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Action Project (ASAP) Rehabilitation  
Countermeasures, 1975

Los Angeles County Alcohol Safety Action Project, CA

Prepared for

National Highway Traffic Safety Administration, Washington, DC Office of  
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AN ANALYSIS OF THE MINI-ASAP  
REHABILITATION COUNTERMEASURES: 1975

Nabila N. Beshai

Los Angeles County ASAP  
311 South Spring Street  
Los Angeles, CA 90013

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16. Abstract <p>This study dealt with the effectiveness of three major rehabilitation programs for drinking-drivers: Disulfiram, Alcoholics Anonymous and Court School Programs. A program was considered effective if it helped in the reduction of recidivism for alcohol-related driving offenses and crashes. The study used samples of drivers who were referred to three types of treatments. It also used a comparison group composed of individuals who were arrested for driving under the influence of alcohol, but not referred to treatment.</p> <p>Multiple regression analyses formed the core of the analyses. Recidivism rates for selected groups were compared. The profiles of these groups were also examined. Finally, ASAP's catalytic effect on rehabilitation and the costs of the Alcohol Rehabilitation Clinic (sponsored by ASAP) were investigated.</p>				13. Type of Report and Period Covered Analytic Study, 1975	
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## METRIC CONVERSION FACTORS

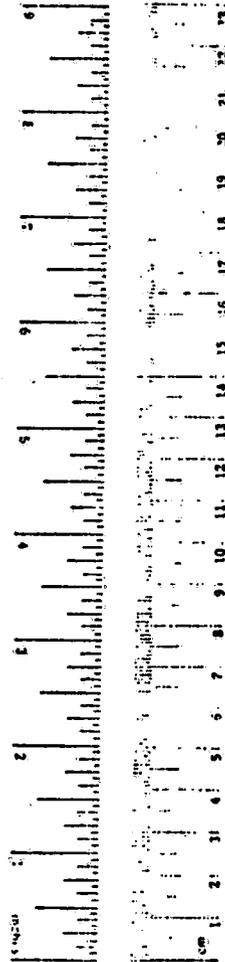
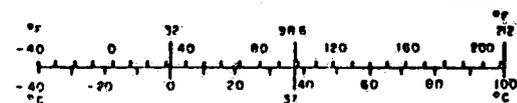
### Approximate Conversions to Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
<b>LENGTH</b>				
m	miles	1.6	meters	m
ft	feet	30	centimeters	cm
yd	yards	0.9	centimeters	cm
mi	miles	1.6	kilometers	km
<b>AREA</b>				
m <sup>2</sup>	square inches	6.5	square centimeters	cm <sup>2</sup>
ft <sup>2</sup>	square feet	0.09	square meters	m <sup>2</sup>
yd <sup>2</sup>	square yards	0.8	square meters	m <sup>2</sup>
mi <sup>2</sup>	square miles	2.6	square kilometers	km <sup>2</sup>
	acres	0.4	hectares	ha
<b>MASS (weight)</b>				
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	tonnes	t
<b>VOLUME</b>				
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
ft <sup>3</sup>	cubic feet	0.03	cubic meters	m <sup>3</sup>
yd <sup>3</sup>	cubic yards	0.76	cubic meters	m <sup>3</sup>
<b>TEMPERATURE (exact)</b>				
	Fahrenheit temperature	5/9 (plus subtract 32)	Celsius temperature	°C

1. The metric system is based on the meter and the kilogram. The metric system is used in most countries of the world. The metric system is used in the United States for scientific and technical purposes. The metric system is used in the United States for most other purposes.

### Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
<b>LENGTH</b>				
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
mi	miles	1.1	yards	yd
km	kilometers	0.6	miles	mi
<b>AREA</b>				
cm <sup>2</sup>	square centimeters	0.16	square inches	in <sup>2</sup>
m <sup>2</sup>	square meters	1.2	square yards	yd <sup>2</sup>
km <sup>2</sup>	square kilometers	0.4	square miles	mi <sup>2</sup>
ha	hectares (10,000 m <sup>2</sup> )	2.5	acres	
<b>MASS (weight)</b>				
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	
<b>VOLUME</b>				
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	2.1	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.76	gallons	gal
m <sup>3</sup>	cubic meters	35	cubic feet	ft <sup>3</sup>
m <sup>3</sup>	cubic meters	1.3	cubic yards	yd <sup>3</sup>
<b>TEMPERATURE (exact)</b>				
	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F



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## I. Abstract

This study dealt with major rehabilitation programs in the Mini-ASAP area: Disulfiram, Alcoholics Anonymous, and Court School programs. The objective of the study was to determine the effectiveness of the treatments. A program was considered effective if it helped in the reduction of alcohol-related driving offenses and crash recidivism. The major findings of the study are listed below:

1. Regression analyses studied the effectiveness of treatment while controlling for differences in drinking-driving backgrounds:

- All equations were statistically significant.
- The variable "treatment" had a negative regression coefficient (BETA) with recidivism in all the analyses. This indicated that treatment was associated with reduced recidivism.
- At the end of eighteen months "Disulfiram Plus" (Disulfiram given in the conjunction with other treatment), "Alcoholics Anonymous," and Court School" gave evidence of effectiveness in reducing recidivism.
- "Disulfiram Plus" as compared with "Disulfiram Only" was statistically effective in reducing recidivism for clients who had been in treatment for eighteen months.
- The more alcohol-related prior offenses a subject had and the younger his age, the more likely he was to have a higher incidence of recidivism.

2. Recidivism rates:

a. Recidivism rates were studied by periods of six month intervals:

- No consistent pattern for recidivism was noted. The rates fluctuated over time.
- There were no significant differences among the 1973 groups. For the 1974 groups, significant differences for alcohol related offenses and crashes were found (See Appendix A for details).
- The comparison group's rates maintained a mid-way position among the various treatment groups.

b. Overall treatment groups vs. no treatment group (the following data does not control for differences in prior drinking-driving backgrounds:

- The 1973 treatment group had more alcohol related recidivism offenses as well as accidents in the 30 month period after the criterion date than the comparison group (39.0 vs. 36.9 percent and 30.0 vs. 17.2 percent).
  - The 1974 treatment group had the same alcohol-related recidivism rate as the comparison group (24 percent), but a higher accident rate (13.0 vs. 10.4 percent).
  - Differences between the recidivism rates of the treatment and comparison groups were not significant.
- c. Clients who completed treatment vs. clients who dropped treatment:

Among clients who began treatment in either 1973 or 1974, persons who completed treatment had significantly fewer alcohol related offenses than persons who dropped treatment.

d. Problem drinkers vs. social drinkers:

Problem drinkers had significantly more alcohol related offenses and crashes than social drinkers.

3. Profiles:

- The individual treatment and comparison group showed significant differences with respect to age, BAC, prior alcohol related offenses, and prior accidents.
- Recidivists tended to be younger than non-recidivists, and they had more alcohol related priors. Recidivists had a significantly higher proportion of males, a lower percentage of persons in professional and managerial occupation, a lower percentage of married persons, and a lower percentage of persons who completed treatment than non-recidivists.
- Clients who completed treatment were significantly older than persons who dropped their programs. They also had fewer alcohol related priors, fewer accidents, and lower average BACs. Drivers who completed treatment had a significantly higher percentage of married persons, a higher proportion of Mexican Americans, more professionals and managers, and fewer skilled workers than persons who dropped treatment.
- Problem drinkers had more alcohol related priors, prior crashes, and higher BAC levels than social drinkers. They had a lower proportion of females and a lower rate of treatment completion than social drinkers.

4. ASAP's Catalytic Effect:

- ASAP was influential in increasing the number of Alcoholics Anonymous chapters and the types of meetings offered.
- Court School programs were expanded. Their growth helped to broaden the influence of SCATE (Southern California Alcohol and Traffic Education Association).
- The Alcohol Rehabilitation Clinic (DER-Disulfiram Clinic) continued in operation after ASAP sponsorship terminated. With funds from an NIAAA grant, the clinic expanded and diversified its services.

5. Costs of the Alcohol Rehabilitation Clinic (DER-Disulfiram Clinic):

- The total cost of the disulfiram program at the Alcohol Rehabilitation Clinic during the first half of 1975, was \$31,102.89. Patients made 7,449 visits to the clinic during this period. The unit cost per visit was \$4.17.

## II. Major Rehabilitation Programs In The Mini-ASAP Area of Los Angeles County

### A. The System

ASAP (the Los Angeles County Alcohol Safety Action Project) has designated one portion of the total County for concentrated operation of all countermeasure programs. This area, known as the Mini-ASAP, comprises three municipal court districts: Rio Hondo (El Monte), Citrus, and Pomona. It extends from the cities of Rosemead and El Monte on the west to the County borders on the east, and from boundaries of the Angeles National Forest on the north to County boundaries on the south. The area had a 1973 population of 73,059. Within it are 16 cities and eight unincorporated communities. These are basically residential communities adjacent to metropolitan Los Angeles; however, considerable industrial and commercial enterprises are located within the area. Citizens of the Mini-ASAP come from a wide variety of racial, ethnic, and social class groups, but most have middle class or working-class and Caucasian or Mexican-American backgrounds.<sup>1</sup> Clients entering the Mini-ASAP system are usually residents of the area, although some may come from surrounding communities.

#### 1. Entering the Rehabilitation System

Entry into the Mini-ASAP rehabilitation system may begin in three ways. Clients may enter with a DUI (Driving Under the Influence) arrest by a law enforcement agency within the area. They may enter as a result of a driver license review by the DMV (California State Department of Motor Vehicles). Clients may also voluntarily seek services from the Alcoholism Council and then be referred to the Alcohol Rehabilitation Clinic (ARC) in West Covina.<sup>2</sup>

Clients who enter the system through an alcohol-related driving arrest are sent to one of the three Mini-ASAP courts. If they are convicted of the offense, they are given a sentence.

- 
1. The 1970 Census identified 71.6 percent of the Mini-ASAP populations as White and 0.3 percent as Black. Residents of Spanish background constituted 24 percent of the population.
  2. The ARC was known as the DER (Diagnosis, Evaluation and Referral) Center and Disulfiram Clinic under ASAP-funding which extended from 1973 through June of 1975.

In the Rio-Hondo Court, sentencing is preceded by an investigation in which a public health investigator (PHI) interviews the client to determine the nature and extent of his drinking problem.

Citrus and Pomona Courts follow a procedure similar to Rio-Hondo's although Citrus Court sometimes uses a post-sentencing procedure. In these two Courts Deputy Probation Officers conducted the investigations during 1975. In early 1976, Public Health Investigators began conducting investigations at the Citrus Court.<sup>3</sup>

The investigator uses several basic sources of information in determining the nature of the client's drinking problem. He questions him about his prior drinking-driving offenses; he notes the BAC reading given in court records; and he uses information about general drinking habits which the client gives in the course of the interview. The investigator then makes a recommendation suited to the needs of the client. The recommendations vary, but the basic referral types are as follows:

- a. First offenders or social drinkers are usually recommended for a Level I court school class. The program provides the client with basic information about drinking and driving and shows him how to drink responsibly in the future. Level I classes assume that the client is not addicted to alcohol; rather, he is a person who has been careless in drinking and driving.
- b. Problem drinkers may be recommended for one or more of several programs. Recommendations vary, depending upon the client's own proclivities. If he expresses an interest in Alcoholics Anonymous (AA), the investigators try to further that interest. Problem drinkers who seem to be unable to control their drinking without special help are often referred to a chemotherapy (disulfiram) program. Other clients may be recommended for a Level II court school program which is directed toward needs of problem drinkers.
- c. When the investigator is unable to determine the nature of a client's drinking problem during his relatively brief interview, he will usually recommend that the client be sent to the Alcoholism Council.<sup>4</sup> The Council is not, strictly speaking, a treatment agency.

- 
3. Investigation and referral procedures are discussed in the Los Angeles County ASAP report: The Drinker Diagnosis and Referral Countermeasure, 1975.
  4. The operation of the Alcoholism Council of East San Gabriel and Pomona Valleys is described in detail in the Los Angeles County ASAP report: A Report on the Alcoholism Councils, 1975.

The volunteers conduct more lengthy in-depth investigations for the court. Referrals are then made to one or more treatment agencies. The Council also monitors the probation of court-referred clients. Throughout the investigation and monitoring period, council volunteers conduct "motivational counseling" sessions with the clients. The purpose is to assist clients in changing attitudes and activities with regard to drinking and driving.

After being interviewed by the investigator, the client reports to the judge for sentencing (except when the investigation is post-sentence). The judge can pass sentence in one of two ways. He can give the traditional sanctions of jail and/or fine, or he can refer the client to treatment with a lesser fine. The judge usually follows the recommendations of the investigator in passing sentence. The most frequently used treatment programs are court schools, Alcoholics Anonymous and the disulfiram program. Also used are private recovery homes, counseling services, etc. These treatment programs will be described in greater detail in the succeeding sections.

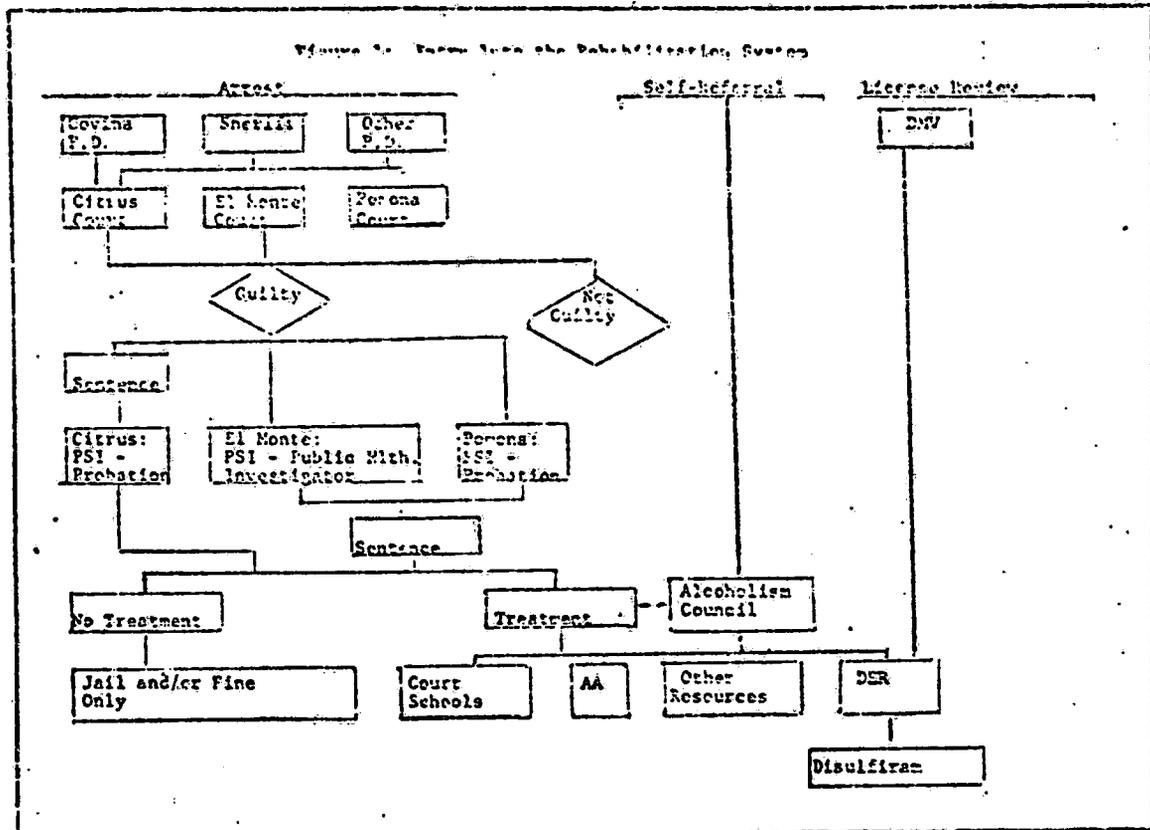
The second way clients enter the mini-ASAP treatment system is through the license review procedures of the DMV. Driver Improvement Analysts review the driving records of licensees as a regular function of the Department.<sup>5</sup> Drivers from the mini-ASAP area with alcohol related driving problems are sent to the ARC in West Covina for further diagnosis and treatment referral. Failure to cooperate with these agencies can result in license suspension or revocation.

The third way clients may enter treatment is voluntarily, by self-referral through the Alcoholism Council. Self-referrals do not begin treatment because of court processes or DMV action for drinking-driving offenses. Since they are not part of the ASAP system, self-referrals are excluded from analyses in this report.

