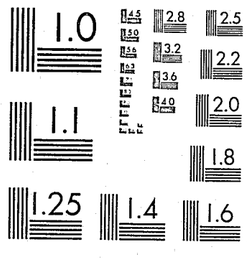

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DRINKING AND DRIVING: NEW DIRECTIONS

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"Drinking and Driving: New Directions," *Journal of Psychiatric Treatment and Evaluation,* December 30, 1983, Vol. 5, pp. 539-544.

Revised and reprinted by the Johnson Institute, 10700 Olson Memorial Highway, Minneapolis, MN 55441-6199, 612/544-4165.

ISBN: 0-935908-23-4

Printed in the United States of America

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Drinking And Driving: New Directions

There is currently a high degree of interest in drinking/driving and the casualties that result. Many jurisdictions have implemented new laws and programs designed to reduce drinking/driving. Most efforts to reduce alcohol-related traffic casualties have been based on three traditional approaches: (1) deter people from drinking/driving through arrest and punishment of offenders, (2) educate, treat, and rehabilitate apprehended drinking drivers who are problem drinkers or alcoholics, and (3) inform and educate the general public of the dangers of drinking/driving, and persuade them to reduce their driving after drinking. The limited success of past efforts based on these approaches is noted, and new directions for a drinking/driving countermeasure policy are suggested.

INTRODUCTION

In recent years there has been a surge in public attention focused on problems associated with drinking and driving. Strengthened laws regarding driving after drinking have been implemented in numerous states and are currently under debate in many others. Citizen interest groups, with the support of traditional safety organizations in both the public and private sectors, are exercising increased political influence. Several factors have contributed to expanded media attention and public awareness of the magnitude of this major public health problem. These include debates over proposed changes in law, impassioned appeals from those who personally experienced tragedy caused by a drinking driver, as well as results of continuing research on the effectiveness of various policies designed to reduce alcohol-related injury and death.

While drinking/driving seems to be a more salient public policy issue in recent years, concern about problems resulting from alcohol-impaired driving is not new. Cycles of concern about alcohol-related highway injuries have occurred in many developed countries over the past two decades. Current attention to the drinking/driving problem provides an opportunity to critically evaluate reasons for failure of past counter-measure campaigns, and to advocate new directions

for public policy. Such innovative approaches should be implemented on an experimental basis, and rigorously evaluated for their effects in reducing the massive social and health costs associated with alcohol-impaired driving.

There is now little question that consumption of alcoholic beverages is a major contributor to the motor vehicle crash problem. As early as 1938 the contribution of alcohol to highway injuries and deaths was noted. The magnitude of the contribution of alcohol continues to be debated, and considerable underreporting of alcohol involvement continues to occur in most jurisdictions. In spite of this, there is general agreement, based on controlled studies, that about 10 percent of drivers involved in minor property damage crashes have elevated blood alcohol concentrations (*i.e.*, over .05 percent); about 15 percent of drivers involved in extensive property damage crashes have elevated BACs; approximately 25 percent of drivers involved in serious injury crashes are legally intoxicated (*i.e.*, BACs .10 percent or greater); and about half of all drivers involved in fatal crashes are legally intoxicated. Jones and Joscelyn and Cameron have prepared comprehensive reviews of this literature. Driver intoxication rates for certain crash categories, such as single vehicle crashes occurring on weekend nights, approach 70 percent. Applying these rates to National Safety Council data on motor vehicle injury and death reveals that there are approximately 26,000 deaths and half a million disabling injuries each year related to intoxicated driving. Although specific estimates vary, few would disagree that alcohol-impaired driving and its consequences are significant social problems.

CONVENTIONAL DRINKING/DRIVING COUNTERMEASURES

Several traditional approaches designed to reduce alcohol-impaired driving are currently being implemented with renewed vigor in many states. The first major approach is general deterrence of alcohol-impaired driving by increasing penalties for violations of drinking/driving statutes, and increasing risk of detection through additional enforcement efforts. The first component of such a deterrence program, severe penalties for drinking/driving, is unlikely to have a significant permanent effect in the absence of a reasonable probability of apprehension for violating the law. Estimates of the probability of being arrested for driving under the influence of alcohol currently range from 1 in 500 to 1 in 2,000. In other words, of every 500 to 2,000 legally intoxicated drivers on the road at any given time, only one will be stopped by police for violating the law. No matter how severe the penalty, its effect on drinking/driving behavior of the general population is likely to be minimal if the perceived probability of experiencing the penalty after violating drinking/driving statutes is almost nil. Severe penalties may even be counterproductive to deterrence if there is increased reluctance on the part of police officers to arrest those marginally over the legal limit for BAC, increased plea bargaining or diversion of offenders into alternate programs, and requests for long drawn-out jury trials. All of these further reduce the numbers of violators experiencing the legal penalties for impaired drinking/driving.

