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Repeat Alcohol Offenders: A Review of the Literature

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EXECUTIVE SUMMARY

Alcohol-impaired driving is the most frequently committed injury-producing crime in the U.S. The odds of being caught are small, and chronic drunk drivers may drive drunk 1,000 times before being caught. The problems associated with alcohol-impaired driving attract a lot of attention from the media, the general public, law enforcement, and policy makers. This is justifiable since nearly 38 percent of total traffic fatalities in 1998 were alcohol related, and the cost of drinking and driving for society is high. As bad as the alcohol-impaired driving problem may seem, one should not lose perspective in relation to overall crash statistics. National Highway Traffic Safety Administration (NHTSA) estimates that only 7 percent of all crashes during 1998 involved alcohol, and the rate of fatalities and injuries due to alcohol-impaired driving have been decreasing for nearly two decades.

About one-third of drivers convicted of alcohol-impaired driving are repeat alcohol offenders. These offenders are at a substantially higher risk of crash involvement compared to first-time alcohol offenders. In response, many states continue to revise their policy to crack down on drinking and driving, and hundreds of new drunk driving laws continue to be enacted. Still, the majority of intoxicated drivers involved in fatal crashes are NOT repeat alcohol offenders. In fact, national statistics indicate 6 out of 7 intoxicated drivers in fatal crashes are not repeat alcohol offenders.

National and state statistics regarding alcohol-impaired driving may be conservative due to statistic reporting problems. Very few states have systems in place that accurately track repeat alcohol offenders. Even the basic definition of a repeat alcohol offender varies by state, because the length of time each state tracks backward for offenses varies from as little as three years to as much as ten years. Purging of state records, plea bargaining, and a large variation in drinking and driving laws by state complicate the figures. National statistics are dependent upon information provided by the states, but standards for the

information have not been set, and few states are even able to provide information. The national information includes only fatal crash information from official records, which leave out many important details. When scientific studies of the data are conducted, the lack of good data, small data sets, changes in law, and the inability to randomly assign control groups for comparison all complicate the process. Even the most basic measure of recidivism, which is an additional arrest, is questionable as an outcome measure in light of the slim chances of arrest.

Predictions of recidivism prove difficult, despite the fact that many different factors, methods, and instruments have been utilized in numerous attempts. The likelihood of offenders complying with court orders regarding their treatment is much more predictable than recidivism. Fortunately, researchers have been more successful in documenting a basic profile of repeat alcohol offenders. More than 90% of repeat alcohol offenders are white males under the age of 45; 75% of them are under 40 years of age. Repeat alcohol offenders are unmarried, have low income, are not college educated, and have blue collar occupations. They prefer beer, and frequently drink in bars or at parties. Multiple drinking locations increase the probability of driving while impaired. Repeat alcohol offenders are experienced drinkers, and believe that they are quite capable of driving, even while knowing that they may be arrested for doing so.

Detailed statistics regarding gender and race of repeat alcohol offenders are insufficient in order to be able to make generalizations to the population as a whole. Few states keep such records. Their accuracy is questionable in part due to automatic data purging, and in part due to differences in the definition of a repeat offender. Frequently, sample sizes in studies that do include these groups are too small for analysis. Random samples of these populations are also more difficult to obtain. These limitations may have significant impact on

assessment and treatment of these populations, and therefore more quality research is needed in regard to gender and race.

High blood alcohol concentration (BAC) levels increase crash risk exponentially. Canadian data indicate that those with high BAC levels are 244 times more likely than drivers who have not been drinking to be killed. High BAC levels may suggest alcohol dependency. Few studies examine BAC levels exclusively, although it is documented in several studies investigating offense level, criminal history, and treatment programs. Additional studies of BAC levels may be useful. Studies conflict regarding the relationships between criminal history records and recidivism.

Only a few studies investigate attitudes and perceptions regarding alcohol-impaired driving. Individuals are less likely to drink and drive as their perception of the probability of arrest increases, whether or not they have previous convictions. A heightened awareness of the consequences of drunk driving crashes or arrest correlates with reduced tendencies to drink and drive. Perceptions of alternatives to driving drunk, such as taking a taxi or calling a friend for a ride home, were negatively correlated with drunk driving tendencies. Public knowledge of drinking and driving laws is low, and in the early 90's favorable attitudes toward reducing drinking and driving were decreasing. More research in this area may be useful.

Michigan law has changed substantially several times during the 90's, and offers increasing efficiency for the swift prosecution and incapacitation of alcohol-impaired drivers. Other states are also evaluating their legal systems more comprehensively and are making changes that mandate swift, uniform enforcement. Ignition interlock, vehicle immobilization, and vehicle forfeiture is more frequently included as sentencing options along with harsh criminal penalties. Jail overcrowding helps make alternative sanctions more attractive, and alternative sanctions are often used in addition to monetary fines. Minimum

sanctions by offense level are more often mandated. More states are adopting tort liability, which imposes civil penalties on those who are found to be at fault in causing harm. License revocation or suspension has demonstrated only limited success due to difficulties with enforcement, yet remain a common component of a drunk driving sentence.

Court mandated alcohol assessment and/or treatment is ordered in most states, even though it is difficult to implement effectively. Several studies indicate that combining alcohol treatment with driver license actions is the best strategy for reducing alcohol-impaired recidivism and enhancing overall traffic safety. Implementing a comprehensive legal system which effectively uses such strategies is challenging. Adequate follow-up of individuals not in compliance with the legal system is equally important.

Technology has improved ignition interlock devices, which are highly effective in reducing arrests for alcohol offenses while they are in place. Most ignition interlock users have a positive reaction to the device once they begin using it, and would recommend the device to others, even if they had initial reservations. The device can provide offenders the opportunity to remain employed, stay with their family, and maintain other social contacts as an alternative to jail. Storage costs for the vehicle such as those incurred with impoundment are also avoided. The challenge is to incorporate comprehensive legal policies regarding the length of time interlock devices are required for which offenders, coordination of installation and service, how to cover their cost, and most importantly, consequences for their misuse.

Other forms of vehicle immobilization also indicate positive results, and do not result in the problematic storage costs involved with vehicle impoundment. Research on immobilization and impoundment indicates that offenders have lower recidivism rates before and even after they reclaim their vehicles. Plate confiscation varied in effectiveness depending on whether it was implemented

administratively or judicially. Implementing plate confiscation administratively yields better results, but is complicated by offenders who own more than one vehicle. We did not find any studies addressing the effectiveness of vehicle registration denial.

There is a large literature on an incredible variety of treatment options for alcohol-impaired driving problems, and treatments have been under investigation since the 1960's. The difficulty with developing and adopting treatment standards is selecting an appropriate treatment regimen and ensuring that offenders comply, with compliance defined differently not only by each treatment program, but also by each study that attempts to analyze treatment programs. The rate of compliance declines sharply among multiple offenders. Even when mandated by law there is no guarantee of compliance, so good follow-up and stiff consequences for lack of compliance becomes critical. Compliance is likely to increase when offenders are placed in a treatment program that is appropriate for their particular problems. Forcing repeat alcohol offenders to participate in a particular treatment program does not guarantee their reform. Unless they have a desire to change their behavior and take responsibility for it, treatment is not likely to be effective. Just over seven percent of the population (7.4%), or about 14 million Americans, meet the diagnostic criteria for alcohol abuse or alcoholism (Grant, et al., 1994). These individuals have impaired control over their drinking. Court involvement in the treatment process may be necessary, since alcoholics frequently deny they have any problem and refuse assistance.

Recidivism is a poor outcome measure of treatment success because the chance of arrest for alcohol-impaired driving is so small, yet recidivism remains the most commonly used measure. Alcohol assessment is inextricably linked to treatment, since accurate assessment leads to more successful outcomes. The literature indicates that combining traditional legal sanctions (license restrictions, fines) with some form of treatment for the underlying alcohol problem is associated with the lowest recidivism rates. Treatment programs that combine

education, counseling, and some type of follow-up or probation are best. Rather than attempting to modify the driving behavior of repeat alcohol offenders, it is probably more effective to adopt vehicle sanctions (ignition interlock, immobilization) which physically prevent unlawful driving.

INTRODUCTION

The University of Michigan Transportation Research Institute, in cooperation with the Michigan Department of State Police Office of Highway Safety Planning and the Michigan Department of State, is conducting an evaluation of the effectiveness of Michigan's Repeat Alcohol Offender package of laws that became effective in October, 1999. The planned evaluation will take place from 2000 through 2002. This literature review was conducted to provide background information for the evaluation. This document summarizes research literature regarding drinking and driving, including some of the drinking and driving laws and policies as well as potential countermeasures. This review is limited to publications regarding repeat alcohol offenders in the United States and Canada published since 1990.

SCOPE OF THE REPEAT ALCOHOL OFFENDER PROBLEM

The Statistics

The rates of death and injury caused by alcohol-impaired driving have been decreasing steadily for nearly two decades, but repeat alcohol offenders continue to pose a significant threat to society. The number of drivers in alcohol involved fatal crashes during 1998 was 56,543, which reflects a 28% decrease from the 62,253 drivers reported in 1988. Regardless of this reduction, every 33 minutes someone is killed in an alcohol-related crash (National Highway Traffic Safety Administration, NHTSA, 1999). Social pressures, enhanced law enforcement, and associated mass communication messages have been successful in reducing alcohol-impaired driving in American society. Yet the repeat alcohol offender continues to be a threat because they either can not or will not change their unsafe driving behavior, possibly due to underlying problems of alcoholism. Alcohol-impaired driving is the most frequently committed injury-producing crime in the United States (NHTSA State Legislative Fact Sheets). Nevertheless, the odds of being caught for alcohol-impaired driving are small, and chronic drunk drivers may drink and drive 1,000 times

before being caught (National Commission Against Drunk Driving [NCADD] and The Century Council, 1996).

Alcohol-related traffic fatalities in the United States accounted for nearly 38 percent of total traffic fatalities in 1998 (NHTSA, 1999). Of drivers arrested or convicted of driving while intoxicated or driving under the influence of alcohol (DWI/DUI), about one-third of them are repeat alcohol offenders (Hedlund & Fell, 1995). These repeat alcohol offenders are over-represented in fatal crashes and, when intoxicated, have 4.5 times the risk of involvement in a fatal crash as intoxicated drivers without prior alcohol convictions (Fell, 1991). Further illustrating the alcohol-impaired driving problem, 30 percent of all traffic fatalities in 1998 occurred in crashes in which at least one participant (the driver, an involved pedestrian, or pedalcyclist) had a BAC of 0.10 g/dl or greater. Seventy percent of the people killed in such crashes were themselves intoxicated (NHTSA, 1999). While alcohol-impaired driving is clearly a problem, we should not lose sight of the overall traffic safety picture. Estimates from NHTSA indicate that only seven percent of all crashes during 1998 involved alcohol (NHTSA, 1999).