Figure 1 illustrates entry into the mini-ASAP treatment system. The next section of this report will describe characteristics of the system and the complex interactions which can occur once a client begins treatment.

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5. For further details, see the Los Angeles County ASAP Report, the Department of Motor Vehicles Countermeasure: Performance Report for 1975.



## 2. Characteristics of the Rehabilitation System

Clients entering the Mini-ASAP rehabilitation system can become involved in one of several modalities either simultaneously or in sequence. For the sake of clarity, the treatment modalities will be discussed individually then focus on interactions between the modalities. The description covers activities as they exist in 1975.

a. Alcohol Rehabilitation Clinic:<sup>6</sup> The Clinic provides two related services. The first is a diagnostic and screening service for the Mini-ASAP area which is coordinated with other countermeasure activities.<sup>7</sup>

6. The ARC Clinic moved from West Covina to Baldwin Park in early 1976. At that time, a number of changes were made in procedures. However, this report deals only with activities for 1975.

7. See The Drinker Diagnosis and Referral Countermeasure, 1975, Los Angeles County ASAP, for further information regarding referral and ARC procedures.

The screening activities provide identification of the high-risk driver. The second service is to provide chemotherapy (disulfiram) treatment.

Clients are initially referred to the ARC by the courts through a Public Health Investigator or Probation Officer, or by the DMV in its' license review program. They may also be referred by the Alcoholism Council.

Persons sent to the ARC have usually been involved in multiple DUI offenses and/or had a high BAC at the time of the arrest bringing them to the ASAP system. Investigators also use interviews to find indices of problem drinking or medical needs.

The ARC is the entry point for clients in need of medical attention and for clients who might benefit from the chemotherapy program. The referring agency provides the ARC with basic information about the client and arranges an appointment for his first visit to the clinic.

At that first visit, the clinic physician gives the client a thorough medical examination to assess his general health and to respond to any complaints that may be present. The medical social worker on the staff interviews the client, completes a social history, and assesses the individual's personality and capabilities. The interview is directed toward understanding the implications of alcoholism on the individual's physical, emotional, social and vocational health. From this initial step, it is determined whether the individual is medically and emotionally a suitable client for chemotherapy. Sometimes it is determined that he would benefit most from another form of treatment, and he is referred to other agencies for appropriate programs.

Clients who are deemed physically and psychologically suitable for chemotherapy are given a thorough explanation of the program and its implications. They then begin taking disulfiram under the direction of the staff team. Patients have periodic appointments with the physician, who evaluates the appropriateness of the medication. Each time the patient visits the clinic, he receives his medication from the staff nurse, who provides both medical and informal counseling services. She reemphasizes the physician's recommendations and helps the patient understand alcoholism and the treatment program as it relates to him. Along with the clerical staff, she remains alert to specific problem areas and alerts the social worker to imminent crisis situations. The social worker counsels clients having special difficulties and makes additional referrals suited to individual needs.

Public Health Investigators are responsible for monitoring clients assigned to the ARC. For court-ordered cases, attendance is mandatory. A report is forwarded to the court (through the Probation Department on those cases of active probationers) alerting the court of any failure of the client. A notice is also sent to the DMV to report poor attendance by its referrals. A negative report could result in license suspension or revocation. Several criteria are used to determine when a report should be submitted: erratic attendance, missing three successive appointments, resume drinking, rearrest on drunk charges, etc...

A more detailed explanation and summary statistics relating to the ARC Clinic are contained in Appendix E, Part I.

b. Alcoholics Anonymous. Alcoholics Anonymous (AA) is one of the major treatment referrals given by the courts to ASAP clients. The map (Figure 2) shows that 19 communities in or near the Mini-ASAP area have AA chapters, offering a total of 155 meetings throughout the week. Clients sent to AA by the court are required to give proof of their attendance.

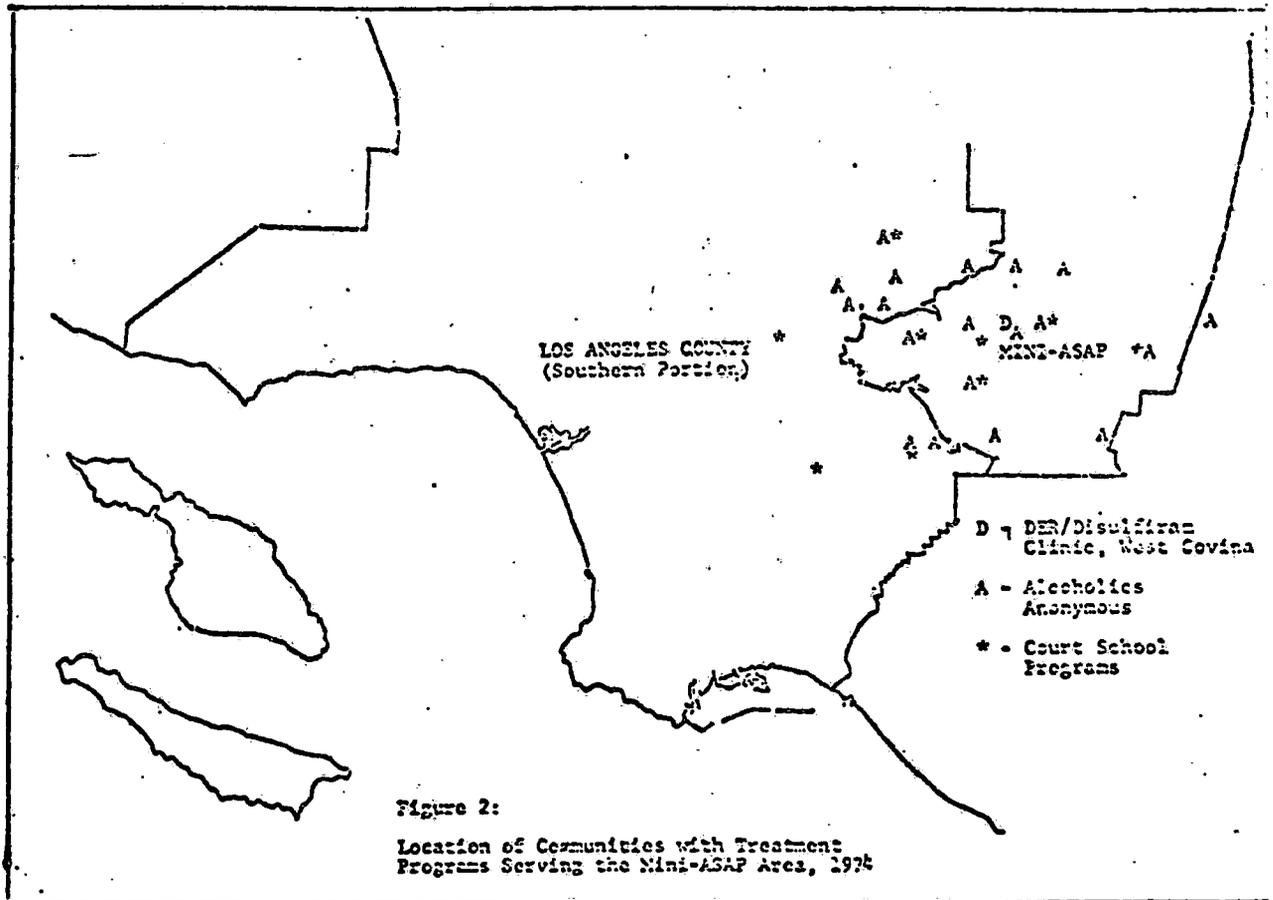
The fellowship has a fundamental tradition of respecting the anonymity of persons present at its meetings, so it does not maintain attendance records. However, many chapters do cooperate by signing attendance cards brought by clients each time they attend a meeting as a fulfillment of court requirements. Clients must then present these cards to the agency responsible for monitoring their probation (PHI, Probation or the Alcoholism Council). Failure to comply results in a report to the court by the monitoring agency and issuance of a bench warrant.

This study reports on AA clients who both attended AA and received "motivational counseling" from the Alcoholism Council. A description of the AA fellowship is included in Appendix E, Part II.

c. Mini-ASAP Court Schools. Sixteen court school programs from nine communities operate in or near the Mini-ASAP areas (See Figure 2). All function independently and do not receive ASAP funding. While programs may vary, their basic objectives are the same: to educate the DUI and create attitudinal change relating to drinking-driving behavior.

A number of the schools (Drug and Alcohol Awareness) direct their programs not only to alcohol but also to drug offenders.

Schools concentrating on the alcohol offender are generally providing one of two types of programs. The Level I program is directed toward the social drinker, a person not addicted to alcohol. The goal of the program is to provide information about drinking and driving and to motivate the client to drink responsibly in the future. Level II programs are directed toward problem drinkers. They make more extensive use of group counseling and promote principles of Alcoholics Anonymous.



When clients are referred to court school programs in the Mini-ASAP, a notice is sent to the school. The school maintains attendance records and notifies the Probation Officer, Public Health Investigator or Judge if a client fails to enroll or if he drops the course before completion. Failure to comply results in the issuance of a bench warrant. Many of the schools give completion certificates to the students. The certificates can then be used to give proof to the court that the required course has been completed. But basically, a "negative reporting system" is used. The courts assume that a client has completed his program unless notification to the contrary is received.

This study concentrates on clients sent to court schools by the Rio Hondo Court. Of these, 87 percent attended the "Rehabilitation of the Drinking Driver" course sponsored by the Twin Palms Recovery Center. Therefore, the Twin Palms program is used to exemplify the many programs offered in the Mini-ASAP, and is described in greater detail in Appendix E, Part III.

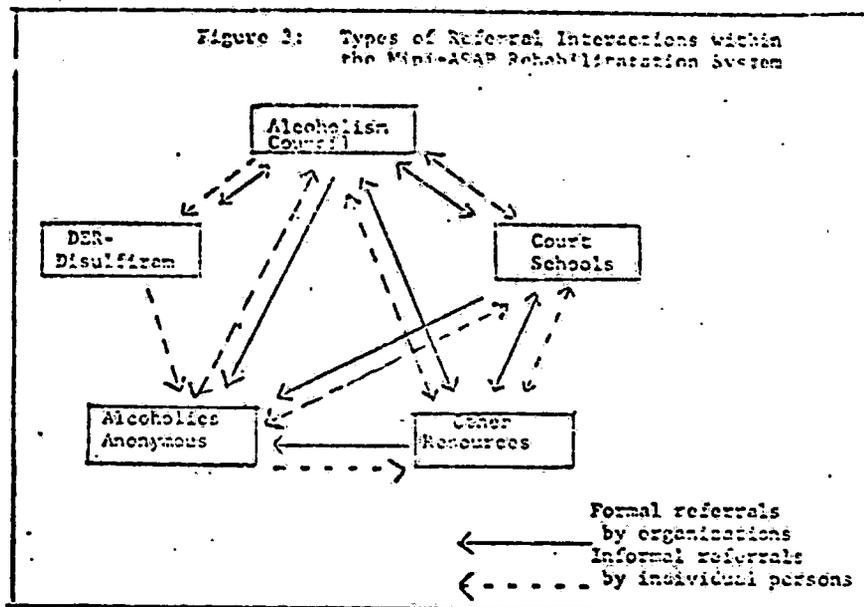
d. Other Resources. Other treatment resources are varied. The court may sentence an individual to one of several programs which are suited to his rehabilitation needs. Some clients are sent for counseling, others for private medical treatment, hospitalization, psychiatric care or similar programs. (These resources are not covered in this study.) In each instance, proof must be given as to completion of the terms of probation.

### B. The Integrated Treatment System

The point-of-entry into the ASAP rehabilitation system is first recommended by the Probation Officer, the Public Health Investigator, DMV, or the Alcoholism Council. The judge, in giving the actual sentence, may or may not accept the recommendation. These records are available and are fairly clear.

Once a client enters his "initial treatment" his progress through the system becomes increasingly difficult to follow. A system of "subsequent referrals" begin to arise. The subsequent referrals are made between and among agencies and individuals in the rehabilitation system. They may be simultaneous, in sequence, or a combination of both.

As a result of "subsequent referrals", a client who was assigned to one treatment by a judge may eventually enter two, three, or more treatments. Thus, it becomes increasingly difficult to track a client's movements. The following diagram illustrates typical referrals within the Mini-ASAP.

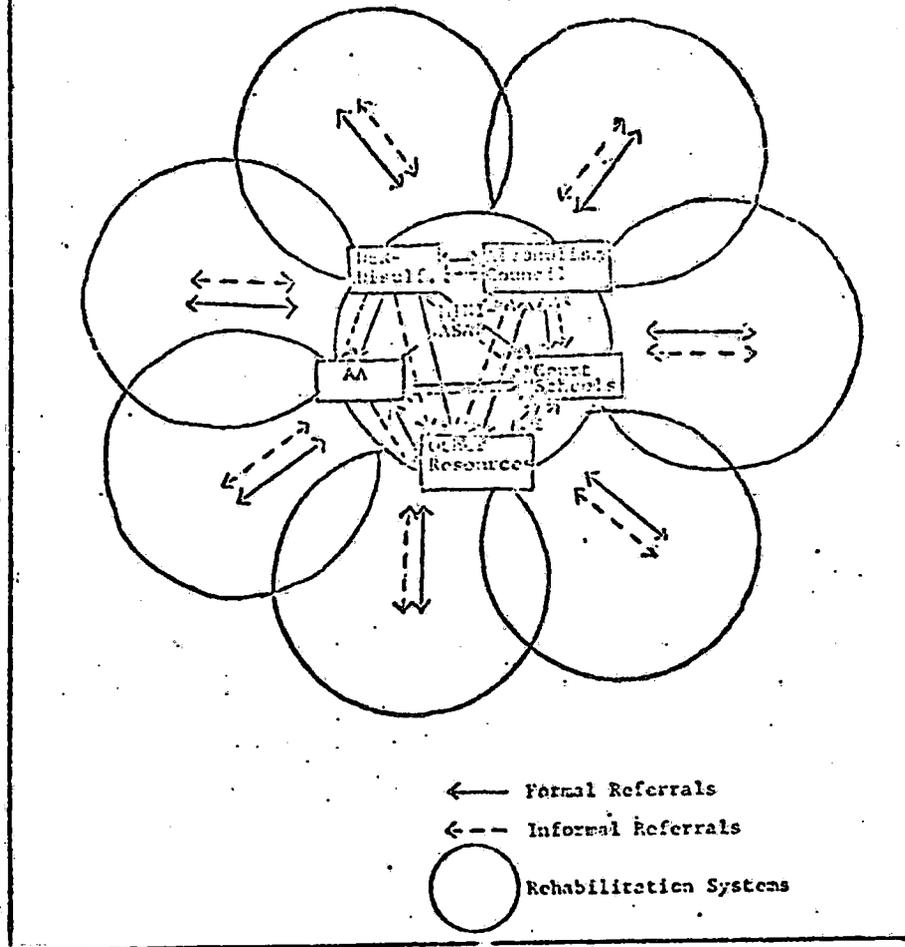


Referral interactions have a significant bearing on evaluating treatment programs. Perhaps it is not the initial treatment which accounts for a client's progress. Too little data is available to allow us to study exposure to multiple treatments at this time. It is a task which should be researched and analyzed more thoroughly, for it would not only give a better understanding of treatment effectiveness, but also of the dynamics of the entire rehabilitation system.

The reason for these referrals is to place a client in a treatment most suited to his needs. Subsequent referrals may occur when a client drops or indicates dissatisfaction with the initial rehabilitation program, expresses an interest in additional treatment or shows inadequate progress.

Some referrals are planned and formal such as those made by Probation Officers, Public Health Investigators or Alcoholism Council volunteers acting on behalf of their agencies. If formal referrals arise from a violation of probation, probation may be revoked or the conditions may be modified by the judge to allow for the newly recommended program.

Figure 4: Typical Referral Interactions of the Mini-ASA Rehabilitation System and Neighboring Systems



Other referrals are informal recommendations from one individual to another acting not on behalf of his agency but in a personal capacity. These referrals are not mandatory and may be followed by a client on a voluntary basis. Informal referrals may come from rehabilitation staff, fellow clients, employers, family members, etc.

### III. Study Objectives

The study assesses the effectiveness of three major alcohol treatment modalities as well the combination of disulfiram given in conjunction with another treatment. Effectiveness will be measured in terms of how well clients from the major treatment modalities reduced the incidence of driving under the influence of alcohol.

#### IV. Methods

##### A. Research Design

The Rehabilitation Study employs a "Treatment/No Treatment" research design. Subjects entering treatment in the mini-ASAP are compared with subjects given traditional sanctions of jail and/or fine only. The fundamental research questions being asked related to treatment effectiveness:

- Is treatment effective in reducing drunk driving arrests?
- Is any treatment modality more effective than others?
- Which variables are most associated with recidivism (positively or negatively)?

