



DUI COUNTERMEASURES IN CALIFORNIA: WHAT WORKS AND WHAT DOESN'T, WITH RECOMMENDATIONS FOR LEGISLATIVE REFORM

**REPORT TO THE LEGISLATURE
OF THE STATE OF CALIFORNIA**

**IN ACCORD WITH SENATE BILL 776,
CHAPTER 857, 2001 LEGISLATIVE SESSION**

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13. ABSTRACT (Maximum 200 words) In response to recent increases in driving-under-the-influence (DUI) crashes and fatalities in California, after years of decline, the California legislature (Senate Bill 776, Torlakson, 2001) mandated a review of scientific evidence on effective DUI countermeasures. As shown in this review, the following driver-based countermeasures have proven significantly effective in reducing alcohol-impaired driving: minimum drinking age laws, per se BAC laws, administrative per se license action laws, "Zero-tolerance" laws for youth, other licensing actions including restriction and probation, alcohol treatment, server intervention programs, house arrest in lieu of jail, lower per se BAC for repeat offenders, sobriety checkpoints, and public information and education. Effective vehicle-based countermeasures include vehicle impoundment, vehicle immobilization, and ignition interlock, while other countermeasures impacting alcohol-impaired driving include seat belts, graduated driver licensing, and alcoholic beverage control. Traditional DUI sanctions of fines and jail are shown to be among the least effective DUI countermeasures. Most importantly, there are four major initiatives which offer the potential for large-scale reductions in alcohol-impaired driving, including new pharmaceutical treatments (naltrexone), increased alcoholic beverage control, reducing the contribution of on-premise drinking to the DUI problem, as well as prevention efforts focused on youth. There continues to be strong public support for anti-DUI efforts, including the raising of alcohol taxes, provided the funds are used against drunk driving. In general, prevention efforts, as opposed to further increased punishments, are seen as having a greater potential for future reductions in the incidence of DUI.				
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EXECUTIVE SUMMARY

Motor vehicle crashes are the leading cause of death for Americans aged 4 to 34. In the year 2000, a total of 41,821 people were killed in traffic crashes in America, and 16,653 (or about 40%) of those fatalities involved alcohol. After major reductions in driving-under-the-influence (DUI) achieved during the 1980's and early 1990's, progress against DUI has slowed and stalled, and the most recent (years 1999/2000) California data show the first increase in DUI fatalities since 1987. The prevailing view of DUI in America since the mid-1990's has been that all of the easy targets of opportunity had been identified and remediated, and that additional reductions in DUI would only be gained incrementally, and in small measure. The slowdown of progress against DUI in the late 1990's, along with the recent negative reversal in DUI trends, seemed to validate the perception that "all had been done that could be done." In light of this present review (conducted pursuant to Senate Bill 776, Torlakson, 2001) of scientific literature on effective DUI countermeasures, however, this prevailing perception can be seen as self-

defeating and unduly pessimistic. Based on the scientific evidence, there are at least four DUI legislative programs and initiatives that have the potential of producing major reductions in the incidence of DUI, as large or larger than the reductions seen in the 1980's. These countermeasures include:

1) Pharmaceutical Treatment for Convicted DUI Offenders

Although drugs (particularly antabuse) have been used in the treatment of alcoholism for decades with minor success, there are new pharmaceutical treatments which are offering renewed hope for the efficacy of this approach. One promising new drug is naltrexone, which acts to reduce the opioid response to alcohol that causes alcoholics to continue drinking to excess. Since the mid-1980's, studies at the University of Pennsylvania and Yale University have established the effectiveness of naltrexone in reducing the craving and consumption of alcohol. A major study of naltrexone and acamprosate drug treatments, alone and in conjunction with psychosocial treatment, is currently being conducted by the National Institute on Alcohol Abuse and Alcoholism (NIAAA) in 11 university research centers across the United States. Based on the demonstrated success of naltrexone in these university studies, the time is right to pilot test and scientifically evaluate the impact of these new pharmaceutical treatments in the real world applied setting of the DUI countermeasure system. The DUI system provides an efficient means of identifying persons in need of treatment for alcohol abuse via arrests for DUI, and the system structure and service delivery components could be used to facilitate the trial of pharmaceutical treatment for convicted DUI offenders, either at the court, probation, or drinking driver treatment program level. As in clinical trials, the most definitive and scientifically rigorous research involves random assignment to treatment conditions; in this case, convicted DUI offenders would be randomly assigned to existing DUI sanctions and treatment, or to existing sanctions and treatment *plus* drug treatment. The purpose of random assignment is to avoid bias between groups which could compromise the evaluation of treatment effects, so that the only systematic difference between treatment conditions is the presence or absence of the additional drug treatment. Such a randomized study of pharmaceutical treatment could corroborate the university clinical trials and dramatically improve the effectiveness of treatment for DUI offenders. The development of this pilot program would involve the input of a wide variety of professionals from the medical and judicial fields, as well as the cooperation of state and local agencies involved in DUI control.

2) Alcoholic Beverage Control

Research has clearly shown that alcoholic beverage control policies are associated with reduced consumption of alcohol and resultant reductions in the multiple negative consequences associated with that consumption, including alcohol-involved traffic crashes and fatalities. The federal Prohibition laws of the 1920's demonstrated the positive societal benefits of reduced availability of alcohol, yet ultimately proved untenable because of insufficient public support. The majority of American adults consume alcohol, and perceive positive benefits from this consumption, particularly in social settings. Yet the vast majority (86%) of Americans also support increasing taxes on alcohol in order to support drunk driving countermeasure programs. Additional economic policies that also impact the price of alcohol include price controls and limits on rebates, discounts, or other economic inducements. Other alcoholic beverage

control measures include marketing control policies and regulations on the manufacture, distribution, advertising, and sale of alcohol.

3) Reduce crashes associated with on-premise drinking

Research has shown that roughly half of all alcohol-related crashes involve drinking at an on-premise establishment, while only a quarter of all alcohol is consumed on-premise. These facts clearly identify on-premise drinking as a major target of opportunity for reducing drunk driving. Several DUI countermeasures address this problem, including designated driver programs, server intervention programs, alcoholic beverage control laws and server liability. Research has shown that server intervention programs can be effective in reducing the proportion of patrons who leave an establishment above illegal per se levels, and one study identified a reduction in alcohol crash measures associated with server intervention. California's Department of Alcoholic Beverage Control (ABC) has an active server intervention program which is offered free of charge to licensed establishments on request. The voluntary 4-hour program has trained over 150,000 servers since the program was initiated in 1995. Although the current program has been successful, mandatory server intervention training as part of the ongoing ABC licensing process might have wider impact. California has not had an effective server liability law ever since the dram shop law was repealed in 1978. The Centers for Disease Control (CDC) review of server intervention programs and liability laws recommended that server liability laws are likely more effective than server intervention programs. In California, the gap between the current virtually nonexistent server liability statutes and the repealed dram shop laws from 1978 is sufficiently large to provide a wide "middle ground" for server liability statutes which responsibly address the overrepresentation of on-premise drinking among alcohol related crashes, while responding to the concerns of the industry (including insurance costs).

4) Increase DUI prevention and general deterrence efforts, particularly those targeting youth

If "an ounce of prevention is worth a pound of cure," and there is evidence that this concept applies to alcohol abuse and impaired driving, then a shift in priorities from punishment to prevention might be in order for our overall societal response to alcohol-impaired driving. Recent research evidence that the age of onset of drinking is a primary predictor of adult alcohol abuse points to the need to target prevention efforts at youth. Research also suggests that prevention efforts and public information and education (PI&E) campaigns would benefit from a professional marketing approach similar to that used by commercial interests to promote alcohol consumption. One key to any successful PI&E campaign is to have a viable concept to "sell," one which will make sense to and be embraced by the target population. One such campaign in the area of DUI prevention is the designated driver program, which has survived the initial media blitz and become entrenched in the public consciousness as one practical method of avoiding alcohol-impaired driving. One of the more effective prevention efforts, which is often not seen as such, is sobriety checkpoints. The ultimate function of a sobriety checkpoint is not to catch drunk drivers (although DUI offenders are apprehended and arrested), but as a general deterrent to the larger public of potential impaired drivers, discouraging or "preventing" them from driving impaired in the first place.

WHAT WORKS?

Based on a review of the existing scientific literature, the following countermeasures have proven significantly effective in reducing alcohol-impaired driving:

Effective Driver-Based Countermeasures

- Minimum drinking age laws
- Per se BAC laws
- Administrative per se license action laws
- "Zero-tolerance" laws for youth
- Other licensing actions, including restriction and probation
- Alcohol treatment
- Server intervention programs
- House arrest in lieu of jail
- Lower per se BAC for repeat offenders
- Sobriety checkpoints
- Public information and education

Effective Vehicle-Based Countermeasures

- Vehicle impoundment or immobilization
- Ignition interlock

Other Countermeasures Impacting Alcohol-Impaired Driving

- Seat belts
- Graduated driver licensing
- Alcoholic beverage control

WHAT DOESN'T WORK?

The following countermeasures, which have long formed the basis of punishment for convicted DUI offenders, have not proven effective in reducing impaired driving:

- Jail or community service
- Fines

WHAT MIGHT WORK?

The following countermeasures may prove effective in reducing alcohol-impaired driving:

- Preliminary Breath Test (PBT) BAC testing of all crash-involved drivers
- Designated driver and safe rides programs
- Alternative treatment modalities, including pharmaceutical treatment

Most of the scientifically proven effective countermeasures listed above have been implemented, if not initiated, in California. It is important that the integrity of these countermeasures is maintained, and that new DUI legislation and programs do not

diminish or work at cross-purposes to laws and programs that are effective, including the minimum drinking age law, "illegal per se" BAC level, administrative per se license actions, "zero-tolerance" for youthful offenders, postconviction license suspension and revocation, and drinking driver program treatment. Caution should be used in expanding underutilized DUI programs with promise, including server intervention programs, house arrest in lieu of jail, sobriety checkpoints, PI&E campaigns, vehicle impoundment and interlock, in order that these programs can be maximally effective and target the appropriate population of offenders. At the same time, California should focus on and fully explore those legislative and program areas that provide the greatest opportunity for having the largest impact in reducing the incidence of alcohol-impaired driving. This involves a fundamental shift in focus from punishment to prevention.

