

**ASSESSMENT AND TREATMENT  
OF DWI OFFENDERS  
IN MARYLAND, 1995-2003:**  
*Current Findings*

FINAL REPORT  
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***Submitted to:***

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Clarification: Regarding the second sentence on page 33: This study involved people who were assessed and entered treatment after being arrested for driving while impaired; the researchers did not have access to information about who was mandated for treatment. This is the first step toward future research that can be done on both those who were and were not mandated for treatment.

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# ASSESSMENT AND TREATMENT OF DWI OFFENDERS IN MARYLAND 1995-2003: CURRENT FINDINGS

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## *A. Introduction*

Driving while impaired (DWI) remains one of the most pressing public health issues in the United States, accounting for more than 17,000 deaths annually. Not only is DWI associated with significant economic costs, it affects every segment of society in terms of injury, loss of life, and emotional suffering. Thus, it is of considerable importance to determine effective methods of both preventing drunk driving and reducing re-assessment for DWI offenses. While considerable attention has been focused on criminal justice sanctions to reduce DWI offenses and recidivism, the data on treatment effectiveness for DWI offenders are surprisingly limited and incomplete. The scientific literature is replete with studies demonstrating the effectiveness of substance abuse treatment. Maryland's evaluation of drug treatment showed that treatment completion was associated with an increased likelihood of employment and a reduction in the chance of arrest. Moreover, few studies have been conducted that investigate the enforcement of policies regarding mandatory assignment to treatment programs for DWI offenders.

This study of the DWI assessment and treatment process in Maryland aimed to fill these critical gaps in our knowledge with respect to DWI offender characteristics, their placement into treatment, and, finally, factors that predict re-assessment. In Maryland, the current COMAR regulations (Section 11.17.08.04.B) state that "regardless of the number of alcohol incidents, if, as the result of investigation, pre-reinstatement conference or alcohol assessment, an applicant is determined to have alcoholism or a drinking problem that has not been addressed, the Administration (the Motor Vehicle Administration) may require evidence of at least 6 months of satisfactory current participation in a certified alcohol treatment program." Offenders are assessed by a state-approved agency resulting in a recommendation as to the type of intervention

that the DWI offender should receive. This recommendation is called a “problem determination.” DWI offenders are categorized by the assessment as either “social drinkers” or “problem drinkers.” Although information could not be located as to what constitutes the distinction between “problem” and “social” drinkers, our anecdotal evidence suggested that a problem drinker determination on this assessment was what was referred to in the COMAR regulations stated above. Moreover, individuals receiving the “social drinker determination” typically are referred to an approved alcohol education program where they should receive six weekly two-hour educational sessions.

Anecdotal evidence gathered before this project began suggested that the process by which DWI arrestees are assessed for treatment varied widely in Maryland, with some assessment centers using standardized criteria while others were more brief and unstructured. Moreover, it was reported anecdotally that many DWI offenders fell through the cracks and did not receive appropriate services to address a potential substance abuse problem. It was unclear how many entered treatment services, even given a problem drinker determination.

Maryland is unique with respect to having advanced statewide data collection systems to monitor the assessment and treatment process to make this sort of research possible. This study linked two statewide databases, both of which have been ongoing since the early 1990s and are maintained by the Alcohol and Drug Abuse Administration. The first, the *Maryland DWI Assessment Database*, contains a record on DWI arrests that have been court-referred for an assessment to determine treatment eligibility. This statewide database includes pertinent information on the offender’s history and treatment placement recommendation. The second, the *Maryland Substance Abuse Management Information System (SAMIS)* database, contains a record of all admissions and discharges within all certified alcohol and drug treatment programs, both public and private. By merging these

two separate electronic statewide databases for the period of 1995 to 2003, analyses were conducted that focused on assessment and subsequent treatment experiences of 78,336 adult DWI offenders during this time period.

Merging these two databases also allowed us to investigate what proportion of DWI offenders, given both problem and social drinker determinations, were re-assessed. It was decided that analyses on re-assessment would be conducted on a subset of individuals who were assessed during the time period of 1995 to 1999. In this way, a long enough window of opportunity for being re-assessed was allowed. Therefore, assessment records of all individuals who had an original assessment during 1995 to 1999 were merged with all available treatment records (from the SAMIS database). We then compared the proportion of DWI offenders assessed as problem drinkers who did and did not enter treatment on whether or not they were eventually re-assessed. Merging these two separate electronic statewide databases created a datafile containing 50,089 DWI offenders. Multiple logistic regression models were developed to estimate the impact of treatment entry on re-assessment, holding constant demographic characteristics and blood alcohol concentration (BAC).

In summary, the overarching goal of the study was to gain a better understanding of the process by which DWI offenders move through Maryland's system, from arrest to assessment to entry into treatment, and the factors that predicted re-assessment. It was also of specific interest to understand how problem drinkers and social drinkers differ with respect to demographic variables and BAC to assess whether the distinction is meaningful. Third, the study allowed for estimation of the number of individuals assessed as problem drinkers who fall through the cracks and do not receive treatment services. Lastly, the study aimed to assess the effectiveness of treatment in reducing the

likelihood of being re-assessed. Re-assessment is used as a proxy in this study for re-arrest; the estimates of re-assessments underestimate the number of re-arrests. By understanding the current system, it is now possible to make recommendations for improvement to reduce the overall burden of drunk driving.

### **Research Questions**

**The questions answered in this study fall under the following three policy-relevant areas:**

- 1) *Assessment Process of DWI Offenders:* How does the assessment process vary from the perspective of personnel working at assessment centers in Maryland? What factors (e.g., BAC at arrest, alcohol problem severity, repeat-offense status of DWI arrestees, and/or demographic characteristics) predict problem determination (i.e., social vs. problem drinker)? To what degree does problem determination vary by county, or by public vs. privately funded assessment centers? How has the proportion of individuals who are classified as problem drinkers changed throughout time?
- 2) *The Process of Entering Alcohol Treatment among DWI Offenders:* What proportion of DWI offenders classified as problem drinkers actually enter treatment from those who were assigned to treatment? Do individuals who enter treatment differ from those who do not enter treatment on BAC, county, and/or demographic characteristics? How has the proportion of DWI offenders who enter treatment changed throughout time?
- 3) *DWI Re-assessment among DWI Offenders:* Does treatment reduce the likelihood of DWI re-assessment? What other factors, such as higher BACs at arrest, other drug problems, and demographic characteristics, predict



DWI re-assessment? How has the frequency of re-assessment changed throughout time?

## ***B. Background***

### **1. The Prevalence and Consequences of Driving While Impaired:**

Driving while impaired (DWI) is associated with enormous societal costs, both in terms of physical injuries, emotional suffering, lost productivity, and premature mortality. With 40% of all fatal motor vehicle accidents involving alcohol use nationally and 37% in Maryland, it remains the leading factor in motor vehicle deaths (Greenfeld, 1998; NHTSA, 2005). More than 17,000 persons were killed in drunk driving accidents in 2003 (NHTSA, 2005). Each year, it is estimated that more than four million people are victimized by drunk drivers through injury or vehicle damage (Miller, et al, 1990). In the year 2000, alcohol-related crashes in the U.S. cost the public more than \$143 billion and Maryland citizens \$1.7 billion (NHTSA, 2003). Epidemiologic surveys have reported that, annually, 18 million people (20% of the U.S. population) age 16 and older drive under the influence of alcohol or other drugs. Less than 10% of these individuals reported ever getting arrested for drunk driving. The latest statistics indicate that in 2002, 1.5 million people in the U.S. were arrested for driving under the influence of alcohol or other drugs (NHTSA, 2005).

Significant progress has been made on a national level in reducing the magnitude of consequences associated with DWI. During the 1980s, there was a noteworthy increase in educational, legislative, and enforcement activity (Hingson, 1993). Numerous citizen-action groups were also formed (e.g., Mothers Against Drunk Driving, Students Against Drunk Driving). During the past decade, rates of intoxication among drivers in fatal accidents have declined for every age group in the U.S. (Greenfeld, 1998). Between 1988 and 1998, the

number of highway fatalities attributable to alcohol dropped by about 7,000 annually, which is a 29% decrease (Greenfeld, 1998). Moreover, enforcement of DWI laws increased during the 1980s. Arrests for DWI peaked in 1983 when there were 1.9 million arrests (Greenfeld, 1998) and have been decreasing in recent decades. Between 1990 and 1997, the number of arrests for DWI decreased 18% (Maruschak, 1999). Several possible reasons could explain these decreases, including heightened public awareness, an increase in the minimum drinking age, a decline in the proportion of younger drivers, a decrease in *per capita* alcohol consumption, and an increased emphasis on alternatives to legal deterrents, including mandated treatment.

Despite the encouraging news, there is some evidence that the gains made in the late 1990s are leveling off. Overall, drunk driving fatalities have increased for the second year in a row in every age group except 16- to 17-year-olds (NHTSA, 2002). Moreover, the number of women who were arrested for DWI offenses has increased approximately 5% during the last decade and the number of women involved in fatal crashes has increased 28% during the same time period.