##### B. Data and Data Sources

Subjects from the mini-ASAP court districts were selected to represent four major treatment modalities. The first is "Disulfiram Only", meaning that the clients received only disulfiram. The second modality is "Disulfiram Plus", meaning that these clients received some additional type of treatment besides disulfiram. The additional treatment for all persons in this 1974 group was AA meetings. The third modality is Alcoholics Anonymous, and the fourth, is the court school group. In addition to the four treatment modalities, a "No Treatment" group was selected. These subjects were arrested for alcohol-related offenses and were given only jail and/or fine as a sentence. Data were collected from the files of the ARC Clinic, records of the court schools, and the records of the Alcoholism Council of East San Gabriel and Pomona Valleys which is the agency that referred clients to Alcoholics Anonymous. Subjects' driving records were obtained from the California Department of Motor Vehicles. Following is a description of the samples sizes for this study:

<u>Sample Type</u>	<u>Number</u>
Disulfiram Only - 1973	156
Disulfiram Only - 1974	276
Disulfiram Plus - 1973	124
Disulfiram Plus - 1974	260
Alcoholics Anonymous - 1973	182
Alcoholics Anonymous - 1974	269
Court School - 1973	204
Court School - 1974	463
Comparison Group - 1973	607

It might be contended that the No Treatment clients differed significantly from the clients who were treated since the judges did not refer them into rehabilitation programs. However, most of the clients were sentenced by judges of the Rio Hondo Court during a "transition period." The court had been using services of the Probation Department to conduct presentence investigations. In March of 1973, Probation Officers were replaced by Public Health Investigators. Rio Hondo judges gave sentences of jail or fine to virtually all clients during January and February of that year to eliminate confusion during the period of transition. As a result, the No Treatment Group more closely represents a cross section of all DUI offenders than any which could be found in the County.

### C. Analyses

General linear regression was used to assess treatment effectiveness. This technique allows one to study the relationship between a set of independent variables and a dependent variable. It measures the impact of each particular independent variable, while controlling for confounding factors. In this study it was used to study the effect of treatment in reducing recidivism, while controlling for differences in clients' ages and drinking-driving backgrounds.

Analysis of variance, t-tests, and Chi-Square analyses were conducted to examine statistical differences among groups.

The date of starting treatment was considered the criterion date for the treatment groups. For the comparison group the date of conviction was the criterion date. Prior and recidivism data were examined for both treatment and comparison groups. Driving behavior was examined for a six year period prior to the criterion date. The post treatment period for studying driving records was 30 months for the 1973 groups and 18 months for the 1974 groups.

### D. Data Limitations

At the time data was being collected for this study, there were a number of data limitations. The major restrictions were:

1. There was no way to follow clients through the enforcement, judicial, and treatment systems in a coherent manner. The system was particularly weak in indicating whether clients actually entered and completed treatment. It gave only partial data about many clients, and it was weak in indicating instances of multiple treatments and referrals.

2. The records of operating agencies were not always adequate for research needs. For example, in dealing with the 1973 Court School Group, probation files sometimes lacked information about completion of treatment. Retired files were virtually impossible to find. Most agencies did not have information about clients' treatment history for alcoholism prior to their entering the ASAP system.
3. There was no uniform set of data items consistently collected from one agency to another. For example, different categorization schemes were used to specify "Drinker Type." Definitions of categories were vague, and it was not possible to assess the comparability of types in one category with those in another.
4. There was an inconsistent definition of terms. To illustrate: Sometimes "income" would be defined operationally as "gross income" and at other times as "net income".
5. The No Treatment group was convicted in 1973 and used for comparison with both 1973 and 1974 treatment groups. It may be inadequate for comparison with 1974 groups because of changes in enforcement, PSI, court procedures, etc. Attempts were made to have two different "No Treatment" groups--one which received jail and/or fine only in 1973 and which received this sentence in 1974. Both the efforts of ASAP and recent State legislation regarding the investigation of multiple DUI offenders made it impossible to obtain an adequate "No Treatment" sample for 1974. Referral to treatment has become the normal procedure for courts in Los Angeles County.

Very strong efforts have been made to correct these data deficiencies. The Los Angeles County ASAP developed a uniform and comprehensive data collection system, which became operational in September, 1974. Unfortunately, data for the Rehabilitation Study came from a period prior to the inauguration of the new system.

In conclusion, it will be noted that data for the 1974 groups is superior in quality to data for the 1973 groups. It is more complete and accurate, and reflects ASAP's initial work in improving its data collection system (even though collected prior to September 1974). The 1974 data is superior, too, in that the number of clients in the treatment samples is almost twice as large as in 1973.

## V. Study Results

### A. Statistical Effectiveness of Treatment

A series of multiple regression analyses were performed to assess the effectiveness of treatment in reducing recidivism, i.e., alcohol related offenses and crashes. The contribution of other relevant variables in reducing recidivism was also examined. Four major research questions were addressed:

- How effective is treatment vs. no treatment?
- How effective are the various treatment modalities?
- How effective is "Disulfiram Only" as compared with "Disulfiram Plus"?
- Which variables are most associated with recidivism?

First, all treatment groups combined were studied vs. the comparison group. Then each treatment modality was compared separately with the no-treatment group. The final analysis compared Disulfiram Only with Disulfiram Plus. For all the analyses, the dependent variable was "total recidivism", the sum of alcohol-related driving offenses and accidents after the criterion date. Total recidivism over a thirty-month period was used for the 1973 groups; total recidivism over an eighteen-month period was used for the 1974 groups. The independent variables were age, sex, prior alcohol-related offenses, prior crash involvement, and treatment itself.<sup>8</sup> The independent variables were selected because of their availability in all the samples. BAC was used as a predictor when it was available. The regression equations provided the following descriptive and inferential information:

- a.  $R^2$  indicated the proportion of variation in the dependent variable which was explained by the regression equation.
- b. F value for the equation indicated whether the equation was statistically significant.
- c. The standardized coefficient "Beta" represented the relationship between the dependent variable and a particular independent variable, controlling for others in the equation. Beta values can have a positive or negative association with the dependent variable.

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8. For method of coding nominal variables see: Norman H. Nie, C. Hadlai Hull, Jean G. Jenkins, Karin Steinbrenner, and Dale H. Bent, Statistical Package for the Social Sciences, Second Edition, McGraw-Hill, 1975 pp.375.

- d The F values for independent variables indicated the statistical significance of the variables. In the present study, the F values were converted to t values ( $t = \sqrt{F}$ ). These were interpreted on a normal curve table as Z scores (because of the large number of degrees of freedom). One-tailed probability tests were used since the hypotheses were directional.

The results of the regression analyses are presented in Tables 1-3. They can be interpreted as follows:

- All the regression equations showed low  $R^2$  values, meaning that a small proportion of the variance in the dependent variable was accounted for by the equations.
- The treatment groups were compared with the No Treatment group, first as a whole and then individually. The regression showed the following:
  1. All equations were statistically significant
  2. The variable "treatment" had a negative regression coefficient (BETA) with recidivism. That means that undergoing treatment is associated with reduced recidivism.
  3. At the end of eighteen months, Disulfiram Plus, Alcoholics Anonymous, and Court School gave evidence of effectiveness ( $P < .05$  to  $P < .01$ ). Disulfiram Only was not statistically significant
  4. At the end of 30 months, none of the treatment types gave statistical evidence of effectiveness. The smaller sample sizes made it difficult to obtain statistical significance. Similar problems were faced when these samples were used in previous studies. Nevertheless, all the signs for the Betas were negative, indicating a trend toward effectiveness.
- Disulfiram Plus was compared with Disulfiram Only. It was significant for the eighteen month period ( $P < .01$ ), and it was associated with a negative coefficient. This means that Disulfiram Plus, as compared with Disulfiram Only, was statistically effective in reducing recidivism.
- Prior alcohol related offenses and the client's age had an association with recidivism. This was evident in the relatively high magnitude of the BETA coefficients and their statistical significance at the 0.01 to 0.001 levels. Prior alcohol related offenses had positive BETA coefficients, meaning that the more prior A-R offenses the person had, the more likely he was to recidivate.

Table 1: Treatment vs. No Treatment-A Summary of Regression Equations  
 18 months after Criterion Date (Dependent Variables: Total  
 A-R and Crash Recidivism)

Regression Equation & Independent Variables	R <sup>2</sup>	Significance Level	Standardized Beta Coefficient	Significance (one-tailed test)
1. <u>All Treatment Groups vs. No Treatment</u> Treatment Prior A-R Offenses Prior Crashes Age	.03838	P < .01	 -0.01614 0.10511 0.05652 -0.13528	 Pn.s. P < .001 P < .01 P < .001
2. <u>Disulfiram Only vs. No Treatment</u> Treatment Prior A-R Offenses Prior Crashes Age	.05493	P < .01	 -0.02814 0.16048 0.02091 -0.14241	 Pn.s. P < .001 Pn.s. P < .001
3. <u>Disulfiram Plus Additional Treatment vs. No Treatment</u> Treatment Prior A-R Offenses Prior Crashes Age	.04209	P < .01	 -0.05561 0.16061 0.05889 -0.09901	 P < .05 P < .001 P < .05 P < .01
4. <u>Alcoholics Anonymous vs. No Treatment</u> Treatment Prior A-R Offenses Prior Crashes Age	.03893	P < .01	 -0.09584 0.14414 0.02538 -0.10771	 P < .01 P < .001 Pn.s. P < .01
5. <u>Court School vs. No Treatment</u> Treatment Prior A-R Offenses Prior Crashes Age BAC	.05852	P < .01	 -0.08907 0.08939 0.08456 -0.15736 0.02937	 P < .01 P < .01 P < .01 P < .001 Pn.s.

Table 2: Treatment vs. No Treatment - A Summary of Regression Equations  
 30 months after criterion date (Dependent Variable: Total  
 A-R and Crash Recidivism)

Regression Equation & Independent Variables	R <sup>2</sup>	Significance Level	Standardized Beta Coefficient	Significance (one-tailed test)
<u>1. All Treatment Groups vs. No Treatment</u> Treatment Prior A-R Offenses Prior Crashes Age	.03365	P < .01	-0.00913 0.12365 -0.01182 -0.13743	Pn.s. P < .001 Pn.s. P < .001
<u>2. Disulfiram Only vs. No Treatment</u> Treatment Prior A-R Offenses Prior Crashes Age	.03622	P < .01	-0.00409 0.13769 -0.01771 -0.13072	Pn.s. P < .001 Pn.s. P < .001
<u>3. Disulfiram Plus Additional Treatment vs. No Treatment</u> Treatment Prior A-R Offenses Prior Crashes Age	0.05907	P < .01	-0.00456 0.19277 -0.01540 -.15668	Pn.s. P < .001 Pn.s. P < .001
<u>4. Alcoholics Anonymous vs. No Treatment</u> Treatment Prior A-R Offenses Prior Crashes Age	.06322	P < .01	-0.01144 0.21299 0.00126 -0.14492	Pn.s. P < .001 Pn.s. P < .001
<u>5. Court School vs. No Treatment</u> Treatment Prior A-R Offenses Prior Crashes Age	.05068	P < .01	-0.01051 0.15835 -0.01019 -0.15591	Pn.s. P < .001 Pn.s. P < .001

Table 3: "Disulfiram Plus Other Treatment" vs. "Disulfiram Only".  
 A Summary of Regression Equations. (Dependent Variable:  
 Total A-R and Crash Recidivism

Regression Equation & Independent Variable	R <sup>2</sup>	Significance Level	Standardized Beta Coefficient	Significance (one-tailed test)
"Disulfiram Plus" vs. "Disulfiram Only"-1973 Clients	0.01347	Pn.s.		
Age			-0.11648	P < .05
Prior A-R Offenses			0.00370	Pn.s.
Prior Crashes			-0.03338	Pn.s.
Disulfiram Plus vs. Disulfiram Only			0.02725	Pn.s.
"Disulfiram Plus" vs. "Disulfiram Only"-1974 Clients	0.04894	P < .01		
Age			-0.12028	P < .05
Prior A-R Offenses			0.11442	P < .01
Prior Crashes			0.08597	P < .02
Disulfiram Plus vs. Disulfiram Only			-0.07755	P < .01

The negative coefficient of age indicates that the younger the person was, the more apt he was to recidivate.

- Prior crashes sometimes had a negative standardized coefficient and sometimes a positive one. However, there was statistical significance only with the positive coefficient, meaning that the more prior accidents, the more likely was recidivism.
- BAC had a positive relationship with recidivism, but it was not statistically significant.

## B. Analyses of Recidivism Rates

### 1. A Comparison of Individual Groups:

Recidivism was examined by six month intervals. The recidivism rates were derived by dividing the total number of persons who had been rearrested or who had an accident during the period by the total number of persons in the group. The 1973 and 1974 groups were handled separately since changes may have taken place between 1973 and 1974. For example, there may have been differences in enforcement, pre-sentence investigation, and court procedures; likewise, the 1974 energy crisis may have had an impact. These and other factors could have affected driving behavior in differing ways.

Tables 4 and 5 and Figure 5 present data relating to alcohol related offenses and crash recidivisms. The major findings are as follows:

-The data showed no consistent pattern for recidivism. The rates fluctuated over time.

-One-way analyses of variance were done on data in Tables 4 and 5 to see if there were statistically significant differences among rates for the 1973 groups and the 1974 groups. The results showed that:

\*There were no significant differences among the 1973 groups.

\*There were significant differences among the 1974 groups with respect to alcohol-related recidivisms. These differences occurred in the first six-month interval, and for the total 18 month period. ( $P < .002$  and  $P < .028$ ). (See Appendix A for details on how the groups differed)

\*There were significant differences among the 1974 groups with respect to crash recidivisms. These occurred in the second interval (seventh to twelfth months after entry into the ASAP system -  $P < .006$ ). They were also noted for the total 18 month period ( $P < .001$ ). (See Appendix A for details as to how the group differed.)

-Alcohol related offenses for the 1973 groups (who had been in the ASAP system for 30 months) ranged between 35.9 - 42.0 percent. Accident rates ranged between 15.8 - 21.7 percent.

