FINAL REPORT

# DIAGNOSIS, REFERRAL, AND REHABILITATION WITHIN THE FAIRFAX ALCOHOL SAFETY ACTION PROJECT, 1974

by

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## ABSTRACT

This report is a combination of Analytic Study #5 (Diagnosis and Referral) and Analytic Study #6 (Rehabilitation). Data concerning these countermeasures are presented together because of their very close relationship within the Fairfax ASAP.

Both the diagnosis and referral, and the rehabilitation systems are described and statistics concerning their operations during 1974 presented. Distributions of demographic and alcohol related variables are compared in relation to drinker type, treatment referral, rehabilitation status (complete vs. drop), and recidivism. A multiple discriminant function analysis is presented which yields (1) a less than comprehensive function for discriminating between drinker classifications, and (2) a more complete function discriminating among referrals. The analysis shows that increased discriminability among referrals is due to the strong influence made upon the referral decision by the drinker diagnosis, which is entered as an additional variable.

Crash involvement and recidivism rates for various drinker types and treatment referrals are given. Recidivism rates for persons not referred to treatment are shown to be significantly higher than rates for those persons who were referred, with no differences in rates being shown for modalities when controlling for drinker type and exposure. Knowledge scores for persons attending the various modalities which make up treatment Type I, alcohol related driver education, are examined. This analysis yields results similar to previous findings concerning DIS knowledge scores in all respects except one: in 1974, the Weekend Driver Improvement Schools imparted knowledge to students at least as effectively as did the non-weekend programs.

# SUMMARY OF FINDINGS AND CONCLUSIONS

## Demographic Comparisons

1. Those persons who attended different types of treatment differed in relation to race, sex, educational and occupational level, marital status, day of arrest, and BAC. Persons attending Treatment Types II, IV, and V tended to come from minority groups (blacks and women) more often than did those persons attending Type I. Those attending Type I also had higher educational and occupational levels, socioeconomically, and tended to be single more often than did other defendants. Those referred to Types III and V more often tended to be divorced or separated. Persons attending treatment Types III, IV, and V were typically arrested on weekends and had a higher BAC than did those attending Type I.

2. Those persons who were classified into different diagnostic categories differed in relation to education, occupation, marital status, day of arrest, and BAC. Social drinkers, as with defendants who attended treatment Type I, were more likely to come from a higher socioeconomic class, were more likely to be single, and were more likely to have been arrested on a weekday. Problem drinkers were more likely to be married or divorced, to have been arrested on a weekend, and to have had a high BAC.

3. Persons completing treatment differed from those dropping out in relation to race, education, and occupation. Defendants not completing treatment were more likely to be nonwhite, less educated, and employed in less professional positions.

4. Those persons who were recidivists differed from non-recidivists in relation to income ($p \leq .08$), drinker category, and other arrest related variables. Problem and pre-problem drinkers were more likely to recidivate than were social drinkers, whose recidivists as a whole were more likely to be arrested for any traffic violation.

## Diagnosis and Referral

1. The distribution of diagnoses across time has been rather erratic. This lack of consistency across time indicates changing criteria for assignment to the various drinker categories. Distributions of referrals have been more stable across the life of the project.

2. As a result of the discriminant function analysis, demographic, alcohol related, and arrest related variables were found not to adequately discriminate among the various drinker types. It was hypothesized that some other variable which was derived from the group intake procedure and which did not appear in the clients' background information influenced this diagnostic decision.

3. A second discriminant function analysis was performed using clients' background information and diagnostic levels to discriminate between different referral groups. This analysis was somewhat more successful in its discriminative task, in that drinker level strongly influenced the referral decision. This is consistent with Probation Office procedures.

## Rehabilitation

1. Crash involvement rates subsequent to ASAP participation were arranged by drinker type and treatment type. Among social drinkers, treatment Type I experienced the highest crash rates. Among pre-problem drinkers, Type V experienced the highest rate, while among problem drinkers, those persons attending Type II had the highest rate.

2. Two types of recidivism rates were calculated for each drinker type and each treatment type — an aggregate rate controlling for exposure and a simple rate not controlling for exposure. It was found that the group of defendants not referred to treatment not only had a higher aggregate rate of recidivism than those referred to treatment, their distribution of recidivism across time differed as well. This is also true when drinker type is controlled. In relation to differences between treatment types, when drinker types are controlled, no significant differences exist betwee the aggregate recidivism rates for the various modalities.

3. Knowledge scores for defendants attending the various modalities classified as Type I, alcohol related driver education, were also examined. Persons attending the Fairfax County High School Driver Improvement School experienced a greater increase in knowledge than did persons attending the Northern Virginia Community College Driver Improvement School. While persons attending the Weekend Programs began their classes with more alcohol information, they did not experience a significantly greater increase in knowledge than their non-weekend counterparts. Defendants attending the Fairfax Alcohol Continuing Education program before attending DIS not only knew more about alcohol than single staffed defendants at the beginning of the course, they also knew more at the end of the session. They did not, however, increase their scores significantly more than non-FACE students. Finally, recidivists and non-recidivists did not differ in relation to knowledge test scores.

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## INTRODUCTION

The Fairfax Alcohol Safety Action Project (ASAP) was initiated in January 1972 as one of a number of three-year, federally funded projects designed to implement and evaluate the concept of the use of comprehensive community alcohol countermeasures in combating the problem of drunken driving. The ultimate objective of the Fairfax ASAP is to reduce the number of crashes which result in fatalities, personal injuries, and property damage by concentrating its efforts on reducing the incidence of drunken driving. It has already been demonstrated that drunken drivers account for a disproportionately large share of serious and fatal accidents. If the ASAP is successful in intervening in the normal drinking patterns of drunken drivers so that their incidence of drunken driving is significantly reduced, it follows that the number of alcohol related accidents could be reduced.

The ASAP concept, that of substituting alcohol related treatment for the conventional legal sanctions for driving while intoxicated (loss of driving privilege and/or jail), is a relatively new one in highway safety. For that reason, the 35 ASAPs beginning in 1971 and 1972 were designated as demonstration projects to encourage a diversity of responses to the problem. While each project is unique in terms of its operations and components, all the projects share some characteristics. For each ASAP, a series of key analytic studies concerning these shared characteristics are required. Among these are Analytical Study #5 on Diagnosis and Referral Services within each ASAP, and Analytic Study #6 on Rehabilitation. Since these two areas of operation are so closely interrelated, this report will deal with them jointly. The diagnosis and referral of ASAP defendants is the primary responsibility of the ASAP judicial countermeasure, along with overall case management. Once referrals are made, the responsibility for rehabilitation rests with the individual modalities involved.

## PURPOSE AND SCOPE

The purpose of this report is two-fold. First, it attempts to comprehensively describe the attributes and operations of both the diagnostic and rehabilitative systems. Secondly, it attempts to evaluate, within the limits of project design, the performance of these two countermeasures in terms of their stated objectives. The objective of the diagnosis and referral system is to establish appropriate matches between each individual's needs and available treatment resources and thus increase the supposed benefit of rehabilitation to ASAP clients and reduce the possibility of recidivism (in this case, the rearrest of ASAP graduates for driving while intoxicated

or DWI). The term "appropriateness of referral" refers to the quality of the matches. Similarly, the objective of the rehabilitation and treatment countermeasure is ultimately to reduce the numbers of fatalities, injuries, and property damage accidents occurring as a result of drunk driving and to reduce the probability of recidivism through changes effected in the defendant's drinking habits or driving behavior.

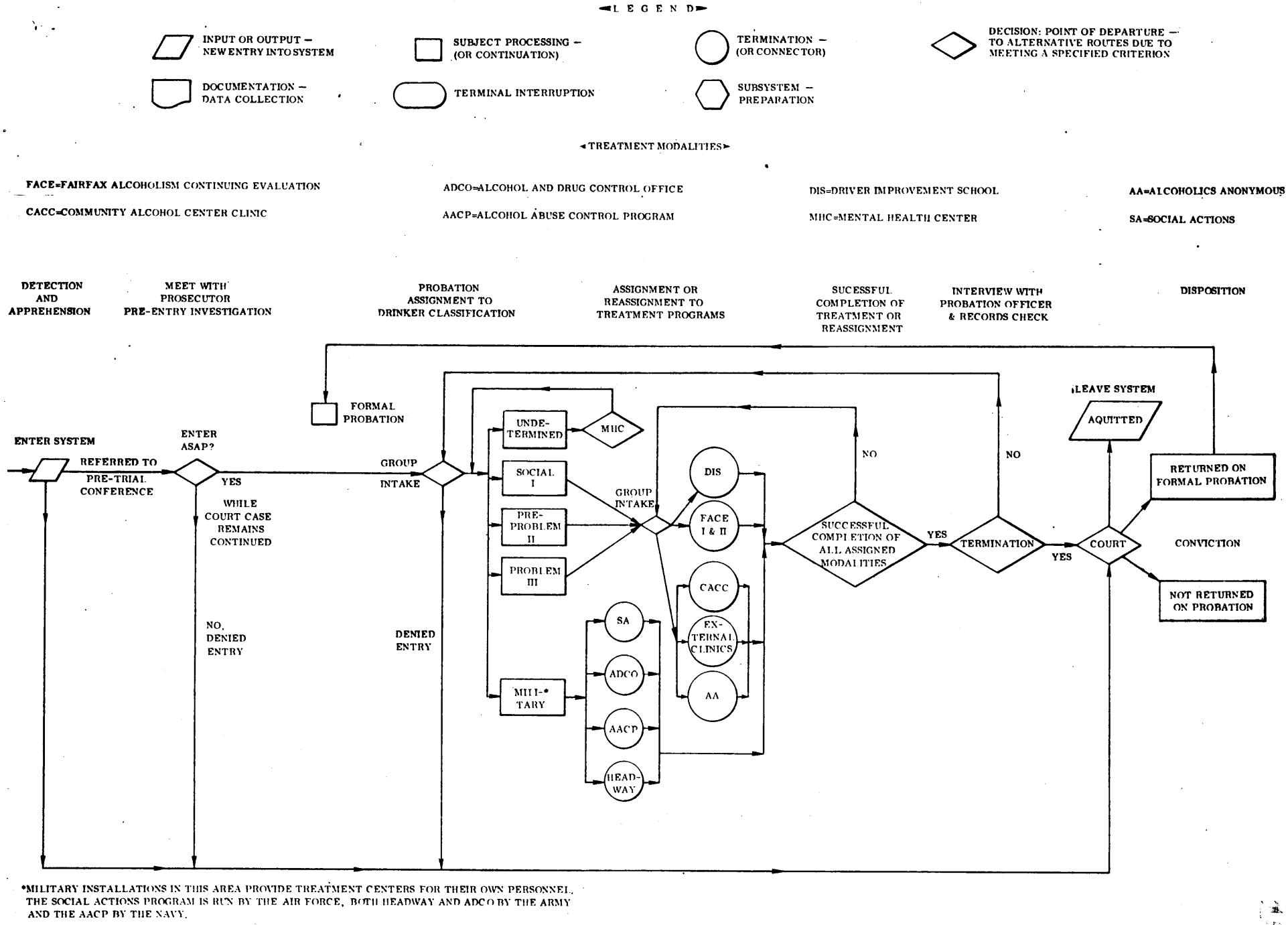
The scope of this research is, for the most part, determined by two characteristics of the project — its initial design and its rapid growth. The evaluation methodology was constructed around the existence of randomized control groups. However, no such groups were established. While relative differences in the system can be charted across time and individual modalities compared, the actual effect of rehabilitation on defendants cannot be assessed without an equivalent "no treatment" group. Thus, this report will not attempt to absolutely establish the impact of rehabilitation, but will supply evidence supportive of this impact. Similarly, since there exists no external diagnostic source with which to validate diagnostic and referral procedures, only supportive evidence of this function can be provided. Secondly, the accelerated growth of the project, in both the numbers of defendants and the numbers of possible treatments, has greatly complicated the evaluation. A comprehensive list of single treatment alternatives appears in Appendix A. Considering that combinations of treatment are more prevalent than single referrals, the complexity of evaluating these modalities becomes apparent. For this reason, only the five major types of treatment (Alcohol Related Driver Education; Alcohol Education Information; Alcohol Treatment Clinics; Diagnostic, Evaluation and Mental Health Services; and Specialized Programs) and selected combinations will be examined.

## DESCRIPTIVE ANALYSIS

The complete cycle for processing DWI cases through ASAP encompasses a complicated chain of events. In the interest of clarification, an overview of the main elements of the system are listed in outline form:

(1) Arrest for driving while intoxicated.
(2) Pre-trial court hearing and continuance of case.
(3) Incompatible DWI cases screened and returned directly to court.
(4) Diagnostic group interview.
(5) Probation staff determination of treatment referrals.
(6) Defendant enrollment in treatment programs.
(7) Secondary diagnostic evaluations (optional).
(8) Special cases assigned to external community treatment programs.
(9) Successful completion of treatment courses.
(10) Final interview with probation office.
(11) Court trial.
(12) Defendant sentencing keyed to probationary recommendation.

The interrelations of these functions are diagrammed in Figure 1. This figure details not only the possible drinker diagnoses but also the main treatment alternatives. These will be covered in more detail in later sections outlining the specific responsibilities of the judicial and rehabilitation countermeasures.




*MILITARY INSTALLATIONS IN THIS AREA PROVIDE TREATMENT CENTERS FOR THEIR OWN PERSONNEL. THE SOCIAL ACTIONS PROGRAM IS RUN BY THE AIR FORCE, BOTH HEADWAY AND ADCO BY THE ARMY AND THE AACP BY THE NAVY.

Figure 1. Outline of the key elements of a management information system for increasing the effectiveness of judicial countermeasure controls.

## Judicial Countermeasure

The responsibility for coordinating court activities, screening prospective defendants, handling diagnoses, making formal treatment referrals, and monitoring a subject's progress through the ASAP system rests with the judicial countermeasure.*

### Components

The judicial countermeasure is designed to function through three operational areas — probation, prosecution, and court. The ASAP Probation Services Office serves the Fairfax General District Court and four smaller divisions of that court, and provides probation services for military and miscellaneous referrals. The prosecution area is handled by the Fairfax Commonwealth Attorney's Office and the respective court prosecutors in the other four ASAP area courts. The third area includes the Fairfax District Court Administrator, and the judges and support personnel of the Fairfax District Court and the other four divisions (Fairfax City, Falls Church, Herndon and Vienna).

The primary emphasis and main line of operation of the Judicial Countermeasure is through the ASAP Probation Services Office. This office maintains a close working liaison with the prosecutors and courts in each of the participating jurisdictions and handles diagnoses and referral operations.

### Operations

The procedure used to maintain liaison and handle diagnosis and referral operations is as follows: (1) investigate the background of drivers who are arrested for driving while intoxicated for the purposes of recommending to the prosecutors in all the courts not of record in the ASAP area an appropriate course of action that might be taken in each case; (2) provide supervision of all DWI offenders in alcohol related traffic cases who have been permitted by the courts to enter an acceptable system of treatment and rehabilitation, making such periodic reports on each case as the court may require; and (3) maintain on a confidential basis such case histories and court records as may be required to furnish data on DWI charges as part of an ASAP information gathering program.

