

SESSION 1

DEFINING AND DEFEATING THE DRUGGED-DRIVING PROBLEM

DRUG-RELATED PEDESTRIAN AND BICYCLIST CRASH INJURIES

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A major goal of the National Highway Traffic Safety Administration (NHTSA) is to reduce significantly the morbidity and mortality resulting from vehicular injury. The agency aims much of its activity at understanding injury mechanisms so that it can better design and promote motor vehicle safety standards and highway safety programs to accomplish this goal.

Much research has been done on injuries that are fatal to operators and passengers in motor vehicle crashes. We now know who dies, when, and under what vehicle and road conditions. As societal concerns expand beyond saving lives to consider the long-term consequences of debilitating injury, we are shifting our focus to learning more about survivable major injury. Consequently, NHTSA has commissioned analyses of the American College of Surgeons' Major Trauma Outcome Study (MTOS) data base. Study data come from nearly 170,000 hospitalized patients treated from 1982 through 1989 at more than 150 trauma centers throughout North America. MTOS includes data on the etiology, demography, severity, and outcome of injury. It has had grant assistance from the Washington Hospital Center Research Foundation and the Centers for Disease Control, U.S. Public Health Service. MTOS was designed to provide information for evaluating the quality of trauma care. This is done by comparing institutional outcomes against pooled norms generated from severity and outcome data on a studywide sample of seriously injured patients. Research on quality assurance, emergency medical services (EMS) system management, rehabilitation, and costs of care can also be supported using the MTOS data base. Between 1982 and 1988, 63,625 (49.8 percent) of the 127,536 injuries in the data base were from highway crashes. This is the first time MTOS data have been analyzed for their contributions to highway safety knowledge.

This presentation addresses the presence of alcohol and other drugs in seriously injured bicyclists and pedestrians reported to MTOS from 1982 through 1988. These issues were chosen because pedestrian injuries make up a significant portion of highway casualties; furthermore, whereas there is some knowledge about

bicycle injuries and fatalities that result from involvement with motor vehicles, the popularity of bicycle use as a routine mode of transport is rising, making it all the more important that these data are used for developing countermeasures.

FINDINGS

Pedestrians

There were 9,337 pedestrian injuries reported to MTOS, 13.4 percent of which were mortal. Only injuries from gunshot wounds had a greater mortality rate (21.1 percent). The average length of hospital stay was 13.8 days—longer, on average, than for any other source of injury except motorcycle riding. For many patients, about half of that time was spent in the institutions' intensive care units (ICUs) (computed on those in the ICU for at least 1 day). Patients' ages ranged from infancy to more than 100 years; the majority were between 5 and 29. Mortality was inversely related to age: at least 25 percent of those over 70 died from their injuries.

There were 4,329 injured pedestrians (46.3 percent of the total) tested for alcohol in their blood. Almost 50 percent of those tested had measurable blood alcohol concentrations (BACs) at the time of the test. Remarkably, BAC levels were quite high: 586 (13.6 percent) tested at .01–.099 percent BAC, 486 (11.2 percent) at .10–.199 percent, 686 (15.9 percent) at .20–.299 percent, and 351 (8.1 percent) at .30 percent or above. The generally accepted BAC level for "legal" intoxication in most states is .10 percent, so more than 35 percent of those tested were considerably more intoxicated than permissible for the operation of a motor vehicle. Fatalities for those tested for the presence of alcohol were 13.8 percent of those at the .01–.099 percent level, 15.8 percent of those at .10–.199 percent, 11.7 percent of those at .20–.299 percent, and 8.5 percent of those at .30 percent or higher.

Testing for the presence of drugs other than alcohol was reported for 397 (4.3 percent) of the injured pedestrians. Positive drug screening was reported for 15.6 percent of them. Drugs predominating were cocaine (6.8 percent of those screened), narcotics (3.6 percent), and barbiturates (3.5 percent). We do not know, given a measurable BAC, the likelihood of the presence of drugs. We also do not know, because of the extremely small number of those tested, whether there are

variations in the type or frequency of drug use among pedestrian casualties over time. Answers to these questions must await subsequent analyses of the MTOS data base.

