourse and greater use of condoms. Continuing spread of HIV in I.V. drug users througout the United States is also expected. Infected bisexual men and I.V. drug users of both sexes can transmit the virus to the broader heterosexual population where it can continue to spread, particularly among the most sexually active individuals. Although there is a broad sprectrum of opinion on the likelihood of further spread of HIV infection in the heterosexual population, there is a strong consensus that the surveillance systems and studies presently in place have very limited ability to detect such spread.

In view of the numbers of people now infected, it is extremely unlikely that the rising incidence of AIDS will soon reverse itself. Disease and death resulting from HIV infection are likely to be increasing 5 to 10 years from now and probably into the next century. But the opportunity does exist to avert an increase in this burden by preventing the further spread of infection.

### Opportunities for Altering the Course of the Epidemic

Neither vaccines nor satisfactory drug therapies for HIV infection or AIDS are likely to be available in the near future, but actions can be taken now to reduce the further spread of HIV infection and thus to alter the course of the epidemic.

### Costs of Health Care for HIV-Related Conditions

The direct health care costs resulting from HIV infection include those attributable to the following:

- pre-test and post-test counseling associated with serologic testing
- detection of infection by serologic testing and confirmation
- monitoring of asymptomatic infected individuals
- diagnosis of the range of conditions associated with ARC and AIDS and their treatment, including ambulatory care, inpatient acute care, chronic care in hospices and custodial facilities (e.g., for dementia), and the various forms of extensive outpatient support.

The cost of treating manifestations of HIV infection in any particular case will vary with the marked differences in signs and symptoms and length and severity of illness among various patients. Costs also differ among approaches to case management in different settings. Most studies to date have focused on the direct health care costs for AIDS patients arising from care in and out of the hospital. As estimated by these studies, the average total costs for inpatient care from the time of diagnosis until death range from the \$50,000 to \$150,000. The difference in the figures derives largely from differences in the numbers of hospital days used.

Several factors -- including hospital readmission, length of stay, and type of care -- have been identified as making the costs of treating AIDS patients higher than those for treating other patients. These costs also vary with the type of AIDS patient -- I.V. drug user, homosexual male, infant -- because the disease manifestations can differ accordingly.

The Public Health Service has estimated that the direct cost of care for the 174,000 AIDS patients projected to be alive during the year 1991 will be \$8 billion to \$16 billion in that year alone.

### Summary of December 1986 Health Services Analysis

This investigational drug is known as 3'Azido-3'-Deoxythymidine or AZT and currently manufactured by the Burroughs Wellcome Pharmaceutical Company.

Basically, this drug works on a substance within the nucleus of the virus cell known as Dioxyribonucleac Acid or DNA. Specifically, it "interrupts" a necessary beginning step of cell division known as prophase, whereby the DNA begins to stretch and signal other parts of the cell to divide. This "interruption" renders the cell unable to manufacture the additional DNA required to reproduce itself.

This interruption of the cell's ability to divide allows the immune system of the victim to, partially, restore itself; at least for a period of time.

#### Requirements for Use of AZT

There are four primary requirement areas which must be met before this drug could be administered within the Department:

### 1. Accreditation

Both the manufacturer and the FDA have required that this drug be utilized only in health facilities accredited by the Joint Commission for Accreditation of Hospitals.

### 2. Consent

Both Federal and State laws require the informed consent of participants in this investigative drug program. Additionally, the manufacturer has developed consent forms specifically for inmates.

### 3. Patient Safeguards

Federal statutes contain not only safeguards for human subjects participating in clinical investigations, but it further defines specific safeguards for inmates which are guite entailed.

#### 4. Patient Criteria

Burroughs Wellcome Pharmaceutical Company, developer of AZT, has very stringent specific criteria each patient who wishes to participte in the program must meet. In order for a patient to qualify to participate in this program, the patient must have: Pneumocystis Carinii without currently requiring systemic chemotherapy, no Kaposi's sarcoma beyond the integumentary system, and be on no other medications. This criteria severely limits eligible candidates and, to date, we may be able to offer the program to only three or four inmates.

### Legal Issues

To date, federal statutes have not been located which prohibit the use of Phase II or III investigational drugs on inmates as long as specified criteria are met. The federal statute also makes specific provisions in its Code of Federal Regulations, in order to not deny therapeutic intervention to incurable individuals.

State statute, Penal Code Section 3502, does prohibit the use of investigational drugs on inmates. The state prohibition was confirmed in further discussions on this topic with Mr. Patrick Kenady, Assistant Director, Legislative Liaison, and Ms. Vicki Owen, Departmental Legal Counsel.

### Liability

The provision of health care entails considerable inherited liability. Inclusion of the provision of experimental or research health processes magnifies these existing liabilities.

### Conclusion

Current state law prohibits the use of investigational drugs such as AZT on inmates. If the law was changed to permit inmates with AIDS to participate in a program using AZT, the Department could contract this outpatient service with the University of California at Davis Medical Genter (UCDMC). UCDMC is willing to accept this resonsibility clinically and are awaiting an affirmative response from their management along with a cost figure for us.

Recent development in the study of AZT therapy has revealed three "problem areas" associated with its use:

- 20 percent of the patients have experienced suppression of blood production in the bone marrow to the point of becoming "transfusion dependent." This is in addition to the normal transfusion of AIDS patients.
- Numerous toxic side effects have been reported.
- Supply of substances used to manufacture this drug are critically low.
  Specifically, a substance derived from the sperm of herring is now at about 40 pounds. It is estimated it will take about 40,000 pounds to meet the demand for this drug.

On January 16, 1986, a committee of the Food and Drug Administration (FDA) recommended approval to the FDA for allowing general prescribing of this drug by physicians. This would remove the "investigative" status of this drug and drastically reduce the current restrictions and liability. This process is expected to take about 30 days.

### Figure 6.1

Nationally	Reported	Cases	of	AIDS
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of Residence	a, 1981 to	5 July 11, 198 Percentage of Total	36 Cases Per Million
SINGA OF Residence	Cases	Cases	Population
New York City	6,927	31	759.5
San Francisco	2,369	10	7288
Miami	638	3	392.4
Newark	564	2	286.9
Los Angeles	_ 1,949	9	260.6
Elsewhere, U.S.A.	10,188		49.9
Total "Based on 1990 Census	22,635	100	99.4
HIS PHS CDC			
urce. Centers for Disease Control		MODER	N HEALTHCARE Dec. 5. 19

Figure 6.2 National Distribution of Reported AIDS Cases