**2. Characteristics of DWI Offenders:** Many studies have documented the demographic characteristics of DWI offenders. One-third of all individuals arrested for DWI are males between the ages of 21 and 24 (Greenblatt & Bertolucci, 1994) and women account for 11% of the DWI offender population. As a result of changes in the Federal highway funds legislation, all states raised the minimum drinking age to 21, resulting in a decrease in the proportion of DWI arrestees who were under 21. In 1980, individuals under 21 accounted for 10% of licensed drivers, but 15% of DWI offenses. With regard to BACs, about 80% of DWI fatalities have a BAC of 0.10 or more.

**3. Characteristics of Repeat DWI Offenders:** Almost two-thirds of the 1.5 million drivers arrested for DWI are multiple offenders (Voas, 2001). One study estimated that 35 to 40% of fatally injured drivers are prior DWI offenders (Simpson, 1995). A 1998 study showed that one out of nine intoxicated drivers in fatal crashes had a prior DWI conviction within the past three years (NHTSA, 1999). Data from California indicate that for alcohol-related traffic accidents, crash risk increases with number of prior arrests in a linear fashion (Jones & Lacey, 2000).

Most studies of repeat offenders have been conducted on treatment samples and, therefore, have limited generalizability. These studies have observed that repeat offenders are primarily white, male, under age 50, from a low-income bracket, and unmarried (Donovan, 1993); Jones & Lacey, 1998; Langworthy & Latessa, 1993; Wiczorek, 1992; Wiliszowski, 1996;). Re-offenders tend to have a higher BAC and greater histories of criminal activity than first-time offenders (Greenfeld, 1998). Our own preliminary work (O'Grady, Arria, et al., 2002) suggests that re-assessment can be predicted on the basis of being male, white, less educated, and having a lower income. Available data indicate a higher alcohol-crash involvement among repeat offenders than among drivers with one or zero prior offenses (Jones & Lacey, 2000). In a comparison of repeat offenders with first-time offenders, no significant differences with respect to age, race, number of years licensed, educational level, SES, and marital status were observed. However, the repeat offenders had significantly higher mean BAC at time of arrest and 72% of repeat offenders had a prior criminal record (other than DWI arrests) compared to 54% of first offenders (Gould & Gould, 1992). Also, repeat offenders were more likely to be alcohol dependent than first-time offenders (Veneziano et al., 1993; Wiczorek et al., 1990).

**4. Preventing DWI through Legislation:** DWI prevention efforts during the last twenty-five years have stemmed from a variety of legislative actions that imposed sanctions for DWI offenders. These sanctions fall under three categories: restriction, recovery, and restitution. Restriction refers to confinement; most states have enacted administrative license suspension and revocation laws, as well as jail sentences for first-time DWI drivers. Some states also allow vehicle impoundment or withdrawal of registration (Hingson, 1993). Recovery refers to treatment and rehabilitation measures, which almost always operate in conjunction with law enforcement measures. Restitution involves the collection of fines that are meant to serve as a general deterrent for first-time offenses as well as a specific deterrent for preventing recidivism.

Laws lowering BAC limits have also proved useful in reducing the number of alcohol-related traffic fatalities (Hingson, 1998). The first law enacting BAC limits for driving was passed in 1939 in Indiana, which set the limit at 0.15% (NHTSA, 2000). The laws subsequently passed in the U.S. lowered the limit to 0.10% or 0.08% (NHTSA, 2000). In Maryland, the 0.08 BAC law went into effect in April 2001.

The threat or experience of jail is not a strong deterrent for DWI offenders (Simpson, Mayhew, & Burness, 1996; Voas & Williams, 1986). Also, license suspension does not appear to be a significant deterrent, since 75% of suspended drivers still drive (Ross & Gonzales, 1988), even though they drive more carefully and less often (Nichols & Ross, 1990).

In sum, law enforcement countermeasures may fail in part because many drunk drivers are serious problem drinkers and are in need of intensive intervention to reduce their problematic drinking. Understanding how DWI offenders from the criminal justice system become linked to the treatment service

delivery system and the effectiveness of that treatment in reducing re-assessment is the major focus of this study.

**5. Assessment and Treatment of DWI Offenders:** In most states, including Maryland, as DWI offenders pass through the criminal justice system, they are mandated to receive an assessment that guides the placement or assignment of the individual into either an educational program or a treatment facility. States vary significantly with regard to the procedures they follow and the criteria they use to assign individuals to different types of treatment. Typically, the assessment is multi-modal and includes the results of standardized assessment tools such as the Michigan Alcoholism Screening Test (MAST) or the Alcohol Use Inventory (AUI), as well as information on prior DWI convictions and BAC at the time of arrest. Moreover, although states have written legislation that governs the assessment process, in many cases, these assessment protocols are not consistently followed. Although comprehensive data are lacking, it appears that many individuals fall through the cracks, escape detection by the assessment process, for a variety of reasons, and do not complete treatment.

As more states formalize their assessment procedures, there is an increased need to know what designates an appropriate placement—that is, to answer the question of whether or not individuals who are assigned to a particular type of treatment have successful outcomes. Aside from our own preliminary work (Arria et al., 2002 ; O’Grady, Arria, et al., 2002) showing that demographic characteristics are predictive of assignment to treatment, few other studies have been conducted in this area. Few longer-term studies of treatment outcomes among DWI offenders have been published. In contrast to mainstream alcoholism treatment, where the primary goal is to reduce problematic drinking, specific treatment for DWI offenders involves providing education and guidance

to reduce recidivism. Therefore, one challenge to treatment outcome research for DWI offenders lies in the definition of successful outcomes.

Since an early review of the treatment literature from 1980 to 1991 by Jones and Lacey (1991), which concluded that alcohol-related crashes were not significantly reduced by treatment and rehabilitation programs, more recent evidence has supported the effectiveness of treatment (Hubbard et al, 1984; Nochajski et al. 1997. However, the literature on this topic is incomplete and the studies are plagued with methodological problems, including small sample sizes, high attrition, and lack of generalizability. Wells-Parker et al. (1995) concluded, from a more recent meta-analysis of the efficacy of treatment and rehabilitation programs, that the “better” studies suggested that treatment reduced DWI recidivism by an average of 8 to 9% compared to those who did not receive treatment. Unfortunately, repeat offenders were not analyzed separately.

There have been only three recent studies to examine the efficacy of treatment specifically for repeat offenders. The results indicated that the treatment groups did only marginally better than comparison groups (DeYoung, 1997; Langworthy & Latessa, 1993; Peck et al., 1994).

One consistent finding from the literature on treatment of DWI offenders is that treatment in the absence of legal actions might have little impact on the subsequent crash rates of either first-time or repeat offenders (e.g., Nichols & Ross, 1990; Sadler et al., 1991). Results show that for all levels of prior DWI convictions, combining alcohol treatment with either driver license restriction or suspension is associated with the lowest DWI recidivism rates (DeYoung, 1997).

### ***C. Methods Used in this Study***

**1. Research Design:** Secondary data was used to create longitudinal records of DWI offenders during the time period of 1995 to 2003, inclusive.

**2. Data Sources:** The proposed study linked and analyzed two statewide epidemiologic databases: 1) the *Maryland DWI Assessment Database* that contains records on all DWI arrests in the state; and 2) the *Maryland Substance Abuse and Management Information System Database* that contains information on all admissions and discharges to all public and private certified treatment programs. The Maryland Alcohol and Drug Abuse Administration (ADAA) maintains both databases.

*a. Interviews with Assessment Center Staff:* Through in-depth phone interviews with 161 individuals from different assessment centers, data were gathered on caseloads of assessment center staff, the types of questionnaires and interviews that are performed to arrive at a social or problem drinker determination, and other pieces of information about the assessment process. The sample was based on a voluntary random selection of centers from Maryland, which has in total more than 300 assessment centers.

*b. DWI Data:* ADAA has been collecting data on DWI arrests in Maryland since the early 1990s. Offenders who present themselves in court following their arrest either come to court with the results of an assessment or are mandated by the judge to have an assessment that recommends that they attend either a treatment program or an educational program. For a variety of reasons, individuals arrested for DWI might not ever appear in court and are unfortunately lost to the system. Bench warrants are issued for these individuals, but often the resources are not available to apprehend them. If a person who received an assessment is re-arrested, appears in court, and receives a subsequent assessment, their record would appear again in the assessment database. Currently, this is the only way to track DWI recidivism in Maryland. We are fully aware that there may be differences in the characteristics of DWI offenders who complete the assessment process and those who do not.

Unfortunately, there is no way to quantify these differences given the current state of electronic record keeping in Maryland. It appears that Maryland is not alone in this respect. It is anticipated that one of the results of this study will be to highlight these issues and encourage more comprehensive record-keeping by the states to prevent individuals from falling through the cracks and being lost to the system. **Thus, for the purposes of this project, re-assessment, or re-appearance of the individual in the assessment database, is a proxy measure of DWI recidivism.** The assessment is completed by a staff member at a certified treatment program or a certified assessor at the court itself. The assessment contains standard demographic information, driver's license number, social security number, BAC, as well as information on a number of other variables. (A copy of the form is included in Appendix 1). Also recorded is a variable called "problem determination" – where the individual is coded as either a "problem drinker," "social drinker," or "drug involved driver." The designation of "problem drinker" is made on the basis of several factors: a) having a previous DWI or other alcohol-related offense; b) a drinking history that indicates alcohol abuse or alcoholism (can include information on the BAC of the current offense); and c) test results from the MAST or the AUI indicating an alcoholism problem. "Social Drinker" status is given by an assessor to a client who does not appear to have a serious problem with alcohol other than the immediate offense.

