ABSTRACT

Alcohol related fatalities have fallen from 25,170 or 57% of all highway fatalities in 1982 to 16,884 or 42% of all fatalities in 1994. This decrease occurred in the face of a 17% increase in the number of registered vehicles and a 14% increase in the number of drivers in the U.S. It is clear that this dramatic decrease was caused by a complex set of factors including economic conditions, reduced alcohol consumption, and changed public attitudes toward drinking, as well as drinking and driving. This paper discusses the extent to which recent safety program initiatives may have contributed to this decline in alcohol related highway deaths.

DECLINE IN ALCOHOL RELATED FATALITIES

Over the last decade, the number of deaths and injuries related to impaired driving has declined significantly in the United States (U.S.) as well as in other industrialized countries. For example, in 1982, 57 percent of all highway fatalities in the U.S. involved a driver or pedestrian with a measurable blood alcohol level (BAC=.01 or greater). By 1994, this figure had decreased to 42 percent of fatalities. At the same time, the total number of traffic fatalities decreased from 43,945 in 1982 to 40,200 in 1994 (a decline of 9%) while alcohol-related fatalities decreased from 25,170 to 16,884 in the same time period (a decline of 33%) (NHTSA, 1995).

The total number of drivers involved in fatal crashes increased for the most part through the 1980s until 1989 when a steady decline began. By contrast, the proportion of drivers in fatal crashes with any measurable blood alcohol content (BAC) has declined fairly steadily throughout the period. While the number of fatalities resulting from crashes involving sober drivers has increased by over 15 percent, the number of fatalities from crashes involving drinking drivers has decreased by almost 30 percent. The proportion of drivers in fatal crashes with BACs of .10 and above has declined from 30 percent in 1982 to 20 percent in 1994.

In contrast, the proportion of fatally injured pedestrians who are impaired by alcohol has decreased only slightly. In 1982, 39 percent of fatally injured pedestrians over 14 years of age had BACs of .10 and above. In 1993, 36 percent were intoxicated. Thus, it would appear that whatever factors have contributed to the decrease in impaired driving deaths have not affected pedestrians to the same extent.

The difference between the trend for non-alcohol-related as compared to alcohol-related fatalities suggests that it is countermeasures related to impaired driving or to alcohol use
rather than highway or motor vehicle improvements that are responsible for the decrease in fatalities. Considerable caution must be exercised, however, in interpreting these trends. In 1993, the U.S. recorded its lowest level of accidental deaths from all causes since 1922 (National Safety Council, 1993). It is clear that there is a nation-wide trend of reduced accident losses of which highway fatalities are only one part.

FACTORS RELATED TO DECLINE IN ALCOHOL-RELATED FATALITIES

It will require careful analysis to tease out all the factors contributing to this national trend. Among the major factors requiring analysis are miles driven, trends in alcohol consumption, and economic conditions. Between 1982 and 1992, the number of licensed drivers increased by 14 percent and the number of registered vehicles increased by 17 percent, resulting in the steady increase in the number of vehicle miles driven. This increase in driving exposure would be expected to increase the number of fatalities throughout the decade. While zero BAC fatalities followed this upward trend through 1988, since that time there has been a drop in fatalities despite increasing vehicle miles. From 1988 to 1992, total fatalities decreased 17 percent while vehicle mileage increased 10 percent. While road mileage increased from 1982 to 1993, per capita alcohol consumption declined. It is possible that the long-term trend to reduced consumption played a role in the reduction in alcohol-related fatalities.

The nation’s economy is generally believed to affect highway fatalities: Good economic conditions are associated with increased driving and drinking and therefore with increased alcohol-related fatalities. Through most of the decade, the economy (as indicated by the unemployment rate) was improving following the recession of 1982-83. This is consistent with the increases in vehicle mileage and fatalities. The slow-down in the economy from 1990 to 1992 may have contributed to the reduction in total fatalities in that time period. It has been suggested that while per capita alcohol consumption may not be greatly affected by a recession, more people may drink at home rather than going out, thereby reducing impaired driving.

In general, neither the amount of change in drinking or in driving per se, nor the fluctuating economic conditions appear to account for the very large (33 percent) reduction observed in alcohol-related fatalities over the last decade. Safety improvements in vehicles and roadways have apparently reduced the risk per mile driven, as evidenced by a decline in the deaths per hundred million vehicle miles from 2.8 in 1982 to 1.8 in 1992. The greater decline in alcohol-related fatalities cannot be explained on the basis of such improvements, though, the increase in the number of vehicles with air bags could be differentially effective with impaired drivers who are less likely to use safety belts. To what can decreases in alcohol-related fatalities be attributed? It is likely that the factors contributing to the change are complex and interconnected and the proportion of change attributable to each cannot be determined. Three factors that appear to have contributed to the decline will be discussed below. They include: 1) deterrence, including enforcement practices, administrative license revocation, and lower BAC limits; 2) raising of the drinking age to 21; and 3) increased public awareness and activism.
Detection, Deterrence and Consequences

Most of the impaired driving countermeasures that have been used effectively in the past have involved enforcement of impaired driving laws and punishment of offenders. More vigorous and effective enforcement has been cited as one factor in the decrease in impaired driving fatalities. The number of impaired driving arrests peaked in 1983 and has since declined (Federal Bureau of Investigation, 1982-1993). The public perception of the likelihood of arrest, however, may continue to deter impaired drivers. High visibility enforcement programs such as sobriety checkpoints are one effective method of increasing deterrence. A recent study by Ross (1992) indicated that communities that used sobriety checkpoints experienced significant decreases in alcohol-related traffic crashes. Whether or not the use of checkpoints has increased enough to account for part of the reduction in impaired driving fatalities is not known. Checkpoints do, however, highlight the increased vigor and conspicuousness of enforcement efforts.