Repeat alcohol offenders may actually be involved in fewer crashes than first-time alcohol offenders when we examine crashes of all types (fatal vs. nonfatal, alcohol-involved vs. nonalcohol-involved). Perhaps this is because when repeat- and first-time- alcohol offenders are sober, the repeat alcohol offender may drive more carefully than the first-time alcohol offender, or it may be the result of repeat alcohol offenders driving less (or not at all), due to license suspension or other legal sanctions (Jones & Lacey, 2000). However, while repeat alcohol offenders are at a substantially higher risk of crash involvement, according to national records, 6 out of 7 intoxicated drivers in fatal crashes are NOT repeat offenders (Fell, 1991). In fact, California recently reported that over 70% of drivers in alcohol-involved fatal accidents had no prior DUI or reckless driving conviction (Tashima & Helander, 2000). These California drivers are first

offenders, then, rather than repeat alcohol offenders, but the distinction between the two groups is important and easy to overlook. The exact definition of a repeat offender in terms of the number of years encompassed for prior convictions becomes critical because *repeat* alcohol offender is defined differently by each state. Some states define a repeat alcohol offender as a driver with more than one drinking and driving arrest within three years, while many other states use five years, and a few even use ten years for their timeframe.

Automatic data management procedures are the most cost-effective method for states to manage their data, and when data are purged routinely, it becomes difficult or impossible to track offenses over the lifetime of an individual offender unless the state has developed specific tracking systems to do so. Estimates of recidivism are influenced by these data limitations. Therefore, comparison of recidivism rates between states should be undertaken with caution, using only other states with data that is purged on the same time frame (Yu & Williford, 1991).

National statistics with regard to drinking and driving problems are not representative of the breadth of the problem for the nation as a whole. Several factors contribute to statistical problems. NHTSA maintains the Fatality Analysis Reporting System (FARS), which can be analyzed for information on drinking and driving. Unfortunately, FARS has several weaknesses. FARS includes only fatal crashes, with information only from official sources such as police reports and driver records, which often leave out many important details. The records for FARS are provided by the states, and only 15 states have systems that allow them to report repeat offender rates (NCADD & The Century Council, 1996). Thus, while data provided by a given state may be analyzed and/or published, it cannot be generalized to the country as a whole, leaving FARS as our best data source regardless of its weakness.

Several other factors contribute to problems with our national statistics. The lack of standards for the states to follow when providing FARS with data results in differences between the data within FARS from each state. These differences make data comparison between states less accurate. Alcohol-impaired driving convictions are included with driving under the influence of drug convictions in some states, which could cause an individual to be categorized as a repeat offender in one state but not another. Alcohol-impaired driving laws generally vary from state to state, along with the legal systems enforcing those laws and the amount of enforcement. Driver records usually do not reflect arrests or convictions received in other states, so some repeat alcohol offenders who have relocated may never be identified as such. To further complicate the numbers, states which allow plea bargaining may not accurately reflect the number of actual offenses for which a given driver may have been arrested. Therefore, national numbers that reflect the alcohol crash problems involving repeat alcohol offenders cannot be stated with any degree of confidence (Jones & Lacey, 2000; Breer, 1998, Yu & Williford, 1991).

State statistics are also limited by an inability to track offenses over a lifetime due to data purges. States usually do not share data that reflect arrests which have occurred in other states, so the likelihood of missing some repeat alcohol offenders is increased (Hedlund & Fell, 1995). The issue of the right to privacy for drivers has come to the forefront, making it more difficult for researchers to obtain data. Furthermore, the effect of plea bargaining down to lesser offenses, allowed in many states, results in more conservative statistics. Changes in laws over time complicate data analysis, and must be noted as researchers analyze data for possible effects.

The Nature of the Problem

We know many things about the repeat alcohol offender from the scientific literature, yet we have not been able to eliminate ongoing problems with their behavior, perhaps in large part because addiction is involved. For alcohol dependent offenders, the ability to limit their intake is impaired. They are experienced drinkers who have a high comfort level with alcohol. When this high comfort level with alcohol is combined with excessive intake, these drinkers often believe they are quite capable of driving under the influence. These feelings may even be reinforced as a result of an increasing tolerance to the effect of alcohol caused by prolonged, heavy alcohol use and having driven drunk numerous times before without the consequence of arrest. Patterns of addiction indicate these drinking drivers generally do not take responsibility for their behavior, and deny they have a problem. Usually, they refuse any treatment, which is why court intervention for mandatory treatment can be critical for alcohol dependent offenders. Just as they do not have the ability to simply limit (or eliminate) their alcohol intake, most of them also do not have the ability to help themselves by seeking treatment without intervention from an outside person or source. The unique issues involving addiction certainly complicate efforts to reduce the repeat alcohol offender problem.

The addictive aspect of alcohol makes it necessary for our legal system to use programs and instruments to improve alcohol assessment and treatment to achieve success in reducing problems with drinking and driving and the repeat offender in particular. Success is usually defined by whether or not an offender recidivates. Recidivism is generally defined as the tendency to relapse and fall back into a pattern of repeating a specific behavior, often a criminal behavior. Many studies have attempted to predict recidivism using a variety of methods and variables ranging from driving records to psychiatric symptoms (Foss, Stewart, & Martell, 1993; Gould, L. & Gould, K., 1992; Lapham, Skipper, & Simpson, 1997; Marowitz, 1998, 1996a, 1996b; Nochajski, Miller, Wiczorek, &

Whitney, 1993; Peck, Arstein-Kerslake, Helander, 1994; Pristach, Nochajski, Wieczorek, Miller, & Greene, 1991; Snow, 1996).

Using psychiatric symptoms is not the best method to predict recidivism. An examination of the utility of psychiatric symptoms for identifying potential drinking and driving recidivists indicates that psychiatric symptoms are more closely related to whether the individual would qualify for a DSM-III-R alcohol dependent diagnosis than to offender status. A second important finding is that a high rate of alcohol dependence is found for first-time offenders (Pristach, et al., 1991). Perhaps the court needs to intervene earlier, before first-time offenders recidivate.

In general, compliance with court orders may be more predictable than subsequent recidivism. This has been shown in studies that attempted to predict drinking and driving recidivism and treatment compliance using psychometric, biographical, drinking history, and prior-driving-record variables. Those offenders having a high probability of being non-compliant with court orders were much more likely to recidivate and have alcohol involved traffic crashes than were those with favorable compliance expectancies (Peck, et al., 1994; Snow, 1996).

Our legal system needs to determine which repeat alcohol offenders are alcohol dependent, so they can be referred for appropriate treatment in order to prevent recidivism, but there are difficulties with assessment instruments. Alcohol assessment instruments should be specifically designed for the purposes to which they are being applied and proven through scientific study before they are used to identify likely recidivists (Lapham et al., 1997; Marowitz, 1996a, 1996b; Wells-Parker, Pang, Anderson, McMillen, & Miller, 1991). For example, in El Cajon, California, MAST and CAGE assessment instruments (not specifically designed to predict recidivism), as well as alcohol dependence assessment

interviews by the clinician, failed to predict recidivism when assessments were court ordered as part of sentencing (Marowitz, 1996a, 1996b).

PROFILE OF REPEAT ALCOHOL DRIVING OFFENDERS

Overview

There is a considerable amount of research describing the general profile of the repeat alcohol offender. Obviously there is variation from person to person but several characteristics have been documented repeatedly. When compared to first-time alcohol offenders, repeat alcohol offenders drink, and get drunk, more frequently. Repeat alcohol offenders abuse drugs in proportionately greater numbers than first-time alcohol offenders. Repeat alcohol offenders have fewer economic resources, exhibit greater impairment as a result of their drinking, and use more alcohol treatment services than first-time alcohol offenders (Argeriou, 1986). Repeat alcohol offenders are most often white males. The age of most repeat alcohol offenders ranges from 25-45, yet problems are observed with drivers under the age of 25, and problems are particularly prevalent with those up to 35. Repeat alcohol offenders are frequently arrested on weekend nights, and many are driving with no license or with a revoked or suspended license at the time of arrest. The majority of repeat alcohol offenders have been drinking in bars or restaurants. Beer is their preferred alcoholic beverage. Repeat alcohol offenders are most likely to be single, divorced, or separated from their spouses. Most of these offenders have a high school education or less, and are blue collar, working class people. Repeat alcohol offenders are more likely to use tobacco, and use it in higher amounts. They are also more likely to use marijuana, and to have had nonvehicle-related criminal charges. More personal problems and antisocial behaviors are observed in repeat alcohol offenders. They have a history of poor interpersonal relationships and are aggressive, hostile, sensation seekers. (Beirness & Simpson, 1997; Eby 1995; NCADD & The Century Council, 1996; Snow, 1996; Veneziano, C. & Veneziano, J., 1992).

Differences Between Sexes

Most studies of drinking and driving issues to date have focused on males, and few studies compare gender differences. In 1997, motor vehicle crashes were a leading cause of death, and accounted for one out of every 41 male deaths and one out of every 80 female deaths that year (Abdel-Aty & Abdelwahab, 2000). Over 90% of repeat alcohol offenders are male, and even though the number of females may be increasing, repeat alcohol offenders are overwhelmingly male (Jones & Lacey, 2000; Hedlund & Fell, 1995). This has been well known for a long time. A recent Florida study confirms previous studies, illustrating that male drivers experience higher alcohol/drug-related accident rates than females for all age groups. In fact, male accident rates are consistently about four times those of females (Abdel-Aty & Abdelwahab, 2000). Another study associates being male with a 57.5% increase in the odds of recidivating (Marowitz, 1996b).

Biological differences between men and women affect alcohol uptake, metabolism, and subsequent drinking and driving behavior. These biological differences become more significant when driving with alcohol involvement. There are definite differences in body fat ratios between sexes. However, the few studies which have been done on how these differences affect driving and alcohol metabolism are contradictory. Higher body fat ratios, diminished gastric alcohol dehydrogenase, ethanol metabolism, and even variations in hormonal levels have been blamed for differences in blood alcohol concentrations between sexes. Differences in the use of medications, as well as driving experience, complicates comparison (Popkin, 1993). More studies are necessary to confirm these findings and better understand the effects of physical and metabolic differences on driving performance after drinking and the possible development of alcohol dependence.

To date, very little literature exists examining female drinking and driving offenders. Because women constitute small proportions of alcohol offenders, problems with sample sizes that are too small to analyze statistically contribute to

this lack of literature. In a random sample extracted from Michigan driver records of drunk driving convictions during 1992 and 1993 only 14.3% were females (Streff & Eby, 1994). The rates of alcohol-impaired driving have historically been lower for women than for men, although the proportion of women arrested for drinking and driving appears to be increasing (Wells-Parker, et al., 1991; Snow, 1996a; Argeriou, 1986).

Data from Mississippi were used in a study by Wells-Parker, et al. (1991). Their controlled, random assignment DUI intervention study used 274 convicted female offenders and 3,151 male DUI offenders from 11 cities. Females were compared to their male counterparts in an examination of the effects of an intervention on women's recidivism rates. Findings indicate that women in the project were more likely to be between the age of 30-50 years of age than men. The men were younger; 43.1% were under 30 years of age. Women were less likely to be married, and less likely to have less-than-a-ninth- grade education than men. Women were also less likely to be screened as a high-problem-risk drinker; less likely to have prior DUI and public drunkenness arrests; and were less likely to recidivate in comparison to men (Wells-Parker, et al., 1991).