Table 1 summarizes the content of the DWI Assessment form (see Appendix 1). Since 1995, more than 110,000 records have been scanned. For the purposes of this study, assessment records from 1995 to 2003 were merged into one datafile, inspected, and cleaned. The resulting datafile contained 78,366 individual records. Individuals who had two or more assessment records for the same offense were excluded. More details on the datafile exclusion rules and the number of cases deleted at each step is included in Appendix 2.



**Table 1. DWI Assessment Form: Summary of Variables**

▪ Assessment Date	▪ Marital Status	▪ MD Driver’s License Number
▪ Assessment County	▪ Education	▪ Offense Date
▪ County of Residence	▪ Sex	▪ Blood Alcohol Concentration
▪ County Center	▪ Occupation	▪ Court Disposition Date
▪ Social Security Number	▪ Employment Status	▪ Number of DWI Arrests
▪ Race/Ethnic Background	▪ Primary Source of Income	▪ Assessment Determination
▪ Date of Birth	▪ Gross Annual Income	▪ Placement Recommendation

*c. Alcohol and Drug Treatment Data:* Maryland’s ADA A requires that all public and private certified addiction treatment programs in Maryland report to the SAMIS on a monthly basis. Information on treatment clients is reported to SAMIS at two points—admission to treatment and discharge from treatment. Clients who are recorded in SAMIS must be formally admitted and have individualized treatment plans. They must receive at least one direct treatment service every 30 days for their record to remain active.

Table 2 lists all items collected on the SAMIS form. The SAMIS form contains information collected at intake/admission to and discharge from treatment, such as the last four digits of the social security number, demographics, substance use patterns at admission and discharge, ASI composite scores for adult clients, and a variety of treatment process variables.

The SAMIS was developed to permit analysis of patterns of repeated treatment episodes and tracking of clients throughout the treatment system. The last four digits of the client’s social security number are included, which when combined with the date of birth, race, and sex provide a unique client identification number. Maryland has also been using a statewide treatment assessment instrument for adult clients since 1994. The SAMIS database has been

in existence for more than a decade and more than 20,000 records per year exist in this database, including readmissions.

**Table 2. Client-Level Information Available on the SAMIS Form**

<b>a. DEMOGRAPHICS</b>	<i>Admission</i>	<i>Discharge</i>	<b>c. ADDICTION SEVERITY INDEX (ASI)</b>	<i>Admission</i>	<i>Discharge</i>
Soc. Security No.	(last 4 digits)	✓	Medical	✓	
Birth Date	✓	✓	Employment/Support	✓	
Race	✓	✓	Alcohol	✓	
Ethnicity	✓	✓	Drug	✓	
Sex	✓	✓	Legal	✓	
Residence	✓		Family/Social	✓	
Marital Status	✓		Psychiatric	✓	
Education	✓		<b>d. COMORBID ISSUES</b>	<i>Admission</i>	<i>Discharge</i>
Family Income	✓		Pregnant	✓	✓
Income Source	✓		Mental Health Problems	✓	
Living Arrangement	✓	✓	Mental Health Treatment		✓
No. Depend Children	✓		No. Arrests	✓	
Health Coverage	✓		No. Arrests in Treatment		✓
<b>b. TREATMENT PROCESS</b>	<i>Admission</i>	<i>Discharge</i>	<b>E. TREATMENT PLAN PROGRESS AT DISCHARGE</b>	<i>Admission</i>	<i>Discharge</i>
Modality	✓	✓	Employment		✓
Date of Admission	✓	✓	Education		✓
Prior Admissions	✓	✓	Family Relationship		✓
Source of Referral	✓	✓	Legal Status		✓
Days Waiting to Enter Treatment	✓	✓	Substance Abuse		✓
Date of Discharge		✓	<b>f. DRUG USE</b>		
Reason for Discharge		✓	Severity	✓	✓
Referral Type		✓	Frequency	✓	✓
No. Counseling Sessions	✓	✓	Route of Administration	✓	✓
Urinalysis Results	✓	✓	Age of First Use	✓	✓
Primary Source of Payment	✓	✓			

**3. Data Linking Procedures:** DWI arrestees are mandated by Maryland state law to undergo an assessment by a state-approved agency. Each agency must complete a DWI Assessment Form for each arrestee evaluated and submit the form to Maryland’s ADAA. These DWI assessment records will first be matched so that the DWI offenses can be examined chronologically for each person. (Each person had one assessment record for each DWI arrest.) Each record contains the date of the DWI offense. Thus, if two or more assessment records have the same date of birth, race, sex, and last four digits of the

offender's social security number, the assessment records in question will be determined to belong to the same person and the records will be linked accordingly.

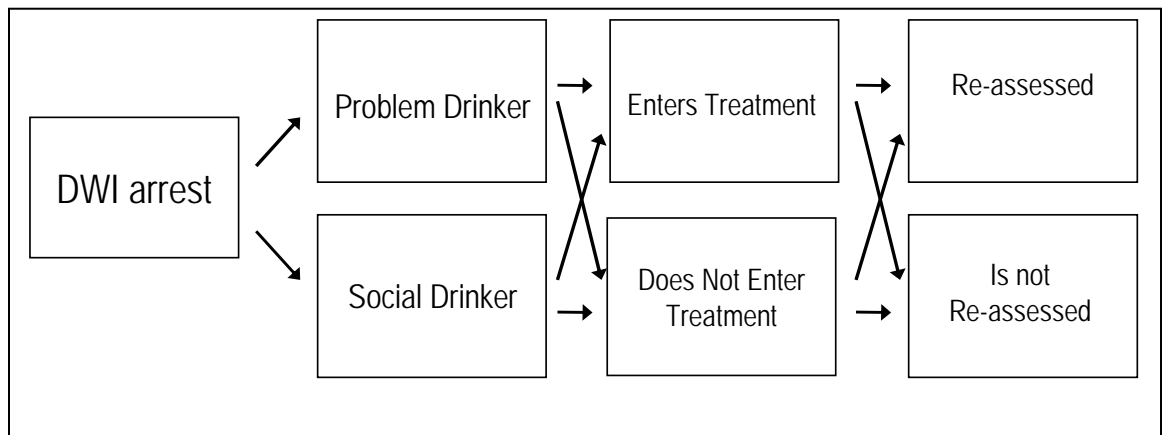
DWI assessment records were then matched to SAMIS treatment records, as SAMIS records also contain the date of birth, race, sex, and last four digits of the patient's social security number. Therefore, SAMIS and DWI records with the same date of birth, race, sex, and last four digits of the social security number will be determined to be the same person. SAMIS treatment records that are coincident in time and indicate the reason for treatment entry as DWI will then be matched to DWI assessment records accordingly. Treatment admissions that occurred prior to the index DWI offense or indicate that treatment entry was not due to a DWI offense will necessarily be excluded from the resulting dataset.

Date of birth, race, and sex are proposed for use in the matching process because they are unchanging characteristics of people and these variables were available in both the DWI and treatment datasets. While the DWI assessment dataset includes the full social security number, the treatment dataset only includes the last four digits of the social security number. Thus, only the last four digits are common to both datasets. However, the last four digits will be used also for aggregating the DWI records to the person-level because exact matches on the full social security number may produce less accurate results. Because the social security number is not verified when the data are collected, it sometimes happens that one number is entered incorrectly or two adjacent numbers are transposed.

## Summary of Analytic Plan

Figure 1 below depicts the analytic plan for the study. Starting at the left side of the figure, individuals who were arrested as a result of their assessment at some time during 1995 to 2003 were classified as either “problem drinkers” or “social drinkers.” Analyses were conducted to determine how many individuals were assigned to each category, what factors predicted the assignment, and whether the proportion being classified as a problem drinker has changed during the time period studied. Next, the data were analyzed to quantify how many problem and social drinkers subsequently entered a certified treatment program, whether or not this proportion had changed during the time period studied, and what factors were associated with treatment entry. The last step of the analysis was to quantify the proportion of social and problem drinkers who were re-assessed at some point following their assessment, and whether those who entered treatment had a lower likelihood of being re-assessed.

**Figure 1. Summary of Analytic Plan**



It was decided that analyses on re-assessment would be conducted on a subset of individuals who were assessed during the time period of 1995 to 1999. In this way, we could allow for a long enough window of opportunity for getting

re-assessed. Therefore, assessment records of all individuals who had an original assessment during 1995 to 1999 were merged with all available treatment records (from the SAMIS database). We then compared the proportion of DWI offenders assessed as problem drinkers who did and did not enter treatment on whether or not they were eventually re-assessed. Merging these two separate electronic statewide databases created a datafile containing 50,089 DWI offenders. Multiple logistic regression models were developed to estimate the impact of treatment entry on re-assessment, holding constant demographic characteristics and BAC.

