EXECUTIVE SUMMARY

ALCOHOL INVOLVEMENT IN TEXAS DRIVER FATALITIES

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Summary of Major Findings

Texas Transportation Institute's (TTI) study of alcohol involvement in Texas driver fatalities found that the proportion of drivers who were legally intoxicated at the time of their death has been decreasing over the past nine years. The study, sponsored by the Texas Department of Transportation (TxDOT), was based on blood alcohol concentration (BAC) test results obtained from the medical examiners' offices in Texas. The toxicological data were matched to traffic accident reports to investigate the extent of alcohol involvement among fatally injured drivers, and to provide insight into the characteristics of those drivers and the crashes in which they were involved. Data on 4,572 drivers killed between 1983-1991 were available for analysis.

An examination of the data by individual years revealed that, since the study began in 1983, the proportion of legally intoxicated drivers in the sample has decreased from 51 percent to 43 percent. This finding suggests that countermeasures directed at the drunk driving problem appear to be having the desired effect in terms of reducing the proportion of alcohol-related motor vehicle fatalities. However, the proportion of drivers in the 1991 sample with positive BACs was still quite high (52 percent), and the average BAC among the drinking drivers (.179) was well in excess of the .10 legal intoxication limit. For those who were legally intoxicated, the average BAC was over twice the legal limit (.206).
The minimum drinking age was raised from 18 to 19 on September 1, 1981. Despite the legislative action, over 30 percent of the 18 year old fatally injured drivers in the sample were legally intoxicated in both 1983 and 1984. Following a decline in 1985, the proportion of DWI driver fatalities among those under 19 years of age increased to a high of 40 percent in 1988, but declined to roughly 30 percent in 1989. By 1991, the proportion of legally intoxicated drivers 18 and under had decreased to 26 percent.

The proportion of legally intoxicated drivers aged 19-20 dropped from over 50 percent in 1983-1985 to 44 percent in 1986 and 37 percent in 1987. These reductions coincided with a change in the minimum legal drinking age (MDA) from 19 to 21 that took effect on September 1, 1985. In 1988 and 1989, however, the proportion of DWI fatalities in this age group increased to levels more consistent with those recorded prior to the change in MDA (43 percent and 47 percent, respectively). The analysis of 1991 data found that the proportion of legally intoxicated 19-20 year old drivers had dropped dramatically to 37 percent. These results suggest that the legal restrictions on the purchase and consumption of alcohol may have reduced the incidence of drinking and driving among young drivers, but the problem has certainly not been eliminated.

In 1987, the proportion of legally intoxicated female drivers increased to 35 percent -- the highest proportion recorded since the study began. This finding supported the results of other research on the changing role of alcohol in motor vehicle crashes involving females drivers. In 1988 and 1989, the proportion of DWI
female driver fatalities declined to approximately 30 percent, which was more consistent with levels observed in prior years of the study. In 1991, an even more pronounced drop in the proportion of legally intoxicated female driver fatalities was observed, with only 23 percent of the 159 females in the sample having a BAC $\geq .10$. It would appear that countermeasures aimed at reducing alcohol-impaired driving may be having a relatively greater effect on females than on their male counterparts.

Assessments of alcohol involvement from two data sources have been compared each year of the analysis: (1) the objective criteria of BAC test results; and (2) the subjective assessment of alcohol involvement by law enforcement officers, as reported on traffic accident report forms. If the investigating officer suspected a driver was alcohol-impaired, he would cite alcohol as a contributing factor to the crash on the corresponding accident report form. Initial comparisons of the two data sources indicated that estimates of alcohol involvement, based on accident report data, were seriously underreported. Dramatic improvements in reporting have occurred over the nine years of the study, however. In the two most recent study periods (i.e., 1989 and 1991), at least 80 percent of the drivers who were legally intoxicated had alcohol cited as a contributing factor on their accident reports. The comparable percentage from the 1983 analysis was only 33 percent.

The examination of alcohol involvement among motorcycle operator fatalities found that the proportion of legally intoxicated motorcycle operators in the 1991 sample had increased
to 46 percent from a 1989 figure of 32 percent. It should be noted, however, that the number of motorcycle operators in the 1991 sample was roughly half as large as in previous years of the study. No explanation for this reduction could be found, but the relatively small sample size made interpretation of the results more difficult. From 1986-1989, declines in the proportion of legally intoxicated motorcycle operators (from 48 percent to 32 percent, respectively) were noted. Whether the apparent increase in 1991 represents a reversal of the previously-reported trend or is simply an artifact of the small number of cases available for analysis remains to be determined.

Analysis of the role of alcohol in adult pedestrian fatalities (i.e., those at least 15 years of age) revealed that 52 percent of the fatally injured pedestrians over the age of 15 were legally intoxicated at the time of their death. The average BAC of these legally intoxicated pedestrians (.232) was well over twice the legal limit of .10 and was noticeably higher than the average BAC observed for the DWI motor vehicle drivers (.206).