Ross has recently reviewed the scientific evidence concerning the effectiveness of increasing the probability of apprehension for impaired driving. Certain changes in laws and enhanced enforcement can increase arrest rates and effectively reduce alcohol-related motor vehicle crashes. The most important component of programs that would deter persons from drinking/driving is increasing the perceived probability of detection among the driving population. Thus, a critical factor in past successful programs has been public controversy surrounding new laws and enforcement crackdowns; the controversy resulted in media coverage and enhanced public awareness. However, crash reductions associated with such programs have usually been temporary, lasting from a few months to a few years. Controversy, public awareness, and media coverage associated with major new drinking/driving deterrence efforts typically subsided over time, and the public realized that even with stepped-up enforcement activities, the probability of apprehension for driving while impaired remained extremely low. It appears that achievement of a permanent alcohol-related crash reduction through deterrence will require a major increase in resources devoted to enforcement.

Law and Procedure

Such a realistic view of the potential of drinking/driving deterrence does not mean that current efforts in many states to streamline enforcement procedures and increase the numbers of impaired drivers punished for their violations are of no value. Such legal and procedural innovations include: making driving with a blood alcohol concentration greater than .10 percent a

per se offense; removing the need to prove in court that the individual's ability to drive was significantly impaired by alcohol; permitting police officers to use portable breath testing equipment (thus facilitating the identification of drivers who should be detained for a series of tests, the results of which can be used in court); and swift administrative suspension of the license of those driving under the influence, rather than limiting punishment to the results of long drawn-out court battles, typically characterized by plea bargaining and frequent reduction of charges to nonalcohol-related offenses.

Such refinements in law and procedure are important steps toward the goal of increasing the probability that impaired drivers will experience punishment for their violations. And the laws should be regularly evaluated to insure that they are having their intended effects, as well as to determine if there are negative side effects. However, because very few occasions of impaired driving result in detection and punishment, efforts to increase deterrence should be seen as only one component of an overall strategy to reduce alcohol-impaired driving and the casualties that result. It should be noted that the basic assumption of the deterrence model, that high perceived risk of detection and punishment reduces drinking/driving, has even been questioned by some scholars. Some suggest that risk perception is a result of amount of drinking/driving, rather than an antecedent of drinking/driving. A driver's reasoning may be: "I drink and drive frequently; I have never been caught; therefore, risk of detection must be low."

Punishment for alcohol-impaired driving also serves a specific deterrence function; that is, it serves to deter the individual experiencing the punishment from repeating the offense. The effect of specific deterrence on the overall alcohol-related crash problem is limited for three reasons. First, only a small proportion of drinking drivers are punished for their offense. Second, despite prior apprehension and punishment for drinking/driving, many repeat the offense. Third, the population of those at high risk for alcohol-related crashes changes over time with the addition of new individuals at high risk (*i.e.*, young drivers and heavy drinkers) and the deletion of individuals who are no longer at high risk (older drivers and those who have moderated their alcohol consumption). For these reasons, specific deterrence effects of laws prohibiting driving while intoxicated are not likely to significantly reduce the aggregate frequency of alcohol-related crashes.

Treatment and Public Education

A second major conventional alcohol-related crash countermeasure approach is treatment, education, and rehabilitation of individuals arrested for drinking/driving. Problem drinkers and alcoholics are overrepresented among apprehended drinking drivers, and treating their addiction to alcohol will reduce their subsequent drinking/driving. In a humane society, adequate treatment services for such individuals should be available; they appear to be a cost-effective means to reduce alcohol-related crashes and numerous other health problems and social costs resulting from alcoholism, as well. From a broader societal perspective,

however, treatment of apprehended drinking drivers is not likely to have a substantial effect in reducing the total alcohol-related crash problem. First, treatment success rates are well below 100 percent. A substantial proportion of drinking drivers undergoing treatment, education, or rehabilitation programs will be re-arrested for impaired driving. Limited success of these varied programs is not the main reason that the number of casualties caused by alcohol-impaired driving will not be reduced. Assume for a moment that all drivers arrested this year for driving under the influence will never again drive while impaired. The result would be a very small reduction in the number of traffic crashes next year. The National Highway Traffic Safety Administration estimates that this year's arrestees account for less than 1 percent of next year's serious injury and fatal crashes. Current therapeutic or educational efforts cannot significantly reduce the alcohol-related crash problem for the same reasons specific deterrence is ineffective. As noted earlier, only a fraction of those who drive while impaired by alcohol are ever detected or treated. Further, many individuals who are not now problem drinkers or alcoholics, and who do not drive while impaired, may do so in the future.