## ***D. Results***

### ***1. Characteristics of DWI Offenders in Maryland***

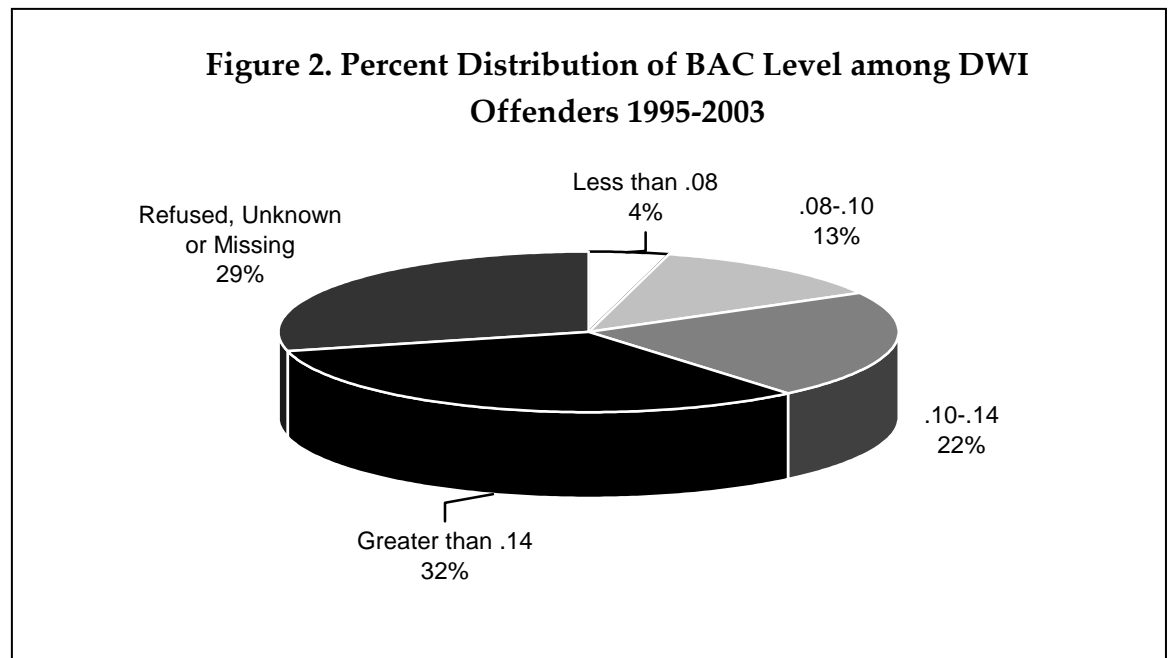
Table 3 below describes the sample of DWI offenders who were assessed in Maryland during the time period of 1995 to 2003, inclusive. The average age of the sample was 35 years old. As can be seen, the majority of DWI offenders are male (81%), and the racial/ethnic distribution is fairly similar to the state composition for that time period, with about 20% of individuals being racial/ethnic minorities. About half the sample was single, with roughly one-quarter married, and another quarter divorced/separated. Individual self-reported annual income distribution was shifted toward the lower end of the distribution, with more than two-thirds of the sample having incomes lower than \$30,000. Sixty percent of assessments were conducted at a publicly funded assessment center. More than half the sample had a time period of longer than three months between the date of their offense and the date of their assessment.

**Table 3. Demographic Characteristics of the Sample of DWI Offenders Assessed from 1995-2003, inclusive (n = 78,336).**

<b>Age (<math>\mu</math>)</b>	35.0
	%
<b>Sex (% male)</b>	80.6
<b>Race/Ethnicity</b>	
White	78.4
African-American/Black	15.3
Hispanic	4.4
Other	1.9
<b>Marital Status</b>	
Single	48.3
Married	26.7
Divorced/Separated	23.8
Widowed	1.5
<b>Income</b>	
Less than \$10,000	12.3
10,000-19,999	21.6
20,000-29,999	35.3
30,000-39,999	12.2
40,000-49,999	6.9
50,000-74,999	7.8
75,000+	4.0
<b>Assessment Center Funding</b>	
Public	60.8
Private	39.2
<b>Days between Offense and Assessment</b>	
Less than 30 days	19.0
31-60 days	12.6
61-90 days	12.0
Greater than 90 days	56.5

Figure 2 displays the distribution of the sample with regard to BAC. Almost one-third of individuals (29%) had a BAC of “missing,” “unknown,” or “refused;” forty-five percent had BAC values of greater than 0.14.

**Figure 2. Percent Distribution of BAC Level among DWI Offenders 1995-2003**



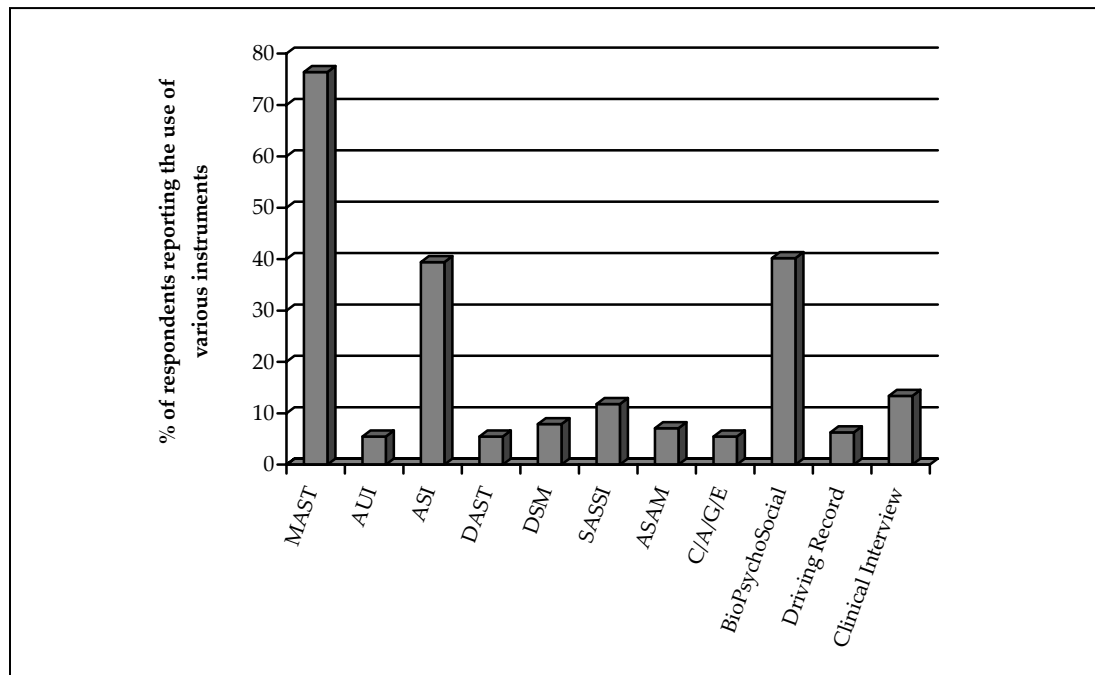
## ***2. Assessment Process of DWI Offenders:***

### **a. Results of Interviews of Assessment Center Staff**

The general conclusion from data gathered from structured interviews with 161 assessment center personnel was that what is intended to be a uniform statewide procedure for assessment of DWI offenders lacks standardization. Assessments vary by length, use of measures, and assessor qualifications. The estimated time between both offense and assessment and between assessment and treatment entry also varies greatly, from as little as a few minutes to weeks or even months in some assessment centers. Ninety percent of the individuals interviewed stated that the assessment is done in person, with the remaining ten percent reporting that the assessment is conducted by phone interview. In the vast majority of cases (85%) the assessment process was reported to last a maximum time of more than 45 minutes, however, the assessment times were reported to vary significantly within assessment centers. Figure 3 displays the use of different assessment instruments within assessment centers. As the figure shows, the most frequently used instrument is the MAST, which was used by more than three-quarters of assessment centers surveyed.

About 40% of assessment centers described using a psychosocial assessment, which was tailored for use at a particular assessment center. The use of standardized DSM criteria to assess alcohol dependence or a clinical interview was reported by less than 20% of assessment centers. The Addiction Severity Index (ASI), a standardized interview that assesses the degree to which alcohol and other drug problems are related to impairment in various domains such as employment and family life, was used in approximately 40% of assessment centers.