Little of the available literature addresses the issue of the effectiveness of screening tools with regard to gender, but there are certainly potential differences. Wells-Parker, et al. (1991) replicated earlier findings that the repeated administration of an alcohol dependence screening instrument increased alcohol-impaired driving recidivism among women, particularly those with less than 12 years of education. It has been suggested, and some empirical evidence exists to support the proposition, that repeated screening results in a reduced self-image that further contributes to alcohol use as self-medication. This underscores the need for scientifically validated alcohol assessment instruments.

Marelich and colleagues found other differences between men and women in a recent study (Marelich, Berger, & McKenna, 2000). While both men and women responded to the threat of legal punishment equally, women seemed to have a different moral framework than men. Women are more responsive to social and internal controls, indicating that they are more embarrassed by arrest for drinking and driving. Women are more concerned about the loss of respect from their loved ones, and more likely to feel guilty about driving while intoxicated, even if no one finds out. Women showed a stronger care-orientation, which indicates they embrace the values of general prevention more than those of specific deterrence (Marelich, Berger, & McKenna, 2000).

A troubling long-term trend in Mississippi indicates significant increases in female alcohol-impaired driving remediation program participants. The percentage of females in the program at the end of 1979 was 6.6%, and this went up to 10.3% at the end of 1984, then increased again to 13.8% at the end of 1994 (Snow, 1996a). Additional studies tracking women would be useful, because with the role changes women have experienced as large numbers of them have entered the work world, changes in their drinking and driving patterns are likely. Furthermore, they may need even more assistance with their drinking and driving problems than men, because many lack the social supports men have (Snow, 1996a).

Marital Status

Marital status has been examined in studies of repeat alcohol offenders, though it is usually not the primary variable under investigation. In general, the repeat alcohol offender is likely to be unmarried (Jones & Lacey, 2000). Marital status can serve as a valuable predictor of recidivism for white people, with recidivism rates relatively low among married repeat alcohol offenders. Among blacks there was no difference in rearrest rates of repeat alcohol offenders of different marital status categories (Snow, 1996b).

Mississippi data indicates female drinking and driving offenders are less likely than men to be married, and are more likely to be divorced, separated, or widowed (Wells-Parker, et al., 1991; Snow, 1996a). Emotional problems are more prevalent among women who have experienced marital disruption. The proportion of all participants in a Mississippi intervention program who were married dropped over 15 years from 49.5% to 30.9%, while the proportion who are single increased from 28.2% to 43.3% (Snow, 1996a).

Race

Few studies have examined the issue of repeat alcohol offenders and race, in part due to the lack of data and/or small sample sizes. However, a recent study used Florida's diverse population, and indicates that white drivers are more involved in accidents while driving under the influence of alcohol than other races in the state. Hispanic drivers followed whites, and black drivers have the lowest percentage of crashes while under the influence in Florida. Investigating race helps identify behavioral or cultural differences that may affect drinking and driving (Abdel-Aty & Abdelwahab, 2000).

Racial differences were also found in Mississippi. Offenders who failed to enroll in Mississippi's court ordered program had a high likelihood of recidivism. When additional characteristics were identified, black offenders and younger offenders were less likely than others to comply with the court ordered program. These researchers also found information from the registration/intake form exclusively appears to have only weak predictive power of recidivism. The study made extensive use of offender questionnaires as homework assignments designed to help clients conduct a thorough self-assessment, and combined them with registration/intake information in an attempt to provide offenders feedback to assist in changing their behaviors. A preliminary recidivism risk index was constructed based on the variables contained in the registration/intake form, to be used as feedback to participants on their chances of rearrest. A preliminary validation of this index appeared to effectively distinguish offenders at a high risk

of repeating from those at a low risk. However, in what may be the most important finding, researchers found a pattern of relationships characterized by assessment items which were significantly related to recidivism among whites, but were not related to recidivism among blacks, or the relationships were much weaker, and these are discussed below (Snow, 1996b).

Gender was determined to be the strongest predictor of recidivism among blacks from this Mississippi data, with males more likely to recidivate. Other items with differences between blacks and whites were marital status, education, score on the Mortimer-Filkins Questionnaire, and BAC. While marital status is a valuable recidivism predictor among whites, among blacks there was essentially no difference in rearrest rates of offenders in the various marital categories. The same was true for education level among blacks; there was essentially no relationship between recidivism and education yet white repeat alcohol offenders had lower mean education levels. Emotional problems not related to drinking were more prevalent among whites than blacks. More females than males experienced emotional problems, as did those persons who had experienced marital disruption. There was only a modest relationship between emotional problems and recidivism. Although high Mortimer-Filkins Questionnaire scores are a useful predictor of recidivism for white males and females, low scores for black males indicate no relationship to recidivism among blacks males (the number of black females in this subgroup were too small for meaningful analysis). BAC at arrest was examined by race and gender. Although higher BACs were found among black males who were rearrested than for those not rearrested, the strength of the relationship was much weaker than among either white females or white males. No relationship was found among black females, perhaps due to the small number of black females in the data set (Snow, 1996b). A previous study of Mississippi data reported no significant differences in BAC levels when examined by blacks versus whites (Snow, 1996a).

In a study investigating the utility of four different alcohol screening instruments, Lapham et al. concluded the MacAndrews scale of the MMPI-2 (MAC) is the best screening instrument, but screening for the presence of alcohol-related problems is less important in predicting recidivism than are certain personality traits (1997). Personality measures and measures of problem behaviors must be considered. Their study sample consisted of 45% Hispanics, 45% non-Hispanic whites, 8% Native Americans, and 2% in "other" race groups. Twenty percent of their sample were women. Recidivism rates did not differ among the race groups, but young men had higher rates of recidivism than women or older men. High BAC levels were associated with race, with Native Americans and "other" race groups being more likely to have high BAC levels when compared to Hispanics and non-hispanic whites. Further scientific validation of screening instruments are necessary to confirm results of this initial study (Lapham, et al., 1997).

BAC Level

The BAC level of drinking drivers is frequently determined at the time of arrest, to be used as legal evidence. Regardless of the method used to determine BAC level (blood, breath, or urine), Michigan law defines drivers as being alcohol-impaired if their blood alcohol level is between .07 percent but less than .10 percent, and under the influence of liquor (OUIL) or having an unlawful blood alcohol level (BAL) when it is at .10 percent or greater. BAC and blood alcohol level (BAL) are both terms used to describe the measure, or amount, of alcohol within blood, with some states referring to it as BAL, and others as BAC. These levels are not always available because individuals have the right to refuse BAC tests. However, refusal of a BAC test is punishable in most states. Legal BAC limits and definitions of repeat alcohol offenders vary by state.

A study of high risk drivers who persistently drink and drive determined that even if only small percentages of drinking drivers have high BAC's, they pose a significant threat to themselves and others because their risk of crash involvement is high. Roadside breathtesting surveys of nighttime drivers have

been conducted periodically in Canada since 1974, where researchers estimate that only about 1% of all drivers on the road at night have BAC levels that are high, over .15 percent (Beirness & Simpson, 1997). However, among fatally injured drivers in Canada in 1994, 62% of them had BAC levels of nearly twice their legal limit of .08 percent. Those with high BACs increase their risk of crash involvement exponentially. Compared to drivers who have not been drinking, those with high BAC levels (over .15 percent) are 244 times more likely than non-drinking drivers to be killed (Beirness & Simpson, 1997). The threat looms large regardless of the small percentage of high BAC drinking drivers.

Marowitz (1998, 1996a) examined BAC, prior 2-year traffic convictions, and offender level (first or repeat). He found that a high BAC level at arrest statistically relates to the probability of recidivism during the year following arrest. Given a high rate of recidivism, high BAC levels suggest alcohol dependency, while low BAC levels indicate the involvement of other impairing substances. Users of intoxicating substances commonly use more than one such substance at a time, which increases the likelihood of recidivism. The presence of a moderate BAC level predicts a much lower recidivism rate than a BAC level at either extreme. Recidivism rates for those who refused BAC testing were the same as for aggregated BAC tested offenders with prior alcohol convictions. In another study, Marowitz (1996b) found that each .01% increase in BAC was associated with a 5.4% increase in recidivism.

Very few studies explore issues of BAC in regard to race or gender, and those that include them have not studied race and gender exclusively. However, researchers found no significant difference between men and women regarding BAC level at arrest utilizing Mississippi data (Snow, 1996a; Wells-Parker, et al., 1991). A study of the utility of different screening instruments found high BAC levels were associated with race, with more Native Americans and "other" race groups being more likely to have a high BAC when compared to Hispanics and non-Hispanic whites (Lapham, et al., 1997). In two other studies using data from

Mississippi, no significant differences in the BAC levels of blacks or whites were reported initially, but a weak relationship between high BACs and black male repeat alcohol offenders was reported in a second study (Snow, 1996a, 1996b). Because so few data are available and sample sizes are typically so small, statements about race or gender and BAC level can not be made with any scientific validity until further research is completed.

Studies conducted in two states report BAC levels that are extremely similar for first and repeat alcohol offenders. A Louisiana study indicates the mean BAC level at arrest was .178 for second-time offenders (Gould & Gould, 1992). California figures indicate the mean BAC level at arrest is .171 for a second DUI offense, .176 for a third DUI offense, and .182 for a fourth (or more) DUI offense (Tashima and Helander, 2000) . For first offenders, Louisiana's mean BAC level was .151 (Gould & Gould, 1992), close to California's first offender mean BAC level of .159 (Tashima and Helander, 2000). Similarities of the BAC levels between states lend credibility to the statistics.

Experimental studies indicate that a variety of individual skills are impaired at BAC levels well below 0.08%, but legal BAC limits vary among states. Recent federal legislative changes are encouraging states to adopt 0.08% as their legal BAC limit. The transportation appropriation bill President Clinton signed into law October 23, 2000 will withhold two percent of federal highway and bridge construction funds from states that have not approved 0.08 BAC laws by October 1, 2003. The states will continue to lose increasing percentages of funding until they adopt 0.08 BAC laws (see table below). However, if states do lose funding in 2003, they can have the money returned if they pass 0.08 BAC legislation within four years.

Schedule for State 0.08 BAC Law Adoption in Relation to Federal Highway and Bridge Construction Funds	
Laws Must be Enacted by	Or Percent of Funding Lost
Oct. 1, 2003	2
Oct. 1, 2004	4
Oct. 1, 2005	6
Oct. 1, 2006	8

Prior Convictions

Studies conflict regarding relationships between criminal history records and recidivism. Some say they are unrelated, and that repeat alcohol offenders are even *less likely* to recidivate than those with no previous convictions because they begin to drive less, and more cautiously (Foss, et al., 1993). Others assert that a criminal history (excluding drinking and driving arrests) may make an individual more than twice as likely to be rearrested for a drinking and driving conviction within two years (Nochajski, et al., 1993). Another study of criminal history records found repeat alcohol offenders are more likely to have committed criminal acts than first-time offenders. Repeat alcohol offenders are also more likely to have been arrested for acts of violence, and more likely to have been involved in accidents. Larger proportions of offenders with criminal history records are concentrated in the upper end of the BAC range (Gould & Gould, 1992). It is important to note that many alcohol rehabilitation programs advocate knowing the prior criminal record so the program can be tailored accordingly.