Administrative License Revocation

Immediate loss of license following arrest has been shown to be effective in discouraging the public from driving after drinking. In one study, carried out for the Insurance Institute for Highway Safety (Zador et al., 1988) the number of traffic crashes in states in the U.S. with administrative revocation laws were compared to those in states without such laws. The study concluded that these laws reduced fatal nighttime crashes (which are likely to involve alcohol) by about nine percent. These findings were supported by another study of 17 states with administrative revocation laws (Klein, 1989) which found an average reduction in fatal crashes of six percent. In a recent study carried out in Minnesota, New Mexico, and Delaware, administrative revocation was found to reduce both nighttime fatal crashes and the proportion of drivers in fatal crashes with a significant amount of alcohol in their blood (Ross, 1991). Administrative license revocation has also been found to be effective in reducing recidivism among offenders (Stewart et al., 1989).

Thirty-eight states (and the District of Columbia (D.C.)) now have administrative revocation. It is likely that some of the decrease in impaired driving fatalities can be attributed to the increasing use of administrative revocation and the increased public awareness and attention to impaired driving that accompanied the legal change.

Lower BAC Limits

Reductions in the BAC limit have not been widely applied in the United States. Currently eleven states have reduced the per se BAC limit to .08 from .10, which is standard in most states. This change occurred only recently in most of these states. A recent study by NHTSA of five states with .08 BAC limits indicated statistically significant reductions in alcohol-related fatal crashes in four of the five states studied following implementation of the lower limit (Johnson and Walz, 1994).
Increasing the Drinking Age to 21

The increase in the drinking age to 21 has repeatedly been shown to have reduced alcohol-related traffic fatalities as well as other alcohol-related injuries and health and social problems among young people. The National Highway Traffic Safety Administration estimates that more than 14,000 lives have been saved since 1975 because of the increase in drinking age (NHTSA, 1995). In 1982, 31 percent of drivers under 21 years of age involved in fatal crashes had a BAC of .10 percent or higher. By 1993, that figure had dropped to 16 percent -- a 48 percent decrease. Certainly this policy change has contributed to the overall decrease in alcohol-related fatalities. In fact, the most precipitous decline in impaired driving fatalities has been in the 15 to 20 year age group.

Zero Tolerance

Thirty states and D.C. have recognized that young drivers are particularly vulnerable to impairment at low BACs and that drinking under the age of 21 is illegal, by establishing lower BAC limits for underage drivers. Where these limits are only slightly lower than the adult limits (.04 to .07) they appear to have little impact. Where they are designed to prevent any driving after drinking (.00 to .02), however, evaluations of these “Zero Tolerance” laws have indicated that they significantly reduced alcohol-related traffic deaths in the affected age groups. Hingson, Heeren and Winter, (1994) found a 22 percent decrease in fatalities for teenagers in states with the .00 limits and 17 percent in the states with .02 limits. Fatalities in comparison states declined only 2 percent. Campaigns to promote public awareness were found to be important in maximizing the effectiveness of the laws. In Maryland, a change in the law coupled with a vigorous public awareness campaign resulted in a 50 percent decrease in alcohol-related fatalities among the affected age group (Blomberg, 1992). At this point, these laws may not be widely enough applied to have influenced fatality rates nationwide; their potential to contribute to further reductions, however, is clear.

Increased Public Awareness and Activism

The most obvious social change that occurred in the 1980s that would appear to have led to decreases in alcohol-related traffic fatalities was the unprecedented increase in citizen activism and the resulting increase in public awareness and change in public attitudes. It is impossible to evaluate directly the contribution of these changes to the decrease in fatalities, however, the apparent social and legal changes were dramatic. Victims’ groups focused attention on the human costs of impaired driving and worked to change public attitudes so that impaired driving was viewed as unacceptable criminal behavior (Boyle, 1995). The number of citizen activist groups addressing impaired driving grew rapidly in the 1980s. Along with the increase in citizen activism came increases in media attention to the issue of impaired driving and rapid proliferation of legislation regarding impaired driving. This legislation resulted in increased vigor of enforcement and prosecution as well as more severe penalties (Evans, 1991).
FACTORS THAT CAN CONTRIBUTE TO FURTHER REDUCTIONS IN FATALITIES

The reductions in alcohol-related traffic fatalities that have been achieved in the last decade have prevented great suffering and have demonstrated the power of social and policy change to address social problems. The problem of impaired driving is still immense and many thousands of Americans die or are seriously injured in traffic crashes in which alcohol plays a part. If further progress is to be made, the effective strategies described above must be applied even more vigorously. Recently a meeting of over 100 representatives of scientists, citizen activists and private industry were convened by NHTSA and set a goal for the next decade of reducing the 16,884 alcohol related fatalities in 1994 to no more than 11,000 by the year 2005. In order to reach this goal, this group recommended measures well beyond “business as usual.” They pointed to the need to redoubled efforts to implement proven countermeasures such as administrative license revocation and reduced BAC levels, especially for underage drivers. The also endorse the need for new strategies, such as increases in excise taxes on alcohol and innovative programs aimed at repeat offenders and other high risk drivers. The evidence of the last decade, indicating that our efforts can be effective, should serve as a motivation to continue and expand them with vigor and determination.

REFERENCES

Johnson, D., Walz, M., A Preliminary Assessment of the Impact of Lowering the Illegal Per Se Limit to 0.08 in Five States, USDOT, NHTSA, DOT HS 808 207, December 1994.
Research and Evaluation Associates, The Effects Following the Implementation of an 0.08 BAC Limit and an Administrative Per Se Law in California, USDOT, NHTSA, DOT HS 807 777, August 1991.