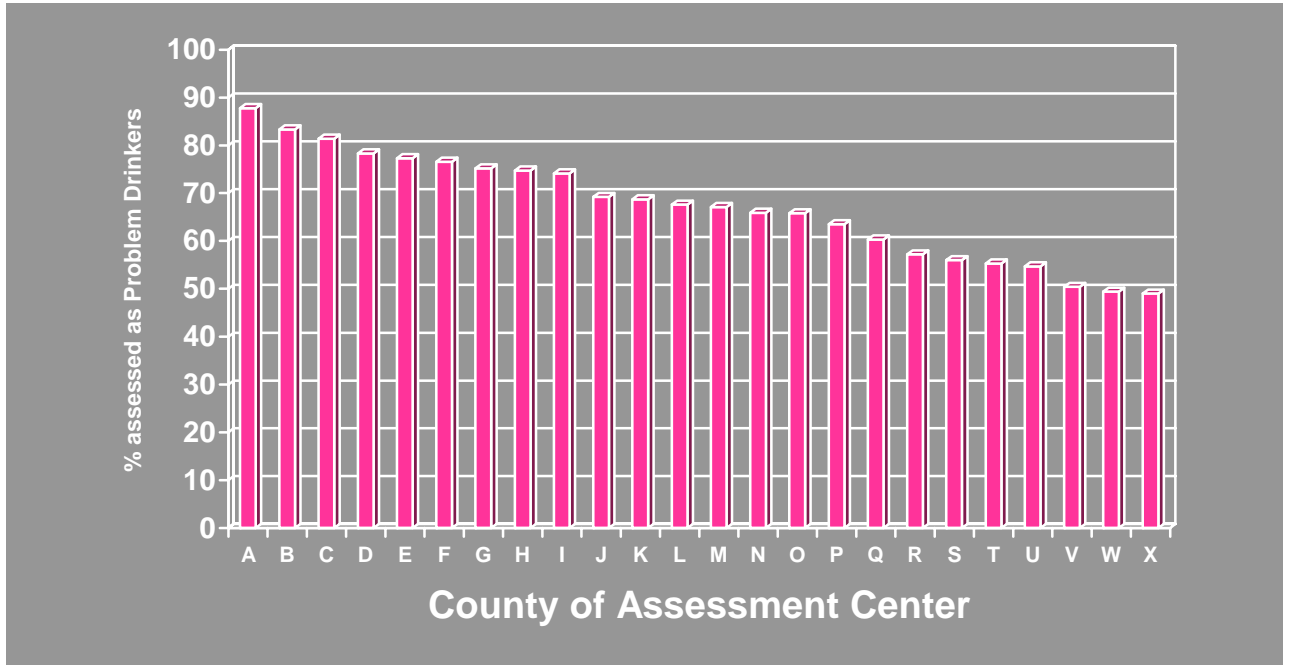
**Figure 3. Assessment Instruments Used at Assessment Centers (based on 161 interviews with assessment center personnel)**



Multivariate adjusted logistic regression models were developed to examine the association between race, age, sex, income level, marital status, and BAC and the likelihood of being assigned as a problem drinker. On average, 65.6% of DWI offenders received a problem drinker categorization, and this figure varied significantly by county, ranging from 88% to 49% (see Figure 4).

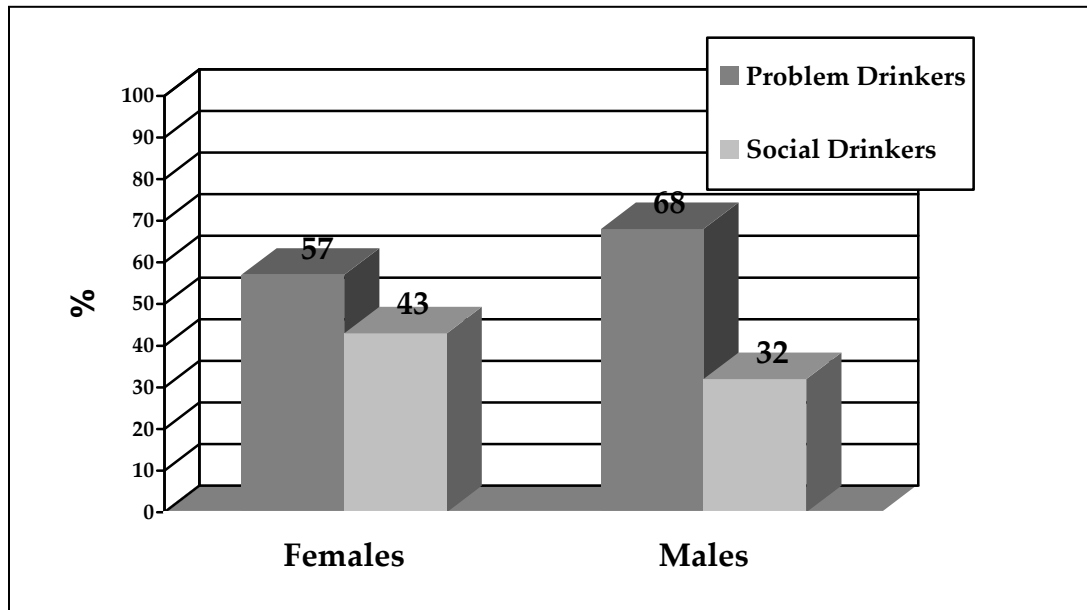


**Figure 4. County-level Variation in Assessing Individuals as Problem Drinkers**

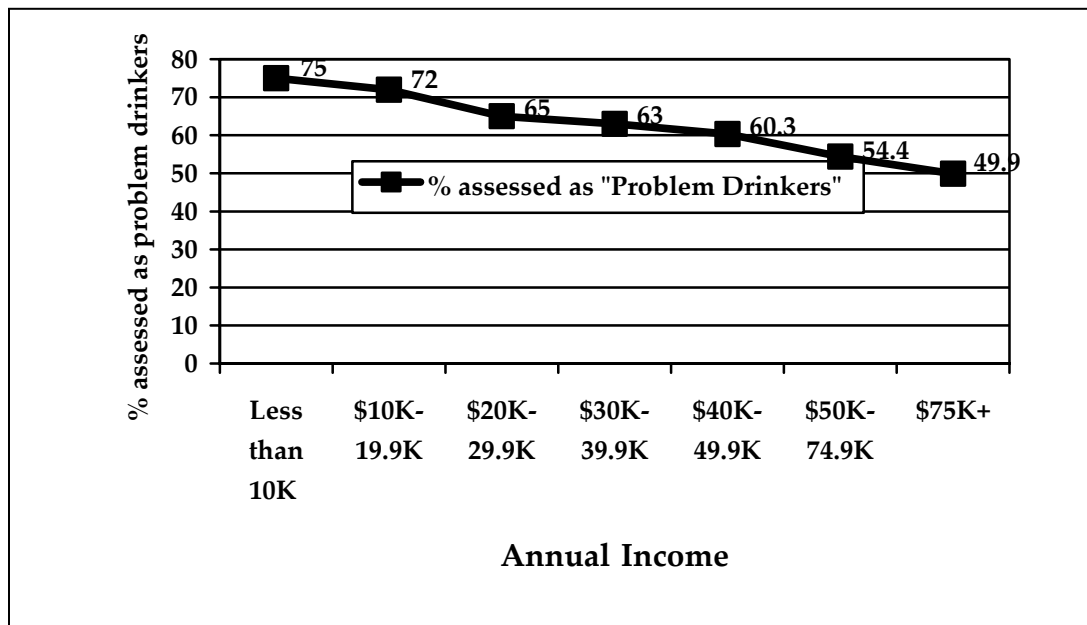


The results of logistic regression modeling showed that receiving a problem drinker rather than a social drinker determination is more likely if one is male, slightly older, less educated, divorced or separated as compared to being single and in a lower income bracket. Figure 5 shows the differences between males and females on the proportion assigned as problem vs. social drinkers. Among males, 68% were assessed as problem drinkers; whereas the corresponding percentage for females was 57%. Figure 6 shows the relationship between being assessed as a problem drinker and self-reported income level. Seventy-five percent of those making less than \$10,000 a year are assessed to be problem drinkers, while only 50% of those who make \$75,000 or more are categorized as problem drinkers.

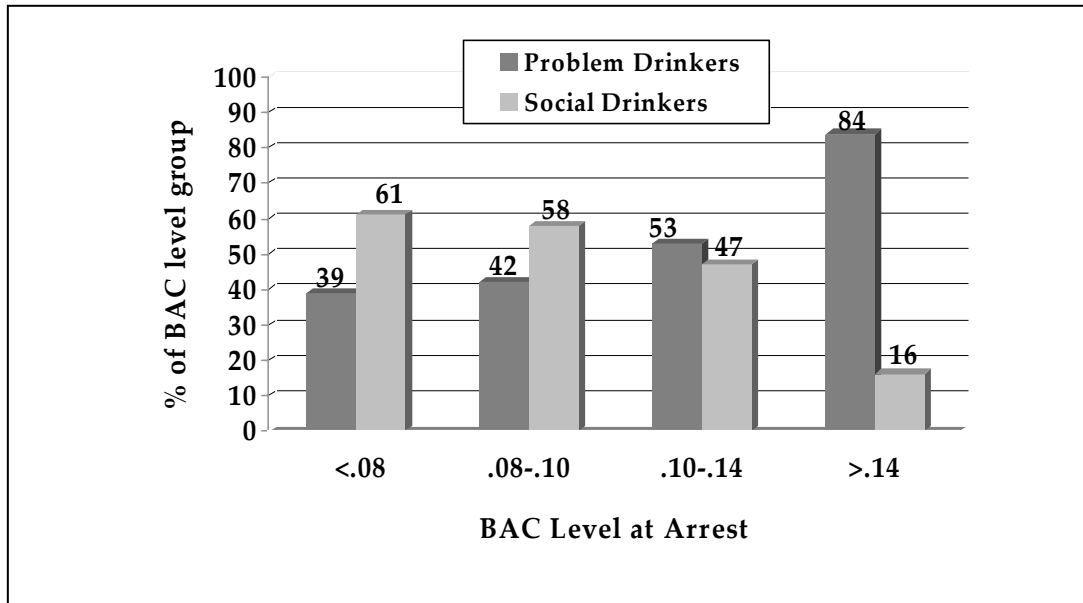
**Figure 5. Sex Differences in Problem Drinker Determination**