Prior-two-year traffic convictions, rather than criminal convictions, have also been examined in relation to drinking and driving arrests. Marowitz (1998, 1996a) supports the view that first offenders with high BAC levels and prior-two-year traffic convictions have just as high a risk of recidivating as many repeat offenders. He contends that it may not be necessary to wait until a first offender has been arrested for a second time before considering them in the high risk category. Perhaps intensive rehabilitation of selected first offenders could prevent or at least delay the commission of a second offense.

Marowitz (1996b) investigated factors related to demographics and life-style, which the county provided, that are usually not part of a driver record. He utilized logistic regression analyses, and also included a total of 21 independent variables from driver records obtained from San Diego County, California, Alcohol and Drug Services. Prior convictions, BAC, age, and gender were obtained from the driver records. Education, military duty status, level of employment (part or full-time), and prior alcohol or drug treatment information was provided by the county. All of these variables were significant or marginally significant predictors in the final recidivism model. His results demonstrate that each prior-one-year total conviction was associated with a 26.9% increase in the odds of recidivating; each .01% increase in BAC with a 5.4% increase in recidivism; and being male with a 57.5% increase. There was a 2.1% decrease in the odds of recidivating for each year of age. Furthermore, his findings indicate that offenders in the military were 2.868 (186%) times as likely to reoffend than non-military offenders. Full-time employment decreased the odds of recidivism by 37.6% compared to those offenders employed part-time or unemployed. A 43.7% increase in the odds of recidivating is associated with each additional treatment program received for alcohol or drug abuse. However, short pre-and post-arrest periods are a limitation of this study. Differences between the study data and statewide data also suggest the samples used may be biased and show lower recidivism rates than the full population from which each sample is drawn, so caution is advised in generalizing these results.

Attitudes and Perceptions

Individuals are less likely to drink and drive as their perception of the probability of getting arrested increases. This propensity to avoid drinking and driving because of possible negative outcomes (arrest or crash) is called deterrence. The issue of deterrence is commonly divided into two types, general deterrence and specific deterrence. General deterrence is the threat of punishment which prevents the occurrence of drinking and driving by individuals who have not yet experienced punishment for it. Specific deterrence prevents the reoccurrence of

drinking and driving by those who have been previously punished for it. However, increased perceptions of the risk of arrest or the perceived probability of being in an accident after drinking caused by enforcement crackdowns and educational campaigns are often highly localized and typically only persist for a short period of time (Turrisi & Jaccard, 1992).

Those consequences focusing on arrest, such as perceptions about fines, one's name appearing in the newspaper, and a criminal record as a result of arrest for drinking and driving, exhibited significant correlation with drunk driving tendencies. Therefore, these consequences should be emphasized in educational programs to reduce drinking and driving. How people perceive alternatives to driving drunk, such as calling a friend for a ride home or taking a taxi were both negatively correlated with drunk driving tendencies. If individuals can be made to feel more comfortable towards those types of choices, drunk driving may be reduced. The impact of these variables is no different whether individuals had no drunk driving convictions, a single conviction, or multiple convictions (Turrisi & Jaccard, 1992).

MICHIGAN LAW

Michigan's Definition Of A Repeat Alcohol Offender

Michigan law defines repeat offenders as persons who fit into any of the three following categories:

- with two or more alcohol-related convictions within seven years, or
- persons with three or more convictions for driving while suspended or revoked within seven years, or
- persons with three or more alcohol-related convictions within ten years.

Drivers are presumed to be alcohol-impaired if their blood alcohol level by weight of alcohol is greater than .07 percent but less than .10 percent. A person is presumed to be under the influence of liquor or to have an unlawful blood alcohol level when his or her BAL is at .10 percent or greater.

In 1992, a new set of laws took effect in Michigan, written to ensure expedient and potent sanctions to those arrested for driving while drunk or under the influence of an illegal controlled substance. While these laws have been effective, there were still far too many drivers in Michigan with multiple alcohol offenses, and many offenders drove even though their licenses were suspended or revoked. On October 16, 1998, a bipartisan package of twenty bills became law that amends various sections of the Vehicle Code, Penal Code, Felonious Driving Act, and the Natural Resources and Environmental Protections Act. The legislation increases the penalties and offers law enforcement, prosecutors, courts and the Secretary of State additional tools, including Michigan's first vehicle sanctions, to address the problems of repeat alcohol offenders (Charney, 2000).

The repeat alcohol offender package was effective October 1, 1999, except for the vehicle registration denial concept, which became effective in June, 2000. This package was specifically adopted to aid law enforcement in separating the offender from the vehicle, to strengthen legal consequences for repeat offenders,

to provide uniform licensing actions and treatment, and to establish an evaluation process of the laws to determine their effectiveness. It is a complex law that amends 50 sections of the Michigan Vehicle Code, shifting legal responsibility from one area to another, so it requires many new forms, programs, and procedures. Interagency cooperation and commitment are necessity (Charney, 2000).

The new laws mandate interagency cooperation and commitment in many ways. The Department of State Police and the Secretary of State (SOS) have annually prepared a Drunk Driving Audit in the past. It is now mandated that the annual audit be expanded. SOS is required to report on licensing actions imposed (suspensions, restrictions, and revocation); tracking the number of vehicles ordered immobilized or forfeited by judge; and the number of arrests for child endangerment. The capture and transfer throughout the entire process of vehicle identification numbers (VIN) for immobilization and registration denial will be a large challenge. Minimum license actions are defined by law and become the responsibility of the SOS, therefore courts should experience some reduction in paperwork. Since many of the concepts in the package impact law enforcement, prosecutors, courts, their staff, and others the Dept. of State is assisting in coordinating the criminal justice community implementation effort. The Michigan Judicial Institute is working to ensure that the courts and their staff are provided with training. The Driver License Practice Manual requires updating, and conferences are planned to include training on these changes. The Office of Highway Safety Planning and the Dept. of State will publicize the repeat offender package to educate the public. Such promotion is intended to have a deterrent effect regarding drinking and driving. Furthermore, SOS is committed to write a letter to each person subject to these laws with a prior conviction, informing them of the new consequences they face if they have an additional offense (Charney, 2000).

The Increased Efficiencies of Michigan's New Repeat Offender Laws

The remainder of this section summarizes material presented in a detailed overview of the new laws (Charney, 2000). Michigan's legal process is expected to be more efficient because the new laws mandate that all licensing actions be consolidated in the SOS. However, because the SOS has no access to the criminal history files, courts will be solely responsible for licensing actions for drug crimes, theft of motor vehicle fuel, and malicious destruction of property. This consolidation into the SOS office of licensing actions should reduce redundancy within the system as well as confusion for offenders. In the past, the courts submitted conviction information to the SOS, which was authorized to review the action to ascertain that it met the minimum requirements by law. The SOS had the authority to override it if no action had been imposed by the court. Thus, offenders were often given two different licensing actions that could even have two different effective dates (one from the SOS, the other from the court).

Statutes allowing for hardship licensing appeals to circuit court, with the level of relief available dependent upon the nature of the offense, have also been streamlined in the new laws. Appeals will be limited to a review of the record or a legal issue for all but a small number of offenses. Actions subject to equity relief in circuit court are:

Mandatory additional actions under MCL 257.904 (which covers driving with licenses that are suspended/revoked/denied);

First implied consent suspensions;

Driver Assessment actions.

These offenses include the greatest volume of appeals but the change in law clarifies and simplifies the current law.

Previous repeat offender laws not only required that the courts impose the licensing actions, which tends to cause wide variation by geographic areas, but also limited their ability to do so. There are several changes with regard to limiting the access to vehicles for convicted offenders. The courts previously had

the option of ordering the installation of ignition interlock devices on vehicles. Use of ignition interlock varied widely depending on the judges' knowledge of the technology. New statutes demand a minimum one-year mandatory application of an ignition interlock device for repeat offenders as they are approved to return to the road. The SOS is responsible for verification that ignition interlock devices are installed and certified, as well as for oversight of the service providers. Furthermore, whereas the court had no authority to order vehicle immobilization, and difficulty employing vehicle forfeiture laws under prior law, immobilization is now required and forfeiture easier. New laws also mandate plate confiscation and vehicle registration denial for some repeat offenders. Further strengthening the new laws, courts are required to order substance abuse treatment for persons convicted of a second alcohol-related offense, whereas previously it was simply permitted upon conviction, and left to the discretion of the judge.

Following is a summary of changes to Michigan's repeat alcohol offender laws effective 10/99:

Minimum mandatory one-year application of an ignition interlock device for repeat alcohol offenders once approved to return to the road.

Vehicle immobilization is required for repeat offenders

Vehicle forfeiture is easier to accomplish when appropriate

Plate confiscation is required for repeat offenders

Vehicle registration denial for persons with three or more alcohol-related convictions or four or more driving while suspended/revoked actions (effective 6/2000).

Mandatory substance abuse treatment for persons convicted of a second alcohol-related offense.

Furthermore, the laws established three new crimes:

Driving While License Suspended Resulting in a Death or Serious Injury;

OUIL/OWI Resulting in a Death or Serious Injury in an Off Road Vehicle;

Endangerment (OUIL with a passenger under sixteen years of age).

In contrast with previous law, lesser offenses, including operating a vehicle while impaired (OWI), would count as a prior offense used for defining repeat alcohol offenders under the new laws. This prevents offenders who plea bargain down to a lower offense from avoiding the consequences of repeat offender laws over time. In addition, new law states that any combination of three alcohol-related offenses within ten years would be a felony, with only one "zero-tolerance" (youth alcohol) conviction allowed in this combination of offenses for a felony.

COUNTERMEASURES

The traditional legal methods of dealing with the drinking driver have been confinement (jail), monetary fines, and license withdrawal (suspension or revocation). Between 1980 and 1990, over 500 laws were passed in the United States to address drunk driving, and although there has been a national downward trend in drinking and driving, states continue to pass tougher laws to address the problem (Stout, 2000). Minimum mandatory criminal sanctions such as jail terms, fines, and license suspension or revocation have been used even for first offenders in an effort to increase the certainty of punishment and the level of deterrence. Some states have increased police patrols to help enforce drinking and driving laws. Sometimes this is combined with publicity about such enforcement, or it is targeted on specific dates or times when drinking and driving is high, with the hope that it will have a deterrent effect.

As we examined countermeasures, laws pertaining to the prevention of drinking and driving seemed to be discussed rather categorically, though the types of laws adopted varies widely by state. Therefore, our countermeasures section has been broken down into legal sanctions, vehicle-based sanctions, and rehabilitation. Legal sanctions refer to general legal categories related to specific types of laws. Vehicle-based sanctions refer to sanctions that are often more technological and sometimes physically incapacitate vehicles belonging to offenders. These vehicle-based sanctions have been receiving increasing attention as states attempt to strengthen their laws to reduce the problems associated with repeated drinking and driving. Rehabilitation encompasses the variety of treatment programs and options which can also be considered countermeasures.