RECOMMENDATIONS FOR CONSIDERATION

In addition to the four major initiatives identified earlier, based on the review of scientific evidence regarding existing DUI countermeasures, the following DUI legislation and programs also provide opportunities for reducing the incidence of DUI:

- Lower illegal per se BAC levels for target groups
- Mandatory license suspension for all convicted DUI offenders
- Mandatory vehicle impoundment for persons arrested for a repeat DUI offense
- Increased use of house arrest in lieu of jail

In addition, the following initiative offers the potential to improve the identification and prosecution of DUI offenders:

- Permissive hospital BAC testing

CONCLUSION

California has long been recognized as a leader in traffic safety, and many of the demonstrably effective DUI countermeasures have already been enacted and implemented in this state, including the minimum drinking age law, the 0.08% "illegal per se" BAC level, administrative per se license action, "zero tolerance" for youthful offenders, drinking driver treatment programs, ignition interlock, and vehicle impoundment. While California has enacted most of the known effective DUI countermeasures, there are countermeasures implemented in other states which might be of benefit to California, such as a lower per se BAC level for repeat offenders. There are also effective countermeasures which are not implemented as widely as they might be, including house arrest in lieu of jail, sobriety checkpoints, and server intervention programs. Most importantly, there are four major initiatives which offer the potential for large-scale reductions in alcohol-impaired driving, including new pharmaceutical treatments (naltrexone), increased alcoholic beverage control, reducing the contribution of on-premise drinking to the DUI problem, as well as prevention efforts focused on youth. There continues to be strong public support for anti-DUI efforts, including the raising of alcohol taxes, provided the funds are used against drunk driving.

TABLE OF CONTENTS

	<u>PAGE</u>
ACKNOWLEDGMENTS.....	i
EXECUTIVE SUMMARY.....	i
INTRODUCTION.....	1
WHAT WORKS?.....	1
EFFECTIVE DRIVER-BASED COUNTERMEASURES.....	2
Minimum Drinking Age Laws.....	2
Per Se BAC Laws.....	2
Administrative Per Se License Action Laws.....	3
"Zero-Tolerance" Laws for Youth.....	3
Other Licensing Actions.....	4
Treatment.....	5
Server Intervention Programs.....	5
House Arrest in Lieu of Jail.....	6
Lower Per Se BAC for Repeat Offenders.....	7
Sobriety Checkpoints.....	7
Public Information and Education.....	7
EFFECTIVE VEHICLE-BASED COUNTERMEASURES.....	8
Vehicle Impoundment or Immobilization.....	8
Ignition Interlock.....	8
OTHER COUNTERMEASURES IMPACTING ALCOHOL-IMPAIRED DRIVING.....	10
Seat Belts.....	10
Graduated Driver Licensing.....	10
Alcoholic Beverage Control.....	11
WHAT DOESN'T WORK?.....	12
Jail or Community Service.....	12
Fines.....	13
WHAT MIGHT WORK?.....	13
Preliminary Breath Test (PBT) BAC Testing of All Crash-Involved Drivers.....	13
Designated Driver and Safe Rides Programs.....	15
Alternative Treatment Modalities.....	15
PREVENTION VERSUS DETERRENCE, AND FEDERAL INITIATIVES.....	16
Prevention.....	16
Deterrence Theory.....	18
Federal Initiatives, Sanctions, and Incentives.....	18
RECOMMENDATIONS FOR CONSIDERATION.....	20
Pilot study of pharmaceutical treatment for convicted DUI offenders.....	20
Increase alcoholic beverage control.....	21
Reduce crashes associated with on-premise drinking.....	21
Increase DUI prevention and general deterrence efforts, particularly those targeting youth.....	22
Lower illegal per se BAC levels for target groups.....	22
Mandatory license suspension for all convicted DUI offenders.....	23
Mandatory vehicle impoundment for persons arrested for a repeat DUI offense....	23
Increased use of house arrest in lieu of jail.....	23
Permissive hospital BAC testing.....	24
SUMMARY.....	24
REFERENCES.....	25
APPENDIX: Senate Bill No. 776.....	29

INTRODUCTION

Motor vehicle crashes are the leading cause of death for Americans aged 4 to 34. In the year 2000, a total of 41,821 people were killed in traffic crashes in America, and 16,653 of those fatalities involved alcohol (NHTSA, 2000a). While alcohol-involved traffic fatalities dropped by 25% during the 1990's, and the proportion of traffic fatalities that were alcohol-involved declined from 50% to 40% during that period, the fact remains that alcohol-impaired driving represents the number one public health and safety problem for young Americans.

California has long been recognized as a leader in traffic safety (IIHS, 2000), and the legislative reforms enacted subsequent to the initial California grass-roots lobbying efforts of Mothers Against Drunk Driving in the early 1980's have helped reduce the impact of alcohol-impaired driving in California to well below the national average. For example, in the year 2000, only 33% of traffic fatalities in California were alcohol-involved, compared with the 40% national average. Nonetheless, mirroring the national data, California also experienced an increase in alcohol-involved crashes, injuries, and fatalities in 1999/2000. These recent increases in alcohol-involved traffic fatalities were the first since 1987. With a large "baby boom echo" cohort entering the driving and drinking age populations in the coming years, we can anticipate a continuation of this national and statewide reversal in trend of two decades of declines in alcohol-related traffic safety statistics.

With alcohol once again looming as an increasing threat to public health and traffic safety, the time is ripe to revisit the problem of alcohol-impaired driving, to review what sanctions and countermeasures have proven effective against impaired driving, and to consider what actions might yet be taken. To this end, California State Senator Tom Torlakson sponsored legislation (Senate Bill 776, Chapter 857, 2001; see Appendix A) which states that "driving under the influence of alcohol and drugs (DUI) continues to be a significant threat to public health and safety." The legislation directed that the Department of Motor Vehicles (DMV) "shall review scientific and other empirical evidence on the effectiveness of programs, procedures, sanctions, fines, and fees in current law," and to "report on or before July 1, 2002, to the Legislature as to any findings regarding sanction and program effectiveness, particularly with respect to repeat offenders, and submit any recommendations to improve individual accountability, public education, sanctions, and programs to reduce recidivism." This report is produced in response to that legislative mandate.

WHAT WORKS?

This report examines existing scientific evidence regarding sanctions, programs, and countermeasures that have proven statistically significantly and substantively effective in reducing alcohol-impaired driving. These countermeasures are grouped by those that are driver-based, those that are vehicle-based, and other countermeasures impacting alcohol-impaired driving.

EFFECTIVE DRIVER-BASED COUNTERMEASURES

Minimum Drinking Age Laws

Since 1987, all states, including California, now have minimum drinking age (MDA) laws which specify age 21 as the minimum age at which a person may legally purchase alcohol. According to one study, the passage of MDA laws is estimated to have reduced age 18-20 alcohol-involved traffic fatalities by 13%, and to have saved over 20,000 lives since 1975 (NHTSA, 2000a). A recent review by the Centers for Disease Control (Shults et al., 2001) of 49 studies assessing the impact of MDA laws on alcohol-involved crashes among affected youth concluded that MDA laws are associated with 10% to 16% reductions in such crashes. Many of these studies also reported significantly reduced alcohol consumption among these youth. This last finding is particularly significant, given that recent research has shown that the age of onset of drinking is among the most significant predictors of alcoholism and alcohol abuse (Grant & Dawson, 1997). Given this evidence, MDA laws may have public health benefits beyond their proven positive traffic safety impact, and the CDC review concluded that there is strong evidence in support of these laws.

Of course, MDA laws must be enforced to be effective. One method of determining the enforcement level of MDA laws is through alcohol purchase surveys. Alcohol purchase surveys involve the use of pseudopatrons (either minors or adults who look like minors) attempting to purchase alcohol at a random sample of alcohol-licensed establishments. These surveys can provide important information to law enforcement and help to target alcoholic beverage control efforts. An evaluation of a pilot program in California and South Carolina (Grube, 1997) showed that a program combining enforcement of MDA laws, server training, and media advocacy, produced significant reductions in alcohol sales to minors.

One technological approach to controlling minors' access to alcohol was implemented and evaluated in Pennsylvania. Vendors were given electronic readers which would decipher the magnetic stripe on Pennsylvania driver licenses to determine if the person was of legal age. Presumably this would reduce vendor errors in "carding" minors attempting to purchase alcohol. Surprisingly, however, the evaluation found that the proportion of decoy minors who were not carded when attempting to purchase alcohol increased from 16% during the pre-test period to 48% after implementation of the program (NHTSA, 2001a).

Per Se BAC Laws

The enactment of "per se" blood alcohol concentration (BAC) laws fundamentally changed the definition of the offense of alcohol-impaired driving. Rather than having to prove that a driver was impaired by alcohol based on behavioral evidence, "per se" laws *defined* the offense of driving under the influence (DUI) based on the BAC level of the driver. Most early laws initially defined this level at 0.15% BAC, and then 0.10% BAC, but based on strong laboratory (Moskowitz, Burns, & Williams, 1985) and epidemiological (Zador, 1991; Borkenstein et al., 1964) evidence of impairment at BAC levels as low as 0.02%, the per se threshold was subsequently reduced to 0.08% in many states (including California), beginning with Utah and Oregon in 1983.

Studies evaluating the impact of the 0.08% BAC laws found positive impact of the laws in reducing the incidence and consequences of DUI. Voas and Tippetts (1999), for

example, conducted a 50-states evaluation of DUI laws, and found the 0.08% BAC laws to be associated with an 8% reduction in alcohol-involved fatal crashes. Apsler et al. (1999), in an evaluation of 11 states with per se and administrative per se (APS) license action laws, found the 0.08% BAC per se laws to be effective, both with and without concurrent implementation of APS laws. A recent evaluation of Illinois' 0.08% law enacted in 1997 found a 13.7% reduction in alcohol-involved crashes associated with the new law (NHTSA, 2000b). In California, Rogers (1995) found statistically significant reductions in alcohol-related crash measures associated with the implementation of both 0.08% BAC and APS laws (implemented 6 months apart). While the contribution of the APS law appeared to be stronger, the 0.08% BAC law was associated with statistically significant reductions of 7% to 16.5% on alcohol-related crash measures. A recent review of the existing scientific evidence on the efficacy of 0.08% BAC laws by the Centers for Disease Control found "strong evidence that .08 BAC laws are effective in reducing alcohol-related crash fatalities" (Shults et al., 2001).

In 1988, Maine carried the per se laws a step further by reducing the illegal per se limit for repeat DUI offenders to 0.05%. An evaluation of this new law by Hingson et al. (1998) found significant and substantial reductions in alcohol-related crashes associated with the lowered limit, and interestingly found larger reductions among offenders with the highest (0.15% or above) BAC levels.