**Figure 6. Problem Drinker Determination and Income Level**



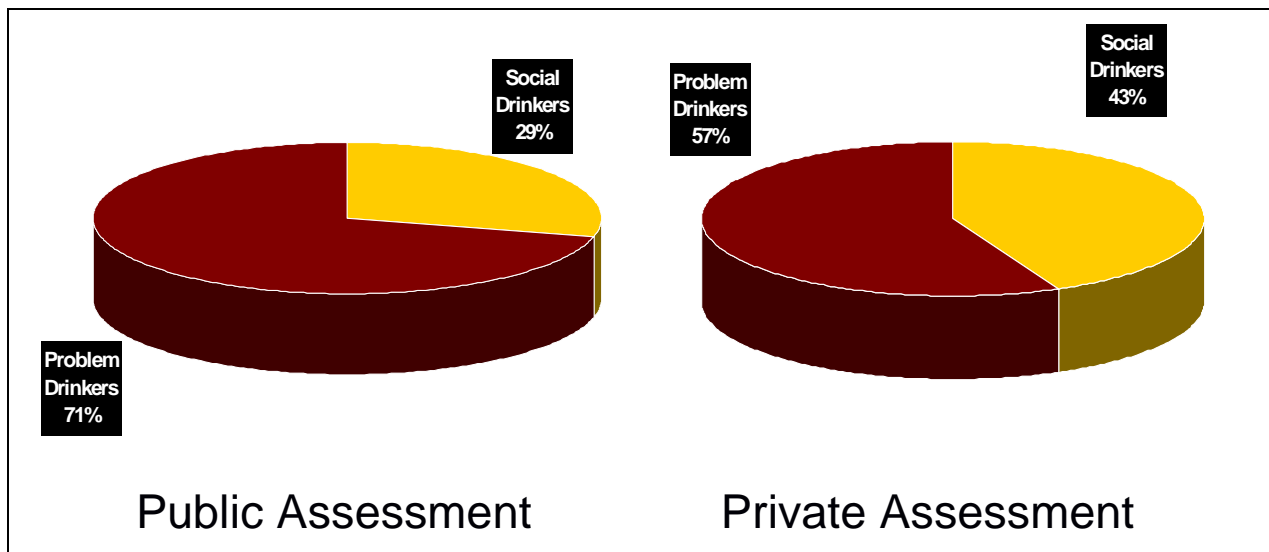
**Figure 7. Problem Drinker Determination and BAC Level**



Also, although the average BAC is significantly higher for problem drinkers (BAC = .15) as compared to social drinkers (BAC = .12), both groups are well over the legal limit of .08 (See Figure 7). Individuals who refused to submit to a breath alcohol test or whose BAC was unreported were more likely to be classified as a problem drinker. As can be seen, eighty-four percent arrestees whose BAC was greater than 0.14 were determined to be problem drinkers, while only 39% of those who had a BAC of less than 0.08 BAC were determined to be problem drinkers.

Because the type of assessment center that is used to make the assessment was thought to influence problem determination, public and private assessment centers were compared with regard to the proportion of individuals assigned to either the problem or social drinker categories. Privately-funded assessment centers were much less likely to assign individuals to be problem drinkers than publicly-funded assessment centers. Private assessment centers assessed 57% of individuals as problem drinkers, whereas public assessment centers assessed 71% of individuals as problem drinkers.

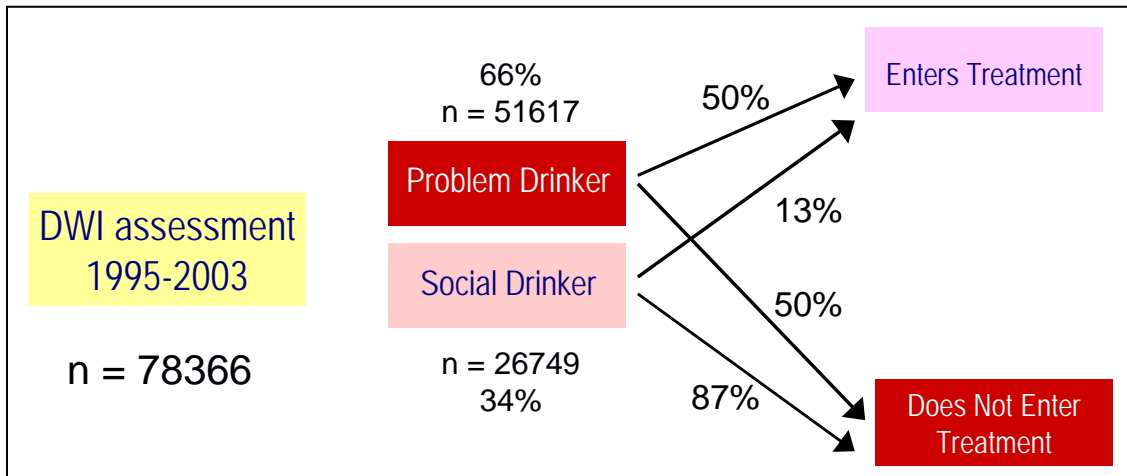
**Figure 8. Difference between Public and Private Assessment Centers on the Proportion of DWI Arrestees Assessed as Problem Drinkers**



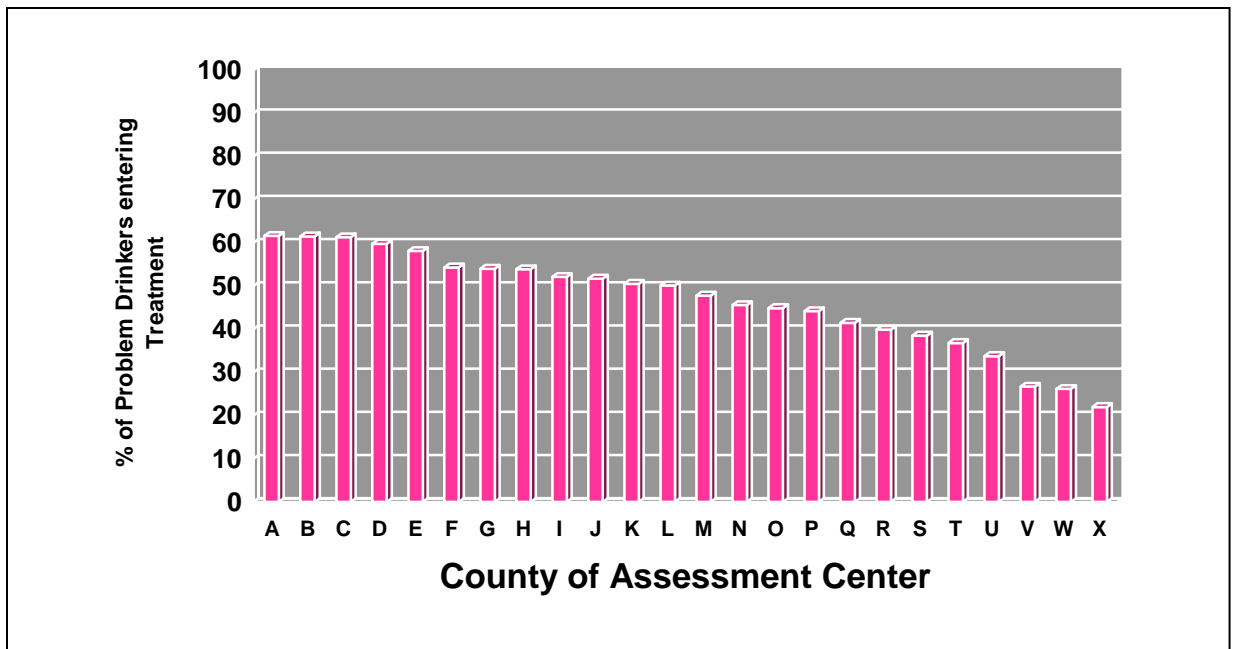
**3. The Process of Entering Alcohol Treatment among DWI Offenders:**

Half of problem drinkers who were assigned to treatment based on their assessment did not enter treatment up to a eight-year window following their assessment did not enter treatment up to a eight-year window following their DWI offense date (see Figure 9 below). Although not mandated to attend treatment, 13% of social drinkers entered a certified treatment program at some point following their assessment date. It is important to note that in both instances (for problem and social drinkers) the entry of treatment might or might not have been directly tied to the particular DWI offense for which the assessment was conducted. There is no way of telling from the data that the treatment received is a result of being arrested for DWI at that particular time. As shown in Figure 10, the likelihood of treatment entry varied significantly by county.