Legal Sanctions

Incarceration

Several factors contribute to problems with jail as an effective drunk driving countermeasure, most prominently jail overcrowding. Jail overcrowding may pressure judges to choose alternative sentences such as probation or community service when the law permits. Jail sentences may be reduced due to early release as a result of overcrowding. Many times judges are unaware of the actual amount of jail time served by offenders, since they are under such a constant demand to provide sentencing. While jail physically separates offenders from their vehicles, and is thus 100% effective at curbing recidivism while they are incarcerated, short sentences yield only minimal results in regard to preventing offenders from driving their vehicles, even when licenses are suspended, because license suspensions are often disregarded. Jail is also one of the more expensive options.

We did not find any articles specifically examining the effectiveness of jail alone as a punishment for drinking and driving. In a section discussing criminal laws, one study states that mandatory jail terms have been found to have a deterrent effect in some studies, but no effect in others (Stout, 2000). Another study examined the effects of assigning various sanctions in California. Those sanctions included jail; jail and license suspension; a treatment program and jail; and a treatment program, jail, and license suspension combined. The highest number of subsequent drinking and driving convictions were accrued by those in the jail group, with their average significantly higher than all other groups. The next highest recidivism average was for the jail and suspension group, which, along with the jail group, were the two groups with the worst prior records. Analyses of first offenders showed that those receiving jail have, on average, almost double the number of drinking and driving reconvictions as those assigned to a first offender treatment program with license restriction. Therefore, jail terms for first offenders as implemented in California, have been ineffective in reducing recidivism (DeYoung, 1995, 1997a).

Probation and Community Service

The rate of compliance with assessment or rehabilitation processes declines sharply among multiple offenders, and is of concern. Additional convictions often continue to render these individuals ineligible for license reinstatement, so they have very little motivation to comply with the processes (Foss, et al., 1993). This gives us reason to believe that rehabilitation should always be accompanied by other punitive actions. A report investigating alternative sanctions advocates including punitive actions with rehabilitation because of discouraging rehabilitation program results (Eilers, 1994). When repeat alcohol offenders encounter a judge, it is critical that the judge be well informed of the alternative sanctions at the courts' disposal, along with the effectiveness and risks of such sanctions. For example, although community service is widely used, it does not have a research foundation to support or discourage its use as a deterrent to future misbehavior (Eilers, 1994).

A unique perspective surfaced in Eilers' (1994) report on alternative sanctions for serious traffic offenders. It contends that many repeat alcohol offenders are prime candidates for alternatives to incarceration because they are different when compared to other jail and prison inmates. Traffic offenders are more likely to be employed, married, and to have children, indicating more permanent community ties. They are less likely to be involved with drugs other than alcohol. Serious traffic offenders also are less likely to have a history of committing crimes other than traffic offenses. These traffic offenders should pose less risk to the public than the rest of the prison population *if* they can be prevented from driving. Heightened incapacitation by utilizing treatment/work release facilities is suggested. Unlike day reporting centers, these facilities would incarcerate offenders, but offer intensive substance abuse programs. This way offenders who would otherwise go to prison could retain their employment, reducing prison costs. Requiring offenders to pay for at least part of the cost of their incarceration offers an additional punitive aspect. Such facilities may also be

referred to as residential care programs, and show promise as an effective deterrent (Eilers, 1994).

These observations of serious traffic offenders as a group conflict with the previous profile of the repeat alcohol offender. While they may be true of some repeat alcohol offenders, they highlight the importance of scientific research that clarifies the detailed profile of the repeat alcohol offender. Categorizing repeat alcohol offenders with broader groups unnecessarily confuses the issue and is detrimental to reducing repeat drinking and driving offenses.

Fines

Swift, certain, and harsh punishment can be a specific deterrent, discouraging repeat alcohol offenders from violating again, and fines can play a part in this. In a study using New York's comprehensive driver license files, Yu (1994) noted there is some decreasing effect on the probability of recidivism with the swift imposition of fines. He also found that license actions tend not to show any specific deterrent effect. Large fines create a financial burden for the majority of offenders, while taking away their license may not necessarily prevent them from driving without it (Yu, 1994). There is a lack of literature on fines and the length of license withdrawal in relation to recidivism probability. However, if fines are assessed and the offender does not suffer consequences when the fines are not collected, fines lose their effectiveness. There must be a comprehensive legal system to follow such policies all the way through their implementation in order for them to be effective.

Administrative per se Laws

Administrative per se laws are based on the same idea of swift and certain punishment. Administrative per se laws allow the license to be suspended by police or administrative personnel without waiting for the driver to receive a conviction through the judicial system. These laws are a form of postarrest license actions that are conducted to administrative standards rather than

criminal standards. In the United States, the following steps must be observed for administrative per se laws to be permitted:

- The stop was legal.
- There was probable cause to conduct the stop.
- The driver was read all the appropriate warnings.
- The driver was legally required to take a test of sobriety, and failed it.

Forty states and the District of Columbia now have laws that administratively suspend or revoke the drivers' licenses of offenders who fail a breath test. Threshold BAC levels and the length of the license suspension vary from state to state. These laws may also be referred to as administrative license revocation (ALR) laws (McArthur & Kraus, 1999; Voas, Tippetts, & Fell, 2000).

Literature regarding the effectiveness of administrative per se, or ALR laws, is conflicting. Administrative per se laws result in more definite, earlier, license suspensions. They have reduced the rates of reconviction in some places, but not in others when compared state to state (McArthur & Kraus, 1999; Voas, et al., 2000; Voas, Tippetts, & Taylor, 1998; Rogers, 1997; Stewart, Gruenewald, & Parker, 1992). Concurrent changes in other laws within a state being examined for ALR effectiveness and the difficulties associated with finding a good comparison cohort has complicated clear outcomes of some of the studies.

Alcohol Server Laws

Another type of law relevant to the drinking and driving issue shifts some of the blame to the person, place, or host involved in serving alcohol to offenders, and involves tort liability. Tort liability imposes civil penalties on those who are found to be at fault in causing harm, usually monetary damages. Dram shop laws and social host liability are both forms of tort liability. Dram shop laws allow parties injured by an alcohol-impaired driver to sue those who served the alcohol to the impaired driver. They are intended to encourage servers to thoroughly monitor drinking behavior because the bar or establishment can be ordered to pay

compensation to the victim, who may be found to have no liability at all. Social host liability holds social hosts responsible for injuries caused by their intoxicated guests. Social host laws are more controversial than dram shop laws due to the privacy interests of an individual host compared to those of an establishment licensed to sell alcohol. By 1995, all but seven states had some sort of dram shop law, and 12 states had adopted social host laws (Stout, 2000).

Under tort law, the traditional form of general negligence is called the contributory negligence standard. This rule provides that a victim may not recover damages if found to be at fault, to any degree, in contributing to his injuries. Thus, drinkers have an incentive to prevent injuries to themselves caused by drunk driving because no one else can be liable for their injuries. However, under the dram shop law context, the majority of states have adopted some form of comparative negligence, which requires reducing awards according to the percentage the drinker is found to be at fault. Thus, drinkers should continue to take precautions since they are liable for their own apportioned contribution to their injuries, and alcohol servers cannot eliminate their own liability due to negligence on the part of the drinker (Stout, 2000).

Historically, intoxicated adults have been prevented from suing bar owners for their own injuries. Some states specifically prohibit it, but in those that do not, drinkers may engage in less cautious drinking behaviors than those who are completely barred from recovery of damages, to the extent that drinkers are aware of the standards (Stout, 2000). Stout maintains that past empirical analyses have consistently demonstrated the effectiveness of dram shop liability in reducing mortality. Stout reveals a small effect of dram shop liability on reducing the probability of drinking and driving among heavy drinkers. Also, drinking and driving among heavy drinkers was significantly less for individuals living in states that recognize social host liability.

License Revocation or Suspension

A recent report regarding unlicensed drivers examined fatal traffic crash data for five years to learn about the license status of drivers involved in fatal crashes (Griffin & DeLaZerda, 2000). Between 1993 and 1997, 7.4% of the drivers involved in fatal crashes were drivers with an invalid license (suspended, revoked, etc.); an additional 3.7% were drivers with no known license; and another 2.7% were drivers of unknown license status. A driver with a suspended or revoked license is 3.7 times more likely to be involved in a fatal crash than a driver with a valid license. An unlicensed driver was 4.9 times more likely to be involved in a fatal crash than a driver with a valid license (Griffin & DeLaZerda, 2000).

Alcohol use is much more common among drivers who are not licensed or who have invalid licenses. Invalid-license holders have higher rates of alcohol involvement in crashes, and relatively larger percentages of their crashes occur during hours of darkness. Previous driving-while-intoxicated convictions are more common among this group, and such a conviction may have been the precipitating event that brought about a suspension or revocation of the license (Griffin & DeLaZerda, 2000). There were 13,094 drivers with suspended licenses in Griffin's study, and of these, 17.94% had been convicted of driving while intoxicated once during the three-year period prior to their fatal crashes. Drivers with a revoked license totaled 3,719, of whom 29.36% had been convicted of driving while intoxicated once, and 13.47% had been convicted two or more times during the three-year period preceding their fatal crashes. These statistics are astounding in light of the fact that license suspension or revocation has so frequently been used as a countermeasure for drinking and driving, though it is often combined with jail and fines.

There are several problems with the effectiveness of licensing sanctions. License sanctions are difficult to enforce, because in order for an offender to be apprehended when they are driving with an invalid license, they must be stopped

for a traffic offense so that police have the opportunity to check their driver's license. These traffic offenses may or may not be prosecuted as a violation of suspension/revocation, depending on the laws in that particular state. Thus, depending upon the length of their sentence, research indicates that 75 percent of those with suspended licenses will drive illegally (NCADD & The Century Council, 1996). While the license sanction may reduce the amount of driving during the period of suspension, it does not have any effect beyond the period of suspension.

The number of people with license sanctions is higher than in the past. The percent of drivers who were driving with an invalid license or no license, or were of unknown license status, ranged from approximately six percent to 24 percent when ranked by State using FARS 1993-1997 data (Griffin & DeLaZerda, 2000). More license sanctions are due to increased arrests and a higher proportion of convictions as a result of more attention from society and law enforcement to prevention efforts. Even more disturbing, once individuals who drive with suspended licenses realize they can get away with it, many of them choose not to have their licenses renewed when their license sanctions have been completed. In effect, this encourages them to operate outside the law. Studies in the states of Washington and Oregon show that even though first-time alcohol offenders were eligible for license reinstatement after just three months, over half of them were still suspended five years later (NCADD & The Century Council, 1996). A comprehensive legal framework is necessary to swiftly enforce each step of each sanction in order for license sanctions, and the legal system as a whole, to be effective.

One unique study on enforcing license sanctions clearly demonstrates problems with licensing sanctions and how blatant some alcohol offenders can be when it comes to their disregard for the law. A nonroutine "sting operation" was implemented in Maryland, to specifically address the problem of convicted drinking and driving offenders continuing to drive while their licenses are

suspended or revoked. Over the course of a 31-month period (Sept., 1997 through April, 2000), 25 percent of the 1,578 offenders with license sanctions in effect were observed and videotaped, then arrested for violating their license sanction, as they reported to their weekly appointment with their probation monitors. The proportions arrested varied, with as little as two percent in rural areas all the way up to 51 percent in more heavily populated areas. Furthermore, a lengthy list of other arrests and citations (below) were issued concurrently to these offenders. These additional offenses demonstrate the wide gamut of personal problems drinking and driving offenders are likely to have:

- Possession of a controlled dangerous substance
- Carrying a concealed weapon
- Expired vehicle tags
- Speeding
- Carrying an open container
- Failure to wear a seatbelt
- Uninsured and/or unregistered vehicle
- Ignition interlock violation
- Failure to pay child support

The authors estimate that the 29 sting operations held in 20 cities throughout Maryland reduced driving without a valid license to probation supervision appointments by about 3.1 percent. The figure is probably conservative, since maximum compliance would be expected for probation appointments. Enforcement is key to effective policy. More research focusing on enforcement is clearly needed if license suspension or revocation is going to be effective.