The Probation Services Office is staffed by professional personnel backed up by administrative and clerical support personnel, and is coordinated by the Probation Services Director. The professional staff provides basic screening, evaluation, monitoring, and reporting services for each defendant. The administrative staff develops and maintains information systems relative to defendant processing and data gathering.

The initial referral of DWI defendants to the Probation Office is made upon receipt of the police contact sheets (original copy; other copies are distributed to the court clerk, the project evaluator, and the police coordinator). These are

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*The bulk of the descriptive material contained herein was drawn from either the Quarterly Reports, the updated detailed plan, or other Fairfax ASAP-released documents.

logged and assigned case numbers, and a master card and case record are made up for each case. Each referral is checked against the master file for recidivism, and recidivists are assigned a new case number for each offense. An automatic record check by the Department of Motor Vehicles is initiated by the Police Coordinator for Fairfax County arrests and is requested through him by the Probation Office for arrests made in other jurisdictions. Record requests are made by the Probation Office to the Central Criminal Records Exchange (CCRE) and to Alexandria, Arlington, Fairfax City, Falls Church, Herndon, and Vienna. Record checks are requested from other agencies and jurisdictions as need indicates (other probation offices, juvenile courts, etc.). Prior records are filed as received in each defendant's case record, and the case records are prepared to be sent to court for an initial hearing with the prosecutor.

Concurrent with the above procedure, a staff clerk permanently assigned to the Fairfax District Court receives the DWI warrants from the Violations Bureau and makes up a docket. This clerk is responsible for making up court data sheets for attachment to DWI warrants, maintaining blood records, and assigning defendants to traffic court dockets, in addition to pulling and filing warrants for ASAP dockets and notifying Probation Services and police of dispositions made in each case. Copies of the docket and each defendant's BAC are sent to Probation Services where the BAC is logged into each case record.

Initial hearings with the prosecutor are held each Thursday in the Fairfax District Court. On the Tuesday proceding the hearing, the case records are sent to the ASAP court clerk, who files the warrants into the case records. On the day of the hearing, defendants are given an explanation of the ASAP program by the prosecutor (an assistant Commonwealth Attorney who is specifically assigned to ASAP dockets), then each defendant is seen individually by the prosecutor to determine his eligibility and willingness to participate. If the defendant agrees to enter the program, he is given an appointment by a probation officer who is assigned to court liaison for a screening interview. The appointments are generally made for the following week. If the defendant does not wish to enter the program, or is not eligible, he is informed that he will be notified of his trial date, and the ASAP clerk separates his warrant for docketing in traffic court. A sheet indicating the reason for referral to trial is attached to the warrant for the trial prosecutor's information. Warrants for those entering the program are held alphabetically until they are ready to be returned to court for disposition. Juveniles are referred to Juvenile and Domestic Relations Court for disposition, then may be referred back to ASAP for supervision and treatment.

After the initial hearing, case records are returned to Probation Services. Case records for those referred to trial are held in an inactive status until a court data sheet recording disposition of the case is received. Then these records are closed. Case records for those entering the program are prepared for intake.

The exceptions to the above court procedures are the four smaller division courts, juvenile referrals, and miscellaneous referrals. Defendants arrested in Fairfax City, Falls Church, Herndon, and Vienna are given an appointment by letter prior to their initial court appearance, and their acceptance in the ASAP program is determined by the prosecutor after a screening and evaluation interview in the Probation Office. Juvenile referrals are made by the Juvenile and Domestic Relations Court after a disposition has been made; an appointment with the Probation

Office is made by letter upon receipt of a referral form from Juvenile and Domestic Relations Court.

"Miscellaneous referrals" include any cases originating outside Fairfax County which are referred to ASAP by a court or by another ASAP. Acceptance of miscellaneous referrals is determined on the basis of the defendant's appropriateness for the program, and Probation Services' ability to provide the requested service.

Screening interviews, known as group intakes, are held in groups of up to ten defendants. This screening and the subsequent evaluation provide the basis of the defendants' progression through the succeeding phases of the program. As defendants arrive at the Probation Office for their appointment, they are given a demographic data form and a questionnaire to complete. The questionnaire is based on pertinent aspects of drinking, health, and prior arrest patterns and provides factual data in these areas. They are then asked for basic identifying information which is typed onto a five-part intake package form which becomes a permanent part of their case record, and which will travel with them to each treatment modality they attend. The interview is then conducted by a probation officer who will determine patterns and attitudes of the defendant. This information is then evaluated by a staffing team consisting of the group leader, another probation officer, and a consultant from the ASAP Diagnostic and Evaluation Unit, and treatment recommendations are made for each defendant in the group. These recommendations are explained to the defendant, and he is advised which treatment modalities he will be attending. Each defendant is required to sign an agreement to participate, which outlines and explains what will be required of him.

Defendants are generally classified into three levels which will be defined in more detail later. Level 1 is the non-problem or "social" drinker, Level 2 is the pre- or potential problem drinker, and Level 3 is the problem drinker. Assignment to treatment modalities is made on the basis of the level and therapeutic need of the individual. Almost all defendants attend a Type I treatment program like Driver Improvement School (DIS) during their participation in ASAP. Some Level 1 defendants attend only this modality; others attend additional programs as need indicates. Level 2 defendants generally attend some form of Type II rehabilitation like the Fairfax Alcohol Community Education (FACE) program which provides basic alcohol education. Other levels may attend this program where indicated. Level 3 defendants are generally assigned to Type III treatment programs at various alcohol centers or other appropriate agencies. The sequence of treatment assignments is determined on a prescriptive basis for maximum effectiveness of treatment. The Diagnostic and Evaluation Unit makes further evaluations and recommendations on those who need further self-evaluation before entering a treatment modality appropriate to their level, or those whose level is undertermined at the initial intake. This unit will be described in more detail later in this section.

Each defendant is supervised and monitored during his participation in ASAP. Each treatment modality reports attendance, attitude, and progress to the probation staff on standardized ASAP forms, and records are kept concerning compliance with each phase of the program. If a person is not in compliance, the probation officer attempts to contact the defendant and determine the cause of noncompliance. If the defendant remains in noncompliance status, his case is reviewed by a supervisor and returned to the court for prosecution on his original charge or for revocation of probation.

Most Level 3 defendants are assigned a trial date concurrently with their treatment assignment, as it is expected that they normally will remain in treatment over a longer period of time than will Level 1 and 2 defendants. The trial date is generally scheduled for approximately two months after their initial screening interview to allow them to initiate treatment. The probation officer provides the court a progress report at the time of trial, and those defendants who are placed on formal probation continue in long-term treatment under suspended sentence. Probationers are required to sign conditions of probation; if these conditions are not complied with, their suspended sentence may be imposed. Level 1 and 2 defendants participate in ASAP while their case is on a continued status; but if it becomes necessary, they may be referred to court for trial with a request to place them on formal probation.

At the completion of each treatment modality, the defendant's progress is evaluated by his probation officer. A staffing committee makes a determination of what further participation is required. When the defendant is ready to return to court for a final disposition of his charge, his case record is reviewed by the probation officer, and a report for the court is prepared. This report contains information concerning the defendant's initial evaluation, his progress in treatment, and other information pertinent to his case. Final disposition hearings are held on specified Thursday afternoons in Fairfax District Court and on specified dates in the four minor division courts (final reports are sent by mail to the referring jurisdiction for miscellaneous referrals). A docket is prepared by the Probation Services Office and sent to the Fairfax court clerk and the prosecutor. A record check is done on each defendant to confirm if there have been any subsequent charges and is filed in the case record as received. Case records are sent to the prosecutor prior to the trial date for review. The prosecutor prepares a recommendation to the court in each case and, on the trial date, the probation officer assigned to court liaison records each disposition on the docket. If the defendant does not plead guilty to the charge recommended by the prosecutor, his case is referred to trial in traffic court, and the court clerk will docket it. A sheet indicating the reason for referral to trial is attached to the warrant for the trial prosecutor's information. These cases are held in an inactive status by Probation Services until a court data sheet indicating disposition is received. Those cases where a disposition is made and the defendant is not placed on probation are closed immediately upon receipt of the case records and docket from the court.

Cases of those defendants placed on formal probation are closed upon expiration of probation. Prior to expiration, a record check is made and the probation officer evaluates the case to determine if there is any reason probation should be revoked prior to expiration and sentence imposed; if so, a show cause hearing is requested and the case closed at the time of imposition of sentence or release from probation.

The Judicial Countermeasure maintains a close liaison with other countermeasures through the Probation Services Office. While each jurisdiction maintains its own contact between police and courts, Probation Services is responsible for defendant flow from enforcement, court, treatment, and final closure of the case.

Administrative liaison is maintained by the administrative staff and their counterparts in other countermeasures to ensure orderly information systems, which are updated as needed. The professional staff maintains an active liaison

with the courts and treatment agencies to continuously update reporting requirements, evaluate program appropriateness, and review referral methods. As an integrated component of the District Court, the liaison maintained by Probation Services provides significant support to the judiciary.

In the Fairfax District Court, coordination is maintained on three levels. The Probation Services Director, the Court Administrator and the Judiciary establish policy concerning the court. The Probation Officer assigned to court liaison coordinates the flow of records between the Court, Probation Services and the Assistant Commonwealth Attorney assigned to ASAP prosecution. The Probation Services clerk permanently assigned to the Fairfax District Court provides extensive liaison services between the court and the Probation Office administrative staff.

The court liaison probation officer coordinates Probation Services for the four minor division courts. Individual court clerks in these jurisdictions also maintain direct contact with the Probation Services administrative staff.

ASAP Diagnostic and Evaluation Unit

The Diagnostic and Evaluation Unit of the Fairfax Falls Church Mental Health Center is an adjunct to the Probation Office which is involved not only in diagnostic work but also in rehabilitation. Its diagnostic function will be covered in this section and its treatment function in the description of rehabilitation efforts.

The objective of the Diagnostic and Evaluation Unit is to diagnose and recommend rehabilitation treatment programs for DWI offenders, to refer offenders to the appropriate community agency, and to perform any treatment not readily available in the community.

Problem drinkers who are difficult to diagnose are referred by the Probation Office staff to the Diagnostic and Evaluation Unit. Each offender referred has an individual or group intake interview with a psychiatric social worker present. The function is to describe and diagnose the exact nature of the drinking problem, or the emotional problem if any exists, and to motivate offenders for further treatment within the ASAP program. When this is accomplished, the social worker refers each offender to a treatment agency.

As an adjunct in the Probation Office, the Diagnostic and Evaluation Unit serves Probation Services in the following ways:

(1) Referrals—During the staffing procedure of the group intake, a social worker from the Evaluation Unit is present to assist in the evaluation and in making referrals to appropriate treatment resources. During this open staffing, the social worker present has the opportunity to see each defendant and, in a very quick way, attempt to evaluate whether there are any obvious psychological or emotional problems. Only a small proportion of all defendants are in need of further evaluation for emotional problems, and this proportion occurs at about the same percentage as mental illness is experienced in society at large, between 5% and 10%. In the event that emotional problems are suspected at this initial staffing, the defendant is offered an individual evaluation in the Diagnostic and Evaluation Unit. In addition to accepting referrals for evaluation of emotional problems on an individual basis, the Diagnostic and Evaluation Unit has been running open-ended groups to be described in detail later.

(2) Individual Evaluation—Following referral to the Evaluation Unit for a psychosocial evaluation, the offender is given an appointment almost immediately. The defendant is seen by a psychiatric social worker who attempts to explore all areas of the person's life; namely his drinking pattern, his medical, educational, and work history, and his present family and living situation. This may require one or more interviews before appropriate referral can be made. In the event that individuals are not ready to accept a referral to a mental health center, they are seen on a longer basis in the Evaluation Unit until such time as they can be motivated to seek treatment elsewhere.

(3) Open-Ended Groups—From the information gleaned at the probation office group intake session, the defendant may be referred to the diagnostic and evaluation open-ended group for further evaluation before a decision can be reached as to referral to a particular ASAP rehabilitation program. The open-ended groups serve a purpose which is four-fold: (1) diagnosis, (2) self-evaluation in terms of allowing the defendant to examine where he is in respect to his own drinking/driving behavior, (3) verification of the defendants' self-evaluation, since they are asked to bring their spouse, girlfriend, or boyfriend, and (4) motivation of the problem drinker who denies or minimizes his drinking before referral to an alcohol center.

These ongoing groups are open-ended in the sense that once a decision on treatment is reached, the defendant moves out of the group into the appropriate treatment program and a new defendant who has been referred enters. This technique has proved useful in that at any given time an open-ended group consists of members who have been to two, three, or four meetings, as well as the newly referred defendant who is attending his first meeting. Through the group process members are encouraged to examine their own drinking/driving behavior and to help one another with problems. The ultimate goal of these groups is to move a defendant from the position of feeling that he is a victim of society (i.e., that he was in the wrong place at the wrong time and that is why the police arrested him for DWI) to a position of taking responsibility for his own drinking and driving behavior and to begin to have some curiosity about himself in regard to his drinking. If this goal can be accomplished, the defendant is far more ready and able to accept the treatment recommended. Confrontation techniques are used to achieve this goal.

## Definition of Drinker Type

The determination of level of drinking is based on objective and subjective data.* An example of an objective measure is BAC, while the client's report of the feeling of drunkenness is a subjective measure. It should be noted, however, that even objective measures such as BAC are open to interpretation by the diagnostician. For example, a BAC of .11% would normally suggest a Level 1 or at most a Level 2 drinker. If, however, the client reported a time lapse of 8 hours between last drink and BAC test, he or she could be categorized as a Level 3 drinker.

The levels of drinking may best be viewed as a continuum rather than mutually exclusive categories. On this basis, the characteristics associated with each level of drinking may be characterized as follows.

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* Correspondence from Dr. Susan Clark, ASAP evaluation coordinator, dated August 26, 1975.

A Level 1 drinker would be characterized as one who uses alcohol in moderation — either on a daily, weekly, or social basis. This drinker generally drinks within the norm of a group and rarely becomes intoxicated (i.e. has a BAC above .10%), but occasionally might exceed this level. At that point he or she would feel and act clearly intoxicated, which would indicate a low tolerance for alcohol.

Level 2 drinkers would be characterized as those who use alcohol for the effect it produces. A Level 2 drinker may be characterized by at least two of the following criteria:

- BAC range of .10% - .20%.
- Client's self-report of not feeling drunk at a BAC of .15%, which is indicative of increased tolerance.
- Client's report of times intoxicated not exceeding 6 times per year.
- Client's report of one or two blackout experiences.
- Few or no life problems related to alcohol.
- Client's minimizing alcohol use and/or problems relating to alcohol.

Level 3 drinkers are problem drinkers. They may have been diagnosed as alcoholics by a competent medical or treatment facility. Such a drinker might also be classified as a Level 3 drinker on the basis of being an admitted alcoholic or having an admitted drinking problem. A Level 3 drinker may also be characterized as a person meeting at least two of the following criteria:

- A BAC above .15% at time of arrest. If, however, a significant time lapse has occurred between last drink and BAC test, the BAC may be below .15%.
- Client's self-report of few feelings of drunkenness, even at a BAC of .25%.
- Few years of drinking experience and a high BAC. In practice, this criteria usually means person under 25 years of age with BAC above .23%.
- Client's report of frequency of intoxication exceeding 6 times per year.
- Client's report of lief problems related to alcohol.
- Client's report of more than two blackouts.
- Client's denial of drinking problem.
- Alcohol related medical problems such as ulcers, gastritis, liver problems, skin problems, etc.