**Figure 9. Problem Determination and Treatment Entry**



**Figure 10. County-level Variation in the Proportion of Problem Drinkers Entering Treatment**



The results of logistic regression models developed to predict treatment entry based on sociodemographic characteristics and BAC revealed few striking differences between problem drinkers who entered treatment and those who did not. Higher levels of income and education were modestly associated with treatment entry. Having a higher BAC was statistically related to entering

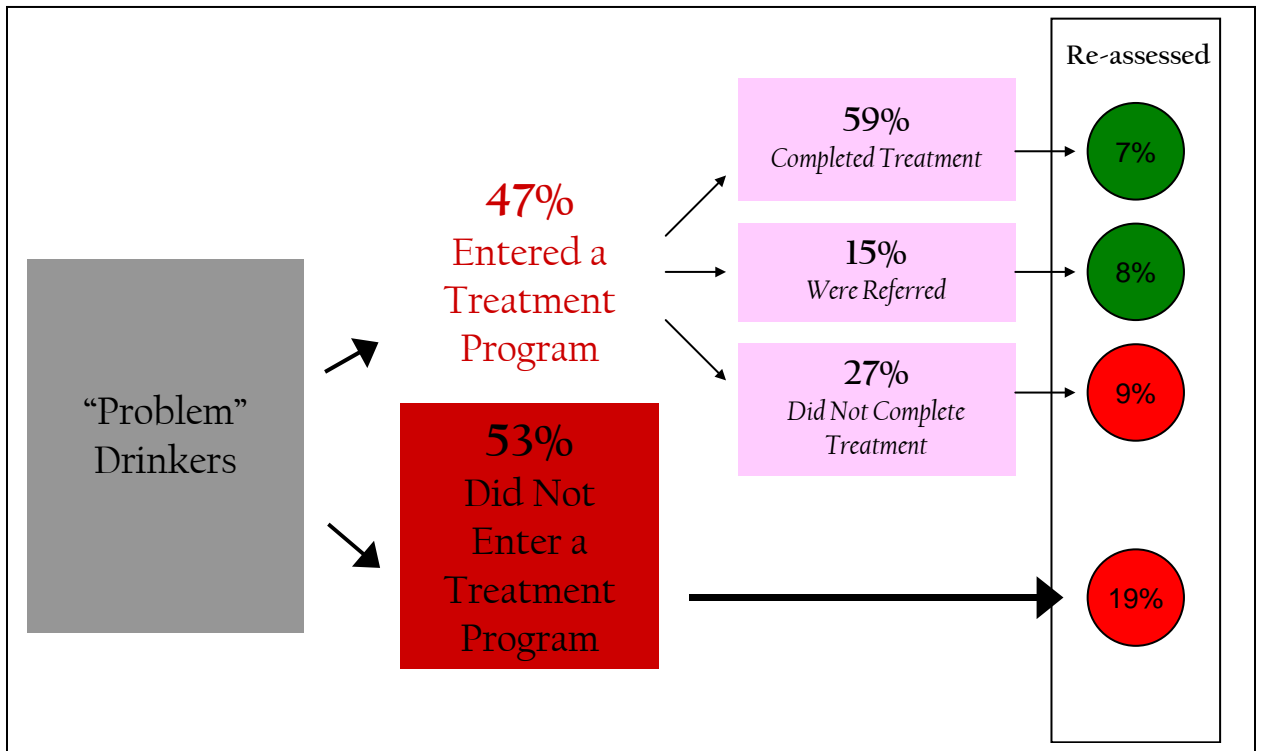
treatment for both problem and social drinkers, but the association with BAC was greater for social drinkers.

#### ***4. DWI Re-assessment among DWI Offenders***

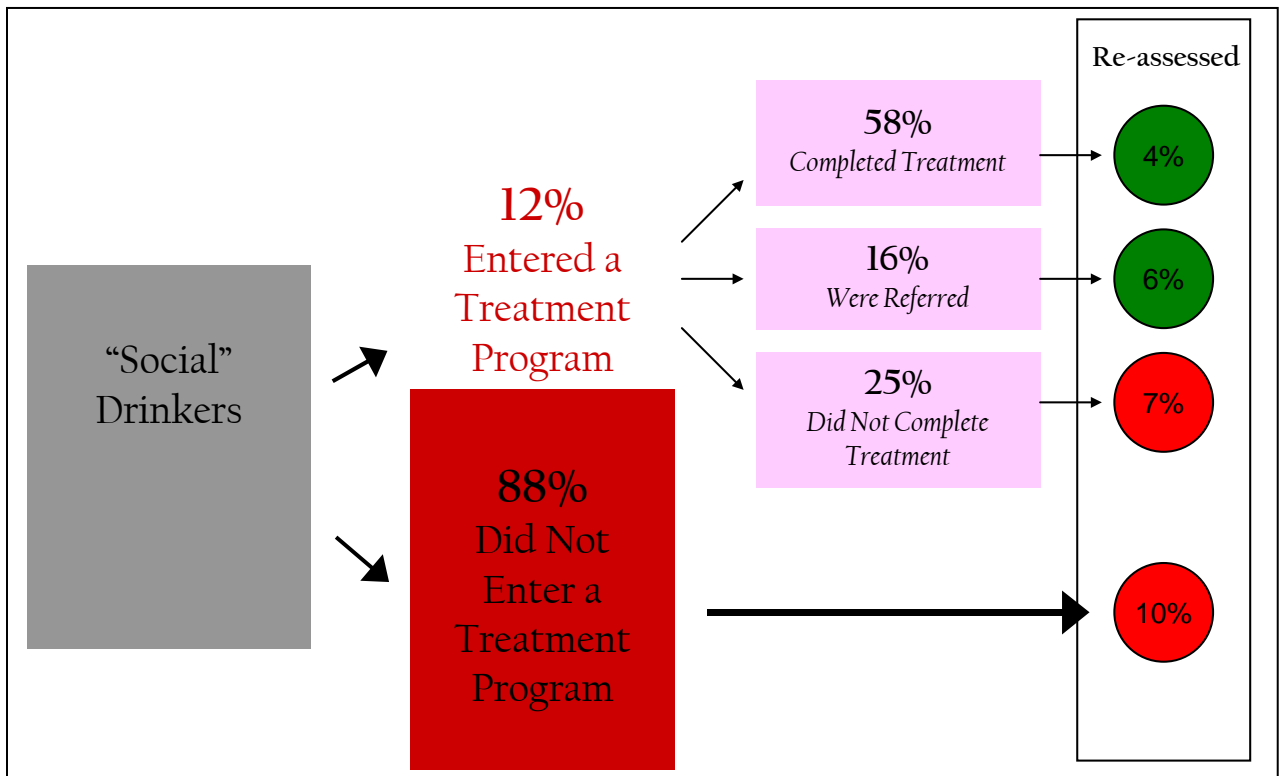
Figures 11 and 12, below, summarize the results of the analyses that were conducted to quantify the proportion of individuals who were assessed at some point during 1995 to 1999 and who were re-assessed following their assessment, up until 2003. This allows for a maximum window of opportunity for re-assessment of eight years, for those who were assessed in 1995. The results show that among the problem drinkers eligible for re-assessment, 19% of those who never entered treatment were re-assessed as compared to 7% of those individuals who completed treatment. For social drinkers, the percentage that were re-assessed was also lower among those who completed treatment (4%) as compared to those who never entered treatment (10%).

The results of multivariate logistic regression modeling revealed that any contact with the treatment system appeared to be associated with a similar decreased likelihood of re-assessment. In addition to not entering treatment, being white, male, younger, and having less education and less income were all associated with being re-assessed among problem drinkers. In addition, having a longer time period between the offense and assessment date was associated with a greater likelihood of re-assessment. Problem drinkers who were assessed at private centers were more likely to be re-assessed than individuals who were assessed at publicly funded centers (The results of the detailed logistic regression models showing the significance of these relationships are available upon request).

**Figure 11. Summary of Treatment Experiences of Individuals who Received a “Problem Drinker Determination” on their DWI Assessment (Statewide)**



**Figure 12. Summary of Treatment Experiences of Individuals who Received a “Social Drinker Determination” on their DWI Assessment (Statewide)**



County-specific reports on the treatment experiences of DWI offenders can be found in Appendix 3. These results can be helpful to the counties in their planning process for treatment and prevention services for DWI offenders. One must exercise extreme caution, however, in making comparisons across counties since there are a multitude of other variables that account for the variation among counties in Maryland. For example, each report presents the percentage of problem drinkers that entered treatment in the county. This percentage is a reflection of the treatment availability in the county (both in terms of the number of programs and the number of slots that are available), the distance between treatment facilities and clients, and a number of other factors that influence treatment access. Counties also vary on the proportion of individuals who complete their treatment program, which again, is determined by a wide array of variables, such as problem severity, past treatment experiences, etc. The key point to be made is that counties may vary significantly on these unmeasured parameters and therefore, the results cannot and should not be used for the purposes of "ranking" counties in their response to treating DWI offenders. All counties can improve their process of standardizing criteria for assessment of DWI offenders, making treatment available and accessible, and ensuring that the treatment is effective and appropriate to the clients needs.