Administrative Per Se License Action Laws

Deterrence theory (Ross, 1982) posits that the effectiveness of a law is a function of the perceived certainty, severity, and swiftness of punishment for the offense. In our current system of criminal jurisprudence, adjudication of most criminal offenses, including DUI, is not certain or swift. For example, studies in California have shown that the average time lag from arrest to adjudication and sentencing in DUI cases is 6 months, and that less than three-quarters of arrested DUI offenders are ultimately convicted of the offense (Tashima & Helander, 2002). These time delays and conviction rates are not unusual, and this lack of swiftness and certainty of punishment has led to the development and implementation of administrative per se (APS) license action laws. Under these APS laws, upon testing above the illegal per se limit, the driver is arrested for DUI, their driver license is immediately confiscated by law enforcement, and their driving privilege is administratively suspended or revoked.

The efficacy of APS laws has been evaluated in a number of studies in California and elsewhere, and a meta-analysis of 12 APS evaluations found a 5% reduction in alcohol-involved traffic fatalities associated with APS (Wagenaar et al., 1995). In California the results were somewhat stronger, with one-year reductions of 13% on alcohol-involved fatal and severe injury crash measures following the enactment of APS (Rogers, 1995). In addition, the recidivism rates of offenders suspended under the APS law were 37% lower than those of similar offenders prior to the law's implementation, with crash rates reduced by 19% (Rogers, 1997).

"Zero-Tolerance" Laws for Youth

Following the successful implementation of administrative per se license action laws in many states, there was a movement to apply a lower per se BAC standard for drivers under age 21, given that it was illegal in all states for persons under age 21 to purchase alcohol. Furthermore, these underage drivers are among the highest risk drivers on the

road, with or without alcohol, and are involved in twice as many fatal crashes, per capita, as are older drivers. A recent study estimated that teenage drivers with BAC levels of 0.08% to 0.10% are 24 times more likely to be involved in a fatal crash than similar drivers with zero BAC (Zador, 1991).

After decades of decline in the number of underage licensed drivers, population demographics have shown increases each year since 1993 in the number and proportion of underage drivers, and those numbers are expected to increase every year for at least the next decade. Recent research has also shown that the age of onset of drinking is one of the best predictors of alcoholism (Grant & Dawson, 1997), and annual national youth surveys conducted by the National Institute on Drug Abuse have documented significant increases in alcohol and drug use among America's youth since 1993 (NHTSA, 1999). All these factors identify youth as a prime target group for early intervention and more effective DUI countermeasures. Blomberg (1992) evaluated the impact of a 0.02% lowered BAC law for minors in Maryland (the first state to enact a "zero-tolerance" law, in 1990), and found evidence of a significant 30% reduction in alcohol-involved crashes for underage drivers associated with the new law. The Centers for Disease Control recently completed a review of three studies conducted in multiple states which evaluated the impact of zero tolerance (0.02% BAC or less) laws on fatal crashes, and found reductions ranging from 9% to 24%. On the basis of this review, the CDC review concluded that there is significant scientific evidence supporting the effectiveness of zero tolerance laws in reducing alcohol-impaired fatalities among youth (Shults et al., 2001). Since 1998, all states have a 0.02% BAC or less "zero tolerance" level for underage drivers.

Other Licensing Actions

License suspension is intended to incapacitate the DUI offender by temporarily removing the offender's privilege to drive. Research has shown, however, that up to 75% of suspended and revoked DUI offenders continue to drive while disqualified (Hagen, McConnell & Williams, 1980). That same research, however, documented statistically significant 30% reductions in subsequent crashes and convictions for these suspended/revoked offenders. So how is it that the letter of the law can be violated by so many, while the intent of the law—to reduce the traffic safety risk of DUI offenders—is successfully accomplished? Reports from the offenders themselves document that they continue to drive, but do so much less often, and much more carefully—in order to avoid being detected by law enforcement—and that is how suspension acts to reduce recidivism and subsequent risk (Hagen et al., 1980; Ross & Gonzales, 1988). The effectiveness of license suspension or revocation in reducing subsequent traffic safety risk has been repeatedly documented by numerous investigations (Hagen, 1977; Tashima & Peck, 1986; Tashima & Marelich, 1989). In a review of three California studies of license suspension and revocation effects on DUI offenders, Hagen et al. (1981) found reductions of at least 30% in subsequent crashes and convictions for suspended/revoked DUI offenders, compared to similar offenders who did not receive the licensing action.

In addition to the demonstrable effectiveness of license suspension and revocation, even less stringent licensing actions, such as restriction or probation, have been shown to be effective in reducing subsequent risk (Tashima & Marelich, 1989).

Treatment

Drinking driver intervention or treatment programs have proven to be significantly effective in reducing DUI recidivism. A meta-analysis conducted by Wells-Parker et al. (1995) found that treatment reduces subsequent DUI offenses by 7% to 9%. A series of California studies evaluating the state's tri-level drinking driver treatment programs has found significant reductions in recidivism associated with treatment (Jones, Wiliszowski & Lacey, 1996). One of these California studies, conducted under legislative mandate (SB 1344, Seymour, 1989), evaluated the efficacy of drinking driver programs (DDPs) in California, and found treatment to be significantly effective for first and repeat DUI offenders, with subsequent 18-month recidivism reductions of up to 94% relative to other sanctions (DeYoung, 1995).

In addition to applied research studies evaluating the impact of treatment on DUI recidivism, medical studies have documented that patients with identified alcohol use problems who receive brief interventional treatment are nearly twice as likely to have successful outcomes compared to controls, including reductions in subsequent hospitalization and health care costs. There have been over a dozen randomized trials of brief alcohol interventions which corroborate these findings (NHTSA, 2001b). One such trial conducted in Washington State found that almost half (46%) of all ER trauma patients were diagnosed as having alcohol problems, using the 13 question SMAST diagnostic screen, and that a 30-minute motivational interview upon discharge, followed by a letter contact 30 days later, resulted in a 47% reduction in subsequent ER visits, as compared to controls. A one-year followup found that intervention subjects had reduced their alcohol consumption over 3 times more than controls (NHTSA, 2001b).

Current federal law (TEA-21) mandates alcohol assessment and tailored treatment for all DUI offenders. Under this directive, each DUI offender would undergo assessment to determine the extent of their drinking problem, and would be assigned to treatment based on the results of this assessment. While theoretically this mandate makes sense, there is unfortunately little evidence to support the efficacy of this approach, given current assessment instruments and treatment modalities. While assessment instruments may distinguish varying levels of alcohol abuse and alcoholism, they are not necessarily superior to driver record factors in predicting DUI recidivism (Marowitz, 1996a). Furthermore, even if assessment instruments can correctly diagnose the level of alcohol abuse, there is little evidence to suggest that any currently available treatment modality is superior to another (NIAAA, 1997), and no demonstrably effective decisionmaking criteria by which to "tailor" treatment to the offender.

Server Intervention Programs

Research has found that about half of all arrested DUI offenders had consumed alcohol in a licensed establishment (bar, restaurant, arena, etc.) just prior to their arrest (Shulst et al., 2001). This fact has spurred the implementation of server intervention programs nationwide, which seek to train server staff to identify underage or intoxicated patrons, and to slow or curtail service and discourage such patrons from driving. There are no standard curricula or regulations for such server intervention programs, and the content and quality of such programs varies widely by jurisdiction.

California's Department of Alcoholic Beverage Control (ABC) has an active server intervention training program which is offered free of charge to licensed establishments on request. The 4-hour training program covers the laws and regulations regarding alcoholic beverage service, identification of minors, recognition of the signs of intoxication, and methods to reduce or curtail service. Although this program is voluntary, ABC has trained over 150,000 servers statewide since the program was initiated in 1995. ABC also conducts "minor decoy operations" and "shoulder tap" programs which seek to reduce package sales to minors, and ABC has a "three strikes" provision which mandates alcohol license revocation for establishments that are cited on 3 separate occasions for sale to minors. ABC is also targeting college communities under two grant programs to address the increasing problem with underage alcohol consumption and binge drinking on college campuses.

The Centers for Disease Control reviewed existing research evidence on the effectiveness of server intervention training, and found that 4-hour to one-day training courses resulted in significant reductions in the proportion of patrons leaving the establishment who tested above illegal per se levels; one study identified a reduction in alcohol crash measures associated with a server intervention program (Shults et al., 2001). Because of the potential conflict of interest inherent in expecting licensed establishments, whose purpose is to sell alcohol, to actively discourage patrons from consuming alcohol, it was suggested that strong management approval and support for server intervention was critical to the success of these programs. The CDC review suggested that the server intervention studies examined may, in fact, represent the potential impact of server intervention under optimal conditions, and that alcoholic beverage control laws and server liability (dram shop) laws perhaps are stronger countermeasures for most licensed establishments. California's dram shop law was repealed in 1978, and the only existing server liability law relates to serving intoxicated minors (B&P Code 25602.1).

House Arrest in Lieu of Jail

DUI countermeasure evaluations have consistently found jail sentences to be among the least effective sanctions for reducing the subsequent crash and recidivism rates of convicted DUI offenders (Tashima & Helander, 2002; DeYoung, 1995; Voas, 1986). Jail is also one of the most expensive sanctions in the criminal justice system. Given both the ineffectiveness and cost of jail as a criminal justice countermeasure, there is growing acceptance of the use of house arrest (electronic confinement) for nonviolent criminal offenders, including many DUI offenders (Voas, 2002). The National Institute of Justice reports reductions in recidivism associated with house arrest, as opposed to incarceration or other sanction alternatives (Parent et al., 1997). House arrest has been utilized in Los Angeles County for DUI offenders, and an evaluation of this program found a 33% reduction in recidivism associated with house arrest (Jones et al., 1996). Furthermore, the cost of electronic confinement is about one-third the cost of jail, with some of the cost further defrayed by having offenders pay for their own monitoring. Because it is feasible for the offender to continue to work during daytime hours, while being confined at night (when most drinking and alcohol-impaired driving occurs), the offender is often able to cover the cost of the nighttime monitoring, while also continuing to provide for family members (Voas, 2002). House arrest monitoring technology has also advanced to the point that the offender may be required to take a

breath alcohol test on a random basis, with interactive video monitoring assuring that it is the offender taking the test.