Table 4: Alcohol-Related and Accident Recidivism by Group Type - 1973 Clients

Offense Type	GROUP TYPE										
	Recidivism Periods	Disulfiram #	Disulfiram %	Disulfiram Plus #	Disulfiram Plus %	# AA	%	Court School #	Court School %	Comparison #	Comparison %
A-R Offenses	1st Period	10	6.4	12	9.7	20	11.0	21	10.3	23	9.6
	2nd Period	16	10.2	12	9.7	21	4.9	10	4.9	24	7.2
	3rd Period	15	9.6	15	12.1	11	6.0	11	5.4	25	7.6
	4th Period	14	8.9	11	8.9	15	8.2	18	8.9	28	7.9
	5th Period	5	3.2	2	1.6	9	4.9	13	6.4	9	6.8
	Total	60	38.3	52	42.0	76	41.6	73	35.9	224	36.2
Accidents	1st Period	9	5.7	6	4.8	6	3.3	11	5.4	13	3.5
	2nd Period	3	1.9	9	7.3	6	3.3	4	2.0	29	3.9
	3rd Period	7	4.5	4	3.2	9	3.2	8	3.9	10	3.3
	4th Period	9	5.8	4	3.2	9	4.9	11	5.4	9	3.9
	5th Period	3	1.9	4	3.2	4	2.2	8	3.9	21	1.6
	Total	31	15.8	27	21.7	31	16.9	42	20.6	174	17.2

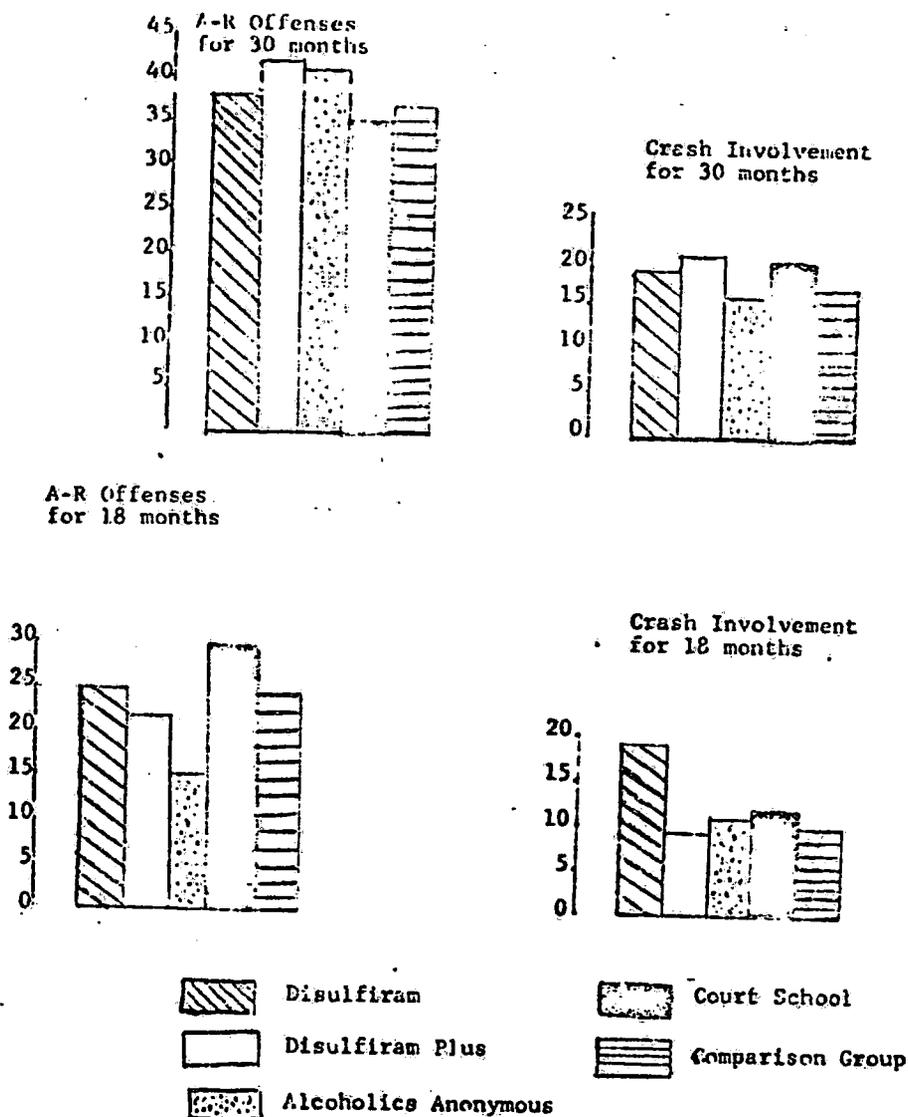
Table 5: Alcohol-Related and Accident Recidivism by Group Type - 1974 Clients

Offense Type	GROUP TYPE										
	Recidivism Periods	Disulfiram #	Disulfiram %	Disulfiram Plus #	Disulfiram Plus %	# AA	%	Court School #	Court School %	Comparison #	Comparison %
A-R Offenses	1st Period	20	7.3	19	7.4	15	5.6	67	14.4	18	9.6
	2nd Period	26	10.1	24	9.3	13	4.8	40	8.6	24	7.2
	3rd Period	22	8.0	18	7.0	13	4.8	30	6.4	25	7.4
	Total	70	25.4	61	23.7	41	15.2	137	29.4	117	25.2
Accident Offenses	1st Period	12	4.4	6	2.3	8	3.0	25	5.4	13	3.8
	2nd Period	27	9.8	9	3.5	12	4.4	21	4.9	0	3.3
	3rd Period	15	5.5	10	3.8	11	4.1	10	2.2	0	3.3
	Total	54	19.7	25	9.6	31	11.5	56	12.5	13	10.4

\* Significant difference among groups was evident.

Figure 5:

Recidivism Rates for Individual Groups



-For the 1974 groups (18 months in the ASAP system), alcohol related offenses ranged between 15.2 - 29.4 percent. Accident rates ranged between 9.6 - 19.7 percent.  
 -The comparison group's rates maintained a mid-way position among the various treatment groups (Figure 5).

It should be mentioned that the cumulative rates of the groups were examined. They are included in Appendix B.

2 A Comparison of the Treatment and No Treatment Groups

Individual treatment groups were combined to form overall "Treatment Groups" for 1973 and 1974. These Treatment Groups were then compared with the Comparison Group. Data in Tables 6 and 7 and Figure 6 show recidivism rates by six month intervals and total time periods. The major findings are:

- The 1973 treatment group had more alcohol related recidivism offenses as well as accidents in the 30 month period after the criterion date than the comparison group (39.0 vs. 36.9 percent and 30.0 vs. 17.2 percent).
- The 1974 treatment group had recidivism rates for alcohol related offenses which equaled the comparison group's rates (24 percent).
- Accident rates for the 1974 treatment groups were higher than they were for the comparison group (13.0 vs. 10.4 percent).
- Differences between the recidivism rates of the Treatment and Comparison groups were not significant. There was one exception. The 1974 treatment group had a significant higher accident rate than the comparison group during the second six month period ( $P < .02$  two-tailed test).

Table 6: Alcohol Related and Accident Recidivism - Treatment Groups of 1973 vs. Comparison Group

Offense Type	GROUP TYPE			
	Recidivism Periods	Treatment Groups #	%	Comparison Group # %
A-R Offenses	1st Period	63	9.0	58 9.6
	2nd Period	59	9.0	44 7.2
	3rd Period	52	8.0	45 7.4
	4th Period	58	9.0	48 7.9
	5th Period	29	4.0	29 4.8
	Total	261	39.0	224 36.9
Accidents	1st Period	32	5.0	23 3.8
	2nd Period	22	3.0	20 3.3
	3rd Period	25	4.0	20 3.3
	4th Period	33	5.0	20 3.3
	5th Period	19	3.0	21 3.5
	Total	131	20.0	164 17.2

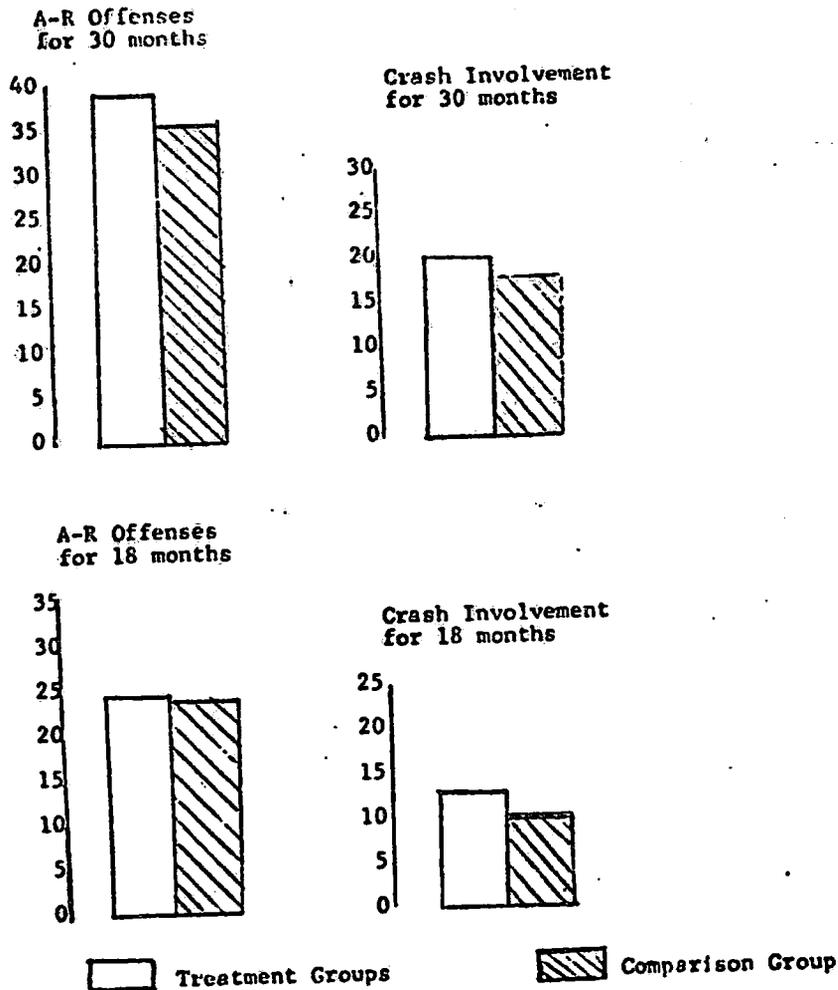
Table 7: Alcohol Related and Accident Recidivism - Treatment Groups of 1974 vs. Comparison Group

Offense Type	GROUP TYPE				
	Recidivism Periods	Treatment Groups #	Treatment Groups %	Comparison Group #	Comparison Group %
A-R Offenses	1st Period	121	10.0	58	9.6
	2nd Period	105	8.0	44	7.2
	3rd Period	83	7.0	45	7.2
	Total	309	24.0	147	24.2
Accidents	1st Period	31	4.0	23	3.7
	2nd Period	71	6.0	20	3.2
	3rd Period	49	4.0	20	3.3
	Total	168	13.0	63	10.4

\* Difference between these two rates was significant at the 0.02 level (two-tailed test).

Figure 6:

Recidivism Rates for Treatment vs. No Treatment



**3. A Comparison of Clients Who Completed Treatment and  
Clients Who Dropped Treatment**

The recidivism rates of drivers who completed treatment was compared with the recidivism rates of persons who dropped treatment (Tables 8 and 9 and Figure 7). The major findings are:

**a. 1973 Groups**

-Persons who completed treatment in the 1973 groups had significantly fewer alcohol related offenses than the "drop outs."

There were significant differences between these two types of clients for the second and third six month periods after the criterion date as well as for the total thirty month period ( $P < .025$ ,  $P < .05$ , and  $P < .025$ ). In each period, persons who dropped treatment had more alcohol-related recidivism offenses than those who finished their programs.

-A significant difference between the two groups with respect to crashes was evident only for the first six month interval ( $P < .05$ ). Persons who failed to finish their treatment program had more accidents during this time than persons who finished treatment.

**b. 1974 Groups**

-Among the 1974 clients, those who completed treatment had significantly fewer alcohol related offenses than the "drop outs" over the total 18 month period ( $P < .05$ ). They also had a significantly fewer accidents over the total period ( $P < .0005$ ).

-When each six month period after the criterion date was examined separately, "drop outs" had significantly fewer accidents than persons who completed treatment during the first six month period ( $P < .001$ ). This was contrary to expectations. However, the situation reversed in succeeding intervals. Drivers who completed treatment had fewer crashes in the second and third periods (Pn.s.,  $P < .05$ ).

Table 8 : Alcohol Related and Accident Recidivism by Treatment Completion - 1973 Clients.

Offense Type	Recidivism Periods	GROUP TYPE				Significance (One-tailed Test)
		Completions		Non-Completions		
		#	%	#	%	
A-R Offenses	1st Period	29	7.7	23	11.6	Pn.s.
	2nd Period	29	7.7	27	13.6	$P < .025$
	3rd Period	26	6.9	23	11.6	$P < .05$
	4th Period	23	8.8	14	7.1	Pn.s.
	5th Period	19	5.1	4	2.0	Pn.s.
	Total Periods	136	36.2	91	46.0	$P < .025$
Accidents	1st Period	13	3.5	14	7.1	$P < .05$
	2nd Period	13	3.5	7	3.5	Pn.s.
	3rd Period	13	3.5	10	5.0	Pn.s.
	4th Period	19	5.1	9	4.5	Pn.s.
	5th Period	11	2.9	4	2.0	Pn.s.
	Total Periods	69	18.4	44	22.3	Pn.s.

Offense Type	Recidivism Period	GROUP TYPE		Significance (Two-tailed Test)
		Completions # %	Non-Completions # %	
A-R Offenses	1st Period	22 22.8	27 28.2	P > .5
	2nd Period	72 22.8	78 28.2	P > .5
	3rd Period	55 22.8	61 28.2	P > .5
	Total Periods	149 22.8	166 28.2	P < .05
Accident Offenses	1st Period	12 4.5	9 3.9	P < .01
	2nd Period	46 5.2	22 7.2	P > .5
	3rd Period	29 3.1	16 5.2	P < .05
	Total Periods	87 12.8	47 12.6	P < .0005

\* Two-tailed test.

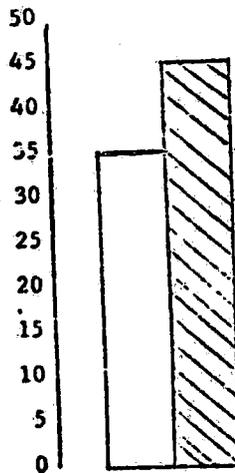
Reproduced from best available copy.



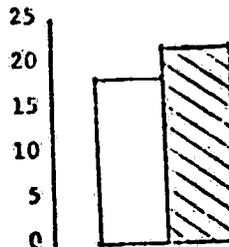
Figure 7:

Recidivism Rates for Subjects Who Completed Treatment and Others Who Dropped Treatment:

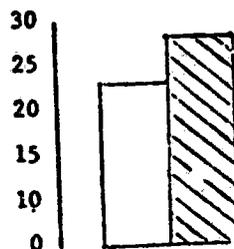
A-R Offenses for 30 months



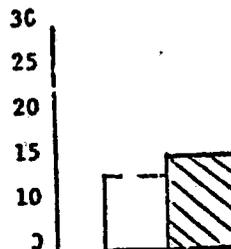
Crash Involvement for 30 months



A-R Offenses for 18 months



Crash Involvement for 18 months



Completed Treatment

Dropped Treatment

#### 4. A Comparison of Problem Drinkers and Social Drinkers.

The classification of the clients as to drinker type was not available at the time of data collection. Therefore, ASAP criteria based on prior offenses and DAC were used (See Appendix C). Unfortunately, a large number of cases were eliminated from the analyses because of missing BAC data. Among cases which were retained, two groups were distinguished: problem drinkers and social drinkers. The two groups were compared. The results are presented in Tables 10 and 11 and Figure 8. The major findings are:

- a. 1973 Groups
  - Problem drinkers among the 1973 clients had more alcohol related recidivism offenses than social drinkers for the total 30 month period ( $P < .005$ ), and for the fifth six month period after the criterion date ( $P < .025$ ).
- b. 1974 Groups
  - Problem drinkers had more alcohol related offenses and accident recidivisms for the total 18 month period than social drinkers ( $P < .005$ ,  $P < .0005$ ).
  - Problem drinkers had significantly more crashes than social drinkers during the first and second six month periods ( $P < .025$ ,  $P < .05$ ). They had more alcohol related offenses in the first six month period after the criterion date ( $P < .01$ ).

Table 10: Alcohol Related and Accident Recidivism by Drinker Type -1973 Clients.

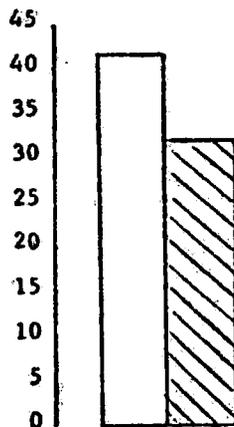
Offense Type	Recidivism Period	GROUP TYPE				Significance (One-tailed Test)
		Problem Drinkers		Social Drinkers		
		#	%	#	%	
A-R Offenses	1st Period	33	11.1	32	8.3	Pn.s.
	2nd Period	27	9.1	27	7.0	Pn.s.
	3rd Period	18	6.1	24	6.2	Pn.s.
	4th Period	29	9.8	30	7.7	Pn.s.
	5th Period	16	6.0	11	2.9	$P < .025$
	Total Periods	125	42.1	124	32.2	$P < .005$
Accidents	1st Period	14	4.7	12	3.1	Pn.s.
	2nd Period	10	3.4	12	3.1	Pn.s.
	3rd Period	8	2.7	15	3.9	Pn.s.
	4th Period	8	2.7	17	4.4	Pn.s.
	5th Period	11	3.7	12	3.1	Pn.s.
	Total Periods	51	17.2	66	17.7	Pn.s.