### **Limitations**

Because this study used administrative data and not data collected solely for the purposes of a research project, data quality issues are a potential limitation of the research. The face and construct validity of the data was maximized through an extensive data cleaning process. Moreover, extensive edit checks are conducted on SAMIS at the state-level and the data also undergo federal Treatment Episode Dataset edit checks. In addition, the Maryland ADAA has instituted a SAMIS validation process whereby on-site reviews of program



records are conducted to establish the validity of information provided to SAMIS.

Another limitation of the data linking methodology used in this study was that an offender who was arrested in another state would not have been included in our database.

In addition to data issues, a larger limitation inherent in all studies of DWI offenders is the inability to generalize the information to all drinking drivers. Perrine (1990) aptly described the drinking driver population as “the Quick, the Caught, and the Dead” and pointed out that investigations of DWI offenders are limited to studying only “the Caught.” Many more drinking drivers do not get caught as compared to those who do. Past success in reducing drunk-driving fatalities has shown us that the prevention strategies that are designed as a result of studying this restricted group of drinking drivers still can have a significant impact.

**Policy Implications:** The results of this study have a number of policy implications. First, for the first time, Maryland policymakers can now better understand the process by which DWI offenders are assigned to treatment. The way the COMAR regulations are written now leaves some room in the decision to mandate that assessments be conducted and that all problem drinkers should be assigned to treatment. It appears from the data that there are few differences between social and problem drinkers. Substantial county-level variation exists in the proportion of individuals who are deemed to be problem drinkers. The study observed that the assessment process lacks standardization. The first recommendation based on this study is to employ more standardized assessment procedures so that DWI offenders are referred to the most appropriate types of treatment, which should seriously consider the use of a diagnostic or clinical assessment tool.

Second, this study uncovered how many and what types of DWI offenders who were deemed to be problem drinkers were escaping placement into treatment services. Before this study was conducted, the assessment database was kept separate from the treatment service database and, therefore, it was not possible to obtain a clear picture of the linkage between DWI offenders who are assessed and mandated to treatment with those who actually show up and receive treatment. Anecdotal evidence strongly suggested that many individuals were falling through the cracks—that is, they have not been receiving the services that they were mandated to receive. This study confirmed this earlier impression and found that half of problem drinkers who were assigned to a treatment service did not enter treatment. The second recommendation from this study is to put into place tighter monitoring systems to ensure that appropriate treatment assignments are followed up on so that the individual receives the services that are necessary to treat an underlying substance abuse problem. The time gap between offense and assessment date should also be minimized, as this study showed that a shorter time period was associated with a lower likelihood of re-assessment.

Third, this study describes treatment outcomes for DWI offenders who receive treatment services. The results of this study are consistent with earlier studies showing the benefits of treatment in terms of reducing substance use, increasing the likelihood of employment, and reducing the chances of criminal justice system involvement (Hubbard, 1984; Luchansky, 2000). This study increases our understanding of the characteristics of individuals at high risk for DWI re-arrest and how treatment might reduce the likelihood of re-assessment. The literature is replete with studies demonstrating that recidivists represent a monumental challenge to treatment providers. Most experts would agree that sanctions and other legislative actions have been undertaken more as an effort to

reduce first-time offenses than to affect the likelihood of a re-offense (Andenas, 1988; Cavaiola, 2002; Laurell, 1991).

Maryland's policymakers have demonstrated their commitment to maintaining efficient and automated data collection systems for both DWI offenses and treatment admissions as well as their strong commitment to enhancing and expanding the quality of treatment services in Maryland. It is anticipated that there will be continued interest in providing appropriate treatment services to reduce the economic and social burden associated with drunk driving in Maryland.

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# Appendix 1. DWI Assessment Form

NEW & IMPROVED!  
releasestrip  
FEATURE

• Easier to Open  
• Tamper Evident  
• U.S. Pat. NO.  
5,400,757

**Alcohol and Drug Abuse Administration**  
**DWI ASSESSMENT FORM**

MARKING INSTRUCTIONS

Wrong Mark: Right Mark:

USE NO PENCILS ONLY

Maryland Department of Health and Mental Hygiene

Assessment Date			Assessment County			County of Residence		
Month	Day	Year	1	2	3	1	2	3
0	0	0	1	2	3	1	2	3
1	1	1	4	5	6	4	5	6
2	2	2	7	8	9	7	8	9
3	3	3	10	11	12	10	11	12
4	4	4	13	14	15	13	14	15
5	5	5	16	17	18	16	17	18
6	6	6	19	20	21	19	20	21
7	7	7	22	23	24	22	23	24
8	8	8	25	26	27	25	26	27
9	9	9	28	29	30	28	29	30

County Center	Social Security Number	Race/Ethnic Background	Date of Birth	Marital Status	Highest School Grade Completed
0	0	1	0	1	0
1	1	2	1	2	1
2	2	3	2	3	2
3	3	4	3	4	3
4	4	5	4	5	4
5	5	6	5	6	5
6	6	7	6	7	6
7	7	8	7	8	7
8	8	9	8	9	8
9	9	0	9	0	9

Sex	Occupation	Employment Status
1 Male	1 Managerial and Professional Specialty Occupations	1 Unemployed. Has not sought employment in last 30 days
2 Female	2 Technical, Sales and Administrative Support Occupations	2 Unemployed. Has sought employment in last 30 days
	3 Service Occupations	3 Part-time (less than 35 hours per week)
	4 Farming, Forestry and Fishing Occupations	4 Full-time (35 or more hours per week)
	5 Precision Production, Craft, and Repair Occupations	5 Full-time Student (Not Employed)
	6 Operators, Fabricators, and Laborers	6 Full-time Student (Employed)
	7 Homemakers	7 Full-time Homemaker
	8 Occupation not reported	8 Retired/Disabled
	9 Refused to answer	9 Refused to answer

Primary Source of Income	Gross Annual Household Income	MARYLAND Driver's License Number	Offense Date	BAC										
1 Wages and Salary	1 Less than \$10,000	0	0	0	0	0	0	0	0	0	0	0	0	0
2 Self-Employment Income	2 \$10,000-\$19,999	1	1	1	1	1	1	1	1	1	1	1	1	1
3 Unearned Income (Pensions, Annuities, Unemployment Compensation, Workmen's Compensation)	3 \$20,000-\$29,999	2	2	2	2	2	2	2	2	2	2	2	2	2
4 Other	4 \$30,000-\$39,999	3	3	3	3	3	3	3	3	3	3	3	3	3
5 None	5 \$40,000-\$49,999	4	4	4	4	4	4	4	4	4	4	4	4	4
	6 \$50,000-\$74,999	5	5	5	5	5	5	5	5	5	5	5	5	5
	7 \$75,000+	6	6	6	6	6	6	6	6	6	6	6	6	6
	8 Refused to answer	7	7	7	7	7	7	7	7	7	7	7	7	7
	9 Unknown	8	8	8	8	8	8	8	8	8	8	8	8	8
		9	9	9	9	9	9	9	9	9	9	9	9	9

Court Disposition Date	Number of DWI Arrests	Assessment Determination	Placement Recommendation	Special Study
0	0	1	1	0
1	1	2	2	1
2	2	3	3	2
3	3	4	4	3
4	4	5	5	4
5	5	6	6	5
6	6	7	7	6
7	7	8	8	7
8	8	9	9	8
9	9	0	0	9

PLEASE DO NOT MARK IN THIS AREA

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## Appendix 2.

### Details of Steps in Data Cleaning and Number of Cases Excluded at Each Step

<b>112,104</b>	<b>Records from ADAA 1995-2003</b>
	Deleted:
-1,583	Duplicate Cases
-4,670	Missing/Invalid SSN
-797	Missing Assessment Date
-2,269	Assessment Date before 1995 or after 2003
-17	Missing Offense Date
-2,275	Offense Date before 1995 or after 2003
-219	Missing/Invalid County/Center Code
-1457	Missing Demographics
-355	Missing/Invalid Problem Determination
<b>-13,642</b>	
-3,564	"Shoppers" second assessments
-3,658	"Shoppers" first assessments
<b>-7,222</b>	
<b>-10,613</b>	Second assessments of repeat offenders (not individuals; records)
<b>-1381</b>	Drug-involved drivers
<b>-880</b>	Non-unique ID records for matching (440 individuals)
<b>78,366</b>	<b>Total number of available records for analyses for prediction of problem determination</b>
	*Note: Statistical analyses conducted on this sample will have a smaller number of cases due to missing data.
51,617	<b>Problem drinkers</b>
26,749	<b>Social drinkers</b>
<b>50,089</b>	<b>Total number of available records for analyses for prediction of re-assessment (truncated sample of individuals assessed from 1995-1999)</b>
	*Note: Statistical analyses conducted on this sample will have a smaller number of cases due to missing data.
33,694	Problem drinkers (1995-1999)
16,395	Social drinkers (1995-1999)

**Appendix 3.**  
**County-level Reports**