From this description of components and activities, it is obvious that the diagnostic and probationary services offered within the Fairfax ASAP are complex and rather comprehensive. As yet, however, the procedures involved in the diagnosis and referral process have not been strictly validated.

## Statistical Description of Services Rendered

As shown in Table 1, the case histories of 3,257 defendants were obtained by probationary services during the four quarters of 1974. Of these 2,740 were interviewed in the Probation Office, and 517 were seen in the Diagnostic and Evaluation Unit. Of defendants seen exclusively by the Probation Services, 70% were diagnosed and referred to treatment. Of those subsequently attending groups in the Diagnostic Unit, 100% were diagnosed and referred. The distribution of diagnosis for both subagencies is shown in Table 2.

Table 1

Diagnostic and Referral Statistics Within the Fairfax ASAP, 1974

| Statistic | Study Quarter | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 9 | | 10 | | 11 | | 12 | |
| Number of cases | 871 | | 870 | | 707 | | 809 | |
| Number of clients seen by Probation Services | 742 | | 754 | | 536 | | 708 | |
| Number referred | 485 | ( 65%) | 501 | ( 66%) | 447 | ( 83%) | 472 | ( 67%) |
| Number not referred | 237 | | 263 | | 89 | | 263 | |
| Number of clients seen by the Diagnostic and Evaluation Unit | 129 | ( 15%) | 116 | ( 13%) | 171 | ( 24%) | 101 | ( 12%) |
| Number referred | 129 | (100%) | 116 | (100%) | 171 | (100%) | 101 | (100%) |

Since the Diagnostic Unit often sees clients who remain unidentified in group intake, the distribution of diagnoses for this unit indicates the types of drinkers which Probation Services cannot adequately diagnose. Very few social drinkers escape classification in group intake, while a larger percentage of problem drinkers are referred to the Diagnostic Unit for further evaluation. The majority of these defendants either remain undiagnosed or are classified as a Level 2, pre-problem drinker, in the Diagnostic Unit.

Figure 2 presents the overall distributions of drinker diagnoses for the initial three years of the project. As illustrated by this figure, there is a great deal of variability in these distributions. While there seemed to be some "leveling out" and stabilization of diagnosis in Quarters 8 through 10, these patterns were disrupted again in Quarters 11 and 12 when the percentage of unidentified and pre-problem drinkers rose and the percentages of problem and social drinkers fell. There are two possible explanations for the lack of consistency in diagnosis. First, the population of drinking drivers may have changed. This is possible but very unlikely. Second and more plausible, the policies or criteria for diagnosis may have been altered.

Figure 3 illustrates the overall distribution of basic referrals across time. This distribution is more stable than that for diagnosis and shows a relative consistency for all categories except treatment Type I, alcohol related driver education. In an attempt to explain this phenomenon, the most frequently used combination of modalities, Type I and II, was also charted. The increase in this double staffing does agree with the decrease in single staffing defendants to Type I rehabilitation.

It is apparent for these two figures that while referral criteria have remained somewhat stable (with the exception of the introduction of a referral policy involving double staffing), diagnostic criteria have been in constant flux. The former finding would suggest that referral criteria are somewhat independent of drinker type. This hypothesis will be examined in a later section of this report.

Table 2

Distribution of Diagnosis for Probation Services and for the Diagnostic and Evaluation Unit, 1974

| Diagnosis | Quarter 9 | | Quarter 10 | | Quarter 11 | | Quarter 12 | |
|---|---|---|---|---|---|---|---|---|
| | Probation | D & E Unit | Probation | D & E Unit | Probation | D & E Unit | Probation | D & E Unit |
| Social Drinker | 17% | 4% | 19% | 2% | 13% | 2% | 3% | 10% |
| Problem Drinker | 52% | 38% | 52% | 36% | 44% | 39% | 40% | 45% |
| Unidentified Drinker | 31% | 58% | 29% | 62% | 43% | 59% | 47% | 45% |
| Total Diagnoses | 485 | 129 | 501 | 116 | 447 | 171 | 472 | 101 |

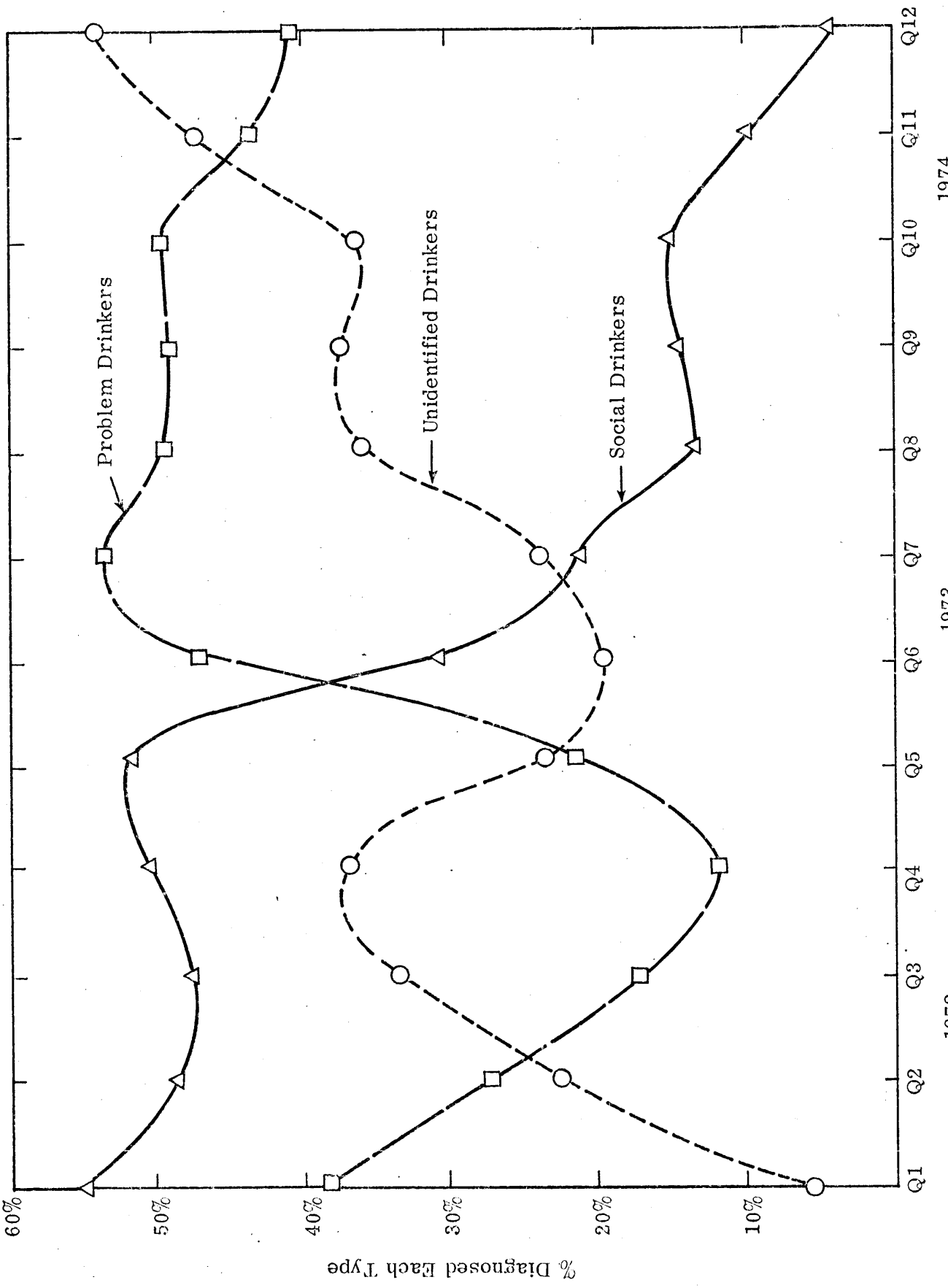


Figure 2. Percent drinker diagnosis across time.

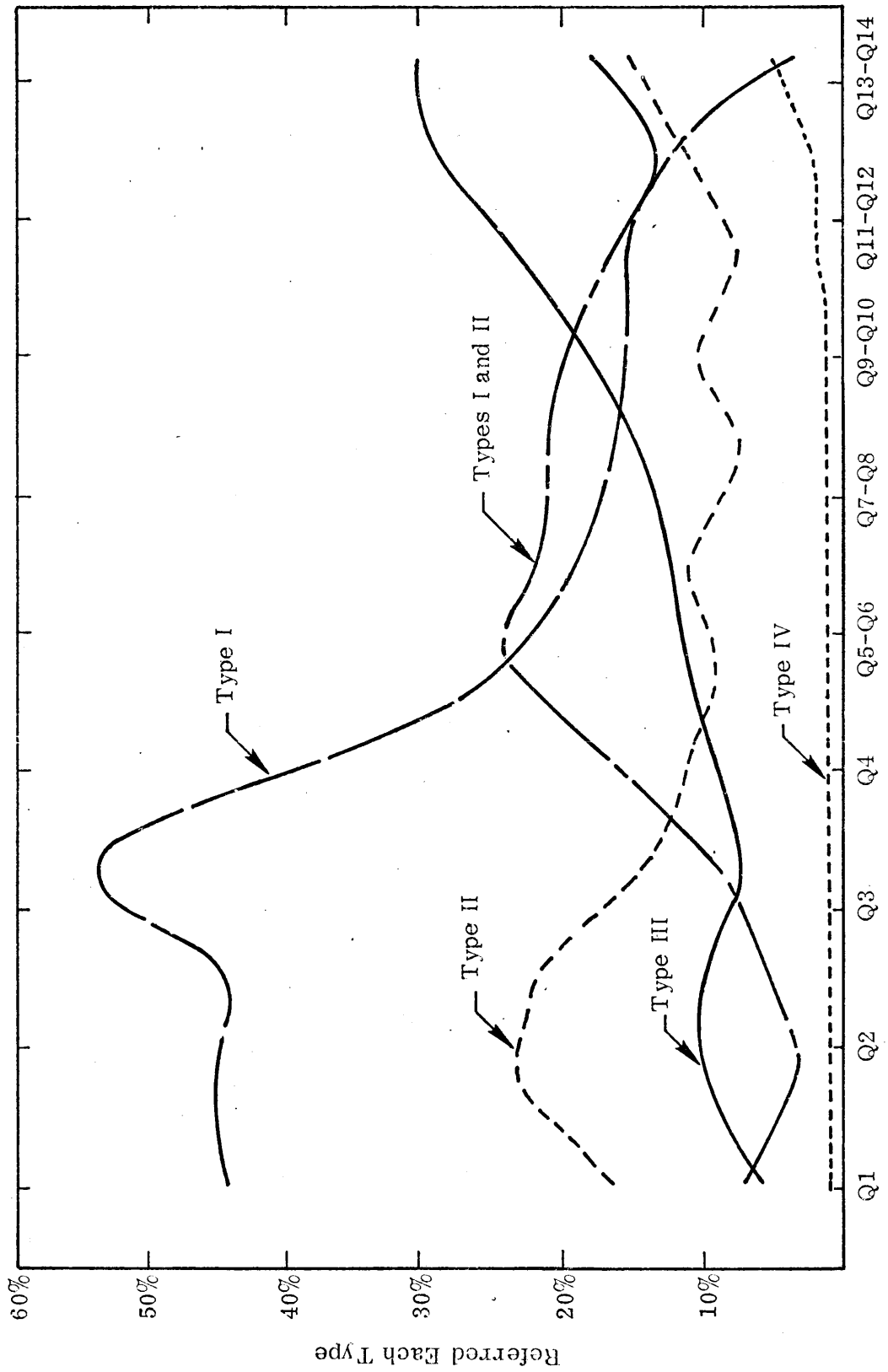


Figure 3. Percent referrals across time.

## Rehabilitation

As mentioned previously, because of the rapid growth in numbers of possible treatment alternatives, the analysis of rehabilitation modalities was limited to the five basic types of treatment listed below (each individual modality may be grouped into one of the major classifications):

Alcohol Related Driver Education—The alcohol related driver education classification includes both the various alcohol safety schools and the driver improvement schools (see Appendix A). The primary referral in this category is to the various DIS programs described herein.

The DIS is an educationally based treatment modality originally designed on the premise that social drinkers need knowledge concerning the effects of alcohol on driving performance more than they need actual therapy. These small group sessions (n=15) offer two hours of classes each week for a total of eight weeks and are primarily of the lecture and discussion format. The fee for attendance was $30.

There were four categories of DIS in 1974, all essentially similar in content but differing somewhat in format and location. They were:

(1) Northern Virginia Community College Driver Improvement School (NVCC-DIS)—This institution was the first to offer the course in conjunction with the ASAP. Classes are taught on campus by instructors hired by the college.

(2) Fairfax County High School Driver Improvement School (FCHS-DIS)—Because of an initial overload in the system due to increased arrests, NVCC-DIS was unable to accommodate all defendants assigned to DIS. The County School System then instituted additional classes to relieve the backlog. FCHS-DIS is taught in local high schools by driver education teachers.

(3) Weekend Driver Improvement Schools (WDIS)—Both the Northern Virginia Community College and the Fairfax County High School run improvement weekend schools. The decision to send a defendant to the WDIS is based on the readiness of the client to benefit from an interactive program, whether he has insight into his own behavior or not, and, in cases where the defendant could go to either regular or weekend DIS, whether the client has a job which would preclude his attending an evening program.

The WDIS is designed as an alternative to the regular eight-week program. It was intended to combine the previous instruction with some group interaction and confrontation in a concentrated period of time in order to provide a total immersion effect. The Diagnostic and Evaluation Unit coordinates the program (which involves scheduling the weekends, making arrangements for accommodation, providing for training for subsequent instructions, and evaluating the program), and during each weekend provides a co-instructor with knowledge about group dynamics.

These weekend courses are given in a motel in New Market, Virginia, approximately two hours from Fairfax, over a Saturday and Sunday. The course runs from 9:00 a.m. to 9:00 p.m. on Saturday, with a coffee break in the morning and again in the middle of the afternoon. Lunch and dinner are served in the same room to facilitate faster group interaction. On Sunday, the session runs from 9:00 a.m. to 2:00 p.m., again with coffee breaks and lunch. This is a total of 21 hours of instruction and group discussion. Total cost to the defendant is $60.00, the usual $30.00 cost, plus room and board at the motel.

The knowledge portion of the course is taught by a regular DIS instructor while discussions are led by a psychiatric social worker from the unit. The goal of these discussions are two-fold: (1) to establish as accurate a diagnosis as possible in terms of both drinking and driving behavior and emotional stability, and (2) to help each defendant decide for himself what he needs to do to prevent a second DWI. The specific techniques used in these discussion groups have developed over the past years in consultation by Dr. Isaiah Zimmerman.

(4) Other Alcohol Safety Related Classes—These include the Virginia and D. C. Traffic Schools and the Maryland DWI Schools.

In 1974, as in 1973, double and triple staffing was an established practice. In most cases, defendants attended some form of alcohol related driver education during their stay in ASAP rehabilitation.