Offense Type	Recidivism Periods	GROUP TYPE		Significance (One-tailed Test)
		Problem Drinkers # %	Social Drinkers # %	
A-R Offenses	1st Period	74 11.9	47 7.8	P < .01
	2nd Period	54 8.7	41 6.7	Eq.s.
	3rd Period	44 7.1	31 5.2	Eq.s.
	Total Periods	172 27.7	119 19.7	P < .0005
Accident Offenses	1st Period	32 5.2	17 2.8	P < .025
	2nd Period	25 4.1	22 3.7	P < .05
	3rd Period	23 3.7	19 3.2	Eq.s.
	Total Periods	80 13.0	58 9.6	P < .005

Figure 8:

Recidivism Rates for Problem Drinkers vs. Social Drinkers

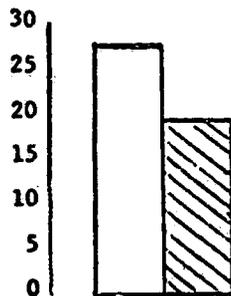
A-R Offenses for 30 months



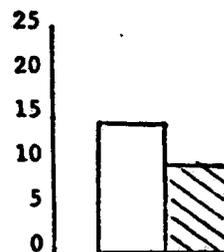
Crash Involvement for 30 months



A-R Offenses for 18 months



Crash Involvement for 18 months



Problem Drinkers

Social Drinkers

## C. Profiles

The profiles of specific groups were compared. Profiles encompassed demographics and driving behavior prior to criterion date. The 1973 and 1974 groups were processed jointly for this portion of the evaluation. The groups included in the profiles were as follows:

1. Individual treatment and comparison groups;
2. Recidivists and non-recidivists;
3. Clients who completed treatment and clients who dropped treatment;
4. Problem drinkers and social drinkers.

### 1. A Comparison of Individual Treatment and Comparison Groups:

Individual treatment groups and the comparison group were studied to see if there were differences among groups as to prior alcohol related offenses, prior accidents, age, and blood alcohol content (BAC). Significant differences were found with respect to all the variables ( $P < .001$ ) as presented in Tables 12 through 15. Detailed information is included in Appendix D. The major findings are listed below:

#### a. Prior Alcohol Related Offenses and Accidents

- The Disulfiram Plus group had the highest mean of alcohol related priors (2.2157). It was followed by Disulfiram Only (2.1167), the AA group (1.9307), the Comparison Group (1.4135), and the Court School group (1.3378).
- The Disulfiram Only group had the highest average of prior accidents (0.4190). It was followed by the AA group (0.4054), the Disulfiram Plus group (0.3804), the Court School group (0.2673), and the Comparison group (0.1895).

#### b. BAC

- The Disulfiram Plus group had the highest BAC at the time of arrest (.21). It was followed by the Disulfiram Only group (.20) the AA group (.19), the Court School group (.17) and the Comparison group (.16).

#### c. Age

- Clients in the Disulfiram Plus group had the highest average age of 42.2 years, followed by Alcoholics Anonymous (41.1 years), the Comparison group (40.3 years), the Disulfiram Only group (40.1 years) and the Court School group (38.5 years).

Table 12: Analysis of Variance for Age of Individual Groups

Source of Variance	Mean Square	D.F.	F Ratio	Significance
Between Groups	864.2500	4	6.197	P < .001
Within Groups	139.4548	2535		
Groups	Number	Mean	Standard Deviation	
Disulfiram Only	420	40.1190	11.5364	
Disulfiram Plus	255	43.1529	11.6237	
Court School	666	38.4775	11.8695	
Alcoholics Anonymous	592	41.1149	12.1278	
Comparison	607	40.3460	11.6863	

Table 13: Analysis of Variance for BAC of Individual Groups

Source of Variance	Mean Square	D.F.	F Ratio	Significance
Between Groups	0.0736	4	33.574	P < .001
Within Groups	0.0022	1463		
Groups	Number	Mean	Standard Deviation	
Disulfiram Only	191	0.1992	0.0486	
Disulfiram Plus	96	0.2060	0.0630	
Court School	506	0.1730	0.0390	
Alcoholics Anonymous	233	0.1907	0.0539	
Comparison	442	0.1642	0.0462	

Table 14: Analysis of Variance for Prior Alcohol Related Offenses of Individual Groups

Source of Variance	Mean Square	D.F.	F Ratio	Significance
Between Groups	77.2773	4	69.794	P < .001
Within Groups	1.1072	2535		

Groups	Number	Mean	Standard Deviation
Disulfiram Only	420	2.1167	1.2098
Disulfiram Plus	255	2.2157	1.2866
Court School	666	1.3378	0.7919
Alcoholics Anonymous	592	1.9307	1.2106
Comparison	607	1.4135	0.9063

Table 15: Analysis of Variance for Prior Accidents of Individual Groups.

Source of Variance	Mean Square	D.F.	F Ratio	Significance
Between Groups	5.3866	4	15.376	P < .001
Within Groups	0.3458	2535		

Groups	Number	Mean	Standard Deviation
Disulfiram Only	420	0.4190	0.6948
Disulfiram Plus	255	0.3804	0.6584
Court School	666	0.2673	0.5209
Alcoholics Anonymous	592	0.4054	0.6503
Comparison	607	0.1895	0.4653

Further comparisons were made of individual treatment groups and the comparison group. They were made along a number of dimensions such as sex, ethnicity, employment status, education, occupation, marital status, and treatment completion. Because of missing data, the comparison group could not be included in most instances. The analyses indicated statistically significant differences for many variables (Tables 16 through 21). The major findings are listed below:

d. Sex

-The "Disulfiram Plus" and "Alcoholics Anonymous" groups had a higher percentages of females than other groups ( $P < .001$ ).

e. Ethnicity

-There were significant differences among groups with respect to ethnicity ( $P < .001$ ). The "Alcoholics Anonymous" group had the highest proportion of Anglo Americans (74.1 percent), and the Court School group had the lowest (53.2 percent).

f. Education

-Fifteen percent of the "Disulfiram Only" group had some college education, as compared with 16.8 percent of the "Court School" group; 17.9 percent of "Alcoholics Anonymous" group, and 19.5 percent of the "Disulfiram Plus" group. The differences among educational levels of the groups was significant at the 0.006 level.

g. Occupation

-There were significant differences among groups with respect to occupational composition ( $P < .001$ ). The proportion of clients in the "Professional and Technical - Manager and Administrator" category was as low as five percent in the Alcoholics Anonymous group. In the Court School group it was 14.2 percent. The percentage of clients who were craftsmen "operatives and transportation workers" was approximately 25 percent in the Alcoholics Anonymous group, but over 40 percent in the other groups.

h. Marital Status

-Fifty to sixty percent of the clients in all the groups were married. Seventeen percent of the Court School clients were separated or divorced, compared with about 30 percent in the other groups. There were statistically significant differences in marital status of clients in the various groups at the 0.01 level.

Table 16: Sex by Group Type

Sex	GROUP TYPE									
	Disulfiram Only		Disulfiram Plus		Court School		Alcoholics Anonymous		Comparison	
	#	%	#	%	#	%	#	%	#	%
Male	308	95.0	229	89.8	612	92.4	515	88.3	541	93.2
Female	21	5.0	26	10.2	50	7.6	68	11.7	41	5.8

$\chi^2=18.266$

df=4

P < .001

Table 17: Ethnicity by Group Type

Ethnicity	GROUP TYPE							
	Disulfiram Only		Disulfiram Plus		Court School		Alcoholics Anonymous	
	#	%	#	%	#	%	#	%
White	250	61.7	166	67.2	340	53.2	103	74.1
Black	17	4.2	6	2.4	22	3.4	1	0.7
Mexican	132	32.6	74	30.0	273	42.7	32	23.0

$\chi^2=34.8239$

df=6

P < .001

Table 18: Education by Group Type

Education	GROUP TYPE							
	Disulfiram Only		Disulfiram Plus		Court School		Alcoholics Anonymous	
	#	%	#	%	#	%	#	%
Grade School	27	6.8	14	5.7	58	9.9	7	3.9
Jr. High School	72	18.1	38	15.4	69	11.8	30	16.8
High School	239	60.1	148	59.3	358	61.4	110	61.5
College	59	14.8	47	19.1	92	15.8	27	15.1
Graduate Education	1	0.3	1	0.4	6	1.0	5	2.8

$\chi^2=27.5037$

df=12

P < .006

Table 19: Occupation by Group Type

Occupation Type	GROUP TYPE							
	Disulfiram Only		Disulfiram Plus		Court School		Alcoholics Anonymous	
	#	%	#	%	#	%	#	%
Professional, Technical	14	3.3	9	3.5	51	7.7	20	3.4
Manager, Administrator	24	5.7	10	3.7	43	6.5	16	2.7
Profession	101	24.0	68	26.7	147	22.1	71	13.7
Operative, Transportation	54	4.0	40	15.7	127	18.6	65	11.0
Clerical Work	17	5.5	11	4.3	39	5.9	12	2.0
Sales Worker	23	11.9	16	6.3	26	3.9	26	4.4
Laborer	50	7.1	27	10.6	78	11.7	50	8.5
Service Worker	30	0.5	14	5.5	54	8.1	32	5.4
Household Worker	2	11.9	2	0.8	13	2.0	7	1.2
Unemployed, Student Worker	50		39	15.3	20	3.0	19	3.2

$\chi^2=87.1349$

df=27

$P < .001$

Table 20: Marital Status by Group Type

Marital Status	GROUP TYPE							
	Disulfiram Only		Disulfiram Plus		Court School		Alcoholics Anonymous	
	#	%	#	%	#	%	#	%
Married	223	54.1	134	52.8	115	59.3	203	51.5
Single	57	13.8	35	13.8	42	21.6	64	16.2
Seperated	42	10.2	25	9.8	15	7.7	43	10.9
Divorced	78	18.9	57	22.4	18	9.3	68	17.3
Widowed	12	2.9	3	1.2	4	2.1	16	4.1

$\chi^2=25.2572$

df=12

$P < .01$

Table 21: Treatment Completion by Group Type

Treatment Completion	GROUP TYPE							
	Disulfiram Only		Disulfiram Plus		Court School		Alcoholics Anonymous	
	#	%	#	%	#	%	#	%
Yes	205	48.8	128	50.2	531	79.7	493	76.5
No	215	51.2	126	49.4	26	3.9	136	23.0

$\chi^2=330.8317$

df=3

$P < .001$

i. Completion of Treatment

-Groups also differed with respect to completing treatment ( $P < .001$ ). About 50 percent of the two Disulfiram groups completed treatment. This rate rose to over 75 percent in the other two groups.

2 Recidivists vs. Non-Recidivists

Table 22 presents comparisons between recidivists and non-recidivists with respect to age, alcohol related priors, prior crashes and BAC (when BAC data were available). The comparisons were conducted first on all treatment and non-treatment groups combined. Then each group was handled seperately. The major findings are:

a. Age

-Recidivists tend to be younger than non-recidivists. The average age for recidivists in all groups was lower than it was for non-recidivists. Age differences were statistically significant in all groups except for "Disulfiram Plus" and "Alcoholics Anonymous".

Table 22: Summary of T-Tests Comparing Recidivists vs. Non-Recidivists

GROUPS AND VARIABLES	Group Means		Significance Level
	Recidivist	Non-Recidivist	
1. <u>All Groups</u>			
Age	38.0896	41.3635	P < .001
Alcohol Related Priors	1.8066	1.6562	P < .002
Prior Crashes	0.3574	0.2952	P < .01
Blood Alcohol Content	0.1763	0.1801	Pn.s.
2. <u>Disulfiram Only</u>			
Age	38.5033	41.0599	P < .02
Alcohol Related Priors	2.1060	2.1199	Pn.s.
Prior Crashes	0.4305	0.4157	Pn.s.
Blood Alcohol Content	0.1972	0.2002	Pn.s.
3. <u>Disulfiram Plus</u>			
Age	40.1550	42.4745	Pn.s.
Alcohol Related Priors	2.4729	2.1412	P < .03
Prior Crashes	0.5271	0.3451	P < .02
Blood Alcohol Content	0.1952	0.2090	Pn.s.
4. <u>Alcoholics Anonymous</u>			
Age	40.3333	41.5179	Pn.s.
Alcohol Related Priors	2.0486	1.7036	P < .001
Prior Crashes	0.4375	0.3616	Pn.s.
Blood Alcohol Content	0.1802	0.1862	Pn.s.
5. <u>Court School</u>			
Age	35.3636	40.4179	P < .001
Alcohol Related Priors	1.3794	1.3092	Pn.s.
Prior Crashes	0.3241	0.2343	P < .03
Blood Alcohol Content	0.1752	0.1717	Pn.s.
6. <u>Comparison Group</u>			
Age	38.3532	41.6048	P < .001
Alcohol Related Priors	1.5489	1.3280	P < .006
Prior Crashes	0.1957	0.1855	Pn.s.
Blood Alcohol Content	0.1637	0.1645	Pn.s.

b. Prior Alcohol Related Offenses and Crashes

- Recidivists had more prior alcohol related offenses than non-recidivists. This pattern was observed when all groups were combined and for most individual groups as well.
- Recidivists were more involved in prior crashes than non-recidivists. The differences was statistically significant for the "Disulfiram Plus" group and "Alcoholics Anonymous".

Further comparisons were made between recidivists and non-recidivists (Table 23). The major findings were:

c. Sex

- Non-recidivists had significantly higher proportion of females. This was true for "all groups" as well as for the "comparison group" ( $P < .005$  and  $P < .04$ ).

d. Ethnicity and Employment Status

- No statistically significant difference was found between recidivists and non-recidivists with regard to ethnicity or employment status.

e. Education

- There was a statistically significant difference between recidivists and non-recidivists in the "Disulfiram Plus" group with respect to educational attainment ( $P < .05$ ). Non-recidivists included a higher proportion of clients with junior school and college education than the recidivists. Recidivists had a higher percentage of high school graduates.

Table 23: Summary of Chi-square Tests Comparing Recidivists vs. Non-Recidivists (1973 and 1974 Clients)

Demographic Characteristics	All Groups	Comparison Group	INDIVIDUAL TREATMENT GROUPS			
			Disulfiram Only	Disulfiram Plus	AA	Court School
Sex	$P < .005$	$P < .04$	Pn.s.	Pn.s.	Pn.s.	Pn.s.
Ethnicity	Pn.s.	N.A.	Pn.s.	Pn.s.	N.A.	Pn.s.
Employment Status	N.A.	N.A.	Pn.s.	Pn.s.	N.A.	N.A.
Education	Pn.s.	N.A.	Pn.s.	$P < .05$	N.A.	Pn.s.
Occupation	Pn.s.	N.A.	Pn.s.	$P < .001$	Pn.s.	Pn.s.
Marital Status	$P < .001$	N.A.	Pn.s.	$P < .006$	$P < .005$	Pn.s.
Treatment Completion	$P < .05$	N.AP.	Pn.s.	$P < .05$	Pn.s.	Pn.s.

N.A. : Data not available

N.AP : Not applicable (group didn't go to treatment).

\* : Data for marital status and occupation available only in 74 sample.

f. Occupation

-There were statistically significant differences between "Disulfiram Plus" recidivists and non-recidivists with respect to occupation ( $P < .001$ ). Recidivists had lower percentage of professionals and managers than the non-recidivists.

g. Marital Status

-Non-recidivists of the "Disulfiram Plus" group had a significantly higher proportion of married clients than the recidivist ( $P < .006$ ).

h. Treatment Completion

-"All groups" as well as "Disulfiram Plus" showed a significant difference with respect to treatment completion ( $P < .05$ ). Significantly higher proportion of non-recidivists than recidivists completed treatment.

3. Clients Who Completed Treatment vs.  
Clients Who Dropped Out

Table 24 summarizes results of t-tests which compared persons who completed (or were still in) treatment with persons who dropped treatment prior to completion. The major findings are:

- Age clearly distinguishes between the two groups. All the tests showed that drivers who completed the treatment programs were significantly older than persons who dropped treatment.
- When all groups were combined, other statistically significant differences emerged. Individuals who dropped treatment had significantly higher alcohol related priors, prior accidents, and higher BAC levels than persons who finished their programs.

Further profile data were obtained through chi-square tests (Table 25). They revealed the following statistically significant differences when all the groups were studied jointly. Persons who completed treatment, as compared to those who were "drop-outs":

- Included a significantly higher rate of married persons ( $P < .02$ ).
- Had higher proportion of Mexican Americans ( $P < .001$ ).
- Included a significantly higher percentage of skilled workers (craftsmen, operatives, transportation workers). The difference in the occupational composition of the two groups was significant at the 0.0005 level.