Bicycles

There were 802 bicycle injuries reported to MTOS, 4.7 percent of which were mortal. Stabbings and falls had similar mortality rates, at 4.5 percent and 5.5 percent, respectively. The average length of hospital stay was 7.4 days. Comparable lengths of hospitalization were seen for stabbings (5.2 days) and gunshot wounds (9.2 days). Patients' ages ranged from infancy to 79, and the majority were between 5 and 34. Mortality was bimodally distributed: both the very young and the very old were more likely to die from their injuries.

There were 285 bicycle patients (35.5 percent of the total) tested for BAC. Seventy-four (26 percent) of them tested for measurable amounts in their systems at the time of test. There were 16 cases (5.6 percent) at the .01-.099 percent BAC level, 26 (9.1 percent) at the .10-.199 percent level, 23 (8.1 percent) at the .20-.299 percent level, and 9 (3.2 percent) at .30 percent or higher. There were five fatalities among those with alcohol present at the time of injury, which represents 6.8 percent of the bicycle injury cases known to have alcohol involvement. This is a slightly greater proportion of fatalities than the total percentage of fatalities for bicycle riders in the MTOS data base, which is 4.7 percent, but smaller than the percentage of those tested for alcohol where no alcohol was found. This latter group's mortality rate is 9 percent.

Drug screening was conducted for 103 cases. Eleven cases were found to indicate the presence of drugs at the time of injury, with cocaine, barbiturates, and amphetamines predominant. Each of these drugs was present in 2.9 percent of the screened bicycle cases. As was true for the pedestrian cases, we do not know the distribution of cases for which both drugs and alcohol were present, nor do we know whether there were annual variations in types of drugs used.

CONCLUSIONS

The study of survivable major trauma in motor vehicle crashes is occurring with more frequency now that the public health community's attention is increasingly focused on the consequences of injury. However, bicyclists and pedestrians are not yet getting the attention that their injury incidence demands. As bicycle riding becomes more common in the United States, more attention should be focused on bicyclists' injuries.

Furthermore, these findings suggest that routine testing (or reporting and recording of test results) for alcohol and other impairing drugs is infrequent within the major trauma care environment. Despite the fact that fewer than half the pedestrian cases were tested for alcohol, for example, more than half of those tested had measurable quantities of alcohol in their system at the time of injury. This fact has significant clinical implications; alcohol testing should become part of the routine assessment of care needed for trauma patients.

DRUG PRESENCE IN FATALLY INJURED TRUCK DRIVERS

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ABSTRACT

National Transportation Safety Board (NTSB) conducted a year-long study of 182 heavy-truck crashes in which the driver was fatally injured and found that 33 percent of the drivers tested positive for drugs of abuse. The most prevalent drugs found were marijuana and alcohol (13 percent each), followed by cocaine (9 percent), methamphetamines/amphetamines (7 percent), other stimulants (8 percent), and codeine and phencyclidine (PCP) (less than 1 percent each). Forty-one percent of those drivers positive for drugs of abuse were found to be multiple-drug users. Almost 11 percent tested positive for three or more drugs of abuse.

INTRODUCTION

To develop an estimate of drug and alcohol use among fatally injured drivers of heavy trucks, NTSB collected data on all fatally injured drivers of trucks weighing more than 10,000 lb gross vehicle weight (GVWR) in eight states for 1 year. "Fatally injured" is defined as being dead at the scene or within 4 hr of the accident. The states, selected to provide a geographic mix, were California, Colorado, Georgia, Maryland, New Jersey, North Carolina, Tennessee, and Wisconsin. The study period ran from October 1, 1987, to September 30, 1988. The full study is in press.

STUDY METHODOLOGY

So that as many as possible of the truck accidents that met the criteria could be included in the study, notification procedures were coordinated with state