Alcohol Education/Information—This second type of treatment referral encompasses most of the programs designed for Level 2 drinkers. The three most common programs are summarized below

(1) Fairfax Alcohol Community Education (FACE)—FACE is a 20-hour, ten-week course originally designed as a "holding area" for the backlog of clients from other treatment modalities, and later as a ten-week diagnostic period. As more extensive treatment facilities were developed and as diagnostic techniques used in the Probation Office were refined, the evaluative aspects of FACE became less important. The didactic portion of the treatment consists of two-hour lectures weekly for ten weeks. It is essentially similar in format to the DIS program with slightly larger groups (n=25). Each of the ten lectures presents a different aspect of alcohol's effect and abuse. Each is presented by a different speaker, while the class is observed by a monitor who is present at all ten sessions. The Diagnostic and Evaluation Unit runs discussion groups concurrent with the FACE lectures which are geared toward not only further evaluation, but also towards assisting each defendant in personalizing the didactic material presented in the FACE lectures. The format for the discussion groups is to take one FACE class consisting of twenty-five members and break it into two small discussion groups. These discussion groups meet on another night of the week so that defendants are attending two classes a week.

(2) Military Programs—Each branch of the service offers alcohol treatment programs for its personnel. Both ADCO and Headway are run by the Army, while the Social Actions Program is run by the Air Force and the AACP by the Navy.

(3) Other programs include such agencies as the Washington Hospital Center, the Keystone Program, and the various local DAS clinics.

Alcohol Treatment Clinics—Designed to handle problem drinkers, treatment at the Alcohol Treatment Clinics consists of an ongoing series of group and individual sessions using counselling and therapeutic techniques to treat not only the driving aspects of the drinking problems but also the psychosociological problems which often provide a background for alcohol abuse. The most flexible of the treatment modalities, the alcohol clinics treat their clients for an indefinite period of time and use such techniques as couple therapy, chemotherapy, and private and psychiatric counselling. There are a number of these clinics used in ASAP referrals, including the Washington Hospital Center, the Military Programs, the various local DAS offices, and the scattered alcohol clinics.

Diagnostic, Evaluation, and Mental Health Services—Services offered by the diagnostic unit and other mental health clinics belong in this category. Included are such D & E functions as group intake, individual and group reevaluation, and women's groups. This category also includes local clinical services and private care.

Specialized Programs—Inpatient care, detoxification, and vocational counselling belong in this category, as well as Power Motivation Training and other experimental treatments. Relatively few referrals are made to this type of treatment, which precludes adequate analysis of its impact.

From this description, it is apparent that rehabilitation services are as complex and seemingly comprehensive as probation services. As mentioned earlier, while the absolute impact of rehabilitation cannot be assessed, its relative effectiveness can be.

## Demographic Description of ASAP Participants

Demographic and arrest characteristics of defendants were arrayed by drinker type and by initial referral. These are presented herein (where a characteristic is not presented, no significant difference exists between group distributions).

### Demographic Characteristics by Drinker Type

While race and sex did not differ significantly between drinker categories, the educational distributions (see Table 3) were found to be significantly different. Social drinkers tended to be more highly educated. Significant differences were also found in occupations (see Table 4). Social drinkers tend more often to be managers and administrators while Level 2, 3, and 4 drinkers tend to be craftsmen.

Marital status differed among drinker types (see Table 5), problem drinkers being more often married than other drinker groups, which had higher single and divorced categories.

In relation to arrest characteristics, both day of arrest and BAC at the time of arrest differed across drinker types. Among all drinker types, one of the two days in which the highest proportion of drivers were apprehended was Sunday. In the case of pre-problem, problem and unidentified drinkers, the other day which experienced the highest proportion of arrests was during the weekend (Friday or Saturday), while

among social drinkers, this other high arrest day was Tuesday (see Table 6). In terms of BAC, social drinkers had the lowest blood alcohol level and problem drinkers the highest (see Table 7).

Table 3

Educational Level by Drinker Type (%)

| | Social | Pre-Problem | Problem | Unidentified |
|---|---|---|---|---|
| 8th Grade | 2.8 | 10.0 | 16.2 | 7.3 |
| High School Incomplete | 7.5 | 20.9 | 18.9 | 17.1 |
| High School Complete | 34.0 | 30.0 | 33.7 | 29.3 |
| Vocational School | 4.7 | 1.8 | 3.1 | 0.0 |
| College Incomplete | 25.5 | 20.9 | 16.8 | 26.8 |
| College Complete | 17.0 | 11.8 | 7.2 | 12.2 |
| Postgrad | 8.5 | 4.5 | 4.1 | 7.3 |

$\chi^2=35.96$, $P<.01$

Table 4

Occupation by Drinker Type

| | Social | Pre-Problem | Problem | Unidentified |
|---|---|---|---|---|
| Managers-Administrators | 23.6 | 18.6 | 15.1 | 11.9 |
| Sales Personnel | 11.3 | 7.1 | 7.0 | 11.9 |
| Clerical Personnel | 4.7 | 5.3 | 6.4 | 4.3 |
| Craftsmen | 18.9 | 40.7 | 44.8 | 28.6 |
| Service Workers | 4.7 | 4.4 | 8.4 | 7.1 |
| Miscellaneous | 7.5 | 1.8 | 3.3 | 4.8 |
| Unknown | 29.2 | 22.1 | 15.1 | 31.0 |

$\chi^2=34.45$, $P<.01$

Table 5

Marital Status by Drinker Type

| Marital Status | Social | Pre-Problem | Problem | Unidentified |
|---|---|---|---|---|
| Married | 40.0 | 48.7 | 57.9 | 42.9 |
| Single | 37.1 | 30.1 | 17.8 | 28.6 |
| Widowed | 1.0 | 1.8 | 2.7 | 2.4 |
| Separated | 8.6 | 11.5 | 11.4 | 11.9 |
| Divorced | 13.3 | 8.0 | 10.1 | 14.3 |

$\chi^2=261.86$, $P<.01$

Table 6

Day of Arrest by Drinker Type

| Day of Week | Social | Pre-Problem | Problem | Unidentifie |
|---|---|---|---|---|
| Monday-Thursday | 53.2 | 40.5 | 47.7 | 50.7 |
| Friday-Saturday | 26.4 | 39.6 | 40.4 | 26.9 |
| Sunday | 20.4 | 19.8 | 16.9 | 22.4 |

$\chi^2=23.86$, $P<.05$

Table 7

BAC by Drinker Type

| BAC, % | Social | Pre-Problem | Problem | Unidentified |
|---|---|---|---|---|
| .01 - .14 | 48.7 | 22.8 | 16.1 | 28.9 |
| .15 - .19 | 42.2 | 32.7 | 24.5 | 39.5 |
| .20+ | 10.0 | 34.7 | 59.4 | 31.6 |

$\chi^2=74.92$, $P<.01$

Demographic Characteristic by Initial Referral

As would be expected, many of the demographic and arrest related characteristics which differ among drinker types also differ among persons attending different rehabilitation programs. However, some additional variables, such as race and sex, are distributed differently among initial referral groups (see Tables 8 and 9). Treatment Types II, IV, and V tend to have more nonwhites, and women among their membership.

Table 8

Race by Initial Referral

| Race | Treatment Level | | | | |
|---|---|---|---|---|---|
| | I | II | III | IV | V |
| White | 92.8 | 95.7 | 86.2 | 95.2 | 77.8 |
| Negro | 7.2 | 3.7 | 13.8 | 4.8 | 22.2 |
| Other | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 |

$\chi^2=13.19$, $P<.05$

Table 9

Sex by Initial Referral

| Sex | Treatment Level | | | | |
|---|---|---|---|---|---|
| | I | II | III | IV | V |
| Male | 93.3 | 97.1 | 94.4 | 85.8 | 80.0 |
| Female | 6.7 | 2.9 | 5.6 | 14.2 | 20.0 |

As with drinker types, persons attending different types of treatment also differ in their occupations, education, and marital status (see Tables 10, 11 and 12). Persons attending Type I treatment, alcohol related driver education, tend to be better educated than other participants and to be managers, administrators and salesmen rather than craftsmen or service workers. Persons attending Type I treatment and Type V treatment, specialized programs, are the least likely to be married. Persons attending Types III (alcohol treatment clinics), I V (diagnostic and evaluation services), and V are more likely to be divorced or separated than those attending I and II (alcohol information/education).

Table 10

Education by Initial Referral

| Education | Treatment Level | | | | |
|---|---|---|---|---|---|
| | I | II | III | IV | V |
| 8th Grade | 1.1 | 7.3 | 16.3 | 18.4 | 11.1 |
| High School Incomplete | 7.9 | 14.0 | 19.8 | 21.6 | 22.2 |
| High School Complete | 33.7 | 35.4 | 29.7 | 32.0 | 11.1 |
| Vocational | 5.6 | 0.6 | 4.7 | 1.6 | 0.0 |
| College Incomplete | 28.1 | 23.8 | 14.0 | 14.0 | 44.4 |
| College Complete | 18.0 | 13.4 | 9.9 | 4.0 | 0.0 |
| Postgrad | 5.6 | 4.9 | 4.7 | 6.4 | 11.1 |

$\chi^2=44.22$, $P<.01$

Table 11

Occupation by Initial Referral

| Occupation | Treatment Level | | | | |
|---|---|---|---|---|---|
| | I | II | III | IV | V |
| Manager Administrator | 27.8 | 19.7 | 11.2 | 15.0 | 20.0 |
| Sales Personnel | 10.0 | 9.2 | 8.3 | 5.5 | 10.0 |
| Clerical Personnel | 3.3 | 6.4 | 5.6 | 7.1 | 20.0 |
| Craftsmen | 23.3 | 37.6 | 41.9 | 39.4 | 20.0 |
| Service Personnel | 4.4 | 3.5 | 8.9 | 10.2 | 10.0 |
| Miscellaneous | 6.7 | 2.9 | 2.2 | 4.7 | 0.0 |
| Unknown | 24.4 | 20.8 | 22.9 | 18.1 | 20.0 |

$\chi^2=25.53$, $P \leq .05$

Table 12

Marital Status by Initial Referral

| Marital Status | I | II | III | IV | V |
|---|---|---|---|---|---|
| Married | 47.1 | 52.6 | 55.1 | 50.4 | 11.1 |
| Single | 36.4 | 28.1 | 17.0 | 22.0 | 55.6 |
| Widowed | 0.0 | 0.6 | 4.0 | 3.1 | 0.0 |
| Separated | 8.0 | 8.8 | 14.8 | 11.0 | 11.1 |
| Divorced | 8.0 | 9.9 | 9.1 | 13.4 | 22.2 |

$\chi^2=21.22$, $P<.05$

Again, in relation to arrest data, the groups differed as to the day of the week on which defendants were arrested and their BAC at time of arrest. Persons in the treatment Types III, IV, and V were more likely to be arrested on a weekend than a weekday. These three groups also had higher BACs than persons attending Types I and II (see Tables 13 and 14).

Table 13

Day of Arrest by Initial Referral

| Day of Arrest | Treatment Level | | | | |
|---|---|---|---|---|---|
| | I | II | III | IV | V |
| Sunday | 28.9 | 24.0 | 12.9 | 20.8 | 10.0 |
| Monday | 10.8 | 8.4 | 13.5 | 13.6 | 30.0 |
| Tuesday | 9.6 | 6.6 | 7.6 | 4.0 | 0.0 |
| Wednesday | 8.4 | 13.8 | 9.4 | 11.2 | 20.0 |
| Thursday | 10.8 | 13.2 | 12.9 | 13.6 | 0.0 |
| Friday | 13.3 | 17.4 | 15.8 | 16.8 | 20.0 |
| Saturday | 18.1 | 16.8 | 28.1 | 20.0 | 20.0 |

$\chi^2 = 23.89$, $P < .05$

Table 14

BAC by Initial Referral

| BAC | Treatment Level | | | |
|---|---|---|---|---|
| | I | II | III | IV & V |
| .01 - .11 | 35.6 | 9.2 | 3.9 | 6.1 |
| .12 - .15 | 27.4 | 27.5 | 12.5 | 15.8 |
| .16 - .20 | 26.0 | 31.7 | 31.6 | 40.4 |
| .21 | 11.0 | 31.7 | 52.0 | 37.7 |

Since referrals are based at least in part on drinker diagnoses, it is expected that the demographic and arrest related variables which distinguish between groups of diagnoses and groups of referrals should overlap. Thus, it is not surprising that, with the exception of race and sex, the distinguishing variables in both cases are identical.

Demographic Descriptions of Special Interest Groups

Of special interest in terms of creating profiles for successful referral and rehabilitation are the dichotomies of recidivists vs. non-recidivists and persons completing vs. persons dropping out of treatment programs.

In relation to persons completing vs. those dropping treatment programs, these two groups differed on only three variables. The racial distribution of defendants was highly related to rehabilitation status (see Table 15). Persons dropping rehabilitation were more likely to be nonwhites. These two groups also differed in relation to their educational and occupational levels (see Tables 16 and 17). Persons completing rehabilitation are better educated and are employed more often as manager-administrators than persons dropping out of rehabilitation.

Table 15

Race by Rehabilitation Status

| Race | Completed Rehabilitation | Dropped Rehabilitation |
|---|---|---|
| White | 94.3 | 80.8 |
| Negro | 5.7 | 17.9 |
| Other | 0.0 | 1.3 |

$\chi^2$=16.99, P<.01

Table 16

Education by Rehabilitation Status

| Education | Completed Rehabilitation | Dropped Rehabilitation |
|---|---|---|
| 8th Grade | 10.0 | 22.5 |
| High School Incomplete | 16.5 | 18.8 |
| High School Complete | 32.7 | 28.8 |
| Vocational School | 3.2 | 1.4 |
| College Incomplete | 20.1 | 16.2 |
| College Complete | 11.3 | 7.8 |
| Postgrad | 5.8 | 3.9 |

$\chi^2$=13.39, P<.01

Table 17

Occupation by Rehabilitation Status

| Occupation | Completed Rehabilitation | Dropped Rehabilitation |
|---|---|---|
| Manager--Administrator | 18.2 | 11.9 |
| Sales Personnel | 8.2 | 7.1 |
| Clerical Personnel | 6.3 | 6.0 |
| Craftsmen | 34.3 | 52.4 |
| Service Personnel | 6.1 | 9.5 |
| Miscellaneous | 3.8 | 2.4 |
| Unknown | 23.2 | 10.7 |

$\chi^2$=14.88, P<.05

When considering differences in demographic data for recidivists and non-recidivists, only one strictly demographic variable even approached significance, income ($P < .08$), with non-recidivists having higher incomes. However, there was one alcohol related variable which distinguished between groups—drinker classification. There were more problem drinker recidivists, while there were more social and pre-problem drinker non-recidivists (see Table 18). Not related to demographics but rather meaningful in terms of rearrest, several arrest related variables were related to recidivism such as number of previous DWIs, number of previous traffic accidents, and number of previous license revocations. This finding is consistent with last year's report on rehabilitation in that the variables which distinguish between groups are driving as well as drinking related.* Perhaps this group of defendants is more visible to police and are, therefore, more apt to be rearrested for any offense.

Table 18

Recidivists vs. Controls by Drinker Classification

| | Social Drinkers | Pre-Problem Drinkers | Problem Drinkers |
|---|---|---|---|
| Recidivists | 12.6 | 18.5 | 68.9 |
| Controls | 39.5 | 37.2 | 23.3 |

## METHODOLOGY

Since this report constitutes a combination of both Analytic Studies 5 and 6, a separate methodology is presented for each area of study. While several topics, such as recidivism, apply to both studies, they are presented only once.