Table 24: Summary of T-Tests Comparing Clients Who Completed Treatment vs. Clients Who Dropped Out

GROUPS AND VARIABLES	Group Means		Significance Level
	Completed Treatment	Dropped Treatment	
<b>1. Total Treatment</b>			
Age	40.7626	38.7932	P < .001
Alcohol Related Priors	1.6701	2.0875	P < .001
Prior Crashes	0.3290	0.4354	P < .003
Blood Alcohol Content	0.1793	0.2005	P < .001
# of Days to 1st Recidivism	110.4308	137.7050	Pn.s.
<b>2. Disulfiram Only</b>			
Age	42.6917	38.2685	P < .001
Alcohol Related Priors	2.0075	2.1759	Pn.s.
Prior Crashes	0.4060	0.4352	Pn.s.
Blood Alcohol Content	0.1916	0.2009	Pn.s.
# of Days to 1st Recidivism	117.7143	110.0741	Pn.s.
<b>3. Disulfiram Plus</b>			
Age	44.6075	40.2887	P < .001
Alcohol Related Priors	2.3084	2.1804	Pn.s.
Prior Crashes	0.4299	0.3918	Pn.s.
Blood Alcohol Content	0.2064	0.2040	Pn.s.
# of Days to 1st Recidivism	170.3738	119.2268	Pn.s.
<b>4. Alcoholics Anonymous</b>			
Age	41.6907	37.7333	P < .02
Alcohol Related Priors	1.8247	1.7667	Pn.s.
Prior Crashes	0.3376	0.6333	P < .01
Blood Alcohol Content	0.1830	0.2042	Pn.s.
# of Days to 1st Recidivism	104.0160	325.3999	Pn.s.
<b>5. Court School</b>			
Age	38.7458	35.0769	P < .05
Alcohol Related Priors	1.3390	1.4615	Pn.s.
Prior Crashes	0.2844	0.1923	Pn.s.
Blood Alcohol Content	0.1726	0.1838	Pn.s.
# of Days to 1st Recidivism	102.0998	96.9615	Pn.s.

Table 25: Summary of Chi-Square Tests Comparing Clients Who Completed Treatment vs. Clients Who Dropped Out. (1973 and 1974 Clients)

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Demographic Characteristics	Total Treatment	Individual Treatment			
		DISULFIRAM Only	DISULFIRAM Plus	AA	Court School
Sex	In.s.	N.A.P.	In.s.	N.A.P.	N.A.P.
Ethnicity	P .691	In.s.	In.s.	N.A.	In.s.
Employment Status	In.s.	In.s.	In.s.	N.A.	N.A.
Education	In.s.	In.s.	In.s.	N.A.	In.s.
Occupation	P .0005	In.s.	In.s.	In.s.*	In.s.
Marital Status	P .02	In.s.	In.s.	In.s.*	In.s.*

N.A. : Data not available

N.A.P.: Chi-square test not applicable

\* : Data for marital status and occupational available only in 1974 sample.

#### 4. Problem Drinkers vs. Social Drinkers

Table 26 summarizes the results of t-tests comparing problem drinkers and social drinkers. Problem drinkers had more alcohol related priors and higher BAC levels for these variables were used to distinguish the groups originally. However, at that time it was not known whether the differences between the groups with respect to BAC and priors were statistically significant. Statistically significant differences were found in BAC, alcohol related priors, and prior accidents ( $P < .001$ ). The clients in the two drinker classifications also differed in age ( $P < .03$ ). Problem drinkers were younger than social drinkers.

Further comparisons between the groups revealed statistically significant differences with regard to sex ( $P < .02$ ) and treatment completion ( $P < .001$ ). There was a lower percentage of females among problem drinkers than among social drinkers (6.9 vs. 10.4 percent). Approximately 75 percent of the problem drinkers as compared with 85 percent of the social drinkers completed treatment (Tables 27 and 28).

Table 26: Summary of T-Tests Comparing Problem Drinkers vs. Social Drinkers.

Groups and Variables	df		Significance Level
	Problem Drinkers	Social Drinkers	
AGE	39.2385	40.5670	P < .03
Alcohol Related Priors	2.2082	0.9055	P < .001
Prior Crashes	0.5389	0.0254	P < .001
Blood Alcohol Content	0.1256	0.1724	P < .001
Number of Days to First Recidivism	142.7140	111.6231	ns.

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Table 27: Sex by Drinker Type

Sex	Drinker Type			
	Problem Drinkers		Social Drinkers	
	#	%	#	%
Male	703	93.1	631	89.6
Female	52	6.9	73	10.4

$\chi^2=5.2024$                        $df=1$                        $P < .02$

Table 28: Treatment Completion by Drinker Type.

Treatment Completion	Drinker Type			
	Problem Drinkers		Social Drinkers	
	#	%	#	%
Yes	428	74.56	321	84.47
No	146	25.43	59	15.52

$\chi^2=13.3072$                        $df=1$                        $P < .001$

#### D. Catalytic Effects

It is difficult to separate catalytic effects of the rehabilitation countermeasure from other ASAP countermeasure since they are closely related and interacting. Therefore, the following may more aptly be referred to as catalytic effects of the whole ASAP system influencing rehabilitation programs.

\*ASAP activity was influential in increasing the number of Alcoholics Anonymous chapters and meetings within the Mini-ASAP area during the project's operational period. In addition, special types of AA meetings were established. For example, "Beginners' meetings" were started for persons referred by the court who were reluctant to attend regular AA meetings. "Young People Meetings", for persons under 25 years of age were also established.

\*There has been a rapid growth in the services of court school programs, not only in the Mini-ASAP but in surrounding communities. For example, in 1974 the Twin Palms School added Level II programs and programs for the Spanish speaking. This growth of court school services led to the expanded influence of SCATE (Southern California Alcohol and Traffic Education Association), which is working to improve standards of court school programs.

\*The ARC continued in operation after ASAP funds terminated on June 30, 1975 through an NIAAA grant. The clinic diversified its activities as follows:

- Services were expanded to include individual, family, and group counseling.
- The clinic opened new offices with greatly expanded facilities.
- A program for new patients was initiated. It places emphasis on alcohol education in addition to the regular disulfiram program.
- Plans were made to establish satellite clinics close to the Rio Hondo and Pomona Courts.

\*One of the more intangible, ver very important, catalytic effects lies in the awareness among both citizens and professionals that problems of drinking and driving needs to be approached in new ways. The increased number of referrals to treatment results from this growing awareness.

\*The Alcoholism Council of San Gabriel and Pomona Valleys began to expand its services beyond post-sentence investigation and "motivational counseling" programs and to enter the area of rehabilitation programs. It initiated the "Employee Counseling Services" for business and industry and the "Alcohol Awareness Program" for DUI and "plain drunk" youthful offenders. In addition, it conducted the TARS program (Teenage Alcohol Rap Sessions).

\*ASAP and similar programs aroused public awareness and influenced legislation relating to rehabilitation programs. For example, recently State legislation requiring driving school accreditation was passed. It mandates that the Department of Motor Vehicles, in cooperation with the Department of Education, establish accreditation standards. The standards will apply to schools for traffic violators and programs for persons convicted of "driving under the influence". The legislation requires that a list of accredited schools and programs be prepared and maintained for on-going reference.

E. Costs of the ARC (Disulfiram Clinic)  
January - June 1975

Of the three major treatment modalities in the Mini-ASAP, the only one funded by ASAP was the Alcohol Rehabilitation (Disulfiram) Clinic. However, ASAP funds to the clinic terminated June 30, 1975.

The Clinic's staff personnel under ASAP's supervision was as follows:

1-Physician	50%
2-Senior Public Health Nurse	50%
3-Clinic Nurse II	75%
4-Intermediate Typist Clerk	100%

The following table summarizes clinic costs for the first half of 1975 (during ASAP funding).

Table 29: Cost of the Alcohol Rehabilitation Clinic (Disulfiram), January - June 1975.

Total Cost:	\$31,102.89	Unit Cost Per Visit:	\$4.17
Total Man-hours:	23,55	Man-Hour Per Visit:	0.31
Total Clinic visits:	7,449		

The Clinic continued in operation after ASAP funds terminated. It received an NIAAA grant of \$804,836 for a three year period.

The following additional staff was hired with the expanded NIAAA funding:

- Full time Physician
- Half time Public Health Investigator
- Medical Case Worker
- Community Worker II
- Clinical Psychologist
- Two Mental Health Psychiatric Technicians
- Five Student Workers

The new funds enabled the ARC Clinic to become a comprehensive service unit. Individual, family, and group counseling will be provided at the clinic. Moreover, a well rounded educational program will be offered. Plans have been made to establish satellite branches of the clinic in other locations.

## VI . Summary and Discussion

This study dealt with the major rehabilitation programs in the Mini-ASAP area: Disulfiram, Alcoholics Anonymous, and Court School programs. The objective was to determine the effectiveness of the treatments. A program was considered effective if it helped in the reduction of DUI and crash recidivism. The study was conducted as the following:

First regression analyses were performed to examine treatment effectiveness in reducing recidivism. These analyses formed the core of the study, for they showed the effectiveness of treatment while controlling for differences in prior drinking-driving histories and other factors that may affect recidivism.

Second, comparisons of recidivism rates were conducted to examine differences among certain groups. Rates were studied as follows:

- Comparison of individual treatment and comparison groups.
- The "Total Treatment Group" (1973 and 1974 treatment groups combined) vs. the No Treatment Group.
- Clients who completed treatment vs. clients who dropped treatment.
- Problem drinkers vs. social drinkers.

Third, the profiles of selected groups were examined. The profiles encompassed demographics and driving behavior prior to the clients' entry into the ASAP system for:

- Individual treatment and comparison groups.
- Recidivists and non-recidivists.
- Clients who completed treatment and Clients who dropped treatment.
- Problem drinkers and social drinkers.

Fourth, ASAP's catalytic effect on the rehabilitation system was examined. Finally, costs of the Alcohol Rehabilitation Clinic, (the treatment modality funded by ASAP), was discussed. Following are the major findings of the study:

- A. Core Analyses: Effectiveness of treatment in reducing recidivism while controlling for differences in prior drinking-driving history.

Regression analysis was used to determine the effectiveness of treatments with regard to the reduction of DUI and crash recidivism.

Four questions were studied: How effective is treatment vs. no treatment? How effective are the various treatment modalities? How effective is "Disulfiram Only" as compared with "Disulfiram Plus?" Which variables are associated with recidivism?

These questions were analyzed by examining the driving records of persons who entered treatment in 1974 after eighteen months of exposure to rehabilitation. They were also analyzed by looking at the records of persons who entered treatment in 1973 after 30 months of exposure to rehabilitation. The  $R^2$  values for all the regression were low. Hence, there must be caution in interpreting the results.

-The treatment groups were compared with the No Treatment group, first as a whole and then individually. The regressions showed the following:

1. All equations were statistically significant.
2. The variable "treatment" had a negative regression coefficient (BETA) with recidivism in all the equations. A negative coefficient means that undergoing treatment is associated with reduced recidivism.
3. At the end of eighteen months "Disulfiram Plus", "Alcoholics Anonymous", and "Court School" gave evidence of effectiveness ( $P < .05$  to  $P < .01$ ). Disulfiram Only did not show statistical significance in reducing recidivism.
4. At the end of 30 months, none of the treatment types gave statistical evidence of effectiveness. This was probably due to technical problems caused by the smaller sample sizes for the 1973 groups. Nevertheless, all the signs for the Betas were negative, reflecting a trend toward treatment effectiveness.

-Disulfiram Only was compared with Disulfiram Plus. Disulfiram Plus was statistically significant for clients who had been in treatment for eighteen months ( $P < .01$ ) and was associated with a negative coefficient. This means that Disulfiram Plus, as compared with Disulfiram Only, was statistically effective in reducing recidivism.

-Prior alcohol related offenses and the client's age showed association with recidivism. This was evident in the relatively high magnitude of the BETA coefficients and statistical significance at the 0.01 or 0.001 levels.

Prior alcohol related offenses had positive BETA coefficients, meaning that the more prior A-R offenses the person had, the more likely he was to recidivate. The negative coefficient of age indicates that the younger the person was, the more apt he was to recidivate.

- Prior crashes sometimes had a negative standardized coefficient and sometimes a positive one. However, there was statistical significance only with the positive coefficient, meaning that the more prior accidents, the more likely was recidivism.
- BAC had a positive relationship with recidivism, but it was not significant.

#### B. Recidivism Rates:

1. Recidivism rates were examined by six month intervals for all groups in the study. The results were:

- No consistent pattern for recidivism was noted. The rates fluctuated over time.
- There were no significant differences among the 1973 groups. For the 1974 groups, significant differences for alcohol related offenses and crashes were evident. They are described in Appendix A.
- Alcohol related offenses for the 1973 groups (who had been in the ASAP system for 30 months) ranged between 35.9 - 42.0 percent. Accident rates ranged between 15.8 - 21.7 percent.
- For the 1974 groups (18 months in the ASAP system), the alcohol related offenses ranged between 15.2 - 29.4 percent... Accident rates ranged between 9.6 - 19.7 percent.
- The comparison group's rates maintained a mid-way position among the various treatment groups.

2. Individual treatment groups were combined to form overall "Treatment Groups" for 1973 and 1974. These Treatment Groups were then compared with the Comparison Group. The following results were obtained:

- The 1973 treatment group had more alcohol related recidivism offenses as well as accidents in the 30 month period after the criterion date than the comparison group (39.0 vs. 36.9 percent and 30.0 vs. 17.2 percent).
- The 1974 treatment group had recidivism rates for alcohol related offenses which equaled the comparison group's rates (24 percent).
- Accident rates for the 1973 and 1974 treatment groups were higher than they were for the comparison group (13.0 vs. 10.4 percent).

-Differences between the recidivism rates of the two groups were not significant, with the exception. The 1974 treatment group had a significantly higher accident rate than the comparison group during the second six-month period ( $P < .02$  two-tailed test).

3. The recidivism of drivers who completed treatment was compared to the recidivism of clients who dropped treatment. For the 1973 and 1974 groups, persons who completed treatment had a significantly fewer alcohol related offenses than persons who dropped treatment.

4. Problem drinkers had significantly more alcohol related offenses than social drinkers in several periods. There were significant differences with respect to crashes between the two groups.

The preceding results confirmed the hypotheses that subjects who complete treatment would have improved driving records as compared with persons who drop treatment, and that problem drinkers would have higher alcohol related recidivism rates than social drinkers. Problem drinkers need a long period of time to recover and show improved driving behavior.

C. The profiles of selected groups were studied. The comparisons encompassed demographics and driving behavior. The following findings were obtained:

- The individual treatments and comparison groups showed significant differences with respect to age, BAC, prior alcohol related offenses, and prior accidents. The groups also differed significantly with regard to ethnicity, education, occupation, marital status, and treatment completion.
- Recidivists tended to be younger than non recidivists and had more alcohol related priors. Recidivists had a significantly higher proportion of males, a lower percentage of professionals and managers, a lower rate of married individuals, and a lower ratio of persons who completed treatment than non-recidivists.
- Clients who completed treatment were significantly younger than persons who dropped programs. They also had fewer alcohol related priors, fewer accidents, and lower BAC's. Drivers who completed treatment included a significantly higher rate of married persons, a higher proportion of Mexican-Americans, more professionals and managers and fewer skilled workers than persons who dropped treatment.
- Problem drinkers had more alcohol related priors, prior crashes, and higher BAC levels than social drinkers. They included a lower proportion of females and a lower rate of treatment completion than social drinkers.

D. ASAP had a definite impact on the rehabilitation system in the field of alcoholism. It created awareness among both citizens and professionals that problems of drinking and driving need to be approached in new ways. It influenced legislation related to rehabilitation programs. It also had an impact on the treatment modalities:

- ASAP was influential in increasing the number of Alcoholics Anonymous chapters and the types of meetings offered.
- Court School programs were expanded. Their growth led to a broadened influence of SCATE (Southern California Alcohol and Traffic Education Association).
- The Alcohol Rehabilitation Clinic (Disulfiram) continued in operation after ASAP sponsorship terminated. With funds from an NIAAA grant, the clinic expanded and diversified its services.

E. The total cost of the Alcohol Rehabilitation Clinic (Disulfiram) during the first half of 1975 was \$31,102.89. Patients made 7,449 visits to the clinic during this period. The unit cost per visit was \$4.17.

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## VII . Recommendations

1. Disulfiram Plus, Alcoholics Anonymous, and Court Schools showed statistical effectiveness in reducing recidivism at the time when clients had been in treatment for eighteen months. At the end of thirty months, none of the treatment types gave statistical evidence of effectiveness. As was stated before, this probably was due to technical problems caused by the smaller samples of the 1973 groups. Therefore, follow-up research in the field of rehabilitation must continue, and it must involve using adequate sample sizes. The evaluation effort started by ASAP should be continued, but with:
  - a. A more accurate and completed data base;
  - b. The use of broader criteria in examining treatment effectiveness. Beside studying driving behavior, the effect of treatment on the patients' life style should be investigated.
2. Recommendations for individual treatment programs can be summarized as follows:

### Alcohol Rehabilitation Clinic (Disulfiram)

- a. The Office on Alcohol Abuse and Alcoholism in Los Angeles should continue to support the clinic's expanding program. The NIAAA grant enables patients to receive services in addition to chemotherapy, e.g., counseling, education, etc. Further evaluation studies for this clinic could demonstrate the effect of the added services, thus providing valuable information for establishing future programs.
- b. The clinic should continue its efforts to provide branch offices, so that clients may have services in their own communities.