Between 30 and 70 percent of drivers who have had their licenses suspended or revoked may continue to drive (Streff & Eby 1994). Some states have made alcohol problem assessment mandatory in an effort to identify addicted offenders. States continue to look for additional ways to reduce the danger of repeat alcohol offenders, and combining measures such as mandatory alcohol

assessment with license sanctions is becoming more common. In theory, assessment should help identify those who are unwilling or unable to change, and who may need measures which include vehicle-based sanctions. Rather than attempting to modify unlawful driving behavior, it may be more effective to use physical or technological sanctions that prevent unlawful driving such as vehicle impoundment, immobilization, or alcohol ignition interlocks, which are discussed in later sections (Griffin & DeLaZerda, 2000).

Mandatory Alcohol Assessment

The large proportion of those arrested for alcohol-impaired driving who have drinking problems and a very high recidivism rate led to the demand in this country for persons convicted of alcohol-impaired driving offenses to be assessed to determine whether they have a substance abuse problem and when treatment is appropriate. Treatment is encouraged in most states, and assessment or treatment is required and court ordered before relicensure in some states. However, the methods used for and the accuracy of court ordered assessments, as well as the appropriate treatment methods, are subject to debate.

North Carolina began making substance abuse assessment mandatory for selected multiple alcohol offenders as early as 1983. Legislation became effective Jan. 1, 1990 directing all persons convicted of impaired driving to obtain a substance abuse assessment regardless of alcohol concentration, prior offenses, or probationary status. Even those offenders convicted and receiving jail time were required to obtain an assessment (Popkin & Martell, 1991).

North Carolina law requires submission to an area authority for an alcohol dependency assessment after an individual is charged with an impaired driving offense. If recommended by the assessment facility, voluntary participation in the recommended treatment is mandated. Offenders may choose to meet these requirements in any county in the state, utilizing community mental health

centers or private practitioners. Offenders must pay the assessing agency's fee for assessment, and then pay an additional fee towards either required treatment, or towards the state's alcohol and drug education traffic schools (ADETS). The assessing agencies require fees (prescribed by law) for services be paid before they certify to the Department of Motor Vehicles (DMV) that assessment and/or treatment has been completed. This acts as a monetary collection mechanism for assessment agencies, if the offender really wants his license back. Offenders are given 30 days from their conviction to schedule pretrial assessments. Failing to do so constitutes grounds for noncompliance, and the offender could be returned to the court on a show cause order. A driver's license cannot be reinstated until all court ordered services are completed and duly recorded (Popkin & Martell, 1991; Foss, et al., 1993).

North Carolina's disturbing statistics regarding their mandatory assessment and/or treatment programs testify to the difficulty of putting effective policy in place. In research utilizing data from 1988 to 1990 during which an initial pilot program of ten counties was conducted, only 45% of those offenders mandated by the courts to receive an assessment have the completed form required for relicensure on file with DMV. An absent form implies non-compliance by the offender somewhere in the process. Sixty percent of the assessed population were found to have a "substance abuse handicap," defined as the degree of dysfunction directly related to the recurring use/abuse of an impairing substance. Since so many offenders do not comply with assessment, this figure can be considered conservative (Popkin & Martell, 1991). These statistics are especially troublesome in light of the earlier discussion herein regarding the increased risk of recidivism for offenders who are non-compliant with court orders.

Mandatory, or court ordered alcohol assessment and treatment has had only limited success for a variety of reasons, much like the previously discussed countermeasures of jail terms and fines. Some offenders may never be willing to be assessed for alcohol problems, even when court ordered. Others may be

assessed, but fail to make it through the required treatment phase. For some, even though they complete assessment and treatment, the form required by the DMV may not make it completely through the required process. Payment for the assessment and treatment can complicate the situation. Furthermore, in a large percentage of cases, individuals who did not complete the required processes may not be eligible for relicensure due to additional offenses.

The compliance form in North Carolina moves through a long track of bureaucracy, illustrating part of the difficulty with mandatory alcohol assessment. The compliance form begins in the court, moves to the assessment agency (any one of several), then on to the treatment agency. After that it gets double checked in the Substance Abuse Section of the Criminal Justice branch, then moves on to the Department of Motor Vehicles. Yet there is no obvious follow-up mechanism for offenders who are failing to comply. Therefore, mandatory alcohol assessment and/or treatment has some of the same limitations regarding effectiveness as license suspension or revocation (Popkin & Martell, 1991).

A comprehensive legal framework must be in place in order for any sanction to be effective. Just as some offenders remain undetected while driving with a suspended or revoked license, or begin to drive long-term with no license, the same possibility exists with mandating alcohol treatment. A system needs to be in place to allow immediate follow-up of those who do not comply with prescribed programs. Otherwise, there is potential for adverse impact on both an individual's alcohol problems and potentially on the treatment programs (we elaborate on this below).

A California study of 2,877 municipal court drunk driving cases in four sites (sampled from 1982 to 1989) indicates legal referral practices do not reflect offenders' needs or program effectiveness. Instead, variations in sentencing reflected differences in local fiscal circumstances, jail crowding, and ideological orientations of judges or other officials. The study defines recidivist drinking

drivers as those charged with DUI and having two or more drunk driving convictions on their records. The number of years these convictions encompassed is not specified. Virtually no Alcoholics Anonymous (AA) referrals were made in two sites. In the other two sites, AA referrals were added to jail terms and fines for 37-41% of the cases. These referrals were unrelated to BAC or the number of prior drinking-driving convictions. The difference in the proportion of persons referred to AA between sites is so extreme that during one period from 1988-89, over 75% of drinking drivers convicted were referred to AA by either a judge, county probation, or parole officer (Speiglmán, 1994). Clearly there is no comprehensive sentencing policy in place, and as a result of these types of sentencing variations, states are now beginning to mandate specific minimum sentences by offense level.

Even within the alcohol prevention community, court ordered alcohol assessment and/or treatment is not viewed as the solution to drinking and driving problems. Alcoholics Anonymous, one of the better known alcoholism treatment groups, is based on voluntary membership, which is probably a contributing factor to their high success rates. Their program is not designed to cope with a large number of people who do not feel good about attending their functions. When courts mandate that offenders attend AA functions, program effectiveness may be jeopardized, which could even have a negative impact on the offenders' alcohol problems. Some public alcohol program staff believe we are just transferring the problems of too little jail space and a lack of funding for probation efforts from one area of the public legal system to another. This view should certainly be considered (Speiglmán, 1994).

A solid legal framework for the application of court ordered alcohol assessment and/or treatment is becoming more important since evidence is increasing that a combination of rehabilitation and other legal sanctions are most effective. Furthermore, since people with alcohol problems frequently will not seek help on their own, this may necessitate court involvement. California has evaluated

several of the different sanctions they have implemented (DeYoung, 1997a, 1997b; Rogers, 1997; Speiglman, 1997). A 1995 report on the effectiveness of drinking driver programs in California summed it up well:

"Based on the findings from this study, as well as those from prior research, this report recommends combining alcohol treatment with driver license actions as the best strategy for reducing drunk driving recidivism and enhancing overall traffic safety (DeYoung, 1995)."

Several other studies confirm this rehabilitative combination is most effective (Eilers, 1994; Green, French, Haberman, Holland, 1991; Taxman & Piquero, 1998; Wells-Parker, Bangert-Drowns, McMillen, Williams, 1995). While no one countermeasure can be prescribed as the universal deterrent because each person and situation is unique (Wiliszowski, Murphy, Jones, Lacey, 1996), what remains is the daunting task of determining which sanctions and assessment or treatment methods are most effective for a given offender, and how to get the legal systems in place to effectively utilize them. Mandatory treatment with inadequate follow-up mechanisms for those that do not comply may be less helpful than not mandating treatment at all. Rehabilitation program effects are described in greater detail in a later section.

Vehicle-Based Sanctions

Ignition Interlock Devices

Ignition interlock devices are heralded by some as being able to significantly aid law enforcement efforts to control and reduce drinking and driving. They have been in use now for many years, and were actually developed more than twenty years ago. The technology has been tested and refined, and provides good protection against circumvention. More than 30 states and local jurisdictions, along with a province of Canada, have passed legislation authorizing their use as part of the sentencing for drinking drivers (Coben & Larkin, 1999). NHTSA

developed and published model performance guidelines and procedures for ignition interlock devices in the early 1990's. Though their use is steadily increasing, they are still used in only a small fraction of the total annual convictions for drunk drivers (Linnel & Mook, 1991). All of the literature we reviewed supported use of ignition interlock devices. The studies we reviewed included meta-analyses, which summarize and analyze previous studies.

An alcohol ignition interlock is a device installed in a vehicle that requires the driver to provide a breath sample each time the driver attempts to start the vehicle. If the driver has a BAC above a specific threshold value, the vehicle will not start. Technological advances have enabled those who monitor the systems to be provided with documentation of all attempts to use, tamper, or circumvent the system via data recorders. Such advances include breath pulse codes which require the driver to provide a series of short and long breath pulses prior to a breath sample; rolling retests which require repeated breath tests at random intervals after the vehicle has been successfully started; and a hum voice recognition code. These advances provide further protection from circumvention of the interlock systems (Coben & Larkin, 1999; Linnel & Mook, 1991).

Periodically, offenders must bring the car back to the installation center for inspections which determine that the device is still working properly. Inspection results are then reported to the oversight authority of the program for their review or action if necessary.

Despite the length of time ignition interlock devices have been available, more scientific investigation is still necessary due to methodological differences of previous studies. Due to differences in legislation by area, there are large variations in the length of time the devices are installed across studies, which range anywhere from 6 months up to 3 years. Use of the device is typically combined with other sanctions or countermeasures, which also varies by area. Random assignment of participants is usually not possible, and when study participants are allowed to choose the interlock program over other options, high

success rates can be criticized as biased because of the participants willingness to comply. Future studies need to control for exposure (i.e., number of miles driven) and other sanctions used such as driving restrictions that could impact exposure, because drivers required to use interlock devices may not drive as much as controls without the interlock requirement. Therefore, generalizations about the studies are limited, but the evidence taken as a whole supports the use of the devices (Coben & Larkin, 1999; Morse & Elliott, 1992; Linnel & Mook, 1991; Beirness, Marques, Voas, Tippets, 1997; Beck, Rauch, Baker, & Williams, 1999; Rauch, Rohrback, Zador, & Ahlin, 2000; Collier & Longest, 1996).