### Diagnosis and Referral

As mentioned in previous sections, the distribution of drinking classifications shows inconsistency across time, while the distribution of referrals, unadjusted for drinker type, is more stable. This fact throws some doubt on the reliability of diagnostic decisions in relation to client information and brings into question the idea that drinker diagnosis is an influential variable in terms of referrals. To examine these questions, background information on clients was subjected to two discriminant function analyses. The first discriminant analysis was performed using drinker classification as the dependent variable. If there is consistency inclassification criteria, then this analysis should identify which criteria assist in the discrimination of the various drinker types. The second analysis involves referral as the dependent variable and places drinker classification as an additional independent variable. According to the policies for referral expressed by probation services, drinker classification should play a major role in referral and should thus discriminate between drinker types.

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* Lynn, C. W., "An Evaluation of the Effectiveness of the Rehabilitation Countermeasure of the Fairfax ASAP, 1973", Virginia Highway & Transportation Research Council, Charlottesville, Virginia (November 1974).

## Rehabilitation

Rehabilitation will be analyzed both in terms of the overall treatment effort and in terms of specific modalities. Crash involvement, as well as cumulative and non-cumulative recidivism rates, will be presented. Although no adequate "no treatment" control group exists for the project, recidivism data do exist for defendants who enter the program but are not referred. While these two groups are not directly comparable, comparisons can suggest project impact. Through a covariance analysis controlling for drinker type and time period, simple recidivism rates for the two groups will be compared. Aggregate recidivism rates for both groups are graphically compared. Inter-modality comparisons are also made using a covariance analysis of recidivism rates controlling for drinker type and time period.

Knowledge score data collected from participants in treatment Type I — alcohol related driver education — is then presented for the various modalities falling into that classification, and results of an additional item analysis for the instrument developed for use in this program are arrayed in the Appendices.

Finally, demographic information concerning recidivists vs. non-recidivists and persons completing treatment vs. persons dropping out are examined.

# ANALYSIS

## Diagnosis and Referral

As mentioned previously, the discriminability of drinker classification was examined through the use of multiple discriminant function analyses, based on background information for a population of clients diagnosed within a given time period under group intake. A discriminant analysis yields a linear combination of a set of variables which best discriminates among several groups of subjects -- in this case, the different diagnostic groups of social, pre-problem and unidentified drinkers. It was determined through examination of eigenvalues for the several possible functions that a single function wolution was appropriate both in the case of discriminating between diagnostic groups and discriminating between referral groups. The first root, or function, accounted for 76% and 80% of the respective variances among the discriminating variables.

In analyzing drinker diagnosis, all available variables concerning prior driving record, arrest description and demographics were included. The discriminant analysis was run using a stepwise procedure, maximizing the Wilk's $\lambda$ statistic. Table 19 summarizes the results of this analysis. Variables are entered in Table 19 in the order in which they were entered into the function, by their discriminability. The discriminant function coefficients, or loadings, indicate the relative contributions of the variables to the function. To determine if groups are significantly different in terms of the function, a centroid, the measure of central tendency within a multivariate distribution, was generated for each group. The centroids for the drinker classification groups appear in Figure 4, and a summary of discrimination information and the classification function coefficients appear in Appendix B.

Table 19

Discriminant Function Analysis
Drinker Types

| Variable | Discriminant Function Coefficients | F ratio |
|---|---|---|
| 1. BAC | -.6329 | 7.7[illegible]** |
| 2. Education | .4671 | 7.030** |
| 3. Day of arrest | -.4021 | 3.906* |
| 4. Race | .0741 | 1.365 |
| 5. Number prior speeding convictions | .2505 | 1.675 |
| 6. Number prior reckless driving convictions | -.1778 | 1.238 |
| 7. Other treatment non-ASAP) | .2376 | 1.151 |
| 8. Number prior revocations | -.1445 | 0.404 |
| 9. Number prior accidents | .0783 | 1.527 |
| 10. Number prior non-traffic violations | -.1927 | 1.171 |
| 11. Marital status | .1088 | 0.615 |
| 12. Number dependents | .0729 | 1.187 |
| 13. Number prior suspensions | .0847 | 1.256 |
| 14. Sex | -.0205 | 0.597 |
| 15. Number prior DWIs | -.0910 | 1.43[illegible] |
| 16. Number prior minor convictions | -.1446 | 1.204 |
| 17. Arrest time | -.1144 | 1.722 |
| 18. Occupation | -.0549 | 0.546 |
| 19. Number prior convictions driving without license | -.0155 | 0.561 |
| 20. Income | .0026 | 0.806 |

** significant at the .01 level
* significant at the .05 level

The discriminability of this function in terms of drinker diagnosis is questionable, especially when the Wilk's Lambda values for each variable are considered (which range from .81 to .94 as they are entered). This is not surprising, for two reasons: First, this analysis neglects the subjective aspect of the group intake procedure. There may be non-demographic variables which form the basis for diagnostic decisions

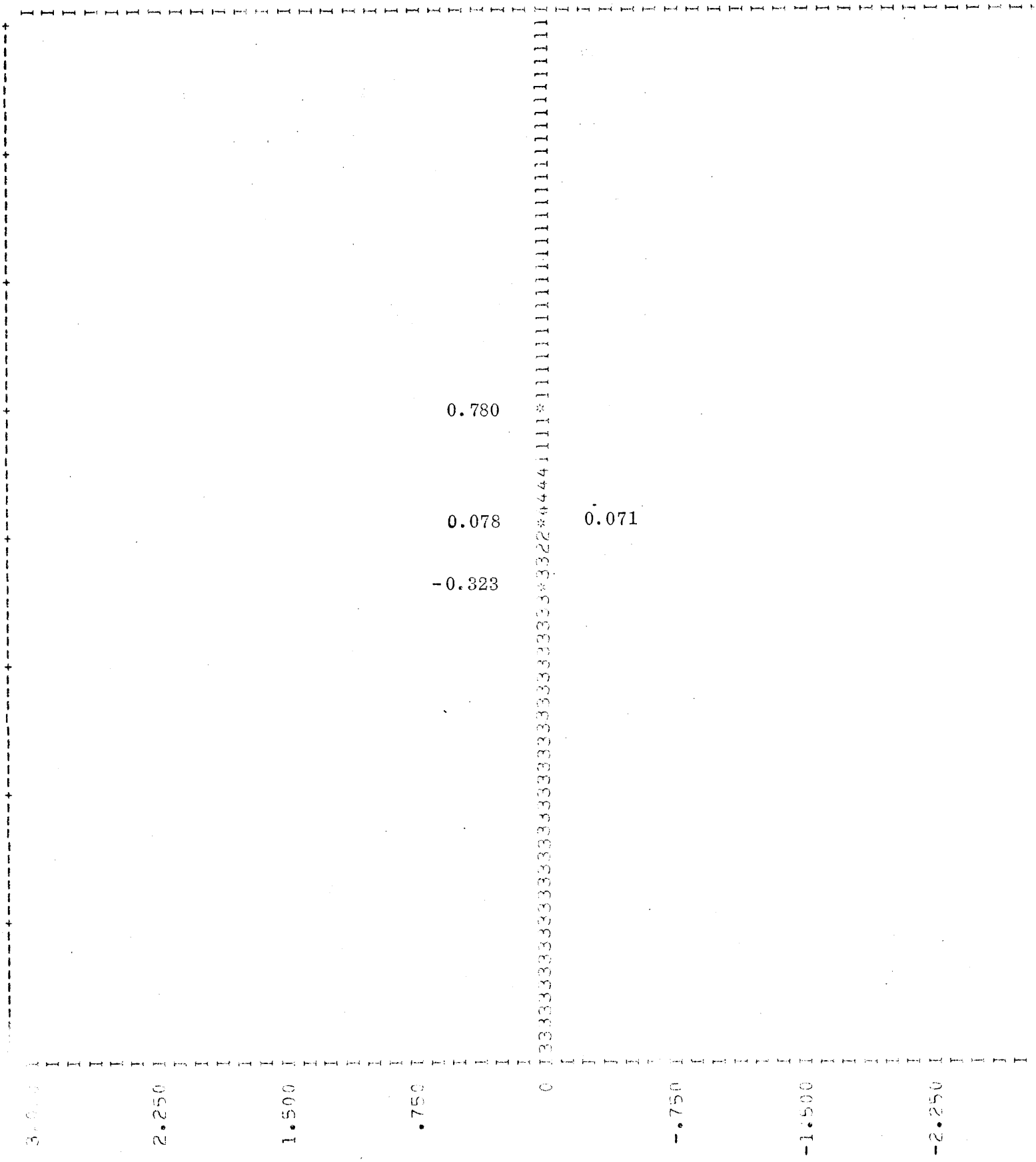


Figure 4. Group centroids for diagnostic types.

which are not present in ASAP client information files. Second, since the diagnostic distribution is not consistent across time, criteria for this decision must also have changed, which would make the discrimination of these groups on the basis of background information more difficult.

The analysis of referral procedures employed the same variables which were entered into the previous analysis, with one addition. The variable of drinker diagnosis was added to determine its role in this discriminative decision. Table 20 summarizes this analysis (again, classification function coefficients and additional analytic data appear in Appendix B, while the centroids for this group are shown in Figure 5). Drinker diagnosis or level is by far the most powerful variable in discriminating between referral groups. This supports the stated policy of basing referrals on previous drinker classifications. This function has increased discriminability (Wilk's Lambda ranges from .51 to .69), which would be expected due to increased consistency in the distribution of referrals across time, an indication of reliable referral criteria.

## Rehabilitation

### Crash Involvement

Since one of the ultimate aims of the ASAP program is to reduce the number of crashes occurring subsequent to the initiation of ASAP operations, crash involvement becomes significant. Again, while no control groups exist with which to make comparisons, comparisons between modalities and between drinker types can be made to add evidence toward the validation of drinker diagnoses.

Table 21 presents subsequent crash rates for participants by referral and drinker type. These rates are somewhat influenced by the numbers of referrals to the various types of treatment. For example, if only two persons in a drinker type are assigned to a particular treatment, one person involved in a subsequent crash will yield an involvement rate of 50%. Those rates for treatment programs with low referrals from a particular drinker group are noted in parentheses. Overall, social drinkers showed the lowest subsequent involvement. Results concerning the three remaining categories are less straightforward. Unidentified drinkers tend to have higher involvement rates across modalities than either problem or pre-problem drinkers. The pre-problem drinkers have the next highest rate, followed by the problem drinkers.

Table 22 presents subsequent speeding or reckless driving violation rates for participants. In this case, however, pre-problem drinkers are the most frequent violators, followed by the problem and unidentified drinkers.

In relation to specific modalities, crash involvement is highest for Treatment Type 2, followed ty Type 4, Type 3 and Type 1. These differences were not significant. In relation to subsequent violation, again Type 4, followed by Types 3, 2 and 1.

Table 20

Discriminant Function Analysis
First Referral

| Variable | Discriminant Function Coefficients | F ratio |
|---|---|---|
| 1. Level | 1.006 | 47.27** |
| 2. Sex | -.0974 | 3.38** |
| 3. Education | -.1633 | 5.54** |
| 4. BAC | .2142 | 5.51** |
| 5. Other treatment (non-ASAP) | -.2120 | 2.70* |
| 6. Number previous revocations | .3131 | 1.37 |
| 7. Arrest time | .1251 | 2.89* |
| 8. Occupation | .1833 | 2.06 |
| 9. Number dependents | -.2235 | 2.43* |
| 10. Number prior accidents | .0509 | 1.43 |
| 11. Number prior non-traffic violations | -.0663 | 1.42 |
| 12. Number prior suspensions | -.1576 | .20 |
| 13. Marital status | .1418 | 1.25 |
| 14. Race | -.0453 | 1.65 |
| 15. Number prior minor violations | -.1157 | 1.50 |
| 16. Number prior DWIs | -.1587 | .72 |
| 17. Day of arrest | .1584 | 1.91 |
| 18. Income | -.1304 | 2.49* |
| 19. Number of prior reckless driving convictions | .1040 | 1.70 |
| 20. Number prior speeding convictions | -.0492 | 1.24 |
| 21. Number prior convictions for driving without a license | .0735 | .42 |

** significant at the .01 level
* significant at the .05 level

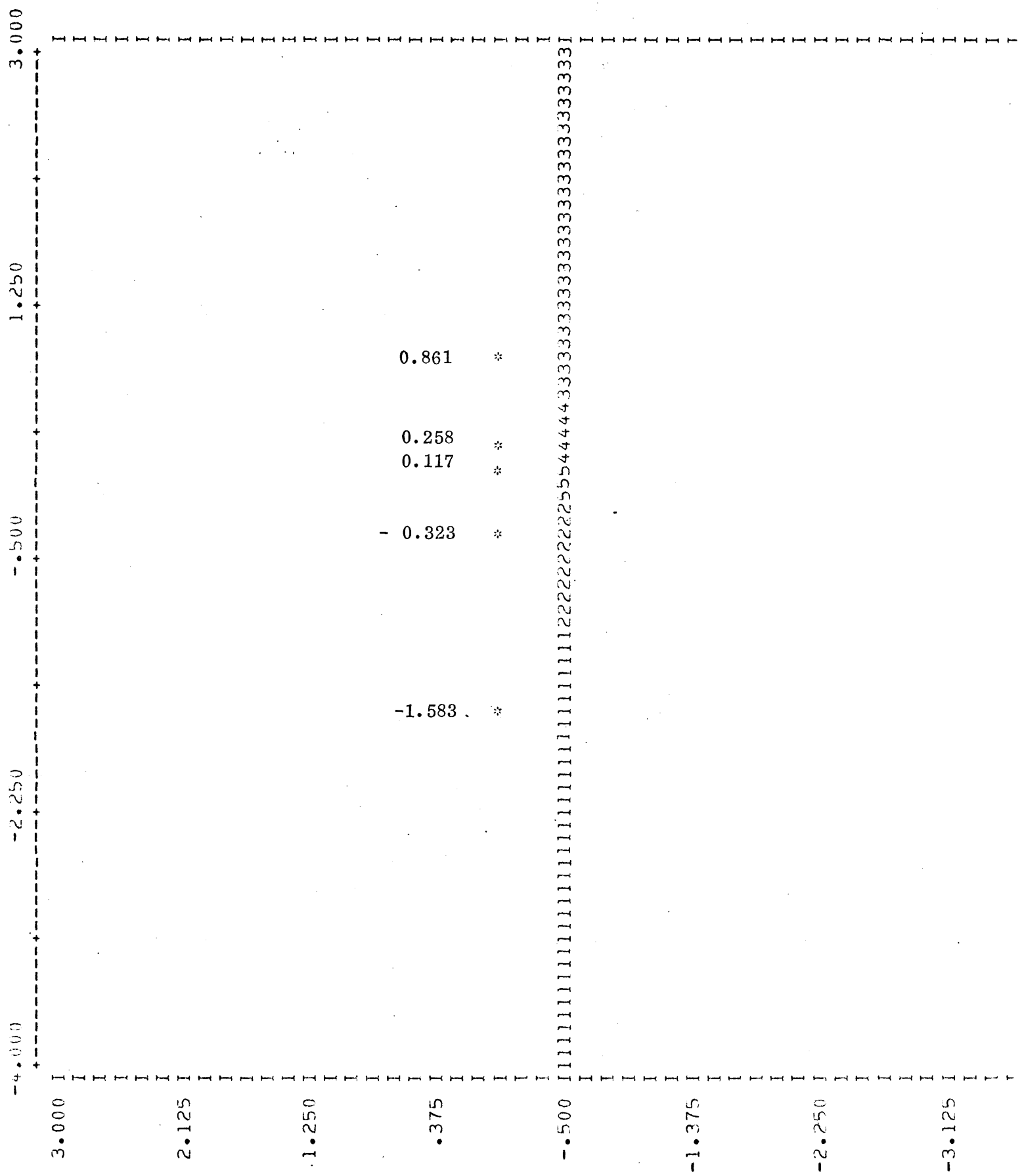


Figure 5. Group centroids for referred groups.