Lower Per Se BAC for Repeat Offenders

One legislative strategy which has proven effective in reducing the incidence of alcohol-involved fatal crashes among repeat DUI offenders is establishing a lower, or "zero tolerance," BAC level for previously convicted drunk drivers. In 1988, Maine lowered the illegal per se BAC limit from 0.10% to 0.05% for repeat offenders. Over the next 6 years, fatal crashes involving repeat offenders declined by 25 percent, while neighboring states experienced increases in fatal accidents involving repeat offenders. Maine, Utah, and Maryland now prohibit repeat DUI offenders from driving with any detectible alcohol in their blood, while North Carolina has a 0.05% per se BAC level for repeat offenders (Hingson, Heeren, & Winter, 1998).

Sobriety Checkpoints

Sobriety checkpoints can be a very effective DUI countermeasure. The ultimate function of a sobriety checkpoint is not necessarily to specifically catch drunk drivers (although DUI offenders are apprehended and arrested), but as a general deterrent and reminder to the public of the dangers of impaired driving. The use of sobriety checkpoints was deemed to be constitutional by the United States Supreme Court in 1990, and most states use sobriety checkpoints to some degree.

The Centers for Disease Control recently conducted a review of the scientific evidence on the effectiveness of sobriety checkpoints, and found that sobriety checkpoints reduced subsequent fatal crashes by 23% (Shults et al., 2001). Because sobriety checkpoints are designed primarily to increase public awareness and perception of risk of being apprehended while driving impaired, and not necessarily to "catch" drunk drivers, there is some evidence of law enforcement frustration with a process not specifically designed to "catch the bad guys" (Shults et al., 2001). This can translate into a reluctance to deploy scarce law enforcement officer resources for sobriety checkpoints unless such a program is promoted and paid for by outside funding.

Public Information and Education

Studies of the impact of public information and education (PI&E) campaigns have typically found short-term impacts on criterion measures (crashes, convictions, etc.), which have tended to fade fairly quickly after the PI&E efforts stopped. Blomberg (1992) evaluated the impact of a PI&E campaign in Maryland related to the implementation of a 0.02% BAC law for minors, and found a significant impact on alcohol-involved crashes (-44%) in two counties with the campaign, compared to reductions achieved by the law (-30%) in other non-PI&E counties. Atkin (1988), in a review of research on PI&E campaigns published in the 1988 Surgeon General's report on drunk driving, concluded that media-driven drunk driving campaigns appear to have had little effect on drunk driving, while implying that more effectively designed social marketing approaches might have positive impact. Certainly, the billions of dollars spent on advertising by commercial interests would imply that the public does respond to these media messages, if effectively designed, produced, and delivered.

EFFECTIVE VEHICLE-BASED COUNTERMEASURES

Historically, DUI sanctions and countermeasures have tended to focus on punishing, rehabilitating, or incapacitating the drinking driver. Another approach to controlling the DUI offender that has emerged in recent years is to focus on the offender's vehicle as a means of influencing the offender. Some of these vehicle-based countermeasures have proven to be significantly effective, including the following:

Vehicle Impoundment or Immobilization

While license suspension is a proven effective traffic safety countermeasure which significantly reduces the crash and conviction rates of suspended/revoked (S/R) drivers, it is also known that many offenders continue to drive during their period of disqualification, albeit less frequently and more carefully in order to avoid detection by law enforcement (DeYoung, 1997).

In an effort to improve the impact of license suspension and better control S/R drivers, California enacted two laws in 1995 which provide for the impoundment and forfeiture of the vehicles of S/R and unlicensed drivers who continued to drive. An evaluation of these new laws found that vehicle impoundment reduced the crash and conviction rates of S/R drivers by 25% and 18%, respectively (DeYoung, 1997). Even more impressively, the crash and conviction rates of repeat S/R violators were reduced by 38% and 22%, respectively. S/R drivers have long been among the highest-risk and most recalcitrant of all drivers, and the significant and substantial reductions in that risk level associated with vehicle impoundment are rarely found in traffic safety research. While the deployment of this extremely effective yet relatively draconian countermeasure is perhaps best left as a "final resort" for the most dangerous and nonresponsive offenders, the use of mandatory vehicle impoundment among repeat DUI offenders might be appropriate and effective as well. Repeat DUI offenders, by definition, have shown themselves to be nonresponsive to first-offender sanctions and treatment, and the imposition of mandatory vehicle impoundment upon arrest for a subsequent offense of DUI could be expected to have an impact similar to that on the S/R driver population. This, in fact, is what Voas found in two studies of a 1997 Ohio law which provides for vehicle impoundment for 90 to 180 days for repeat DUI offenders in Ohio. The reductions in recidivism were even larger than in the California study, on the order of 60%-80% while the vehicle was impounded, and up to 50% even after the end of the impoundment period (Voas, Tippetts, & Taylor, 1997,1998).

Ignition Interlock

Although ignition interlock device (IID) technology has been around since the 1960's, the use of IIDs as a DUI countermeasure has met with limited success and has never been widely implemented. An IID consists of an alcohol breath testing module connected to the ignition system of a vehicle, whereby a driver must blow into the device and register a BAC less than a specified level in order to be able to start the vehicle. While, in theory, an IID represents a perfect vehicle-based intervention to drunk driving, the IID is also easy to circumvent. In the early development of interlock technology, the devices themselves were easily circumvented, and early IID evaluations showed that offenders did so often (EMT Group, 1990). The technology has advanced considerably, however, and the devices themselves are now much more difficult to defeat. However, the interlock intervention is still easily circumvented simply by driving another vehicle not equipped with an IID.

California was the first state to pass ignition interlock legislation (Farr-Davis Driver Safety Act of 1986) authorizing the use of IIDs as a condition of DUI probation. This bill established a pilot program in four counties and mandated an evaluation of the effectiveness of the IID program in reducing recidivism. Unfortunately, the pilot program was poorly implemented, the evaluation methodology was flawed, and the results were inconclusive. Although the study showed directionally positive results for offenders who actually had the devices installed, the results were directionally negative for offenders assigned to interlock (whether or not they actually installed a device) versus those who received the standard sanctions. In spite of the lack of success for the pilot program, the permissive use of interlock was expanded statewide by AB 2040 (Farr) in 1990. Although this legislation authorized and encouraged the use of IIDs in DUI sentencing, only a few jurisdictions embraced the use of IIDs as a sentencing option, and very few IIDs were ordered by judges. In 1993, AB 2851 (Friedman) sought to expand the use of IIDs by mandating that all repeat offenders install an IID, in spite of the fact that all repeat offenders were under a license suspension or revocation order, and not legally permitted to drive. This logical inconsistency, along with other reasons cited by judges (excessive cost, lack of proven effectiveness), resulted in poor judicial implementation of this new mandatory statute, and fewer than a quarter of all repeat offenders subject to "mandatory" interlock were ever sentenced to IID by the courts.

In response to the failure of California's AB 2851 mandatory IID program, the DMV, under a federal grant, convened a task force of representatives from all components of the DUI system in order to design and develop a model IID program for California. One of the major components of this new program was a shifting of the "mandatory" target population, from all repeat DUI offenders, to all DUI offenders suspended or revoked for DUI who were convicted of driving while disqualified. This shift resolved judicial concerns about the logical inconsistency of prior law, which mandated IIDs on vehicles that offenders were not licensed to drive and essentially "convicted" them of driving while disqualified before they had even done so. The new California IID program also encouraged the use of interlock by allowing early reinstatement for DUI S/R offenders who agreed to install an IID, and also encouraged judges to order IIDs for high-risk first offenders meeting specified criteria. This new IID program was enacted into law by AB 762 (Torlakson) in 1999, and the legislation included a mandate for evaluating the implementation and effectiveness of the new law.

In addition to the 1990 California IID pilot program evaluation (EMT Group, 1990), there have been a number of IID effectiveness evaluations conducted in Ohio (Elliot & Morse, 1993), Maryland (Beck et al., 1999), Canada (Bierness et al., 1997) and Sweden (Bjerre, 2002). Although the reported results from these studies are encouraging, most existing IID evaluations unfortunately suffer from poor research methodology, extremely small sample sizes, and/or severe self-selection biases. The most scientifically rigorous of these studies, conducted by Beck et al. in Maryland in 1999, demonstrated significant reductions in recidivism for repeat DUI offenders seeking voluntary reinstatement in Maryland. This conclusion is encouraging, as California's new IID program includes such provisions for early reinstatement of repeat offenders with the installation of an IID, targeting the same permissive reinstating repeat offender population for whom the devices proved effective in Maryland.

An evaluation of the implementation of the new California IID program is nearly complete, and an impact evaluation is due to the legislature in 2004. California was the first state to legislatively authorize the use of IIDs, and has been continuously ahead of the curve in passing expanded and innovative IID legislation. Once the results of the current IID effectiveness evaluation are known, it is anticipated that they may give additional direction to the effective use of IIDs in California.

An innovative concept of DUI offender monitoring, utilizing IIDs as part of a technological blanket covering the DUI offender 24 hours a day, has been proposed by Voas (2002):

"such a system would use electronic monitoring to tether the offender to his interlock-equipped vehicle (rather than to his home as in current house arrest programs), and the vehicle would be tracked by a central monitoring station as is currently being done with high-risk offenders. The system would monitor the offender 24-hours a day - at home, at work, or at any other location to which an offender is allowed to drive. Although the offender must stay within 100 to 200 yards of the vehicle at all time, he or she would be mobile and could go to and from work and make any other trips required to support family activities."

Voas posits that this technology would make it practically impossible for an offender to drive while impaired. Certainly, as IID technology, Global Positioning System (GPS) technology, and other monitoring technologies advance, and decrease in cost, they may well serve to reduce the ability of DUI offenders to drive while impaired.

OTHER COUNTERMEASURES IMPACTING ALCOHOL-IMPAIRED DRIVING

Seat Belts

The use of seat belts reduces the risk of injury or fatality in a traffic crash by 45% to 50% (NHTSA, 1995). By the year 2000, 49 states had passed mandatory seat belt legislation, with 17 states having "primary" seat belt laws, which allow law enforcement to stop and cite a driver observed not wearing a seat belt. NHTSA data show that only 22% of fatally injured drivers with BACs of 0.10% or above were using seat belts, compared to 51% of nonimpaired drivers. Given that seat belts are demonstrably effective in reducing traffic injuries and fatalities, and the low rate of belt usage by impaired drivers, to the extent (estimated at 15% by NHTSA) that primary seat belt laws can increase the usage of seat belts, as well as provide an opportunity for law enforcement to identify and stop impaired drivers, such "primary" seat belt laws can have an impact on impaired driving. California is a "primary" seat belt law state, and seat belt usage in California is over 90%, compared to a national average of 71%.