Although there are methodological differences among the studies, programs utilizing ignition interlocks appear to be effective in reducing drinking and driving recidivism. Participants in interlock programs are anywhere from 15-69% less likely than control groups to be arrested for an alcohol offense while the devices are in place (Coben & Larkin, 1999). A reduction in recidivism of approximately 65% within the first year for drivers with multiple alcohol traffic violations was found in a randomized controlled-trial conducted in Maryland (Beck, et al., 1999). No evidence was found, however, that these first-year benefits extend into the second year, during which the device is removed. There is no evidence that a significantly lower proportion of drivers in the interlock group have their licenses reinstated (after the device was removed), which is an issue for those with suspended or revoked driver licenses. Furthermore, no evidence suggests that interlocks could or should function as a stand-alone treatment approach for drivers with multiple alcohol offenses. Another frequently cited study indicates a slightly higher but similar reduction in recidivism in Hamilton, Ohio during which interlock use was tracked for a longer period, for up to 30 months (Morse & Elliott, 1992). These findings indicate ignition interlock users experience a 91% decrease in the likelihood of being arrested for driving with a suspended license or driving with no license, compared to those with license suspensions alone. This is strong support for the devices. Claims that ignition interlock devices are most effective for "hard core" drinking drivers do not appear to be conclusive.

Manufacturers have written articles on the devices that make many strong claims about the devices in journals without scientific peer review, so close attention must be paid to the authors of the various studies (in addition to the methodology), noting their financial interest in such articles.

Most interlock users report they feel good about the devices after an initial adjustment period, though 94% of those users came to the installation phase of the devices with either a negative or neutral attitude. More than a quarter (27%) of interlock users state it prevented them from drinking and driving one or more times, and 57% state it either reduced their drinking, or helped them to drink more responsibly. Most users (98%) say they would recommend an interlock device to others. The use of the vehicle by family members who are not offenders was not addressed in the literature, but a user survey indicated that only 8% of their users gave negative comments on this question (Linnell & Mook, 1991). It could be helpful if all drivers who use a vehicle attend the initial training session with the offender, and be offered additional training opportunities if they have difficulty later. This can be part of the responsibility of the service centers.

Immobilization and Impoundment

Vehicle immobilization and vehicle impoundment are two other promising vehicle sanctions that are less technologically oriented than ignition interlock devices, but appear to have a more lasting effect (Voas, Tippetts, Taylor, 1996, 1997, 1998; DeYoung, 1997b, 1999). The studies indicate very positive results for these sanctions, and many states have recently begun to use them as they strengthen their drinking and driving laws. The opportunity for offenders to choose to drink and drive is eliminated by using these vehicle sanctions, so offenders do not have the opportunity to make a bad choice (to drive while drinking), which is more likely when addiction is involved.

Immobilization is the process of preventing operation of an offenders' vehicle by way of a mechanical device, while impoundment indicates the police or some

authorized part of the legal system took possession of and locked away the vehicle from the offender. Resistance from police officers and court officials who do not feel an entire family should be punished by not having a vehicle available to use has been problematic, and is thus a disadvantage for both of these sanctions. An obvious advantage of immobilization is that storage costs do not accrue as they do with impoundment, because the vehicle can remain on the offender's property. Vehicle impoundment has been used less often than immobilization. This is due in part to the fact that frequently the cost of storing an impounded vehicle will exceed the value of the vehicle, resulting in abandonment of the vehicle. The department of motor vehicles (or the appropriate authority) then has to pay the towing and storage bills. Thus, a combination of short-term impoundment and longer-term immobilization, or even vehicle forfeiture, where the sale of the vehicle is required, become more attractive.

Immobilization

There are several effective devices in use for immobilization, each of which mechanically interfere with vehicle operation in some way. A device referred to as a "boot," which can be locked on one wheel of a vehicle thereby preventing motion, is one method of incapacitation. Another method uses a device similar to one which has been advertised as an anti-theft device, called "The Club". It is a bar which locks on the steering wheel, immobilizing the vehicle where it sits since the steering wheel cannot be used. The department of motor vehicles (or the appropriate authority) usually assesses a service charge when the device is removed to cover the cost of running the program (Jones & Lacey, 2000).

In the early nineties, Voas, et al. (1997) conducted an evaluation of the first two years of implementation of strengthened immobilization laws in Franklin County, Ohio. Prior immobilization laws were only applied on a limited basis in a few smaller counties. The new law combined impoundment and immobilization, and provided that the vehicle must be seized and impounded upon arrest and held at

least until an initial hearing took place, which must occur within five days. The length of immobilization time also increased for multiple offenders. The new immobilization period for a DWS (driving with a suspended license) offense is 30 days for a first offense, 60 days for a second. For a second DUI offense, the offender is subject to 90 days immobilization, and 180 days for a third DUI offense. A third offense for DWS and a fourth offense for DUI results in vehicle forfeiture, which has not been evaluated and is usually used only for those with numerous offenses. If offenders try to circumvent the law by selling or transferring title of the vehicle without court approval between impoundment and immobilization, they are prohibited from registering another vehicle for two years.

Random assignment of sanctioned and unsanctioned groups was not possible in the study Voas conducted. However, he determined the new laws are not applied to all offenders, because: they varied by judge due to differing interpretations of the law; of the use of easier-to-process alternate charging codes by some police; of difficulty accessing and interpreting driver records to determine eligibility; and because of the dismissal or reduction of cases to ease prosecutor caseloads or driver record systems personnel of paperwork. Therefore, sanctioned offenders were compared to unsanctioned offenders and tracked for two years. Recidivism rates indicate offenders who receive the sanctions have lower recidivism, both before and even after they reclaimed their vehicles. Immobilization appears to have a specific deterrent effect, beyond the end of the sanction period, which few other sanctions produce (Voas, et al. 1996, 1997).

Impoundment

A variation of the Ohio law, which required impoundment rather than immobilization in another county in Ohio, was also evaluated by Voas, et al., and found similar results. Impoundment also has an effect on offenders beyond the sanction period (Voas, et al., 1998). Another later study in California provided

further strong support for impoundment. It concludes impoundment reduces both subsequent convictions for driving while suspended and driving while unlicensed, along with subsequent crashes and convictions overall. More significantly, the findings indicate impoundment is even more effective in reducing recidivism, and possibly crashes and convictions as well, for repeat offenders than it is for those with no such prior convictions (DeYoung, 1997b, 1999). No studies of vehicle forfeiture were found, but vehicle based sanctions as a whole seem to hold great promise in the reduction of drinking and driving.

Plate Confiscation

License plate confiscation is another countermeasure for repeat alcohol-impaired driving offenders. Authorities physically take possession of the license plates from offenders' vehicles, either at the time of arrest or in another legally determined time/method. The purpose of plate confiscation is to make the offenders' vehicles easily identifiable by police if they are driven without license plates. In some states, the plate on the vehicle the offender is arrested in is confiscated upon arrest, and plates registered to additional vehicles are requested later.

During the late 1980's, Minnesota realized the state was experiencing a 10% increase across the decade in drunk driving violators with prior violations on their driving record. Their response was to pass a new license plate confiscation law. Their law requires the license plates of violators arrested repeatedly for alcohol-impaired driving violations to be confiscated from all of his or her vehicles and destroyed. This includes offenders with two prior driving-while-intoxicated convictions in five years, or three or more prior convictions in ten years. The law also forbids violators from selling any vehicle with confiscated plates without permission from the Department of Public Safety. In order to protect innocent persons who depend on a vehicle from being deprived of the vehicle, violators are allowed to apply for a special license plate with a distinctive pattern of

characters that can be recognized by police but not by the general public (Rodgers, 1994).

The Minnesota law was originally written so that violators would be ordered by the judge to surrender all license plates at their first court appearance. However, 29 months after implementation judges were issuing an average of only 18 orders per month, when an average of 346 violations per month should have triggered confiscation. Practical obstacles and some judicial resistance is blamed for the low implementation of the law. In 1991 it was amended, changing it from a court based enforcement to an administrative per se law, resulting in a twelve-fold increase in the level of the law's implementation. Administrative enforcement is quickly experienced by the violator, and provides much more even enforcement than under judicial administration. Rodgers' evaluation of the law indicates when repeat offenders have their license plates confiscated by police, their recidivism rate is about half that of first offenders not subject to plate confiscation (Rodgers, 1994). This is significant, but like most other sanctions, plate confiscation is not without shortcomings.

Minnesota experienced a twelve-fold increase in the rate of plate confiscation after changing their system to an administrative per se system, and yet that still only represented one-third of all eligible repeat offenders. The Department of Public Safety (DPS) issued confiscation orders to an additional third of the eligible offenders based on its review of all administrative drivers' license revocation orders issued by police for drinking and driving. When a driver had one or more vehicles in his or her name and was eligible to have plates confiscated, but the arresting officer had not done so, the DPS issued the order by mail. If the officer had confiscated plates but the offender had more than one vehicle registered in their name, the DPS issued a supplemental order for the plates of these additional vehicles. However, there is no provision for penalizing those who do not cooperate with orders issued by the DPS, and compliance with such orders is estimated by officials to be infrequent. Only subsequent police

checks could determine that such vehicles had been flagged, which would result in the vehicle's removal from the road and the driver's arrest for operating a vehicle with revoked or canceled plates if they were stopped for some other reason (Ross, et al., 1996).

This still left a final third of offenders that never received a confiscation order, and interviews with police officers reveal several reasons why this may have occurred. Difficulty for the arresting officer in determining eligibility of the apprehended driver for plate confiscation is a problem. This is because analyzing the driving record of a suspect in enough detail to calculate the number of offenses over the course of many years can be difficult to do from a police car. If officers request this information from dispatchers, dispatchers are often burdened with too many competing demands. Furthermore, officer misunderstandings with regard to the applicability of plate confiscation to vehicles not owned by violators contribute to less police action. The Minnesota law applied regardless of who the vehicle was registered to, but little, if any training was provided to law enforcement so they would understand this component of the law. Finally, some officers who understood the law believed it was unfair to take the plates of a vehicle registered to an "innocent" owner who is not the violator. This view seemed prevalent among relatively inexperienced traffic law enforcement officers. Better officer training and a computer program in the state's data base that could calculate eligibility based on dates and outcomes of prior alcohol-related incidents could lead to a more efficient system. An analysis of representative samples of registration records for convicted drunk drivers and routine traffic offenders was also conducted. It reveals that evasion of plate confiscation orders by drivers were rare, though apparently easy to accomplish. (Ross, et al., 1996).

Sticker Laws with Registration Denial

In an effort to prevent convicted alcohol-impaired drivers from driving during license withdrawal periods, Oregon and Washington tried implementing

programs allowing a striped "Zebra" tag to be placed over the annual sticker on the vehicle license plate of vehicles apprehended for operation by a suspended driver. The officer then took possession of the registration and provided it to the department of motor vehicles, which canceled it in 60 days if the owner did not take action to clear it within that time. The vehicle operator was provided with a temporary 60 day registration. The presence of the zebra sticker on the vehicle provided "probable cause" for any officer to stop the vehicle to determine whether the driver was properly licensed. The owner of the vehicle could clear the vehicle registration by paying a small fee and purchasing a new annual sticker to put over the zebra sticker, but only if he or she had a valid driver license. An evaluation of these laws in these two states yielded contradictory results. Driving-while-suspended convictions rose significantly in Oregon following implementation of the law, but not in Washington. The legislature failed to take action in either state to preserve the laws, and they were automatically repealed in each state (Voas, Tippetts, Lange, 1997).