Table 21

Crash Involvement Rates Subsequent to ASAP Participation (Sample N=686)

| Treatment | Social Drinker | Pre-Problem Drinker | Problem Drinker | Unidentified |
|---|---|---|---|---|
| I | 13.0% | 0.0% | 10.0% | 0.0% |
| II | 5.6% | 20.0% | 17.5% | 28.6% |
| III | 0.0% | 14.3% | 13.6% | 10% |
| IV | 6.7% | 14.3% | 11.1% | (25%) |
| V | (0.0%) | (50.0%) | (0.0%) | (100%) |

Table 22

Speeding and Reckless Driving Conviction Rates Subsequent to ASAP Participation (Sample N=686)

| Treatment | Social Drinker | Pre-Problem Drinker | Problem Drinker | Unidentified |
|---|---|---|---|---|
| I | 11.1% | 20.0% | 10.0% | 0.0% |
| II | 0.0% | 13.3% | 17.5% | 0.0% |
| III | 0.0% | 25.0% | 9.1% | 10.0% |
| IV | 0.0% | 23.8% | 13.0% | 25.0% |
| V | 0.0% | 50.0% | 0.0% | 0.0% |

Recidivism

Analyses of recidivism were restricted to the five single modalities (I: Alcohol related driver education, II: Alcohol information/education, III: Alcohol treatment clinics, IV: Diagnostic, evaluation, and mental health services, and V: Specialized programs) and the four drinker classifications (social drinkers, pre-problem drinkers, problem drinkers, and unidentified drinkers).

Two types of recidivism rates were calculated, one for comparing recidivism rates based on time of entry into the program (simple recidivism rates) and one for comparisons for the overall project independent of entry date (aggregated recidivism rate). The procedures for calculation of these two rates are as given below:

(1) Simple recidivism rates are derived by dividing the number of persons who became recidivists during a given quarter by the number of persons entering during that quarter. These rates, since they are based on quarter of entry, must be corrected for exposure.

(2) Aggregated recidivism rates are calculated as if everyone in the program entered during the same quarter. For instance, the aggregated recidivism rate for quarter 2 would be computed by dividing the number of persons recidivating during their second quarter of ASAP participation by the number of persons who were in the program for at least two quarters, independent of which quarter they entered. This index refers to the whole ASAP population, not just those entering at a specific time, and thus it is less likely to be affected by exposure.

Three separate analyses of recidivism were performed. First focusing on overall project impact, aggregate recidivism rates for defendants who were referred to treatment were compared with rates for those who were not referred. Next, in relation to individual modalities, simple recidivism rates for each of the five modalities were compared using persons who entered the program in quarter 8 and who thus had an equal amount of time in which they were exposed to recidivism. Finally, aggregated rates for each modality were compared controlling for drinker type and time period.

Overall Rehabilitative Impact

While no adequate control group exists for this project, the group of defendants who were, for any reason, not assigned to treatment were used as a quasi-control group. Since this group is significantly different from the referred population in terms of drinker type, this factor was controlled. The aggregated recidivism rate for these two groups appears in Table 23. A covariance analysis was employed, controlling for diagnosis and time period, and the groups were found to be different at the .01 level. Aggregated recidivism rates were higher for persons not referred to treatment. When drinker type and time period were entered into the analysis as main effects, a significant interaction was found between time period and referral status. As would be expected, problem drinkers had higher aggregate rates than social drinkers in both categories. These overall rates, graphically displayed in Figure 6, indicate the probability of recidivism across quarters subsequent to entry into ASAP. In general, not only are the referred vs. non-referred aggregate rates significantly different, but their distribution across time is different as well. While referred defendants began their stay in ASAP with a relatively low recidivism rate which increased with time, non-referred defendants began with a high recidivism rate which decreased with time until quarter 11, when it increased drastically. Thus, ASAP referral not only changes overall recidivism rates but also changes the sequence of recidivism. Simple rates were calculated for these same groups and comparisons were made using covariance analysis. The findings involving aggregated rates were substantiated with simple rates (see Table 24).

Next, simple recidivism rates for the various modalities were compared using only defendants who entered the program in quarter 8, thus minimizing exposure discrepancies (see Table 25). Overall Type II and III treatments showed the highest rate followed by Type I (referrals to Types IV and V were minimal). Aggregated rates were then calculated by treatment type and drinker type. These numerous rates appear in Appendix C. Similar analyses were performed using modality as the main effect and controlling for drinker type. There were no significant differences between types of treatment.

Table 23

Aggregated Recidivism by Drinker Type by Time Period

| Time Period | Enter | | | | Not Enter | | | |
|---|---|---|---|---|---|---|---|---|
| | SD | PPD | PD | UD | SD | PPD | PD | UD |
| 1 | 0.15 | 0.45 | 0.76 | 0.31 | 5.19 | 7.69 | 10.55 | 1.76 |
| 2 | 0.50 | 1.14 | 2.59 | 0.70 | 3.94 | 3.33 | 7.42 | 1.17 |
| 3 | 0.46 | 1.52 | 1.95 | 1.53 | 2.61 | 0.00 | 5.41 | 0.66 |
| 4 | 0.64 | 1.32 | 1.81 | 0.41 | 0.00 | 0.00 | 3.33 | 0.67 |
| 5-6 | 1.54 | 1.02 | 2.87 | 1.20 | 0.00 | 0.99 | 4.25 | 1.05 |
| 7-8 | 1.25 | 1.62 | 3.23 | 1.36 | 2.91 | 1.25 | 4.15 | 1.11 |
| 9-10 | 0.56 | 1.24 | 2.21 | 0.59 | 2.33 | 2.08 | 4.00 | 0.68 |
| 11-12 | 2.43 | 4.00 | 3.00 | 3.66 | 0.00 | 0.00 | 10.53 | 3.14 |

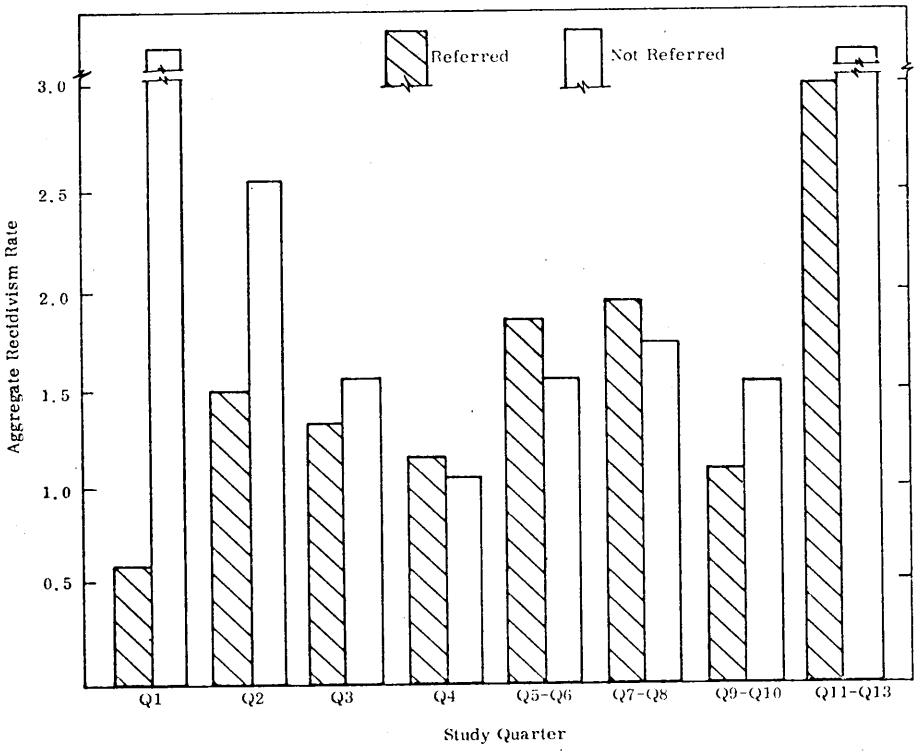


Figure 6. Aggregated recidivism rates across time.

Table 24

Simple Recidivism Rates by Drinker Type by Time Period

| Time Period | SD | PPD | PD | UD | SD | PPD | PD | UD |
|---|---|---|---|---|---|---|---|---|
| 1 | 36.4 | 66.7 | 75.0 | 10.1 | 8.4 | 24.7 | 24.8 | 11.6 |
| 2 | 9.1 | 21.4 | 59.1 | 13.7 | 9.0 | 18.3 | 24.0 | 7.7 |
| 3 | 25.0 | 0.0 | 45.9 | 8.9 | 7.4 | 12.2 | 28.0 | 9.1 |
| 4 | 22.2 | 14.3 | 44.0 | 8.4 | 6.6 | 9.0 | 17.8 | 3.6 |
| 5 | 20.0 | 12.5 | 39.6 | 7.0 | 3.9 | 11.8 | 14.6 | 7.6 |
| 6 | 18.8 | 12.5 | 35.9 | 8.2 | 2.4 | 4.2 | 11.5 | 6.9 |
| 7 | 7.7 | 10.0 | 37.2 | 7.9 | 3.4 | 4.5 | 10.3 | 6.0 |
| 8 | 27.3 | 27.3 | 17.4 | 6.6 | 4.5 | 2.5 | 5.0 | 5.6 |
| 9 | 8.3 | 11.1 | 33.3 | 5.3 | 1.8 | 4.4 | 4.4 | 5.9 |
| 10 | 0.0 | 15.4 | 20.0 | 5.0 | 3.2 | 1.8 | 5.8 | 5.0 |
| 11 | 0.0 | 5.6 | 2.6 | 3.3 | 2.2 | 3.9 | 5.2 | 6.1 |
| 12 | 0.0 | 5.3 | 18.5 | 6.4 | 0.0 | 2.0 | 4.5 | 3.8 |

Table 25

Simple Recidivism Rate by Modality For Defendants Entering in Quarter 8

Single Modalities

| Drinker Type | Not Referred | Dropped | No Show | Total | I | II | III | IV | V |
|---|---|---|---|---|---|---|---|---|---|
| Social Drinkers | 27.27 | 0.00 | 33.33 | 4.46 | 2.74 | 66.67 | - | 0 | 0 |
| Pre-Problem Drinkers | 27.27 | 0.00 | 0.00 | 2.54 | 0 | 7.14 | 0 | 0 | - |
| Problem Drinkers | 17.39 | 14.29 | 0.00 | 5.00 | 0 | 5.00 | 8.54 | 0 | 0 |
| Unidentified Drinkers | 6.60 | 0.00 | 25.00 | 5.63 | 7.14 | 0 | 16.67 | 0 | - |

Combinations

| | 1 & 2 | 1 & 3 | 3 & 5 | 1, 2 & 5 |
|---|---|---|---|---|
| Social Drinkers | 0 | 0 | 0 | 0 |
| Pre-Problem Drinkers | 1.64% | 0 | 0 | 100% |
| Problem Drinkers | 0 | 2.70% | 33% | 0 |
| Unidentified Drinkers | 0 | 0 | 0 | 0 |

Note: Recidivism rates for all other combinations into which referrals were made are zero.

## Knowledge

One of the most easily measured products of ASAP rehabilitation is that of increased knowledge. This section outlines the development, use, and results of knowledge testing utilized in the alcohol related driver education programs.

### Instrumentation

One of the major difficulties in assessing the effectiveness of the Driver Improvement Schools during the first year of ASAP operations was the lack of reliable and correctly collected data. This problem stemmed in part from a lack of thorough testing procedures. In an effort to institute a standardized testing program, a knowledge test was developed for use in the didactic modalities of the ASAP. This development and first refinement of the test are detailed in Analytic Study #6 for 1973. The newly refined test was instituted in 1974 and, based on students' scores, was additionally refined in 1975. The results of this item analysis and the latest version of the test appear in Appendix D.

### Results

Several comparisons of test scores were made, not only to determine if Driver Improvement School attendance resulted in increased knowledge of alcohol and its effects but also to compare the effectiveness of the various modalities. The different groups considered in this analysis include the Northern Virginia Community College Driver Improvement School (NVCC-DIS), the College Weekend Driver Improvement School (NVCC-WDIS), the Fairfax County High School Driver Improvement School (FCHS-DIS), the High School Weekend program (FCHS-WDIS), those persons attending the Fairfax Alcohol Continuing Education program (FACE) before attending DIS, and those persons taking the knowledge test who were recidivists.

The results of all intra-group comparisons appear in Table 26. Knowledge of alcohol, as measured by the new knowledge test, increased significantly between pre- and posttesting for all groups. Results of the comparison of the NVCC-DIS and FCHS-DIS, the two main submodalities within the regular DIS program, are shown in Table 27. Not only did the subjects attending the high school program begin the course with a higher level of knowledge, but they ended the course at a higher level as well. Also, the difference scores, if interpreted as measures of pre- to posttest learning, indicate that subjects in the high school program learned more than those in the college program.

Table 28 shows the results of the intergroup comparison of defendants attending the WDIS with those attending the regular eight-week program. WDIS defendants scored higher on the pretest than did the regular DIS participants (this difference is significant), which may be due to differential assignment, since defendants who are more aware of their drinking problem or who are more articulate are occasionally staffed to the WDIS. In addition, WDIS defendants, at least during the initial stages of the program, tended to be better educated. Subjects attending WDIS also scored significantly higher on the posttest than did regular DIS subjects. However, difference scores for regular DIS students were higher than those for WDIS participants, which indicates a higher degree of pre-post learning. This difference approaches significance.