Graduated Driver Licensing

Teenage drivers have the highest crash risk level of any age group, primarily due to inexperience and immaturity, along with a propensity for limits-testing, risk-taking behavior. Novice 16-year-old drivers have a per-driver crash rate 3 times higher, and a per-mile crash rate 10 times higher, than the general driving population (DOT, 1991). Graduated driver licensing (GDL) is a program developed by NHTSA in the early 1970's (Croke & Wilson, 1977) designed to gradually ease the novice teenage driver into the

driving task and environment under restricted conditions, with the novice driver "graduating" from "instruction permit" to "provisional license" to full unrestricted licensure over time. GDL programs typically involve increased training under supervision over a specified lengthy period of time, with restrictions on driving (time of day and passenger restrictions) and accelerated sanctions for traffic violations. Evaluations of GDL programs have shown per-driver crash reductions of up to 32% (Agent & Pigman, 2000).

California implemented an early provisional licensing program in the early 1980' s, and even though the program did not include all the elements associated with current GDL programs, per-capita crash reductions on the order of 5.3% were documented (Hagge & Marsh, 1988). A more stringent provisional licensing or GDL program was implemented in California in 1998. This new program involves formal driver education and training, written, vision, and road testing, and a minimum of 50 hours of supervised driving, including 10 hours at night, during the course of a minimum 6-month "instruction permit" period. After age 16, and having passed the DMV-administered road test, the novice driver is not allowed (unless accompanied by a validly licensed adult over age 25) to either carry passengers under age 20 (for 6 months), or to drive between midnight and 5AM (for 12 months). Any traffic conviction or at-fault crash during the provisional licensing period results in accelerated sanctions, including license restriction or suspension, at least until the provisional licensee "graduates" to full driver license status at age 18. The California DMV is currently evaluating the statewide impact of GDL, and early results from a San Diego study showed a 20% per-capita reduction in crashes (Smith et al., 2001).

Alcoholic Beverage Control

The minimum drinking age laws act to reduce the availability and consumption of alcohol by minors, with demonstrable traffic safety and public health benefits. In a larger context, measures which reduce the availability and consumption of alcohol by adults also have associated benefits for public health and safety. While the consumption of alcohol in America is legal for persons aged 21 years or older, there are, in fact, a whole host of federal, state, and local laws and regulations which limit the availability of alcohol to adults through restrictions on the manufacture, marketing, distribution, sale and consumption of alcohol. These alcoholic beverage control measures exist because of the considerable negative public health and traffic safety effects which would result without them (Moore & Gerstein, 1981).

Among the most direct and effective measures of alcoholic beverage control are price controls and taxation. The consumption of alcohol is inversely related to price (Levy & Sheflin, 1983), and price is inversely related to alcohol-involved traffic crashes (Saffer & Grossman, 1987a, 1987b). In other words, the higher the price of alcohol, the lower the rate of consumption, and the lower the rate of alcohol-related crashes. Saffer and Grossman (1987a) found a direct relationship between higher state excise taxes on beer and lower fatality rates for drivers under age 24, and estimated that doubling the tax on beer would reduce traffic fatalities among youth by as much as 27% (Saffer & Grossman, 1987b).

Taxes on beer (avg. 2.5 cents/drink) and spirits (avg. 4.1 cents/drink) have dropped by two-thirds in real terms since 1968, and Hedlund & McCartt (2002) have suggested that

increases in alcohol taxation offer the only reasonable opportunity for major reductions in impaired driving in the near term. The Surgeon General's report on drunk driving (1988) states that "an increase in the excise tax could have the largest long-term effect of all policy and program options available to reduce alcohol-impaired driving." (Wagenaar & Farrell, 1988, p.11). The report goes on to suggest that taxes should be equalized based on alcohol content (beer is currently taxed at a much lower rate than distilled spirits) and adjusted for inflation, and cites strong public support (86% approval) for such tax increases to pay for programs against drunk driving.

In addition to taxation, there are other alcoholic beverage control measures which can influence consumption. These include economic measures (price controls, limits on discounts or other inducements to purchase alcohol, such as gifts, prizes, or "Happy Hours"), marketing measures (restrictions on advertising and promotions), and limits on the distribution (wholesale) and sale (retail) of alcohol. Alcoholic beverage control measures which act to separate the consumption of alcohol from driving would appear to offer significant opportunities for reducing alcohol-impaired driving. This is underscored by the fact that roughly half of all alcohol-related crashes involve drinking at an on-premise establishment (e.g., bar, restaurant, arena), while only a quarter of all alcohol is consumed on-premise (O'Donnell, 1985).

It is interesting to note that legislation enacted to reduce the incidence of alcohol-impaired driving can also result in reduced alcohol consumption. For example, Voas and Tippetts (1999) found that the enactment of "illegal per se" laws reduced per capita consumption of beer (the clear choice of DUI offenders; Berger & Snortum, 1985) by 3.5%, while administrative license suspension/revocation laws reduced beer consumption by an additional 2.2%.

WHAT DOESN'T WORK?

Jail or Community Service

A number of studies have assessed the effectiveness of jail sentences as a DUI countermeasure, and the results have predominantly shown jail to be among the least effective of all DUI sanctions. Tashima & Marelich (1989), for example, found jail as a DUI countermeasure in California to be the least effective sanction (compared to license suspension, treatment, etc.) for first offenders in terms of reducing subsequent recidivism, with a reoffense rate almost double that of other sanction alternatives. This finding has been replicated by numerous other California investigations (Tashima & Helander, 2002; DeYoung, 1995). In other states, Blumenthal and Ross (1973) found no impact of jail on first-offender recidivism in Colorado, while Klingberg et al. (1984) found higher subsequent crash and recidivism rates among Washington DUI offenders sentenced to jail under a 1980 mandatory jail law. Voas, in a 1986 review of several foreign evaluation studies, found no impact of jail on DUI recidivism.

One caveat to some of these findings, however, is that they are often based on court sentences to jail, and frequently jail sentences are served as community service, or not served at all, due to jail overcrowding. Because jail sentences for DUI offenders are typically short in duration, they also have limited incapacitative effects, according to Ross (1992). Homel (1980), however, has demonstrated that not only is jail ineffective

as a DUI countermeasure in Australia, but that longer jail sentences are associated with even higher recidivism rates upon release.

Fines

There has been relatively little research on the impact of fines as a DUI countermeasure. Homel (1980) found that fines were generally ineffective in reducing the recidivism of DUI offenders in Australia, with the exception of a small group of young, low income, convicted DUI offenders whose recidivism was reduced by the imposition of very heavy fines. Homel concluded that, "no deterrent effect of heavy fines was demonstrated for any other group, which suggests that fines may be effective only if they are calculated to be quite heavy relative to the offender's financial resources." Votey and Shapiro (1983) also provided some evidence that very heavy fines, calibrated to an offender's income level, showed some impact in Scandinavia. Tashima and Marelich (1989) evaluated the impact of fines for convicted DUI offenders in California, and found the evidence equivocal, depending upon the unit of measurement (county-wide versus individual offender analyses), with the net result providing little in the way of support for fines as an effective DUI countermeasure.

WHAT MIGHT WORK?

Preliminary Breath Test (PBT) BAC Testing of All Crash-Involved Drivers

One of the ironies of current law and practice with respect to crash-involved DUI offenders is that the more serious the crash, the less likely that the offender will be arrested and/or convicted of the offense. Helander (1985) found that crash-involved DUI offenders were substantially less likely to be arrested for DUI and, if arrested, were less likely to be convicted. Tashima and Helander (2002) reported that among 10,829 DUI arrests associated with alcohol-involved fatal or injury crashes in California in 1999, all of which met the statutory definition of felony DUI, only 31.4% of offenders were arrested for felony DUI, and only 11.7% were convicted of the offense. Emergency room statistics reveal that as few as 7% of alcohol-impaired crash-involved patients are arrested for DUI (NHTSA, 2001b). One of the reasons for this surprising anomaly is that emergency room physicians are often resistant to ordering routine BAC testing or providing BAC testing results to law enforcement. There are legitimate medical, ethical, and legal (insurance and liability) reasons why this is the case (NHTSA, 2001b). For example, ER physicians often consider mandatory BAC testing to be in potential conflict with medical protocol and patient confidentiality, and are concerned about being called into court to testify should the BAC testing be challenged in subsequent court action. If the tests are positive, there are liability concerns if the physician does not modify discharge instructions or followup recommendations for the patient. For these and other reasons, the American College of Emergency Medicine has adopted a policy that opposes permissive and mandatory police reporting of such cases (Nedza, 1998).

Lost in this practice and policy is a prime opportunity for intervention, and a frequent one, given that 50% of severe trauma patients test positive for alcohol, and that a single ER visit with positive BAC is a significant predictor of subsequent DUI incidents, alcohol-involved crashes and fatalities (NHTSA, 2001b). One recommendation from a June, 2000 national conference on *Developing Best Practices of Emergency Medical Care for the Alcohol Impaired Patient* is for the enactment of laws that would specifically allow health care providers to answer law enforcement's questions concerning possible

intoxication of an injured driver (NHTSA, 2001b). It was felt that this would resolve some if not all of the ethical conflict inherent in the reporting of such cases to the police. Physicians who do not feel that initiating an investigation is ethical may feel that it is permissible to cooperate with an ongoing investigation, provided the law allows it. This would increase the likelihood that police investigation of a crash would include detection of alcohol impairment, and facilitate the subsequent arrest and conviction of the crash-involved alcohol-impaired driver.