Over 75 percent of all adult pedestrian fatalities were males, and the proportion of legally intoxicated males was considerably higher than for females (56 percent versus 38 percent, respectively). An examination by age found that the smallest proportions of legally intoxicated adult pedestrians were over the age of 65. These results have been relatively consistent each year, although the proportion of legally intoxicated pedestrian fatalities and the corresponding average BAC appear to be on the increase.
Descriptive analyses of surviving drivers involved in fatal crashes in 1991 were conducted, as well. When combined with data on fatally injured drivers, this information can provide a more complete picture of the extent of alcohol involvement in fatal crashes in Texas. However, only a small proportion (29 percent) of all surviving drivers in fatal crashes had BAC test results reported on the accident data file.

Of those with known BAC test results, 42 percent of the surviving drivers were legally intoxicated, while another 17 percent had some measurable alcohol in their systems but were below the legal limit of intoxication (0<BAC<.10). In terms of testing practices, it appeared that tests were required relatively more often of younger drivers. Similarly, more males were tested than females (41 percent vs. 29 percent, respectively). It was also noted that the proportion of tested drivers increased as severity of driver injury increased. For instance, only 17 percent of the non-injured drivers involved in fatal crashes were tested, compared to 45 percent of those who sustained an incapacitating injury.

Results of the analysis indicated that when an officer suspected alcohol was involved in the crash, testing was routinely requested and results reported on the accident data file. In those instances when alcohol impairment was not suspected, testing and reporting were much less consistent. In over 96 percent of the cases for which no test was conducted, the investigating officer did not cite alcohol as a contributing factor to the crash.
Conclusions and Recommendations

Within the past decade, the proportion of fatally injured motor vehicle drivers in the study sample has decreased from 51 percent in 1983 to 43 percent in 1991. Similar declines have been reported for the nation, as well. The 1991 national figure of 8,751 intoxicated drivers killed in motor vehicle crashes represented a ten percent decrease from 1990 and a 19 percent decrease from the 1982 figure (U.S. Department of Transportation, 1992).

While reductions in alcohol-related fatalities have been noted, the drunk driving problem continues to be one of the most serious threats to the health and safety of the American public. According to the National Highway Traffic Safety Administration, over 165,000 people lost their lives in alcohol-related traffic crashes between 1982-1988. An average of one alcohol related traffic fatality occurs every 22 minutes and one alcohol-related injury occurs every minute (NHTSA, 1989). Furthermore, the economic and societal costs associated with drunk driving crashes are staggering. Nationally, the estimated cost of alcohol-related motor vehicle crashes was approximately $16 billion in 1988 (National Safety Council, 1989). The comparable figure for Texas in 1989 was approximately $4,873,000,000 (Texas Department of Public Safety, 1990).

The search for effective countermeasures to combat the drunk driving problem has intensified in the past decade. However, the development and implementation of effective alcohol countermeasures depends, in large part, on accurate assessments of the nature and
magnitude of the problem. As mentioned previously, BAC test results were being reported on the Texas accident data file for less than two percent of the driver fatalities in the State at the time this study began in 1983. This situation severely limited the ability to identify and describe the drunk driving problem in Texas.

Tremendous improvements in BAC reporting have occurred in the last few years. In 1991, approximately 95 percent of all tested drivers had BAC results reported by the investigating officer on the corresponding traffic accident reports. The possibility of using these police-reported BAC test results, either in lieu of or in addition to, the toxicology results obtained directly from the medical examiners' offices should be considered. However, it will be necessary to verify the comparability of the two samples before such a decision can be made.

Based on comparisons of 1988, 1989, and 1991 data, it appears that law enforcement officers may have a tendency to overreport alcohol involvement. In other words, there may be an inclination on the part of law enforcement officers to (1) request testing, or (2) more conscientiously report BAC test results, for those drivers who were legally intoxicated. The proportion of legally intoxicated driver fatalities in the accident data file was higher than the corresponding proportion in the medical examiner sample by 15 percentage points (58 percent vs. 43 percent, respectively). This discrepancy between the police and the medical examiner samples in terms of the proportion of legally intoxicated drivers raises questions about the comparability of the two samples for
purposes of analysis. Further study is needed to determine if such testing or reporting preferences actually exist, and if so, what steps can be taken to correct the situation. In the meantime, it is recommended that BAC data continue to be collected from the medical examiners' offices until reporting discrepancies can be fully explained or eliminated. The continued collection of medical examiner data will also ensure that comparable samples of fatally injured drivers are available for future analyses.

While dramatic improvements have been made in terms of BAC reporting, less progress has been made in terms of the proportion of fatally injured drivers being tested for alcohol impairment. Testing of all drivers involved in fatal collisions is recommended, but as a minimum, efforts should be made to test all fatally injured drivers in Texas. If possible, an attempt should be made to determine why such a large number of the fatally injured drivers are not having specimens taken for alcohol concentration testing.

Finally, two changes regarding the way alcohol/drug impairment is being reported on the accident data file are suggested. First, because alcohol and drug test results cannot both be reported in the existing scheme, some information is being lost (e.g., combinations of drugs and alcohol) regarding the magnitude of impaired driving among crash-involved drivers. Separate fields for coding alcohol and drug test results are needed.

Secondly, a single category is currently being used to report (1) cases for which a breath/blood test was not requested and (2) cases for which a specimen was requested, but the individual refused to be tested. It would be beneficial if this information
could be reported separately in order to more fully explain the reasons for unavailable test results.

References


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