The second factor is particularly evident when considering youth aged 16-24; this age group has the highest rate of alcohol-related crashes, and many in this age range have other social and health problems related to alcohol. New cohorts of drivers at high risk for alcohol-related crashes with no previous indication of alcohol-related problems are constantly emerging. (There is a sizeable proportion of drinking drivers

who do not have other social or health problems associated with alcohol, but do on occasion drive while impaired.) Fortunately, most youth "settle down" by the time they are in their late 20s, with a concomitant reduction in drinking problems, including risk of involvement in motor vehicle crashes. The point is that the drinking-driver group is not a completely stable group that can be identified and dealt with so as to solve the alcohol crash problem. Recognition of this "moving target" problem and the low rates of detection discussed earlier make it obvious that massive resources are required to treat all drinkers at risk for alcohol-related crash involvement. Even if completely successful solutions were identified, the resources required to apply them to all drinking drivers are not likely to be available.

The third traditional approach for the amelioration of the alcohol crash problem is implementation of public information and education (PI & E) programs. Themes of past campaigns have included the effect of beverage alcohol on driving skills, exhortations not to drink and drive, and suggestion of ways to prevent intoxicated friends and associates from driving. While some PI & E efforts have been found to increase knowledge among those exposed to the information, demonstrable effects on drinking/driving or alcohol-related crash involvement are rarely seen. What the PI & E programs appear to do, however, is to play a major role in enhancing public awareness of a drinking/driving "crackdown," and to increase the perceived risk of punishment for impaired driving. Even the successful PI & E campaigns usually have only temporary effects. Still the limited success of past PI & E programs does not mean they

should be abandoned. While the alcohol-related crash problem is unlikely to be significantly reduced through PI & E campaigns alone, such programs can play an important supporting role in (1) disseminating information, (2) making the public aware of new policies and programs, (3) encouraging public support for the needed new laws, regulations, and programs.

This brief overview of traditional countermeasures for drinking/driving indicates their limited effectiveness in reducing the incidence of alcohol-related crashes. This somber message does not mean that improved implementation and evaluation of programs based on these approaches, along with substantially increased resources, will have no beneficial impact. However, given past experience and the limited resources available, it is unreasonable to expect that even enhanced efforts based on traditional approaches alone will adequately provide a comprehensive effort that will substantially reduce health and safety problems resulting from alcohol-impaired driving.

ALTERNATIVE DRINKING/DRIVING COUNTERMEASURES

Alternative, effective means to reduce the alcohol-related carnage on our highways need to be identified. Past approaches at alcohol-related injury reduction have largely concentrated on treating or punishing drinking/driving individuals, in the hope of preventing appre-

hended individuals from repeating the offense, at the same time deterring others from driving while impaired. There are two dimensions on which alternative countermeasure strategies can be identified. First, traditional approaches have focused on reducing drinking/driving, which is only one variable along the causal chain which culminates in motor vehicle injury and death. In terms of the simplified model shown in Figure 1, efforts might be focused on reducing crashes, independent of the amount of drinking/driving, by improved design of roadways (*e.g.*, wider lanes, clearer lane and road edge markings, removal of trees and other objects at roadsides). An improved system of roads would be more forgiving of errors made by both impaired and nonimpaired drivers. Alternatively, the emphasis might not be placed on reducing the incidence of crashes, but rather on reducing the probability of serious injury once a crash has occurred, through improved vehicle design (automatic occupant restraint systems are an obvious example). Moving to the left side of Figure 1, a reduction in vehicle availability or driving opportunities also might reduce alcohol-related crashes.

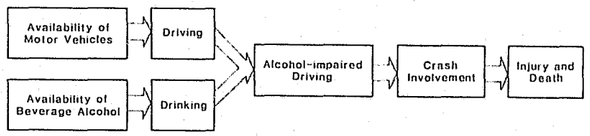

FIGURE 1. Simplified model of Alcohol-Related motor vehicle crash involvement.

Such a strategy is more likely to show the desired results among young drivers, through restricted licenses and curfew laws prohibiting nighttime driving. Since young drivers are at once both more impaired at moderate blood alcohol levels than older drivers, and are at higher risk for alcohol-related crash involvement because of their age, such a strategy (particularly because most drinking occurs at night) might be effective in reducing the alcohol-related crash problem.

The above alternative strategies for reducing injury and death resulting from alcohol-impaired driving deal with factors contributing to crash injury in general; they are independent of the involvement of alcohol. Although important for a comprehensive program for amelioration of motor-vehicle-related morbidity and mortality, they are of less interest to those in the alcohol studies field.