### Alcoholics Anonymous

Several studies conducted by ASAP demonstrated the effectiveness of Alcoholics Anonymous. Referral agencies should continue to be encouraged to refer clients to AA meetings when they express an interest in the fellowship.

### Court Schools

- a. Encouragement should be given to court school programs. As these courses diversify their programs, there should be on-going evaluation of their effectiveness. Particular attention should be given to evaluation of the new "Diversion Programs" being started in California.
- b. Increasing support should be offered to SCATE (Southern California Alcohol and Traffic Education). The Association is endeavoring to improve school curricula and standards for teachers.

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APPENDICES

Appendix A

Following are analyses of variance for alcohol related and accident recidivisms for the individual 1974 treatment group and the comparison group:

Analysis #1: Dependent Variable: Alcohol related recidivism during the first six month period.

Source of Variance	Mean Square	D.F.	F Ratio	Significance
Between Groups	0.5452	4	4.430	P .002
Within Groups	0.1231	1869		

<u>Groups</u>	<u>Number</u>	<u>Mean</u>	<u>Standard Deviation</u>
Disulfiram Only	264	0.0871	0.3433
Disulfiram Plus	131	0.0687	0.3550
Court School	462	0.1645	0.4205
Alcoholics Anonymous	410	0.0780	0.3028
Comparison	607	0.1021	0.3241

Means of the following pairs are significantly different at the 0.05 level:

Disulfiram Plus	vs.	Court School
Alcoholics Anonymous	vs.	Court School
Disulfiram Only	vs.	Court School
Comparison	vs.	Court School

Analysis # 2: Dependent Variable: Alcohol related recidivism,  
 an 18 month period

Source of Variance	Mean Square	D.F.	F Ratio	Significance
Between Groups	0.8932	4	2.711	P .028
Within Groups	0.3285	1869		

<u>Groups</u>	<u>Number</u>	<u>Mean</u>	<u>Standard Deviation</u>
Disulfiram Only	264	0.2992	0.5829
Disulfiram Plus	131	0.2366	0.5795
Court School	462	0.3312	0.6559
Alcoholics Anonymous	410	0.2122	0.5104
Comparison	607	0.2570	0.5418

Means of the following pairs are significantly different at the 0.05 level:

Alcoholics Anonymous                      vs.                      Court School

Analysis # 3: Dependent Variable: Accident recidivism during the second six month period.

Source of Variation	Mean Square	D.F.	F Ratio	Significance
Between Groups	0.2224	4	3.683	P .006
Within Groups	0.0540	1869		

Groups	Number	Mean	Standard Deviation
Disulfiram Only	264	0.1023	0.3159
Disulfiram Plus	131	0.0305	0.1727
Court School	462	0.0563	0.2657
Alcoholics Anonymous	410	0.0488	0.2373
Comparison	607	0.0362	0.2119

Means of the following pairs are significantly different at the 0.05 level:

Disulfiram Plus	vs.	Disulfiram Only
Comparison	vs.	Disulfiram Only
Alcoholics Anonymous	vs.	Disulfiram Only
Court School	vs.	Disulfiram Only

Analysis # 4: Dependent Variable: Accident recidivism  
over 10 months period.

Source of Variance	Mean Square	D.F.	F Ratio	Significance
Between Groups	0.7524	4	4.901	P .001
Within Groups	0.1535	1869		

<u>Groups</u>	<u>Number</u>	<u>Mean</u>	<u>Standard Deviation</u>
Disulfiram Only	264	0.2235	0.4848
Disulfiram Plus	131	0.0687	0.3086
Court School	462	0.1364	0.4018
Alcoholics Anonymous	410	0.1195	0.3536
Comparison	607	0.1137	0.3792

Means of the following pairs are significantly different at the 0.05 level:

Disulfiram Plus	vs.	Disulfiram Only
Comparison	vs.	Disulfiram Only
Alcoholics Anonymous	vs.	Disulfiram Only
Court School	vs.	Disulfiram Only

## Appendix B

### Cumulative Rates

#### a. Six Month Periods

The alcohol related recidivism rate of each consecutive period was summed to provide a cumulative rate.

Example:

Cumulative A-R offenses for two periods. = Rate for first six months + Rate for the second six month period.

Cumulative alcohol related recidivism rates are presented in the following two figures. Analyses of variance were performed to examine differences among the cumulative rates. The first set of analyses studied the 1973 groups and the comparison group. No statistically significant difference was evident among cumulative rates for any period. The second set of analyses dealt with the 1974 groups and the comparison group. Statistically significant differences were obtained for each of the three six month periods ( $P < .002$ ,  $P < .02$  and  $P < .03$ ).

Analysis # 1: Dependent Variable: Alcohol related recidivism during the first six month period.

This analysis is shown as analysis # 1 of Appendix A.

Analysis # 2: Dependent Variable: Cumulative alcohol related recidivism for two intervals (12 month period):

Source of Variance	Mean Square	D.F.	F Ratio	Significance
Between Groups	0.6853	4	2.921	P .020
Within Groups	0.2346	1868		

<u>Groups</u>	<u>Number</u>	<u>Mean</u>	<u>Standard Deviation</u>
Disulfiram Only	264	0.2045	0.5120
Disulfiram Plus	131	0.1527	0.4879
Court School	462	0.2554	0.5389
Alcoholics Anonymous	410	0.1561	0.4367
Comparison	607	0.1779	0.4574

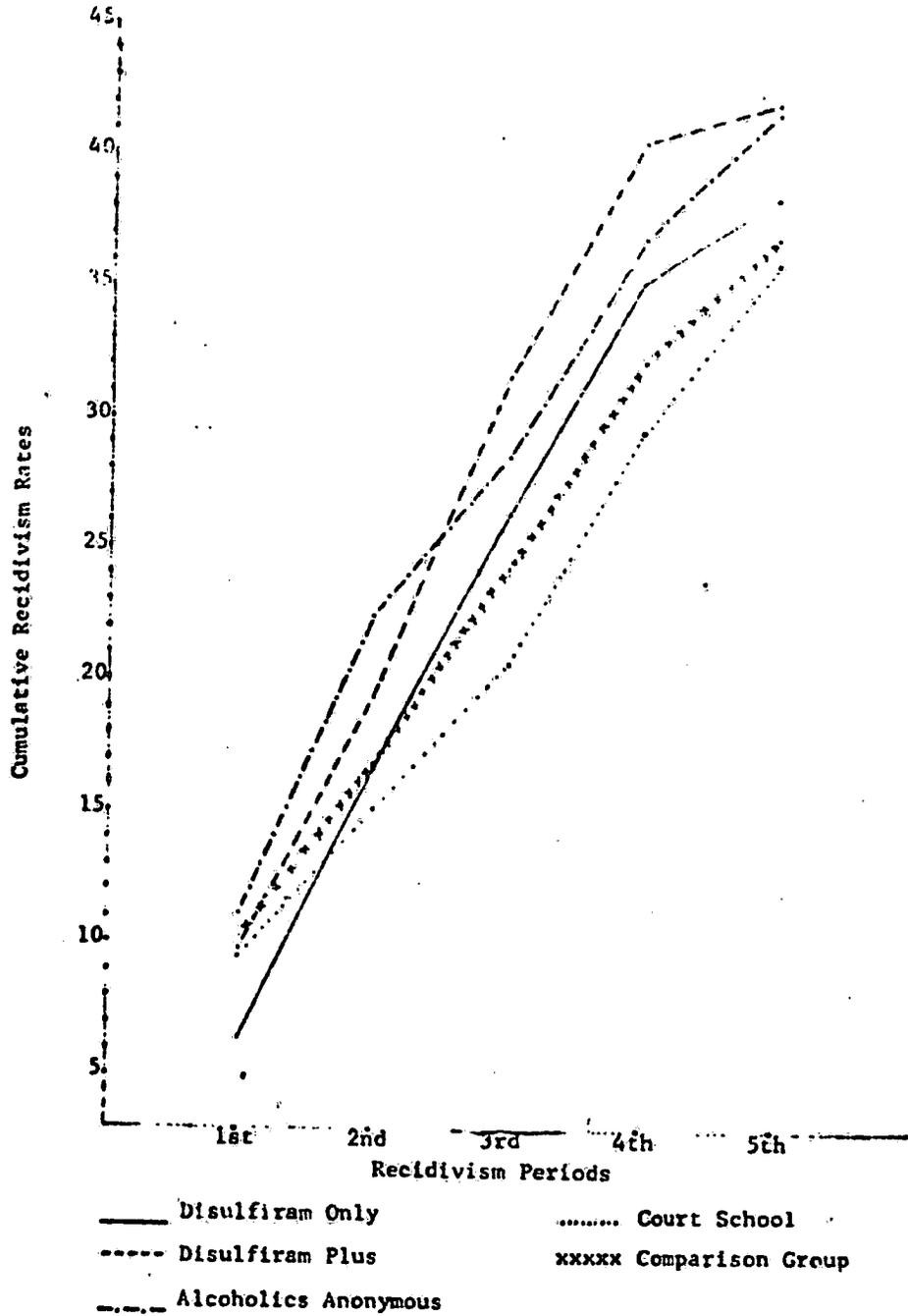
Means of the following pairs are significantly different at the 0.05 level:

Disulfiram Plus	vs.	Court School
Alcoholics Anonymous	vs.	Court School
Comparison	vs.	Court School

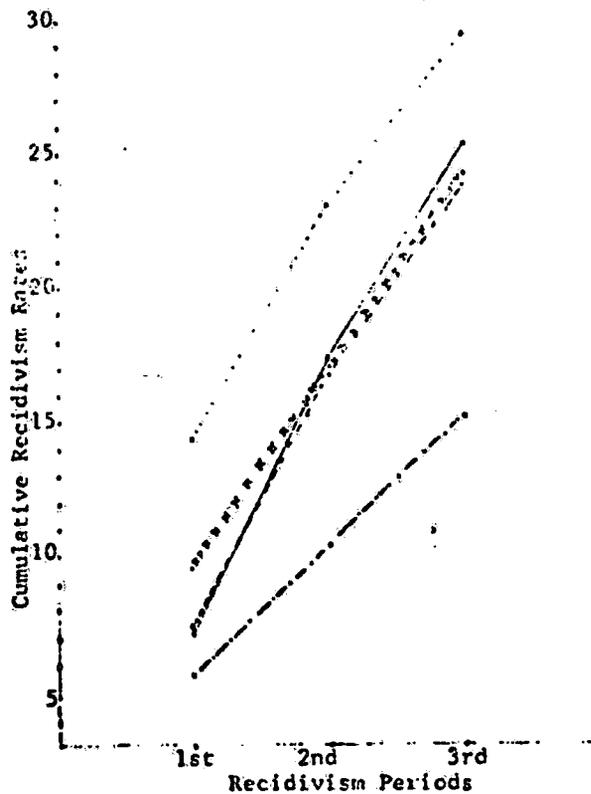
Analysis # 3: Dependent Variable: Alcohol related recidivism over 18 month period.

This analysis is shown as analysis # 2 of Appendix A.

Cumulative Rates of A-B Offenses for Individual Groups-1973 Clients



Cumulative Rates of A-B Offenses for  
Individual Groups-1974 Clients



\_\_\_\_\_ Disulfiram Only                      ..... Court School  
 - - - - - Disulfiram Plus                        xxxxxx Comparison Group  
 - . - . - Alcoholics Anonymous

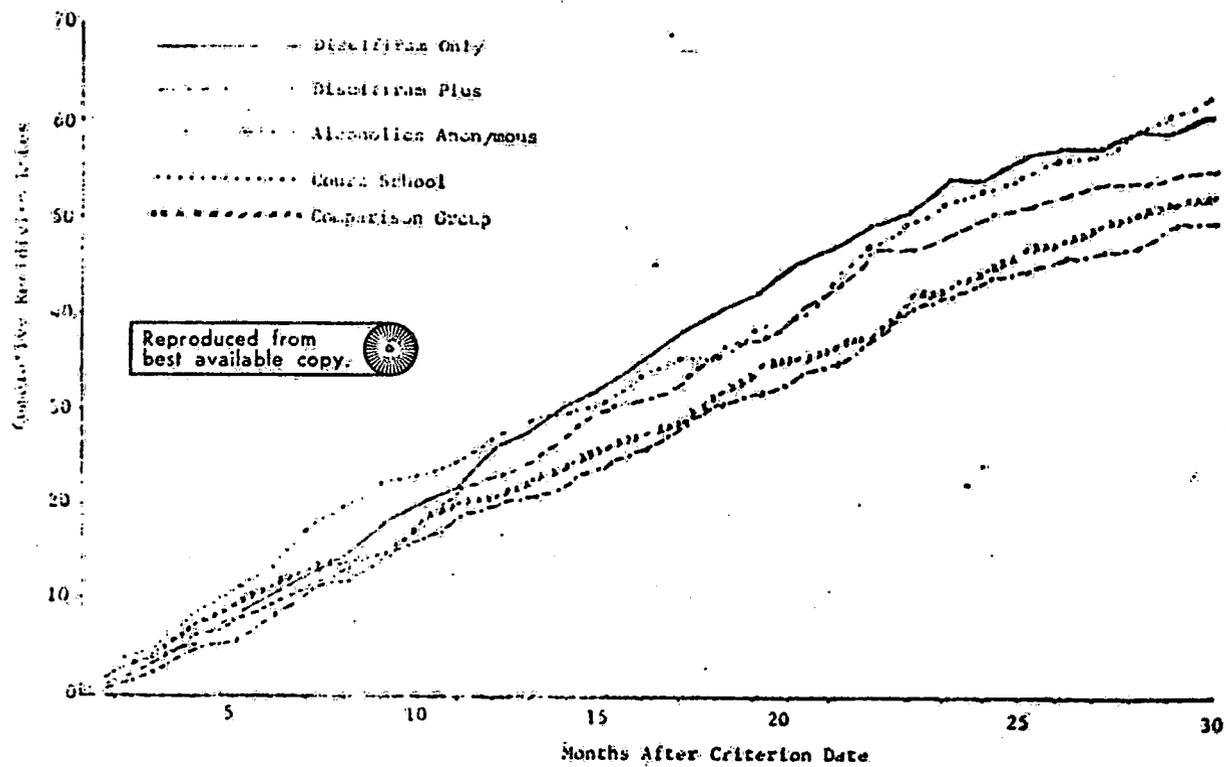
## b. Monthly Periods

Monthly cumulative recidivism rates were also calculated. These rates showed the percentage of all drivers who had recidivated (alcohol related offenses or accidents) for each month after the criterion date. 1973 and 1974 groups were combined to study the first 18 months after the criterion date. Only the 1973 groups were used to study the nineteenth to the thirtieth month after the criterion date.

The following figure shows that the lines of the modalities varied slightly. At the end of the thirty months, the rate was 50.0 percent for Alcoholics Anonymous, 53.1 percent for the comparison group, 55.7 percent for the Disulfiram Plus group, 60.9 percent for the Disulfiram Only group, and 62.8 percent for the Court School group.

Differences in recidivism rates are to be expected, for clients entered treatment with differing types of alcohol related problems. This data is informative, but it does not control for other variables such as subject's age or his drinking-driving history. This control was achieved, however, in using the regressions and in the analyses of variance (See pp. 18 and 23).

Monthly Cumulative Recidivism Rates  
For Individual Groups



## Appendix C

ASAP criteria for identifying a problem drinker:

- (1) Diagnosis as an alcoholic by a competent medical or treatment facility, or
- (2) Self admission of alcoholism or problem drinking, or
- (3) Two or more of the following:
  - a) A BAC of .15 percent or more at the time of arrest
  - b) A record of one or more prior alcohol-related arrests,
  - c) A record of previous alcohol-related contacts with medical, social, or community agencies.

Appendix D

Following are analyses of variance for profiles of the individual treatment groups (1973 and 1974) and the comparison group:

Analysis # 1: Dependent Variable: Age

Source of Variance	Mean Square	D.F.	F Ratio	Significance
Between Groups	864.2500	4	6.197	P .001
Within Groups	139.4548	2535		

<u>Groups</u>	<u>Number</u>	<u>Mean</u>	<u>Standard Deviation</u>
Disulfiram Only	420	40.1190	11.5364
Disulfiram Plus	255	42.1529	11.6337
Court School	666	38.4775	11.8694
Alcoholics Anonymous	592	41.1149	12.1278
Comparison	607	40.3460	11.6863

Means of the following pairs are significantly different at the 0.05 level:

Court School	vs.	Disulfiram Only
Court School	vs.	Disulfiram Plus
Court School	vs.	Alcoholics Anonymous
Court School	vs.	Comparison
Disulfiram Only	vs.	Disulfiram Plus

Analysis # 2: Dependent Variable: Prior alcohol related offenses.