In addition to such permissive medical reporting legislation, preliminary breath test (PBT) BAC testing for all crash-involved drivers would substantially increase the identification of alcohol-impaired drivers. Epidemiological research has clearly established that the probability of crash involvement increases with BAC level, and that drivers at 0.08% or above are at significantly higher risk of involvement in a fatal crash (Borkenstein et al., 1964). The laboratory (Moskowitz et al., 1985) and epidemiological evidence also indicates that crash involvement is substantially increased even at very low BAC levels (Helander, 2002). Donelson (1988) estimated that 25-30% of injury crashes, and 5-10% of property-damage-only (PDO) crashes, involved drivers with BACs in excess of 0.10%, and clearly many of these alcohol-impaired drivers are not identified by law enforcement, let alone those impaired offenders with BACs less than 0.10%. In fact, many jurisdictions do not routinely dispatch law enforcement to reported crashes unless there is injury involved. While the average BAC level upon arrest is approximately 0.15%, laboratory and epidemiological evidence is clear that measurable impairment occurs at virtually any detectible BAC level. Given this wide gap between measurable impairment and average BAC level on arrest, clearly many alcohol-impaired drivers are not being identified by law enforcement, and PBT BAC testing of all crash-involved drivers would allow detection of these lower-BAC alcohol-impaired crash-involved drivers who are now escaping detection. Given the clear and positive correlation between alcohol consumption and crash risk, plus the fact that many injury and PDO crashes are not investigated by law enforcement, there exists a compelling rationale to PBT breath-test all drivers involved in a crash. Such testing would not only substantially increase the identification, arrest, and prosecution of impaired drivers, it would likely exert an even larger general deterrent effect.

A third benefit might also be realized by PBT BAC testing of crash-involved drivers. Marowitz (1996) examined the recidivism risk of DUI offenders by BAC level at arrest, and found that drivers with the lowest BAC levels at arrest had among the highest recidivism expectancies. Phillips (1995) documented that among arrested DUI offenders, the involvement of drugs other than alcohol increased inversely with BAC level at arrest, and that 60% of offenders with BACs less than 0.08%, and up to 90% of offenders with BAC levels of 0.00%, tested positive for drugs. PBT BAC testing of all crash-involved drivers would bring all of these drug-impaired offenders into contact with law enforcement, and while the PBT BAC test itself would not be positive, the officer's drug recognition training may allow the identification and arrest of many of these offenders who might otherwise go undetected. The use of PBT devices would minimize cost and expedite the testing of crash-involved drivers; law enforcement could use preliminary breath test (PBT) devices to establish the presence of alcohol; if the driver tested positive in this preliminary test, or if the officer suspected drug impairment, normal DUI investigative and chemical testing procedures could be followed. However, there may be law enforcement resource issues, or perhaps public

concern, with PBT BAC testing of all crash-involved drivers, and these issues should be explored further before implementing such a procedure.

Designated Driver and Safe Rides Programs

Designated driver and safe rides programs represent efforts to keep impaired drivers off the road by offering them transportation alternatives. The idea behind the designated driver program is to have at least one person not drink among groups of two or more who are driving together to a social event which includes consumption of alcohol. The concept of the "designated driver" is one which has been promoted by the alcohol industry, and between 1988 and 1992, more public service announcements (PSAs) were aired about designated drivers than about any other single subject. In addition to PSAs, the concept of the "designated driver" was incorporated into major television and film productions. According to Gallup surveys, in September 1988, two months prior to the initial "designated driver campaign" start, 62 percent of all respondents indicated that they, or people they knew, regularly used a designated driver. By mid-1989, that percentage rose to 72 percent, and use among males increased from 54 percent to 71 percent (DeJong & Hingson, 1998). While public awareness and homage paid to the designated driver concept is high, the actual use of designated drivers is reported to be substantially less, and the potential for major reductions in impaired driving appear to be limited (Parent et al., 1997).

The "safe rides" concept provides another transportation alternative for impaired drivers, and benefits from not requiring advance planning in order to be utilized. Formal "safe rides" programs provide the intoxicated driver with free cab or bus rides home, and hundreds of such programs have been implemented across the United States. The "safe rides" concept enjoys a similar degree of expressed public support (96%) as does the designated driver concept (91%). As with the designated driver program, there are logistical problems with "safe rides" programs as well, including cars left behind, use of the system by intoxicated persons without cars, and the cost of providing alternative transportation. Although both "safe rides" and designated driver programs enjoy broad public support in concept, in application both approaches have substantial hurdles to successful implementation, and are perhaps limited in their overall potential for reducing impaired driving.

Alternative Treatment Modalities

Most present alcohol treatment modalities are psychosocial in nature, and seek to change the individual's drinking behavior through socially- or psychologically-based treatment. While psychosocial models of alcohol treatment have been shown to be moderately effective in reducing relapse, a major study of three alternative psychosocial treatment modalities found little difference among them (NIAAA, 1997). This study (project MATCH) was a clinical trial of three well-established treatment models: 1) the 12-step Alcoholics Anonymous approach, 2) a cognitive behavioural approach, and 3) a motivational approach. Prior to the release of this study, a common criticism of alcohol treatment had been that it tended to treat all participants the same, despite widely varying degrees of dependence and abuse, and the profoundly different "drinking careers" of participants. The concept of diagnosis and tailored treatment has been promoted for several decades, but it is questionable whether currently available diagnostic instruments can effectively distinguish risk levels, (particularly with respect to DUI recidivism; see Marowitz, 1996b), and even if they could, there is no evidence to

suggest which treatment approach might work best based on that diagnosis. Indeed, the results of project MATCH tend to reject the notion that current treatment methods can be effectively tailored to characteristics of the offender.

One treatment approach which has been used for years, and which is now offering new hope, is the use of chemical or drug therapy to curb alcohol craving and consumption. Antabuse is an example of drug treatment for alcohol, and although it can reduce consumption by delaying the metabolism of alcohol, thereby making a person sick after drinking, antabuse has toxic qualities which have led to major medical complications. One promising new drug is naltrexone, which acts to reduce the opioid response to alcohol which causes alcoholics to continue drinking to excess. The use of naltrexone as a treatment for alcoholism was first studied at the University of Pennsylvania/VA Center for Studies of Addiction in the mid-1980's, and clinical trials showed significant reductions in craving for alcohol, significant reductions in liver enzyme biomarkers, and a significant 50% reduction in frequency of consumption for the randomly assigned group receiving naltrexone versus a placebo. These findings were replicated in the early 1990's by a similarly designed study at Yale University (Volpicelli, 1995). A major study of pharmaceutical treatment for alcoholism, alone or in conjunction with psychosocial treatment, is currently being conducted by the National Institute on Alcohol Abuse and Alcoholism (NIAAA) in 11 university research centers across the United States. In addition to naltrexone, the drug acamprosate, which has been used in Europe and South America, is also being tried in this major project (NIAAA project COMBINE).

The prospects for successful drug treatment of alcohol abuse are very encouraging, and the concomitant shift in emphasis from psychosocial to pharmacological treatment is anticipated to be as major a shift as has occurred in psychiatry over the past several decades. As stated by Dr. Michael Miller, Medical Director of the NewStart program at Meriter Hospital in Madison, WI, "We're seeing the advance of the pharmacology area in addiction medicine like never before, not unlike what happened in psychiatry in the past 50 years, where physicians caring for patients moved from talk therapies and psychosocial interventions to a combination of psychotherapy and pharmacological therapy interventions." (Elliott, 2000)

PREVENTION VERSUS DETERRENCE, AND FEDERAL INITIATIVES

Prevention

Most of the legislative strategies and programs discussed above are aimed at reducing the negative consequences of alcohol consumption and driving, after the fact. While many of these countermeasures have proven effective in reducing the reoccurrence of alcohol-impaired driving, a more pronounced emphasis on prevention offers even greater potential for reducing the problems of drunk driving. Recent research has demonstrated that age of onset of drinking is a major determinant of subsequent alcohol abuse and alcoholism (Grant & Dawson, 1997), and this evidence underscores the need for reducing the access to alcohol for youth, and for increasing alcohol countermeasures targeted at young drivers. One starting point would be to increase the emphasis given impaired driving issues as part of the driver education curriculum. Driver education in California is currently governed by both the Vehicle Code and

Education Code, and the regulations and procedures of the Departments of Education and Motor Vehicles. The curriculum requirements for alcohol or drug-impaired driving are not spelled out in either code or regulation, other than the requirement that the topic be covered. For example, CVC 11113(a)(1) requires that driver education include "a component relating to the dangers involved in consuming alcohol or drugs in connection with the operation of a motor vehicle," but does not require any specific curriculum items or commitment of time to the subject. Given that alcohol-impaired driving is the number one cause of death for young drivers, it would not be unreasonable to increase and specify the time and curriculum requirements for preventive education as part of the driver education curriculum for provisional licenses.

It is estimated that 20% of the driving population drives after drinking some amount of alcohol in any given year, and 20% of these drivers (or roughly 5% of all drivers) are problem drinkers or alcoholics, who account for 40% of the drunk driving trips taken (Hedlund & McCartt, 2002). While these data justify special attention to the problem drinker and repeat DUI offender, they also underscore that the vast majority of drunk drivers are not problem drinkers or alcoholics. This would imply that general prevention efforts targeting the occasional drinking driver, rather than remediation efforts targeting the repeat DUI offender, would have a larger potential payoff in reducing the overall incidence of drunk driving. As stated in the Surgeon General's 1988 report on drunk driving, "to be most effective, prevention strategies should reduce risks across the population, rather than focus on the relatively small segment of society that at any given time exhibits extensive problems with alcohol (i.e., addicted drinkers)" (Wagenaar & Farrell, 1988). In terms of deterrence theory, this would imply that efforts at general deterrence, which seeks to prevent a population of potential offenders from committing an offense in the first place, should receive greater focus than specific deterrence, which seeks to deter an offender from committing the offense again.

One countermeasure which has proven effective as a general deterrent is sobriety checkpoints. As Ross has noted, law "enforcement campaigns can produce deterrent effects by increasing public perception of the likelihood of punishment" (Ross, 1982, p. 90). Ross himself, however, has questioned the fundamental justice and ultimate efficacy of the deterrence approach, and suggested that the drunk driving problem be redefined as two problems, one being as "part of the general problem of controlling alcohol use," and the other as "part of the general problem of controlling the consequences of traffic crashes" (Ross, 1982, p. 113). This bifurcation of the problem suggests two different sets of countermeasures. Controlling alcohol use can be accomplished by a variety of means, including raising the price of alcohol (increasing alcohol tax) and limiting the availability and distribution of alcohol, particularly in environments where the drinker is likely to drive (including bars, restaurants, and gas station convenience stores). The alcohol crash redefinition suggests countermeasures which would make the driving environment safer for drunk drivers, including safer cars (improved passive restraint systems and sturdier vehicle construction) and more tolerant highways (e.g., removal of fixed objects proximate to the roadway). Both of these redefinitions suggest countermeasures which also produce public safety benefits beyond the drunk driver, such as general public health benefits from reduced alcohol consumption, and increased vehicle and highway safety for all drivers, not just those who are impaired.