Rehabilitation Options and Programs

A wide array of rehabilitation options have been applied and studied, with well over a dozen different options revealed. Some programs are cost-effective alternatives to jail sentences, which can help jail overcrowding issues. However, the more difficult task is matching appropriate programs to offenders and ensuring offenders comply with the programs. Compliance is defined differently by each program, and for some offenders it may be as simple as showing up for a presentation. Even mandating specific programs by law is not a guarantee that offenders will complete the program. When rehabilitation is mandatory, a key issue becomes the follow-up when an offender fails to comply. While the literature is abundant regarding programs, it is not convincing that any one method or program is best, and in some cases even provides conflicting conclusions about a specific type of program.

As far back as the late 1960's and early 1970's, NHTSA funded 35 Alcohol Safety Action Projects (ASAPs) in order to test different education and rehabilitation strategies for drinking drivers. These evaluations provided useful information, and led to new, more sophisticated strategies in the 1980's. The earliest studies have been criticized for the lack of experimental controls, and those of the 1980's have been faulted for a limited range of methodologies (Fitzpatrick, 1992). Since then, research still seems to have failed to define specifically what constitutes the most effective rehabilitation. There is a need to expand the number and types of measures used to assess the effectiveness of these programs, and to clarify their goals and objectives. Recidivism as an outcome measure, though most frequently used, is a limited measure, particularly since the odds of arrest are so small. Rearrest data probably only reflects a very small proportion of the actual drunk driving that occurs (Fitzpatrick, 1992).

Mortality data were utilized as a different outcome measure in a study by Canadian researchers. Significant excess mortality in comparison to the Ontario population was found when a sample of 347 convicted drinking drivers who were second offenders was examined. Offenders from this group, from two medium-sized cities, were randomly assigned to rehabilitation or control groups. Rehabilitation involved weekly two-hour meetings over the course of about eight weeks, where they were presented with information on the biological and psychological effects of alcohol. The nature of alcoholism, resources for dealing with it, and the identification of personal problems with alcohol are included. The follow-up period ranges between 8-13 years, and during that period 14 (11.0%) of the controls and 17 (7.7%) of the rehabilitation group died. A tendency for lower total mortality and significantly lower mortality from accidental and violent death in those assigned to rehabilitation is revealed by direct comparisons of the randomly assigned control and treatment groups. These observations are confirmed by additional comparisons involving a rehabilitation group of 487

subjects (some randomly and others not randomly assigned) (Mann, Anglin, Wilkins, Vingilis, Macdonald, Sheu, 1994).

Some studies advocate individually tailored combinations of traditional and alternative sanctions as being more effective (Jones & Lacey, 1998; Wiliszowski, et al., 1996), yet many states have adopted laws mandating minimum sanctions for specific violations to attain more consistency in sentencing. The merits of punishment versus rehabilitation as a deterrent for drunk drivers have been debated for years. A Maryland study exploring these differential approaches indicates that for all offenders, rehabilitation sentences appear to reduce the likelihood of recidivism more than punishment sentences. For first-time offenders, the use of less formal punishment is often the most effective deterrent (Taxman & Piquero, 1998).

Why repeat alcohol offenders continue to drink and drive, even after conviction and experiencing sanctions, is an issue. After conducting 182 personal interviews with repeat alcohol offenders Williszowski, et al. (1996), concluded:

Conversations during the interviews confirmed that habits and patterns are difficult to change without the *desire* to change, without taking *responsibility* for personal actions and often without help to seek *alternatives* to committing the problem behavior. While individuals cannot be forced to acknowledge the existence of problems in their lifestyles, which could very likely result in future damaging consequences, they can be forced by the courts to at least examine the behavior and event which brought them into the legal process. (emphasis original)

These researchers advocate considering sanctions involving personalized assessments and reassessments, individualized rehabilitation regimens, intensive supervision probation, and rehabilitation during confinement for incarcerated offenders. No single countermeasure can be prescribed as

the universal deterrent because of individual uniqueness, and this is particularly true for alcohol rehabilitation programs. Each person reacts differently to similar situations. Swift, comprehensive, personalized plans involving supervision and direction for a longer periods of time along with regular reassessments of lifestyle may help offenders develop the desire to change their behavior (Wiliszowski et al., 1996).

Combining traditional legal sanctions such as license restrictions or suspension and fines with some form of rehabilitation for the underlying alcohol problem is generally associated with the lowest recidivism rates. Rehabilitation programs that combine education, counseling, and some follow-up or probation are the best (DeYoung, 1997a, 1995; Taxman & Piquero, 1998; Wells-Parker, et al., 1995; Green, et al., 1991). One meta-analysis examined the effectiveness of 215 treatment programs (Wells-Parker, et al., 1995). It found that the average effect of treatment on drunk driving recidivism was an 8-9% reduction over no treatment and alcohol-involved crashes demonstrated a similar effect size. Licensing actions tended to be associated with reductions in the occurrence of non-alcohol crashes or events. Moreover, the study authors suggest the literature probably underestimates treatment effects due to overemphasis on education as a treatment for all offenders, and due to the use of recidivism as the most frequent measure of outcome (Wells-Parker, et al., 1995). This view of the underestimate of treatment effects due to the limitations of recidivism as an outcome measure is shared by Fitzpatrick (1992).

Following are brief summaries of the many different rehabilitation programs that were included in the literature we reviewed.

Day reporting center - This is a highly structured, non-residential facility in Maricopa County, Arizona, which provides supervision, reporting, employment, counseling, education and community resource referrals to probationers. It is no more effective in reducing recidivism than the standard probation program in use

by the study jurisdiction. However, it is more cost-effective and helps reduce pressure on an already overtaxed county jail system (Jones & Lacey, 1999)

Victim impact panels - These are made up of groups of 3-4 speakers who were seriously injured or whose loved one was killed in a drinking and driving crash. One author concludes they are a cost-effective way of reducing recidivism, but the follow-up period was short, for only 12 months (Fors & Rojek, 1999). Another study uses data from four counties in two states, and concludes that such panels are not effective in modifying behavior. Many young males do not show up for the panels (Shinar & Compton, 1995).

Emergency department and/or morgue visits - Adolescents convicted of drinking and driving had been court ordered to such visits. These visitation programs are not effective for addressing the problems of alcoholic offenders or in reducing recidivism. (Leary, 1991)

"Todd Program" - Named after the judge who developed it. Advocates individually tailored combinations of traditional and alternative sanctions. Alternative sanctions include referral of drivers to treatment and education, community service in lieu of or in addition to jail, victim restitution, visits to a hospital emergency room that treats traffic crash victims, ignition interlocks, and using license plates that identify the vehicle owner as a repeat alcohol offender. The "Todd program" is more effective by a wide margin than a sentencing program imposing the minimum sanctions in Georgia, as measured by statewide recidivism (Jones & Lacey, 1998).

Turning Point - Provides individualized and group alcohol treatment sessions for multiple offenders who have served a term of incarceration in a 28-day residential care program, with a six month aftercare component and one year of probation supervision. The program includes a chemical dependency assessment, family counseling and educational services. Developed in Hamilton

County (Cincinnati), Ohio as part of a nonprofit, multiservice agency, studies conclude that subjects coming out of this program are less likely to be arrested for new alcohol-related offenses or for any other offense upon their release from custody. In a four-year follow-up study, the success differential initially observed had been sustained. The treatment population consisted of those with three or more drinking and driving convictions and 30 days served in jail. A ten-year follow-up study affirmed these results. Statistically significant treatment effects were both modest and sporadic in the one and four-year follow-up evaluations, near 10-12 percent. The ten-year follow-up concluded that the treatment effect is now more stable and stronger, consistently between 10 and 30 percent. (Langworthy & Latessa, 1993, 1996; Pratt, Holsinger, Latessa, 2000)

Intense Supervision Probation (ISP) and in-home confinement with Electronic Monitoring -

Studies have examined the effectiveness of two alternative sanctions programs for repeat alcohol offenders: an Intensive Supervision Probation (ISP) program in Milwaukee County, WI, and an Electronic Monitoring (EM) program in Los Angeles County, CA. The ISP program is an early intervention program aimed specifically at engaging repeat offenders in treatment shortly after arrest with ongoing monitoring and supervision throughout the pretrial period. The EM program engages repeat alcohol offenders immediately after conviction and sentencing with ongoing home electronic monitoring and supervision. The major concern in the evaluation was the effect of these two programs on the future drinking-driving behavior of program participants.

Both programs were found to be effective in reducing recidivism significantly from the traditional sanctions comparison programs, and offer the promise of significant cost savings over incarceration. The ISP program reduces rearrest recidivism probability after one year by about 50%, and the EM program reduces reconviction recidivism probability after one year by about 33% (Jones, Wiliszowski, & Lacey, 1996; Jones, Lacey, Berning, Fell, 1996).

Outpatient 12 week group therapy - An abstinence-oriented program which consists of 12 weekly group therapy sessions of 90 minutes each, with individual therapy available if necessary. Sessions focus on the impact of alcohol on the quality of the clients' lives, in an attempt to foster understanding of the disease concept of alcoholism. Program completion is associated with a reduction in rearrest rates. Program dropouts and those with a criminal history have higher recidivism rates (Nochajski, et al., 1993).

Residential weekend program - An intensive residential weekend program named IMPACT, which is an acronym for Insight, Motivation, Progress, Assessment, Counseling, and Treatment. Program development was guided in part by a similar Weekend Intervention Program (WIP) in Dayton, Ohio (Siegal, 1985a, 1985b), but is a unique intervention approach for repeat impaired driving offenders in Alberta, Canada. All persons convicted of two or more impaired driving charges within a five-year period must attend the IMPACT program as a condition of license reinstatement. A private organization is contracted by government to deliver the program in multiple locations throughout the province. The program tries to facilitate the process of self examination to promote lifestyle changes in a supportive, encouraging, non-threatening atmosphere. An outcome study of 505 randomly selected participants 1.5 to 2.5 years after attending indicates 88% were not reconvicted of impaired driving during the follow-up period. Furthermore, 83% report decreased use of alcohol or other drugs since attending, and 46% report periods of abstinence, with the average length of abstinence approximately one year (Parsons, Wnek, & Huebert, 1993).

NJ Alcohol Countermeasures Program - Combines sanctions with mandated education and rehabilitation after conviction, following an assessment and referral for all (first and repeat) drinking and driving offenders. Drivers are assigned to one of three options: 1) the alcohol and safe driving school which requires six hours of instruction on the effects of alcohol during three, two-hour

weekly sessions; 2) outpatient alcohol treatment from locally run treatment facilities, for at least 16 weeks and often including exposure to Alcoholics Anonymous; 3) minimum attendance at Alcoholics Anonymous meetings once weekly for a year (the driver had to agree to this and must have had prior experience with AA). The program is effective in reducing recidivism for program completers (66% while licensed and 51% while suspended) compared with noncompleters. Repeat offenders have lower post conviction rates of negative driving events when assigned to outpatient treatment or AA (Green, et al., 1991).

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