Source of Variance	Mean Square	D.F.	F Ratio	Significance
Between Groups	77.2773	4	69.794	P .001
Within Groups	1.1072	2535		

<u>Groups</u>	<u>Number</u>	<u>Mean</u>	<u>Standard Deviation</u>
Disulfiram Only	420	2.1167	1.2098
Disulfiram Plus	255	2.2157	1.2846
Court School	666	1.3378	0.7919
Alcoholics Anonymous	592	1.9307	1.2106
Comparison	607	1.4135	0.9003

Means of the following pairs are significantly different at the 0.05 level:

Court School	vs.	Disulfiram Only
Court School	vs.	Disulfiram Plus
Court School	vs.	Alcoholics Anonymous
Comparison	vs.	Alcoholics Anonymous
Comparison	vs.	Disulfiram Only
Comparison	vs.	Disulfiram Plus
Alcoholics Anonymous	vs.	Disulfiram Only
Alcoholics Anonymous	vs.	Disulfiram Plus

Analysis # 3: Dependent Variable: Prior Accidents.

Source of Variance	Mean Square	D.F.	F Ratio	Significance
Between Groups	5.3866	4	15.576	P .001
Within Groups	0.3458	2535		

<u>Groups</u>	<u>Number</u>	<u>Mean</u>	<u>Standard Deviation</u>
Disulfiram Only	420	0.4190	0.6948
Disulfiram Plus	255	0.3804	0.6584
Court School	666	0.2673	0.5209
Alcoholics Anonymous	592	0.4050	0.6539
Comparison	607	0.1895	0.4653

Means of the following pairs are significantly different at the 0.05 level:

Comparison	vs.	Court School
Comparison	vs.	Disulfiram Plus
Comparison	vs.	Alcoholics Anonymous
Comparison	vs.	Disulfiram Only
Court School	vs.	Disulfiram Plus
Court School	vs.	Disulfiram Only
Court School	vs.	Alcoholics Anonymous

Analysis # 4: Dependent Variable: BAC

Source of Variation	Mean Square	D.F.	F Ratio	Significance
Between Groups	0.0736	4	33.574	F .001
Within Groups	0.0022	1463		

<u>Groups</u>	<u>Number</u>	<u>Mean</u>	<u>Standard Deviation</u>
Disulfiram Only	191	0.1992	0.0486
Disulfiram Plus	96	0.2060	0.0630
Court School	506	0.1730	0.0390
Alcoholics Anonymous	233	0.1907	0.0539
Comparison	442	0.1642	0.0462

Means of the following pairs are significantly different at the 0.05 level:

Comparison	vs.	Court School
Comparison	vs.	Alcoholics Anonymous
Comparison	vs.	Disulfiram Only
Comparison	vs.	Disulfiram Plus
Court School	vs.	Alcoholics Anonymous
Court School	vs.	Disulfiram Only
Court School	vs.	Disulfiram Plus
Alcoholics Anonymous	vs.	Disulfiram Plus



## Treatment Modalities

### 1. DER-Disulfiram Clinic, West Covina

Clients entering the disulfiram clinic are diagnosed and referred by Diagnostic Evaluation and Referral Center (DER). Most are diagnosed as alcoholics by the physician and have been evaluated as being suitable for chemotherapy (disulfiram) treatment.

When a client is approved for disulfiram, he reports to the clinic which is open from 8 a.m. to 4:30 p.m. Monday through Friday. One evening clinic per week is also available.

The procedure for dispensing medication varies from one client to another, for the clinic policy is to adapt each program to the client's individual needs. The usual prescription is 250 mg of disulfiram per day. The new patients are instructed to report to the clinic 2-3 times a week for supervised administration of disulfiram. They remain on this schedule for 6-8 weeks. Then they are put on a less frequent plan. Supervision is under the staff physician who works with the client's family whenever possible. For example, a client may be given a month's supply of disulfiram. A "significant other" (wife, husband, etc.) will then be asked to supervise medication in the home. If a client is unable to comply with the prescribed regimen or does not have adequate home supervision, he may be asked to report to the clinic from one to three times a week. The ultimate goal is to assist the client in becoming gradually "self-supervised" so he can remain sober without being guided by the doctor and "significant other", and without reliance on disulfiram.

During 1975, the chemotherapy program in the Mini-ASAP area improved in a number of areas. First, a full time administrator for the clinic has been appointed. The county finances this position beside the funds provided by the NIAAA grant. As soon as the new director started his job, he began to recruit individuals to enlarge the clinic's staff. New equipment was bought. A large space was obtained where the clinic eventually moved. In addition to hiring more personnel for the clinic, more physician time was obtained.

Summary Table: DER-Disulfiram Clinic,  
January - June, 1978

1. Average length of the program:

Clients completing the program attended on an average of 12 to 14 months before discharge.

2. Program Enrollments, Disulfiram Clinic

	Total Number	Average Per Month
Number of Visits to Disulfiram Clinic	7449	1241.5

3. Cost of the Program:

a. Cost per Disulfiram Visit: \$4.17

b. Staff salaries:

(1) Physician	\$12,000	(50% time)
(2) Senior Public Health Nurse	\$15,252	(50% time)
(3) Clinic Nurse II	\$11,904	(75% time)
(4) Intermediate Typist-Clerk	\$ 8,820	(100% time)

c. Cost to the clients: None

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1974 Clients  
Who Received Disulfiram Only

Age	Male	Female	Total
Under 20	74 (28.6%)	1 (3.6%)	75 (29.1%)
20-29	65 (24.1%)	6 (2.3%)	71 (26.4%)
30-39	70 (27.0%)	9 (3.4%)	79 (29.4%)
40-49	56 (21.3%)	7 (2.7%)	63 (23.0%)
50+	36 (13.8%)	2 (0.8%)	38 (14.6%)
Total	258 (100.0%)	16 (100.0%)	274 (100.0%)

1974 Clients  
Who Received Disulfiram And Attended AA

Age	Male	Female	Total
Under 20	49 (20.8%)	5 (2.3%)	54 (23.1%)
20-29	70 (30.8%)	6 (2.6%)	76 (32.4%)
30-39	62 (27.0%)	4 (1.7%)	66 (28.7%)
40-49	54 (23.5%)	6 (2.6%)	60 (26.1%)
50+	235 (100.0%)	21 (100.0%)	256 (100.0%)

5. Distribution of Clients by Race-Ethnicity and Sex

1974 Clients  
Who Received Disulfiram Only

Racial And Ethnic Groups	Male	Female	Total
White	146 (57.3%)	10 (62.5%)	156 (57.3%)
Negro	10 (3.9%)	1 (6.3%)	11 (4.0%)
Mexican	95 (37.2%)	5 (31.3%)	100 (36.9%)
Other	4 (1.6%)	0 (0.0%)	4 (1.5%)
Total	255 (100.0%)	16 (100.0%)	271 (100.0%)

1974 Clients  
Who Received Disulfiram And Attended AA

Racial And Ethnic Groups	Male	Female	Total
White	156 (67.2%)	18 (94.7%)	174 (65.3%)
Negro	4 (1.7%)	0 (0.0%)	4 (1.5%)
Mexican	69 (29.7%)	1 (5.3%)	70 (27.0%)
Other	3 (1.3%)	0 (0.0%)	3 (1.2%)
Total	232 (100.0%)	19 (100.0%)	251 (100.0%)

## II. Alcoholics Anonymous

Alcoholics Anonymous is a fellowship of individuals who share experience, strength and hope in order to overcome the problem of alcoholism and to help others recover.<sup>10</sup> The only requirement for membership is the desire to stop drinking.

The organization has a number of distinguishing characteristics: Each group is autonomous, except in matters affecting other groups and AA as a whole. Each group is expected to be fully self-supporting, and outside contributions are to be declined. The fellowship avoids formal organization except for boards and committees directly responsible to the persons being served. Service centers may employ special workers, but the fellowship is meant to remain basically non-professional. Finally, AA states that "Anonymity is the spiritual foundation of all our traditions..."

The program for recovery from alcoholism is unique to AA and is based on Twelve Suggested Steps. The first step requires the member to admit his own powerlessness over alcohol and to believe that a power greater than himself must restore him. He then proceeds to act upon that admission and belief. By the time he is at the twelfth step, he is to carry the AA message to other alcoholics and apply AA principles in his daily life.

At AA meetings, the Twelve Traditions and Twelve Suggested Steps are reviewed. Then, individual members and special speakers relate their own problems and experiences in overcoming alcoholism. The distinguishing theme is mutual support.

In the Mini-ASAP area there are 80 open and 75 closed chapters meeting weekly. Additionally, there are four Alano Clubs and twenty Alanon chapters providing adjunctive service to the AA programs.

While being technically distinct from AA, these two groups operate in close association with it. ALANON is an organization for spouses and other family members who are not alcoholics themselves, but have an alcoholic in the family. ALANO Clubs are social clubs for persons who have alcohol problems.

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10. AA Directory of Meetings, Central Office of Los Angeles Area, 1973



Like all AA groups, Mini-ASAP chapters have attempted to meet the needs of the community. Meetings have been arranged in varied geographical locations, and programs have been offered in both English and Spanish. Persons working late hours may attend convenient midnight sessions.

With the advent of ASAP, AA received an influx of referrals from the courts. It responded by increasing the number of beginner's groups. Special AA meetings for young people were initiated.

Relations between AA and ASAP have been excellent. However, two areas might be cited where some questions arose. One AA chapter in the Mini-ASAP objected to having people sent to its meetings who were also on disulfiram. The members of the chapter stated that in accord with AA principles, the alcoholic must rely on a power greater than himself--and that power is not disulfiram. When objections arose from this one chapter, the Alcoholism Council began referring disulfiram clients to other AA fellowships where there were no objections. A second difference which has only caused minimal comment arose from the need of court-referred clients to obtain proof of attendance at meetings. (It is a policy of AA chapters to uphold the anonymity of its fellowship and not take roll calls or maintain records of members.) The problem was easily solved. At the conclusion of meetings, court-referred participants asked to have attendance cards marked by members of the local chapter. In this way, program participation was monitored by the courts. At the same time, the AA chapter maintained its policy of preserving anonymity.

All AA clients in samples for this study were monitored by the Alcoholism Council of East San Gabriel and Pomona Valleys for a two month period. During that time, they received "motivational counseling", along with post-sentence investigation and monitoring activities. The "motivational counseling" consisted of assisting the client to understand the existence of a drinking-driving problem, to assess its severity, and to find appropriate remedial actions. The first counseling session always coincided with the post-sentence investigation. The second was held 30 days later. During the second session, the Council volunteer helped the client review his progress. At the third and final session the counselor helped the client develop a plan for the future.



1. Length of the Program: AA is an ongoing program; many members have belonged for 20 to 30 years. When clients are sent to AA by the Alcoholism Council, they are monitored for two months (approximately eight sessions). Clients may or may not continue after that time, but record keeping on attendance ceases. Each session or meeting lasts for about two hours.
2. Size of the Sessions: The number of members in attendance at AA meetings varies, depending upon many factors such as location, time of the meeting and characteristics of the chapter itself. Sessions may have only a few persons present or several hundred. The organization does not take attendance, so only estimates are available.
3. Cost of the Program: All expenses incurred by AA are paid by donations. Each chapter handles its own finances. Clients are free to give whatever they wish when they attend meetings but it must be less than \$100. They may give anonymously.
4. Number of Clients: The present study deals with 550 persons who were referred to AA by the Alcoholism Council. Of these 550, 290 were also receiving disulfiram.
5. Age And Sex Distribution:

Distribution By Age  
And Sex, 1974 AA Clients

Age Groups	Male	Female	Total
Under 30	66 ( 73.4%)	6 ( 19.4%)	72 ( 27.4%)
30-39	54 ( 23.3%)	6 ( 19.4%)	60 ( 22.8%)
40-49	47 ( 20.3%)	5 ( 16.1%)	52 ( 19.6%)
50+	65 ( 28.0%)	14 ( 43.1%)	79 (30.0%)
Total	232 (100.0%)	31 (100.0%)	263 (100.0%)

### III: Court School Programs

In and surrounding the Mini-ASAP area, there are sixteen court school programs offered in nine different communities. All are private; none receives ASAP funding. Eight of these schools are DARA programs (Drug and Alcohol Abuse) which offer services to both drug and alcohol offenders.

The 1974 court school clients used for analyses in this study were referred to various programs by the El Monte Court. One program (sponsored by the Twin Palms Recovery Center) received the majority of clients since it holds classes in and near the El Monte community. The Twin Palms program will be described in greater detail below since it exemplifies many of the programs of the area.

The Twin Palms Recovery Center is a non-profit community alcoholism treatment center which conducts DUI Traffic Safety Classes and sponsors a course entitled "Rehabilitation of the Drinking Driver." Courses are offered at four locations in the Mini-ASAP: two in El Monte and two in Charter Oak.

The "Rehabilitation of the Drinking Driver" course is directed primarily toward first offenders and social drinkers. Its purpose is threefold:

1. To inform the DUI of the influence of alcohol on his driving skills and the consequences of drunken driving;
2. To encourage the DUI to assess his own drinking and driving behavior;
3. To allow the DUI to explore the ramifications of his behavior in a friendly, non-judgmental group setting.

The course is held for six consecutive weeks, one evening per week. Each session lasts two and one-half hours. Students must attend all six sessions within a nine week period. If students attend an AA meeting for educational purposes during the first four weeks of the course and make an oral report to the classes, they can complete the program in five weeks.

The staff of the program is made up of professional and paraprofessional personnel qualified in the field of alcoholism: members of the California Highway Patrol, the Los Angeles County Sheriff's Department and Twin Palms Recovery Center counselors.

The major topics of the six-week course are as follows:

1. Traffic Safety and Drinking Driving
2. Implied Consent Law

3. Sheriff's Department Approach to Drinking Driving
4. Who Will Be An Alcoholic.
5. What's in a Word, the word "Alcoholic" (effect of alcohol on the body).
6. The Sober Truth About Social Drinking

There was a need in the community to provide better services for the Spanish-speaking students and to develop a program for students with more serious drinking problems. The Twin Palms Recovery Center accepted the responsibility for these services. Courses are now provided in Spanish, which is a necessity in this heavily Mexican-American community. To meet the second problem, the Twin Palms Center opened a Level II course for problem drinkers. Theoretically the court school programs were to be for social drinkers; but actual experience showed the staff that many students had more serious problems. The Level II programs take a different orientation to meet the needs of the student whose problems appear to call for total abstinence. During the last three months of 1974, the Twin Palms Recovery Center received patients from the DER-Disulfiram Clinic for the purpose of combining education with medication.

Summary Data: Court Schools: "Rehabilitation of the Drinking Driving" Course

1. Average Length of the program
  - a. a. Six sessions
  - b. 2½ hours per session
2. Size of sessions
  - a. Average number of students per session
  - b. Number of courses per year.
3. Cost of the program
  - a. Cost of the students: \$20.00
  - b. Program sponsorship: Twin Palms Recovery Center

4. Distribution of Students by Age and Sex (All Students Referred by the El Monte Court to the Twin Palms Program and Elsewhere)

Distribution By Age and Sex,  
1974 Court School Clients

Age Groups	Male	Female	Total
Under 30	150 ( 39.0%)	5 ( 12.5%)	155 ( 33.5%)
30-39	112 ( 28.3%)	11 ( 24.4%)	123 ( 26.7%)
40-49	105 ( 26.3%)	8 ( 17.8%)	112 ( 24.5%)
50+	62 ( 15.5%)	6 ( 13.3%)	70 ( 15.2%)
Total	428 (100.0%)	32 (100.0%)	460 (100.0%)

5. Distribution of Students by Race-Ethnicity and Sex (All Students Referred by the El Monte Court to the Twin Palms Program and Elsewhere)

Distribution By Race and Sex,  
1974 Court School Clients

Racial and Ethnic Groups	Male	Female	Total
White	194 ( 45.8%)	23 ( 51.9%)	217 ( 47.6%)
Negro	11 ( 2.6%)	0 ( 0.0%)	11 ( 2.4%)
Mexican	219 ( 51.6%)	9 ( 20.0%)	228 ( 50.0%)
Total	428 (100.0%)	32 (100.0%)	460 (100.0%)

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