Deterrence Theory

Legal deterrence seeks to prevent harmful social behavior through the threat of punishment for the offense. Deterrence acts in two ways to prevent the proscribed behavior, first by the threat of punishment for committing the offense (general deterrence), and secondly by actually punishing the offender to prevent a reoccurrence of the offense (specific deterrence).

Deterrence theory posits that the efficacy of a legal countermeasure is a function of the perceived certainty, severity, and swiftness of punishment for the offense. The odds of being identified, apprehended, and arrested for DUI are extremely low. It is estimated that less than 1%-2% of DUI offenders are identified and apprehended by law enforcement (Helander, 1986; Hedlund & McCartt, 2002), meaning that at least 98% of drunk driving trips do not result in arrest. Given that only 20% of the public believes it is very unlikely that they would be stopped if driving after drinking, according to a 1999 NHTSA survey, there is clearly a large gap between the objective and perceived certainty of punishment for DUI. To the extent that the public perceives that they will be punished for DUI, they will be deterred from committing the offense. The NHTSA survey shows that the majority of the public still believes that they will be caught and punished for DUI, but DUI as a significant social issue has declined from its headline status of the 1980's. The public is far more concerned with drugs and other types of crime, and even within traffic safety, the public is more concerned with air bags, tire defects, and cell phones, than with DUI (Bureau of Transportation Statistics, 2000). These concerns are completely out of proportion to the objective risk, with only several hundred fatalities attributed to air bags or tire defects, while tens of thousands of fatalities are still related to alcohol. This discrepancy points to the need for general public information and education, once again, regarding the risks of impaired driving.

Federal Initiatives, Sanctions, and Incentives

In 1995, NHTSA began a campaign of "Partners in Progress: An Impaired Driving Guide For Action" to develop and promote a national agenda for revitalizing the battle against alcohol-impaired driving. This initiative was in response to a flattening of the reductions in impaired driving measures beginning in the early to mid-1990's. In the legislative arena, it was recommended that states enact the following legislation:

- Administrative license action (suspension/revocation)
- Primary enforcement for safety belts
- Comprehensive screening and multi-tiered treatment programs
- 0.08% BAC illegal per se
- Vehicle impoundment or immobilization
- Valid driver license for vehicle registration
- Zero tolerance (minors)
- Graduated licensing
- Age 21 minimum drinking age
- Enhanced penalties for higher BACs
- Dram shop laws
- Immunity for hospital BAC reporting

Many of these recommendations were included in the Transportation Equity Act for the 21st Century (TEA-21), enacted in 1998, which provided incentive grant funds (Section 163) for states which enacted 0.08% BAC illegal per se laws. In addition, incentive funding (Section 410) was made available under the following criteria:

Under the Section 410 program, a state may qualify for a Basic Grant A, Basic Grant B, or both. In order, to qualify for a Basic Grant A, a state must implement at least 5 of the following 7 laws and programs:

1. Administrative license suspension/revocation
2. Programs to prevent drivers under age 21 from obtaining alcoholic beverages
3. Intensive impaired driving enforcement
4. Graduated licensing law with nighttime driving restrictions and zero tolerance
5. Programs targeting drivers with high BACs
6. Young adult (age 21-34) impaired driving programs
7. Fatal crash testing for BAC - increase rate of testing, in FY 2001 and afterward must be above national average

In order to qualify for a Basic Grant B, a state must demonstrate a reduction in the percentage of fatally injured impaired drivers in each of last 3 years and a percentage lower than the national average for each of last 3 years. Any state which qualifies for a Basic Grant may qualify for Supplemental Grants by implementing one or more of the following:

1. Videotaping of drunk drivers by police
2. Self-sustaining impaired driving program
3. Laws to reduce driving with suspended license
4. Use of passive alcohol sensors by police
5. System for tracking information on drunk drivers
6. Other innovative programs

TEA-21 also continued prior alcohol and traffic safety funding authorized under Sections 402 (state and local highway safety programs), 403 (Research and Development), and 410 (alcohol incentive grants), as well as providing new incentive grant funds for seat belt use (Section 157), occupant protection (Section 405), 0.08% BAC illegal per se (Section 163), and data improvement (Section 411).

TEA-21 also included Section 164, which requires transfer of a small percentage (3% as of October 1, 2002) of federal highway construction monies to Section 402 highway safety programs if certain provisions were not met by a state. Section 164, dealing with repeat DUI offenders, requires this transfer if a state does not have the following provisions:

- a one-year license suspension for all repeat (within 5 years of initial offense) DUI offenders,
- impoundment or immobilization of, or the installation of an ignition interlock system on, the repeat DUI offender's motor vehicles,
- assessment of the repeat DUI offender's degree of alcohol abuse, and treatment as appropriate; and

- sentencing of the repeat DUI offender to a minimum number of days of imprisonment or community service.

Unfortunately, the DUI sanction structure encouraged and/or mandated by TEA-21 is not always supported by existing research evidence. For example, the increased use of jail mandated by TEA-21 is not supported by substantial research evidence which indicates that jail is among the least effective DUI sanctions. The entire Section 164 emphasis on repeat offenders can be called into question based on the fact that the number and proportion of repeat offenders has declined dramatically over the past decade. In California, the proportion of repeat offenders among all DUI offenders has declined each year from 1989, when repeat offenders constituted 37% of all DUI offenders, until 2001, when the proportion of repeat offenders had dropped to 25%. Clearly we are having more success attenuating the incidence of repeat DUI offenses than we are in preventing the first DUI offense, which would seem to suggest that a shift in emphasis to prevention might offer a greater opportunity for further reducing the overall incidence of DUI.

RECOMMENDATIONS FOR CONSIDERATION

California has long been recognized as a leader in traffic safety, and was the birthplace of Mothers Against Drunk Driving, the grass-roots movement of the early 1980's which crystallized and mobilized growing public sentiment against drunk driving. Most of the scientifically proven effective countermeasures discussed in this report have been implemented, if not initiated, in California. It is important that the integrity of these countermeasures is maintained, and that new DUI legislation and programs do not diminish or work at cross-purposes to laws and programs that are effective, including the minimum drinking age law, 0.08% per se BAC, administrative per se license actions, "zero-tolerance," postconviction license suspension and revocation, and drinking driver program treatment. In addition, caution should be used in expanding underutilized DUI programs with promise, including server intervention programs, house arrest in lieu of jail, sobriety checkpoints, PI&E campaigns, vehicle impoundment and interlock, in order that these programs can be maximally effective and target the appropriate population of offenders. At the same time, California should focus on and fully explore those legislative and program areas that provide the greatest opportunity for having the largest impact in reducing the incidence of alcohol-impaired driving, including at least the following four:

1) Pilot study of pharmaceutical treatment for convicted DUI offenders

Although drugs (particularly antabuse) have been used in the treatment of alcoholism for decades with minor success, there are new pharmaceutical treatments which are offering renewed hope for the efficacy of this approach. One promising new drug is naltrexone, which acts to reduce the opioid response to alcohol that causes alcoholics to continue drinking to excess. Since the mid-1980's, studies at the University of Pennsylvania and Yale University have established the effectiveness of naltrexone in reducing the craving and consumption of alcohol. A major study of naltrexone and acamprosate drug treatments, alone or in conjunction with psychosocial treatment, is currently being conducted by the National Institute on Alcohol Abuse and Alcoholism (NIAAA) in 11 university research centers across the

United States. Based on the demonstrated success of naltrexone in these university studies, the time is right to assess the impact of these new pharmaceutical treatments in the real-world applied setting of the DUI countermeasure system. The DUI system provides an efficient means of identifying persons in need of treatment for alcohol abuse via arrests for DUI, and the system structure and service delivery components could be used to facilitate the trial of pharmaceutical treatment for convicted DUI offenders, either at the court, probation, or drinking driver treatment program level. As in clinical trials, the most definitive and scientifically rigorous research involves random assignment to treatment conditions; in this case, convicted DUI offenders would be randomly assigned to existing DUI sanctions and treatment, or to existing sanctions and treatment *plus* drug treatment. The purpose of random assignment is to avoid bias between groups which could compromise the evaluation of treatment effects, so that the only systematic difference between treatment conditions is the presence or absence of the additional drug treatment. Such a randomized study of pharmaceutical treatment could corroborate the university clinical trials and dramatically improve the effectiveness of treatment for DUI offenders. The development of this pilot program would involve the input of a wide variety of professionals from the medical and judicial fields, as well as the cooperation of state and local agencies involved in DUI control.

2) Increase alcoholic beverage control

Alcoholic beverage control measures are demonstrably associated with reduced consumption of alcohol and resultant reductions in the multiple negative consequences associated with that consumption, including alcohol-involved traffic crashes and fatalities. Increasing the cost of alcohol reduces consumption, and this cause and effect cost/consumption relationship is not surprising, and is rooted in basic economic theory. The federal Prohibition laws of the 1920's also demonstrated many of the positive societal benefits of reduced availability of alcohol, yet ultimately proved untenable because of insufficient public support. The majority of American adults consume alcohol, and perceive positive benefits from this consumption, particularly in social settings. Yet the vast majority (86%) of Americans also support increasing taxes on alcohol in order to fund drunk driving countermeasure programs. Additional economic policies that also impact the price of alcohol include price controls and limits on rebates, discounts, or other economic inducements. Other alcoholic beverage control measures include marketing control policies and regulations on the manufacture, distribution, advertising, and sale of alcohol.

3) Reduce crashes associated with on-premise drinking

Research has shown that roughly half of all alcohol-related crashes involve drinking at an on-premise establishment, while only a quarter of all alcohol is consumed on-premise. These facts clearly identify on-premise drinking as a major target of opportunity for reducing drunk driving. Several DUI countermeasures address this problem, including designated driver programs, server intervention programs, alcoholic beverage control laws and server liability. Research has shown that server intervention programs can be effective in reducing the proportion of patrons who leave an establishment above illegal per se levels, and one study identified a reduction in alcohol crash measures associated with server intervention. California's Department of Alcoholic Beverage Control (ABC) has an active server intervention program which is offered free of charge to licensed establishments on request. The

voluntary 4-hour program has trained over 150,000 servers since the program was initiated in 1995. Although the current program has been successful, the impact could be more widespread if server intervention training were mandatory as part of the ongoing ABC licensing process. Such an expansion of this program would require additional training resources, of course.