Other Ways To Reduce Crashes

There are other ways to reduce motor vehicle crashes, however, that are specifically aimed at the involvement of alcohol. Drinking/driving and its results might be reduced by modifying the availability of beverage alcohol. Making alcohol less available (with associated public health benefits), may be accomplished by changing policies and programs that affect the marketing and distribution of alcoholic beverages. One such policy that has received much attention in the past decade is the minimum legal age for purchase and consumption of alcoholic beverages. In the early 1970s, 29 states reduced their legal drinking age, under the assumption that increasing the accessibility of alcohol would have

little effect on youth drinking habits, since many young people had been consuming alcoholic beverages in spite of legal prohibitions. Numerous subsequent studies, however, revealed that higher rates of youthful alcohol-related motor vehicle crashes frequently followed reductions in the legal age. Conversely, recent increases in the legal age have resulted in lower rates of alcohol-related crashes. While few would argue that a higher legal drinking age would solve a general youth/alcohol problem, changes in legal drinking age provided clear evidence that reductions in the availability of beverage alcohol can significantly reduce alcohol-related vehicle crash injuries.

There are other dimensions of the distribution of alcoholic beverages that should be examined for their potential in reducing alcohol-related problems. The price of alcoholic beverages has been found to influence both the amount consumed and also the associated health and safety problems. Higher beverage alcohol prices apparently reduce consumption even among those addicted to alcohol. Periodic increases in beverage alcohol excise taxes might be implemented to arrest the continuing decline in the inflation-adjusted price of alcohol, and concomitant increases in consumption levels.

Regulations concerning the number and location of beverage alcohol outlets also might be examined for potential highway safety benefits. For example, should new bars and taverns be located where they are only accessible with personal automobiles, or should they be positioned along mass transit lines? While recognizing the limits to controls on beverage outlets, some have

even suggested that on-premise outlets might be prohibited from providing parking for their customers, to discourage use of automobiles as a mode of transportation to/from such outlets.

Another avenue for influencing the distribution of alcoholic beverages in an attempt to reduce impaired driving is the strengthening of "dram shop" liability laws. Such laws make commercial providers of alcoholic beverages liable for damages caused by customers who become intoxicated at the establishment or from alcohol purchased there. Liability for extensive damages on the part of commercial distributors of alcohol, including traffic crash injuries and deaths, might influence proprietors to limit the amount of alcohol they sell to any single customer. Insurance coverage for such liability provides further opportunities to encourage safe serving practices. Lower insurance rates might be offered to establishments that implement employee training, limit the number of alcoholic drinks a single customer may be sold, and provide ready availability of nonalcoholic alternative drinks.

Liability for damage caused by intoxicated individuals has generally been limited to commercial servers of alcoholic beverages. However, some courts have ruled that social hosts (private citizens in their own homes) are also liable if they provide alcoholic beverages to their guests in such quantities that intoxication is encouraged, despite the hosts' awareness that most guests will subsequently operate motor vehicles. Implementation of social host liability might encourage individuals to prevent intoxicated friends and acquaintances from driving, thus presumably causing a reduction in alcohol-related motor vehicle crashes.

CONCLUSION

A significantly effective effort to reduce alcohol-related motor vehicle crash involvement will require a combination of several approaches. Improvements in the traditional drinking/driving control system might include: (1) increased patrolling for impaired drivers, (2) streamlined identification and arrest procedures, (3) swift and sure punishment for offenders, (4) presentence screening to identify problem drinkers and alcoholics, and (5) widespread application of the most effective treatment programs for drinking drivers with chronic alcohol problems.

If the recent surge in public awareness, media attention, and organized citizen activity concerning the drinking/driving continues, long-term reductions in the frequency of alcohol-related crashes may be achieved, in contrast to the temporary effects that typically follow drinking/driving crackdowns. Regulations concerning the pricing, marketing, and distribution of alcoholic beverages need to be reevaluated because such policies have potential for reducing the enormous social and health costs associated with the use of alcoholic beverages. Public information and education programs are also needed, not only to persuade individuals not to drive after drinking and to change their attitudes concerning the acceptability of drinking/driving, but also and more importantly, to build public support for strengthened enforcement, adjudication, and treatment systems, as well as for effective regulation of the beverage alcohol industry because of the great effect it has on public health and safety. The important point is that an effective program for the reduction of alcohol-related crashes should not be limited to deterring social drinkers from driving after drinking and treating alcoholics. Simultaneous intervention is required for the many causes that culminate in crash-related injury and death.

Finally, it is frequently noted that the only truly effective way permanently to reduce alcohol-related crashes is through the development of strong social norms prohibiting driving after drinking. There is no easy way to create the desired normative structure, but many of the strategies discussed here can be viewed as part of this broader effort. Strengthened alcohol and driving policies, in short, both reflect and enhance society's normative disapproval of drinking/driving. While public support is required for implementation of many of the policy changes suggested here, new drinking/driving policies and associated public attention may help build further support for efforts to reduce injury and death caused by alcohol-impaired drivers.

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