Table 26

Pretest-Posttest Comparisons: DIS and Submodalities

| Treatment Groups | Number of Subjects | Average Pretest | Average Posttest | t Value | Significance |
|---|---|---|---|---|---|
| NVCC-DIS | 212 | 22.23 | 24.47 | 5.87 | p .001 |
| FCHS-DIS | 176 | 24.04 | 28.82 | 13.21 | p .001 |
| NVCC-WDIS | 17 | 25.11 | 27.41 | 3.62 | p .01 |
| FCHS-WDIS | 131 | 26.17 | 28.71 | 7.74 | p .001 |

Table 27

Intergroup Comparisons: NVCC-DIS vs. FCHS-DIS

| Treatment Groups | Number of Subjects | Average Pretest | Average Posttest | Average Difference |
|---|---|---|---|---|
| NVCC-DIS | 212 | 22.33 | 24.47 | 2.14 |
| FCHS-DIS | 176 | 24.04 | 28.82 | 4.78 |
| t-Value | | 2.97 | 6.86 | 5.09 |
| Significance | | p < .01 | p < .001 | p < .001 |

Table 28

Intergroup Comparisons: All DIS vs. All WDIS

| Treatment Groups | Number of Subjects | Average Pretest | Average Posttest | Average Difference |
|---|---|---|---|---|
| DIS | 388 | 23.11 | 26.45 | 3.34 |
| WDIS | 148 | 26.05 | 28.56 | 2.51 |
| t-Value | | 5.64 | 3.71 | 1.76 |
| Significance | | p < .001 | p < .001 | p < .08 |

Tables 29 and 30 compare the NVCC-DIS and FCHS-DIS with their corresponding weekend programs (the small sample of NVCC-WDIS students may affect the reliability of results involving this modality). Both comparisons show significant or near significant differences in pretest scores and no significant difference in posttest scores, which indicates that while WDIS subjects enter the course knowing more about alcohol, they are trained to the same level as regular DIS students by the end of the course.

Table 31 compares the high school and college weekend programs in terms of knowledge test scores. There were no significant differences between the two programs.

Table 29

Intergroup Comparisons: FCHS-DIS vs. FCHS-WDIS

| Treatment Groups | Number of Subjects | Average Pretest | Average Posttest | Average Difference |
|---|---|---|---|---|
| FCHS-DIS | 176 | 24.04 | 28.82 | 4.78 |
| FCHS-WDIS | 131 | 26.17 | 28.71 | 2.54 |
| t-Value | | 3.89 | 0.21 | 4.43 |
| Significance | | $p<.001$ | N.S. | $p<.001$ |

Table 30

Intergroup Comparisons: NVCC-DIS vs. NVCC-WDIS

| Treatment Groups | Number of Subjects | Average Pretest | Average Posttest | Average Difference |
|---|---|---|---|---|
| NVCC-DIS | 212 | 22.33 | 24.47 | 2.14 |
| NVCC-WDIS | 17 | 25.11 | 27.41 | 2.29 |
| t-Value | | 1.81 | 1.74 | 0.12 |
| Significance | | N.S. ($p < .08$) | N.S. | N.S. |

Table 31

Intergroup Comparisons: FCHS-WDIS vs. NVCC-WDIS

| Treatment Groups | Number of Subjects | Average Pretest | Average Posttest | Average Difference |
|---|---|---|---|---|
| FCHS-WDIS | 131 | 26.17 | 28.71 | 2.54 |
| NVCC-WDIS | 17 | 25.11 | 27.41 | 2.29 |
| t-Value | | 0.90 | 1.43 | 0.26 |
| Significance | | N.S. | N.S. | N.S. |

Table 32 illustrates the difference which would be expected as a result of attending the FACE program before attending the Driver Improvement School. Persons having attended FACE do enter the DIS knowing more than those who have not attended a didactic modality. The average posttest for double staffed defendants was also higher (this difference approaches significance); however, the pre/post difference, indicating amount learned, was not significant. Another interesting finding concerning the FACE program is illustrated in Table 33. Both pretest and posttest scores for those defendants who dropped out of the FACE program were significantly higher than those who completed the program, probably because defendants who do not complete a program often are reassigned at a later date. If this supposition is true, then it seems that defendants can benefit from reattendance in the FACE program.

Finally, knowledge test scores for recidivists and non-recidivists are compared in Table 34. As was the case in 1973, there were very few recidivists scores available in 1974. However, there were no significant differences in pretest score, posttest score, or pretest/posttest difference between recidivists and non-recidivists.

Table 32

Intergroup Comparisons: DIS/FACE vs. DIS

| Treatment Group | Number of Subjects | Average Pretest | Average Posttest | Average Difference |
|---|---|---|---|---|
| DIS/FACE | 146 | 24.73 | 27.81 | 3.08 |
| DIS Alone | 390 | 23.61 | 26.74 | 3.12 |
| t-Value | | 2.09 | 1.87 | 0.09 |
| Significance | | $p<.05$ ($p<.07$) | N.S. | N.S. |

Table 33

Intergroup Comparisons: FACE Completed vs. FACE Dropped

| Group | Number of Subjects | Average Pretest | Average Posttest | Average Difference |
|---|---|---|---|---|
| Dropped | 35 | 27.89 | 30.43 | 2.54 |
| Completed | 111 | 23.74 | 26.99 | 3.25 |
| t-Value | | 4.23 | 2.88 | 0.82 |
| Significance | | $p<.001$ | $p<.01$ | N.S. |

Table 34

Intergroup Comparisons: Recidivists vs. Non-Recidivists

| Group | Number of Subjects | Average Pretest | Average Posttest | Average Difference |
|---|---|---|---|---|
| Recidivists | 12 | 25.00 | 28.00 | 3.00 |
| Non-Recidivists | 524 | 23.89 | 27.01 | 3.11 |
| t-Value | | 0.68 | 0.57 | 0.08 |
| Significance | | N.S. | N.S. | N.S. |

In summary, while the various types of Driver Improvement School effected a significant increase in knowledge in 1974, as measured by the test involved, the Fairfax County High School program effected a significantly greater increase than did the Community College program. While students attending the Weekend Driver

Improvement School began the course with a higher level of alcohol knowledge, they did not learn significantly more during the course than did regular DIS students. In fact, students in the eight-week program seem to have made greater gains in knowledge.

In relation to groups outside the DIS system, those defendants having previously attended the FACE program entered the DIS at a significantly higher level of knowledge. Posttest scores were also higher for this group. However, persons attending DIS after FACE did not make greater gains in knowledge than did students attending DIS alone.

Finally, it was discovered that recidivists and non-recidivists did not differ in terms of their test scores. This finding, however, is based on a very small sample and may be unreliable.

## CATALYTIC EFFECTS

There were three major areas of catalytic effects concerning diagnosis, referral, and rehabilitation during 1974. These were:

1. By creating a need for treatment facilities, the ASAP indirectly increased the number of available programs, as evidenced in Appendix A. This rapid growth extended not only to the number of treatment alternatives, but also to the sophistication of the various programs. This increase in complexity of treatment must also have complicated the referral process, and thus involving probationary services.

2. Negotiations were under way during 1974 to make Probation Services a part of the Fairfax County Judicial System. This has been accomplished, making the ASAP diagnosis and referral system a permanent part of local government.

3. The Fairfax concept of diagnosis, referral, probation and, in part, rehabilitation have been proliferated in the creation of the local Virginia Alcohol Safety Action Projects (VASAPS). The various regions attempting to establish a VASAP have used Fairfax as a model. In order to establish VASAPs statewide, a change in Virginia law was required. During the 1974 session of the General Assembly, House Resolution Number 16 instructed the House Committee on Health, Welfare, and Institutions to undertake a study to determine the impact of alcohol on the current Motor Vehicle Code and recommend any changes that should be made. As a result, House Bill 1688 was drafted by the Office of the Attorney General. It, in effect, would make it legally permissible for any jurisdiction in the state to undertake an ASAP program at its own discretion under standards to be developed by the State Highway Safety Division. To pay for this program, a fee of $150.00 was to be collected from each defendant entering the program. This fee, to be collected by the State Treasury and disbursed by the Highway Safety Division, would support the local jurisdictional programs.

# APPENDIX A

## REHABILITATION SUBPROGRAMS

Program 1: Alcohol Related Driver Education

10 — DIS, NVCC
20 — DIS, Fairfax County
30 — DIS, Weekend
40 — Virginia Traffic School (ASAP)
45 — Virginia Traffic School (Non-ASAP)
50 — Maryland DWI School (ASAP)
55 — Maryland DWI School (Non-ASAP)
65 — DC Traffic School (Non-ASAP)
70 — Other DWI School (ASAP)
75 — Other DWI School (Non-ASAP)

Program 2: Alcohol Education/Information

10 — FACE
11 — FACE, Specialized
20 — Headway
21 — ADCO
31 — Keystone
32 — Washington Hospital Center
33 — Silver Spring Day Treatment Center
40 — Fairfax DAS Clinic
41 — Arlington DAS Clinic
42 — Alexandria DAS Clinic
49 — Other Virginia DAS Clinics
50 — Prince Georges County Alcohol Clinic
51 — Montgomery County Alcohol Clinic
59 — Other Maryland Clinics
70 — Other Programs (ASAP)
75 — Other Programs (Non-ASAP)

Program 3: Alcohol Treatment Clinics

20 — Headway, Fort Meyer
21 — ADCO, Fort Belvoir
29 — Other Military
32 — Washington Hospital Center
33 — Silver Spring Day Treatment Center
40 — Fairfax DAS

Appendix A Continued

Program 3: (Continued)

41 — Arlington DAS
42 — Alexandria DAS
49 — Other Virginia DAS
50 — Prince Georges County Alcohol Clinic
51 — Montgomery County Alcohol Clinic
59 — Other Maryland Clinics
60 — Alexandria Center for Alcoholism
61 — Washington, D. C. Alcohol Clinic
70 — Other Alcohol Clinics (ASAP)
75 — Other Alcohol Clinics (Non-ASAP)

Program 4: Diagnostic, Evaluation and Mental Health Services

10 — D & E, postintake, group
11 — D & E, postintake, individual
20 — D & E, reevaluation, group
21 — D & E, reevaluation, individual
30 — D & E, individual treatment
40 — D & E, treatment group
41 — D & E, women's group
50 — Woodburn Center, Fairfax
51 — Mt. Vernon Unit
52 — So. County Unit
53 — Reston Unit
54 — Other Woodburn/Fairfax County Unit
61 — Arlington MHC
62 — Alexandria MHC
69 — Other Virginia State MHC (Public)
70 — No. Virginia Family Services
71 — No. Virginia Center
72 — No. Virginia Clinic
73 — Pastoral Counseling
79 — Other Virginia MHC
80 — No. Virginia Institute
81 — Virginia State Hospital
85 — Other Hospital
88 — Private Psychiatrist
89 — Private Counsellor/Therapist
90 — Out of area referral (ASAP)
95 — Out of area referral (Non-ASAP)
96 — Individual interview - PO, Diagnostic
97 — Individual interview - PO, Maintenance
99 — Other miscellaneous

Program 5: Specialized Programs

10 — PMT
20 — Other Experimental
21 — Crossroads (Fairfax)
22 — Second Genesis (Alexandria)
29 — Other Outpatient Drug Program
30 — Crossroads, Inpatient
31 — Prelude, Inpatient
32 — Second Genesis, Inpatient
39 — Other Inpatient Drug Program
40 — Fairfax Hospital DETOX
41 — Arlington Hospital DETOX
42 — Alexandria Hospital ATU
43 — Washington Hospital Center ATU
45 — N Street DETOX Center
46 — DC General ATU
47 — Military ATU/DETOX
49 — Other Inpatient DETOX
50 — Fairfax County Halfway House
51 — ARI, Inc.
52 — Men's Home
53 — Women's Home
54 — St. Elizabeth's
55 — Melwood Farms
56 — Seneca House
57 — Arlington Hospital, postpatient program
59 — Other Aftercare
60 — AA
70 — Vocational Rehabilitation
71 — Social Services - Aid
72 — Social Services - Investigation
73 — Public Health Nurse - Aid
74 — Public Health Nurse - Investigation
80 — FISH
81 — ACCA
86 — OAR, Offender Aid and Restoration
87 — Virginia: probation & parole
88 — J&DR - investigation
90 — Hold initial referral, non-evaluative
91 — Hold-pending programs, periodic reporting
92 — Hold-programs completed, periodic reporting
99 — Other miscellaneous specialized programs

# APPENDIX B

## SUMMARY TABLE OF DISCRIMINANT ANALYSIS OF DRINKER DIAGNOSIS

| STEP NUMBER | VARIABLE ENTERED | VARIABLE REMOVED | F TO ENTER OR REMOVE | NUMBER INCLUDED | WILK'S LAMBDA |
|---|---|---|---|---|---|
| 1 | BAC | | 7.73274 | 1 | .94870 |
| 2 | EDUC | | 7.20159 | 2 | .90311 |
| 3 | ARSTDAY | | 4.14648 | 3 | .87755 |
| 4 | RACE | | 1.44931 | 4 | .86868 |
| 5 | SPEED1 | | 1.14976 | 5 | .86169 |
| 6 | RECK1 | | 1.54506 | 6 | .85237 |
| 7 | CARE | | 1.12468 | 7 | .84562 |
| 8 | REVO1 | | 1.09422 | 8 | .83910 |
| 9 | ACCID1 | | .92788 | 9 | .83358 |
| 10 | NOTRAF1 | | .93607 | 10 | .82805 |
| 11 | MARITAL | | .78271 | 11 | .82343 |
| 12 | DEPEND | | .54968 | 12 | .82020 |
| 13 | SUSP1 | | .51369 | 13 | .81718 |
| 14 | SEX | | .42386 | 14 | .81469 |
| 15 | DWI1 | | .39106 | 15 | .81239 |
| 16 | MINOR1 | | .29774 | 16 | .81239 |
| 17 | ARSTIME | | .29774 | 16 | .81064 |
| 18 | OCCUP | | .14944 | 17 | .80883 |
| 19 | DRIWO1 | | .08586 | 19 | .80744 |
| 20 | INCOME | | .02558 | 20 | .80729 |

## CLASSIFICATION FUNCTION COEFFICIENTS

| | GROUP 1 | GROUP 2 | GROUP 3 | GROUP 5 |
|---|---|---|---|---|
| RACE | 8.7925 | 8.2882 | 8.5614 | 9.4354 |
| SEX | 19.159 | 19.637 | 19.305 | 19.915 |
| ARSTIME | .13374 | .13919 | .14687 | .13250 |
| ARSTDAY | .71609 | .89059 | .91591 | .78095 |
| BAC | .90484E-01 | .13770 | .17032 | .15005 |
| EDUC | 1.1404 | .86604 | .83616 | .90896 |
| OCCUP | 1.0643 | 1.0989 | 1.0993 | 1.1462 |
| MARITAL | 1.0847 | .96448 | .99662 | 1.1642 |
| DEPEND | .43981 | .45987 | .42007 | .47266 |
| INCOME | .24867 | .24746 | .24848 | .25491 |
| CARE | 3.3442 | 3.2900 | 3.1973 | 3.2430 |
| SUSP1 | .66376 | .74042 | .80052 | .43578 |
| REVO1 | -2.7371 | -2.8119 | -2.3592 | -2.8597 |
| DWI1 | 1.1307 | 1.5934 | 1.5263 | 1.9345 |
| RECK1 | 1.2046 | 1.1910 | 1.5550 | 1.6962 |
| SPEED1 | .86662 | .95212 | .63008 | .67002 |
| ACCID1 | .84909 | 1.0117 | .73764 | .53445 |
| NOTRAF1 | -.20127 | -.62475E-01 | .16706E-01 | .76091E-01 |
| MINOR1 | 1.1990 | 1.2892 | 1.3986 | 1.2641 |
| DRIWO1 | -.64676 | -.56080 | -.59308 | -.95277 |
| CONSTANT | -40.472 | -40.497 | -40.061 | -42.108 |