California has not had an effective server liability law ever since the dram shop law was repealed in 1978. The Centers for Disease Control (CDC) review of server intervention programs and liability laws recommended that server liability laws are likely more effective than server intervention programs. In California, the gap between current virtually nonexistent server liability statutes and the repealed dram shop laws from 1978 is sufficiently large to provide a wide "middle ground" for server liability statutes which responsibly address the overrepresentation of on-premise drinking among alcohol-related crashes, while responding to the concerns of the industry (including insurance costs).

4) Increase DUI prevention and general deterrence efforts, particularly those targeting youth

If "an ounce of prevention is worth a pound of cure," and there is evidence that this concept applies to alcohol abuse and impaired driving, then a shift in priorities from punishment to prevention might be in order for our overall societal response to impaired driving. Recent research evidence that the age of onset of drinking is a primary predictor of adult alcohol abuse points to the need to target prevention efforts at youth. Research also suggests that prevention efforts and PI&E campaigns would benefit from a professional marketing approach similar to that used by commercial interests to promote alcohol consumption. One key to any successful PI&E campaign is to have a viable concept to "sell," one which will make sense to and be embraced by the target population. One such campaign in the area of DUI prevention is the designated driver program, which has survived the initial media blitz and become entrenched in the public consciousness as one practical method of avoiding impaired driving. One of the more effective prevention efforts, which is often not seen as such, is sobriety checkpoints. The ultimate function of a sobriety checkpoint is not to catch drunk drivers, but as a general deterrent to the larger public of potential impaired drivers, discouraging or "preventing" them from driving impaired in the first place.

In addition to the four major areas identified above, the following DUI legislation and programs also offer opportunities for reducing DUI in California based on their demonstrable effectiveness:

Lower illegal per se BAC levels for target groups

The Centers for Disease Control and numerous evaluations have found strong evidence that the 0.08% illegal per se BAC laws have significantly reduced alcohol-related crashes and fatalities. Laboratory and epidemiological research provide evidence of impairment at virtually any measurable BAC level, and "zero tolerance" laws have proven effective in significantly reducing the alcohol-related fatal crash involvement of underage drivers. Hingson et al. (1998), in an evaluation of Maine's 1988 law setting a lower 0.05% per se level for repeat DUI offenders, found significant reductions in alcohol-related crashes associated with the law. Federal regulations call

for a lower 0.04% BAC level for commercial drivers. The scientifically demonstrable success of these programs offers evidence that lower illegal per se limits for target groups can reduce the overall incidence of DUI.

Mandatory license suspension for all convicted DUI offenders

Most (94% in FY 99/00) arrested DUI offenders in California are suspended or revoked under the administrative per se (APS) license suspension law. Under APS, repeat DUI offenders are suspended for a minimum of one year, with no provisions for a "hardship" license. First DUI offenders are suspended for a minimum of 30 days, followed by a period of license restriction. Among the 6% of arrested DUI offenders *not* suspended under the APS law are those whose tested BAC was below the illegal per se level of 0.08%, and this group includes many drug-impaired offenders. Research has established that low-BAC DUI offenders (predominantly drug offenders) have among the highest recidivism expectancy of all DUI offenders (Marowitz, 1996a). All convicted repeat DUI offenders receive a postconviction license suspension or revocation. It is possible for convicted first offenders not receiving an APS action, however, to avoid license suspension altogether, and requiring license suspension for all convicted first DUI offenders not already suspended under the APS or postconviction suspension/revocation laws would close this gap.

Mandatory vehicle impoundment for persons arrested for a repeat DUI offense

The use of vehicle impoundment as a traffic safety countermeasure in California was significantly enhanced by the passage of two laws in 1995 which authorized the impoundment and forfeiture of vehicles driven by S/R or unlicensed drivers caught driving without a valid license. An evaluation of these new laws found that vehicle impoundment reduced the crash and conviction rates of these drivers by 25% and 18%, respectively. Even more impressively, the crash and conviction rates of repeat violators were reduced by 38% and 22%, respectively. S/R drivers have long been among the highest-risk and most recalcitrant of all drivers, and the significant and substantial reductions in that risk level associated with vehicle impoundment are nothing short of astonishing. While the deployment of this extremely effective yet relatively draconian countermeasure is perhaps best left as a "final resort" for the most dangerous and nonresponsive offenders, the selective use of vehicle impoundment among repeat DUI offenders might be appropriate and effective as well. Repeat DUI offenders, by definition, have shown themselves to be nonresponsive to first-offender sanctions and treatment, and the imposition vehicle impoundment upon arrest for a subsequent offense of DUI could be expected to have an impact similar to that found for the S/R driver population.

Increased use of house arrest in lieu of jail

Based on existing research evidence, jail is among the least effective of all DUI sanctions and countermeasures, and is among the most expensive as well. Pilot programs of house arrest in lieu of jail for DUI and other non-violent offenders have proven effective. In Los Angeles County, house arrest in lieu of jail not only reduced county costs, but was 33% more effective than jail in reducing recidivism. Given both the ineffectiveness and cost of jail as a DUI countermeasure, as well as existing evidence that house arrest is more effective in reducing recidivism as well as substantially less expensive, the use of house arrest in lieu of jail for convicted DUI offenders would appear to be a more effective and efficient method of incapacitating those offenders.

Existing permissive legislation (CVC 14601.9) currently allows pilot home detention programs in 10 California counties for specific driving-while-suspended violators. Broadening this program to include all driving-while-suspended violators, specifically those suspended or revoked for DUI reasons, would expand the use of house arrest as a judicial option, and a statewide evaluation of this program could further assess the efficacy of house arrest in lieu of jail.

In addition, the following legislative initiative might offer a potential contribution to improving the identification and prosecution of DUI offenders:

Permissive hospital BAC testing

Research has shown that crash-involved DUI offenders, including many felony offenders, are less likely to be arrested and/or convicted of a DUI offense. In many cases, this is because of hospital and/or physician refusal to cooperate with law enforcement in providing blood alcohol test results. As noted before, among the primary reasons given are legal and liability concerns. Cooperation with the law enforcement investigation, district attorney prosecution, and judicial sentencing of some of the more egregious DUI cases could be improved with legislation specifically allowing the release of BAC information by hospitals and physicians to law enforcement.

SUMMARY

Motor vehicle crashes are the leading cause of death for young Americans aged 4 to 34, and 40% of those deaths are alcohol-related. In spite of major reductions in drunk driving achieved during the 1980's and early 1990's, this progress stalled in the mid- to late-1990's, and alcohol-related crash measures, including fatalities, are once again on the rise. With this dramatic recent reversal in trend, coupled with the sharply increasing numbers of "baby boom echo" cohorts entering the driving and drinking populations, the time is now to revisit the problem of drinking and driving and enact new laws which can significantly reduce impaired driving.

California has long been recognized as a leader in traffic safety, and many of the demonstrably effective DUI countermeasures have already been enacted and implemented in this state, including the minimum drinking age law, the 0.08% "illegal per se" BAC level, administrative per se license action, "zero tolerance" for youthful offenders, drinking driver treatment programs, ignition interlock, and vehicle impoundment. While California has enacted most of the known effective DUI countermeasures, there are countermeasures implemented in other states which might be of benefit to California, such as a lower per se BAC level for repeat offenders. There are also effective countermeasures which are not implemented as widely as they might be, including house arrest in lieu of jail, sobriety checkpoints, and server intervention programs. Additionally, there are several countermeasures which offer the potential for large-scale reductions in alcohol-impaired driving, including new pharmaceutical treatments (e.g., naltrexone) and increased alcoholic beverage control efforts, as well as major targets of opportunity, including reducing the contribution of on-premise drinking to the overall DUI problem, as well as prevention efforts focused on youth.

There continues to be strong public support for anti-DUI efforts, including the raising of alcohol taxes, provided the funds are used against drunk driving.

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APPENDIX

Senate Bill No. 776

CHAPTER 857

An act to add and repeal Section 1680 of the Vehicle Code, relating to vehicles.

[Approved by Governor October 12, 2001. Filed with Secretary of State October 13, 2001.]

LEGISLATIVE COUNSEL'S DIGEST

SB 776, Torlakson. DUI offenses: fines.

Under existing law, a person who is convicted of a driving while under the influence offense is required to be punished by terms of imprisonment, fines, and other sanctions, including required attendance in a licensed driving-under-the-influence program. Existing law requires the Department of Motor Vehicles to undertake various functions with regard to administering driver's licenses, including certain functions concerning the imposition of sanctions involving driving-under-the-influence offenders.

This bill would require the department to review the effectiveness of programs, procedures, sanctions, fines, and fees provided for in current law relating to the offense of driving under the influence of alcohol or drugs and to report those findings to the Legislature on or before July 1, 2002.

The people of the State of California do enact as follows:

SECTION 1. The Legislature finds and declares the following:

(a) Driving under the influence of alcohol and drugs (DUI) continues to be a significant threat to public health and safety.

(b) Despite significant progress in reducing incidences of DUI, more than 190,000 arrests were made for DUI offenses in California in 1999, including more than 25 percent that were repeat offenders, highlighting the need to continue efforts to assess, treat, and make accountable those individuals and families who continue to suffer from alcohol and drug abuse.

(c) The Department of Motor Vehicles reported in the 2001 Annual Report of the California DUI Management Information System, alcohol treatment, in conjunction with license restriction, continued to be the most effective postconviction sanction in reducing subsequent DUI incidents among DUI offenders.

APPENDIX (continued)

Ch. 857

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(d) The State Department of Alcohol and Drug Programs reported that the benefits of alcohol and other drug treatment outweigh the costs to taxpayers by ratios from 4 to 1 to greater than 12 to 1.

SEC. 2. Section 1680 is added to the Vehicle Code, to read:

1680. (a) The department shall review scientific and other empirical evidence on the effectiveness of programs, procedures, sanctions, fines, and fees in current law relating to the offense of driving under the influence of alcohol or drugs, or both. In undertaking the review, the department may also consult with representatives of law enforcement, district attorneys, public defenders, and licensed driving-under-the-influence programs, and any other appropriate persons or entities. The department shall report on or before July 1, 2002, to the Legislature as to any findings regarding sanction and program effectiveness, particularly with respect to repeat offenders, and submit any recommendations to improve individual accountability, public education, sanctions, and programs to reduce recidivism. The report may also include recommendations for any statutory changes that would modify the responsibilities of agencies or the courts so that violators can be sanctioned and treated appropriately and effectively, based on demonstrated sanction and program effectiveness.

(b) This section shall remain in effect only until January 1, 2003, and as of that date is repealed, unless a later enacted statute, that is enacted before January 1, 2003, deletes or extends that date.