Appendix B Continued

SUMMARY TABLE OF DISCRIMINANT ANALYSIS OF REFERRALS

| STEP NUMBER | VARIABLE ENTERED | REMOVED | F TO ENTER OR REMOVE | NUMBER INCLUDED | WILK'S LAMBDA |
|---|---|---|---|---|---|
| 1 | LEVEL | | 47.27441 | 1 | .68852 |
| 2 | SEX | | 3.40297 | 2 | .66676 |
| 3 | EDUC | | 2.87816 | 3 | .64880 |
| 4 | BAC | | 2.26389 | 4 | .63495 |
| 5 | CARE | | 2.23710 | 5 | .62151 |
| 6 | REVO1 | | 2.23298 | 6 | .60836 |
| 7 | ARSTIME | | 1.78361 | 7 | .59800 |
| 8 | OCCUP | | 1.88520 | 8 | .58723 |
| 9 | DEPEND | | 1.95957 | 9 | .57621 |
| 10 | ACCID1 | | 1.49313 | 10 | .56792 |
| 11 | NOTRAF1 | | 1.61071 | 11 | .55909 |
| 12 | SUSP1 | | 1.47690 | 12 | .55109 |
| 13 | MARITAL | | 1.15992 | 13 | .54486 |
| 14 | RACE | | 1.11103 | 14 | .53895 |
| 15 | MINOR1 | | 1.08163 | 15 | .53324 |
| 16 | DWI1 | | .91715 | 16 | .52843 |
| 17 | ARSTDAY | | 1.01843 | 17 | .52313 |
| 18 | INCOME | | .99618 | 18 | .51798 |
| 19 | RECK1 | | .90571 | 19 | .51333 |
| 20 | SPEED1 | | .87771 | 20 | .50885 |
| 21 | DRIWO1 | | .34596 | 21 | .50709 |

CLASSIFICATION FUNCTION COEFFICIENTS

| | GROUP 1 | GROUP 2 | GROUP 3 | GROUP 4 | GROUP 5 |
|---|---|---|---|---|---|
| RACE | 8.4109 | 8.0501 | 8.1533 | 7.5872 | 9.5382 |
| SEX | 19.124 | 17.805 | 17.681 | 19.380 | 19.586 |
| ARSTIME | .13938 | .13322 | .16590 | .15978 | .10333 |
| BAC | .65877E-01 | .91743E-01 | .12390 | .11066 | .18766 |
| EDUC | 1.2003 | 1.1391 | 1.0052 | .95606 | 1.2201 |
| OCCUP | .90752 | 1.0055 | 1.1413 | 1.0690 | .59297 |
| MARITAL | .93326 | 1.0241 | 1.1527 | 1.2010 | 1.3212 |
| DEPEND | 153123 | .45177 | .36981 | .39008 | .60241 |
| INCOME | .24929 | .22655 | .21663 | .20156 | .20969 |
| CARE | 3.4527 | 3.2921 | 3.1360 | 3.2842 | 3.1673 |
| LEVEL | 2.2446 | 3.8725 | 5.0892 | 4.3567 | 4.1537 |
| SUSP1 | 1.0719 | .48220 | .39367 | .44231 | -.41828 |
| REVO1 | -3.1712 | -2.1341 | -1.2167 | -1.4724 | .39512 |
| DWI1 | 1.0516 | 1.0380 | -.15027 | .50979 | 1.1769 |
| RECK1 | .89912 | .78450 | 1.3234 | .89818 | 1.2755 |
| SPEED1 | .96541 | 1.1016 | .89061 | 1.0412 | .50641 |
| ACCID1 | .85631 | 1.2065 | 1.1944 | .66695 | 1.4951 |
| NOTRAF1 | -.19342 | -.24318 | -.39200 | -.85657E-01 | -.65835 |
| MINOR1 | 1.0664 | 1.0795 | .70138 | .99451 | 1.8632 |

# APPENDIX C

## AGGREGATE RECIDIVIST RATES BY DRINKER TYPE AND MODALITY

### # 1 DIS

| Time Period | SD | PPD | PD | UD | Total |
|---|---|---|---|---|---|
| 1 | .0006 | .0054 | .0094 | .0000 | .0014 |
| 2 | .0024 | .0256 | .0741 | .0000 | .0078 |
| 3 | .0037 | .0221 | .0204 | .0076 | .0060 |
| 4 | .0083 | .0087 | .0435 | .0081 | .0100 |
| 5-6 | .0146 | .0000 | .0506 | .0000 | .0143 |
| 7-8 | .0095 | .0250 | .0536 | .0217 | .0126 |
| 9-10 | .0062 | .0179 | .0938 | .0149 | .0098 |

### # 2 FACE

| Time Period | SD | PPD | PD | UD | Total |
|---|---|---|---|---|---|
| 1 | .0082 | .0130 | .0066 | .0000 | .0074 |
| 2 | .005 | .0400 | .0599 | .0294 | .0410 |
| 3 | .0258 | .0000 | .0403 | .0172 | .0278 |
| 4 | .0135 | .0145 | .0235 | .0000 | .0160 |
| 5-6 | .0143 | .0339 | .0388 | .0196 | .0246 |
| 7-8 | .0098 | .0755 | .0330 | .0000 | .0223 |
| 9-10 | .0000 | .0000 | .0233 | .0000 | .0068 |
| 11-12 | .0374 | .0769 | .0169 | .0000 | .0308 |

### # 3 AC

| Time Period | SD | PPD | UD | PD | Total |
|---|---|---|---|---|---|
| 1 | .0000 | .0000 | .0115 | .0101 | .0101 |
| 2 | .0000 | .0000 | .0234 | .0260 | .0212 |
| 3 | .0000 | .0294 | .0231 | .0143 | .0225 |
| 4 | .0000 | .0392 | .0224 | .0154 | .0228 |
| 5-6 | .0000 | .0000 | .0345 | .0192 | .0296 |
| 7-8 | .2000 | .0303 | .0421 | .0278 | .0418 |
| 9-10 | .0000 | .0000 | .0064 | .0000 | .0050 |
| 11-12 | .0000 | .0000 | .0323 | .1429 | .0370 |

# 4

| Period Time | SD | PPD | PD | UD | Total |
|---|---|---|---|---|---|
| 1 | | | .0455 | .0204 | .0196 |
| 2 | | | | .0233 | .0122 |
| 3 | .1429 | | .0667 | .0526 | .0580 |
| 4 | | | | .0000 | .0000 |
| 5-6 | | | | .0323 | .0213 |
| 7-8 | | | | .0000 | .0000 |
| 9-10 | | | | .0000 | .0000 |
| 11-12 | | | | .1111 | .0909 |

ALCOHOL AND DRIVING
DRIVER IMPROVEMENT SCHOOLS

(1) The number of persons killed in the United States last year in traffic accidents was approximately

a. 55,000
b. one-half of the total number of America's war deaths
c. 75,000
d. 35,000

(2) Compared to crashes not involving alcohol, those involving alcohol tend to be

a. More severe for all drivers
b. More severe for young drivers only
c. About the same severity for all drivers
d. Less severe for older drivers

(3) In the State of Virginia, driving while under the influence of alcoholic beverages occurs when the blood alcohol level reaches

a. 0.05%
b. 0.08%
c. 0.10%
d. 0.15%

(4) Approximately what percentage of adults in the United States drink alcoholic beverages?

a. 50%
b. 70%
c. 30%
d. 95%

(5) Not all drivers can be classified as excessive drinkers. What percentage best represents the excessive or problem drinker?

a. 10%
b. 40%
c. 5%
d. 70%

(6) The only "cure" for alcoholism is:

a. Psychoanalysis
b. Careful moderation in drinking
c. ASAP Rehabilitation
d. Total abstinence

(7) What temporary visual condition can occur from drinking alcohol?

a. Reduced side vision
b. Blurred vision
c. Double vision
d. All of the above

(8) When alcohol is consumed and absorbed faster than it is burned up, its effects will

a. Decrease
b. Accumulate
c. Be of shorter duration
d. All of these

(9) A person suffering from alcoholism is

a. Usually intoxicated
b. Unable to control how much he drinks
c. Unable to control his bodily functions
d. Both A and B

(10) Although impairment sometimes begins earlier, most experts now agree that all drivers possess impaired ability when the blood alcohol concentration reaches

a. .03%
b. .05%
c. .08%
d. .09%

(11) Most problem drinkers

a. Are accepted members of the community
b. Have other personal problems
c. Have often been arrested for non-alcohol related offenses
d. Have been institutionalized at least once

(12) Alcohol, when used medicinally, is able to

a. Prevent colds
b. Prevent traumatic shock
c. Kill bacteria in the digestive tract
d. None of the above

(13) Which statement is most accurate concerning the effect of moderate amounts of alcohol on vision?

a. Vision is slightly improved
b. Vision worsens, especially in bright sunlight
c. There is no significant effect upon vision
d. Vision worsens, particularly at night

(14) If a person were to drink equal quantities of each of the following, which one would cause him to become "high" fastest?

a. Wine
b. Beer
c. Whiskey
d. All of the above are about the same

(15) In the past, the general public has

a. Tolerated the drinking driver
b. Insisted on severe and unusual punishment
c. Considered the drinking driver to be an alcoholic
d. Thought drinking drivers to be drug abusers

(16) Which of the following reverses the effects of alcoholic beverages?

a. Vitamin C
b. Black coffee
c. Cold showers
d. None of these

(17) The most important factor in determining the effects of alcohol on the body is

a. The alcohol level in the blood stream
b. Whether the person is drinking beer or mixed drinks
c. The ability of the person to handle alcohol
d. The amount of food in the stomach

(18) Which of the following body systems is first impaired by alcohol?

a. Digestive system
b. Nervous system
c. Respiratory system
d. Circulatory system

(19) Young drinkers are more likely to be involved in traffic accidents after drinking alcoholic beverages because

a. They are less aware of the effects of alcohol
b. They lack experience in driving
c. They lack experience in drinking
d. Both b and c

(20) Which one of the following characteristics affects blood alcohol concentration least?

a. Body weight
b. Contents of the stomach
c. Drinking experience
d. Amount of alcohol consumed

(21) Which of the following best describes the effects of alcohol on driver performance?

a. Causes blind spots
b. Reduces tactile sensation
c. Increases attention span
d. Lowers bodily efficiency

(22) Excessive or heavy drinking will affect which one of the following more than the others?

a. Tactile sensation
b. Ability to make decisions
c. Judgment of time
d. Brightness discriminations

(23) Alcohol is classified as

a. A stimulant
b. A depressant
c. A high energy food
d. Both a and c

(24) Would you expect that more fatal accidents are caused by the many social drinkers or by the small number of problem drinkers?

a. Social drinkers cause more fatalities
b. Problem drinkers cause more fatalities
c. Social and problem drinkers cause about the same number
d. Non-drinkers cause more

(25) Which of the following is of most value in determining how drunk a driver is?

a. Erratic driving behavior
b. Test of coordination (such as walking a straight line)
c. Breath test
d. Combination of a and b

(26) What is the chief danger after one drink?

a. Reaction time would be doubled
b. The driver would be more drowsy
c. The inhibition against further drinking is reduced
d. Visual acuity would be reduced

(27) In which of the following situations are effects of alcohol most dangerous?

a. During unexpected emergencies
b. While parking your car
c. When you are speeding
d. While you are driving at night

(28) As far as dietary needs are concerned, alcohol

a. Satisfies no nutritional or food requirements
b. Is high in protein
c. Is a quick energy food
d. Is more nutritious than many "fast" foods

(29) The most commonly used type of test for blood alcohol concentration is the

a. Urinary test
b. Blood test
c. Breath test
d. Both b and c

(30) On the average, about how long does it take for alcohol in the blood to reach a peak after you have downed a drink?

a. 2 minutes
b. 60 minutes
c. 30 minutes
d. 90 minutes

(31) Implied Consent means that when a driver applies for a driver's license, he

a. Implies that he is aware of the penalties for drunken driving
b. Consents to take the road and written tests when required
c. Consents to take a chemical test if suspected of driving while drunk
d. Implies that he will not drink and drive

(32) Which of the following contains the most alcohol?

a. One 12 ounce can of beer
b. One 3 ounce glass of wine
c. A one ounce glass of whiskey
d. All contain the same amount

(33) In order to reach the presumptive limit (.10% in most states), how many 12 ounce beers would a person weighing 160 lbs. have to drink in a 1 hour period?

a. 5-6 drinks
b. 1-2 drinks
c. 7-8 drinks
d. 3-4 drinks

(34) Alcohol has the same properties as:

a. A stimulant
b. A vitamin supplement
c. A depressant
d. An antibiotic

(35) The time it takes the body of the average person to get rid of the alcohol found in two bottles of beer (each 12 ounces) is approximately

a. 9 hours
b. 6 hours
c. 2 hours
d. 30 minutes

(36) Drinking of alcoholic beverages

a. Is natural in most animals, including man
b. Cannot be learned without some genetic tendencies
c. Is an inherited tendency
d. Is learned behavior

Appendix D Continued

SUMMARY OF RESULTS OF THE ITEM ANALYSIS OF THE DIS ALCOHOL KNOWLEDGE TEST

| Item | Difficulty Index | Discrimination Index | PHI Coefficient | T Value |
|---|---|---|---|---|
| 1 | .763 | .293 | .285 | 6.89 |
| 2 | .745 | .319 | .314 | 7.64 |
| 3 | .800 | .284 | .413 | 10.47 |
| 4 | .464 | .143 | .076 | 1.76* |
| 5 | .564 | .528 | .445 | 11.48 |
| 6 | .756 | .335 | .483 | 12.76 |
| 7 | .778 | .238 | .304 | 7.38 |
| 8 | .727 | .409 | .610 | 17.77 |
| 9 | .401 | .504 | .382 | 9.54 |
| 10 | .653 | .441 | .396 | 9.98 |
| 11 | .580 | .331 | .229 | 5.43 |
| 12 | .713 | .336 | .412 | 10.46 |
| 13 | .722 | .323 | .460 | 11.97 |
| 14 | .584 | .388 | .400 | 10.08 |
| 15 | .625 | .515 | .510 | 13.69 |
| 16 | .817 | .258 | .545 | 15.02 |
| 17 | .768 | .301 | .514 | 13.85 |
| 18 | .619 | .493 | .465 | 12.14 |
| 19 | .693 | .319 | .318 | 7.75 |
| 20 | .491 | .717 | .679 | 21.36 |
| 21 | .625 | .437 | .449 | 11.61 |
| 22 | .735 | .303 | .314 | 7.63 |
| 23 | .705 | .427 | .536 | 14.68 |
| 24 | .411 | .364 | .248 | 5.90 |
| 25 | .847 | .199 | .298 | 7.22 |
| 26 | .505 | .712 | .619 | 18.22 |
| 27 | .665 | .407 | .390 | 9.79 |
| 28 | .379 | .459 | .385 | 9.63 |
| 29 | .597 | .369 | .369 | 9.17 |
| 30 | .487 | .503 | .452 | 11.73 |
| 31 | .620 | .444 | .368 | 9.13 |
| 32 | .771 | .280 | .400 | 10.09 |
| 33 | -.062 | -.018 | .028 | 0.65* |
| 34 | .098 | .062 | .007 | 0.17* |
| 35 | .641 | .539 | .639 | 19.22 |
| 36 | .691 | .368 | .381 | 9.52 |
| 37 | .680 | .481 | .638 | 19.15 |

* t values not significant