Motor Vehicle Injury Prevention
— Contributors —

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Motor Vehicle Injury Prevention
Executive Summary

Many injuries associated with motor vehicle crashes are preventable. In 1985, motor vehicle crashes cost our Nation more than $75 billion. About 65% of this amount was the result of only 15% percent of the crashes — those that caused death or injury (1). By 1991, this sum had increased considerably because of increases in the number of crash injuries and fatalities, increases in the cost of medical treatment and vehicle repair, and a rise in general price levels.

But it is not the impact on our economy that is the force behind our desire to reduce the mortality and morbidity associated with highway crashes. Rather, it is the human tragedy that these crashes represent — the 45,000 persons killed on our roads each year; the fact that more than 60% of these victims are not yet 35 years of age; and the fact that almost every day, throughout the United States, 125 families meet at grave sites to bury a loved one killed in a motor vehicle crash. In addition, millions are injured in crashes. Especially tragic is the fact that some survivors of motor vehicle crashes are seriously disabled. Crashes are the leading cause of traumatic brain injury and spinal cord injury.

The magnitude of injury's impact on our society has made the control of crash injuries one of the goals of *Healthy People 2000*. The goal is to reduce crash fatalities from 19.1 per 100,000 people in 1987 to 17.0 per 100,000 people by the year 2000 (2). Many sectors of our society will have to cooperate to achieve this 11% reduction in crash mortality, and many of the recommendations of this panel must be implemented.

Unfortunately, even if this decreased crash fatality rate envisioned in the Year 2000 Objectives is achieved, there will be no meaningful reduction in the actual numbers of persons killed and injured in motor vehicle crashes. In terms of absolute numbers, projected increases in both population and travel will offset the efforts of the health and safety community. Motor vehicle crashes will remain the principal means by which young Americans are permanently disabled and by which they die.

If we are to reduce materially the enormous toll that crashes impose every year, "business as usual" will not be sufficient. The multidisciplinary attack on injury that was the vision of *Injury in America* (3) must be employed. Investment in the prevention of injury and in the care and rehabilitation of injured persons must increase appreciably, so that it is commensurate with the magnitude of the problem. Research must be directed toward solving this problem, which will require federal, state, and private resources. Furthermore, collaboration between former adversaries must become the rule. But resources and collaboration will not be enough. We must also convince the public that motor vehicle injuries are not "accidents" and that the application of scientific principles to the prevention of injury has a real likelihood of succeeding in reducing crash-related fatalities and injuries.

The report of this panel documents the record of success that health and safety professionals have achieved in this field. But more importantly, the report describes the steps that we must take to do more than merely maintain the status quo. The panel's recommendations are designed to be illustrative, rather than exhaustive, but their implementation can launch an era of major reductions in the crash fatality and injury rates on our roads.

The panel's recommendations to federal agencies, state and local governments, private industry, employers, labor organizations, advocacy groups, and the health care community are listed in the position paper. The panel's key recommendations are as follows:

Improve Leadership, Collaboration, and Coordination

The panel heartily supports the recommendations of the Transportation Research Board (TRB) Special Report 229, Safety Research for a Changing Highway Environment (4), with respect to the advancement of research in Department of Transportation programs. The recommendations are listed in the position paper. In addition, the recommendations on organizational structure that the Committee on Trauma Research made in the National Research Council's document, *Injury in America* (3), should be fully implemented. These include the establishment of a National Center for Injury Control within the Centers for Disease Control (CDC). This center should facilitate coordination of federal injury control efforts. Motor vehicle injuries constitute the single largest category of injuries and thus should be a key focus of the center's research and programs. The center should collaborate with established lead traffic safety agencies at both the federal level (for example, the National Highway Traffic Safety Administration and the Federal Highway Administration within the Department of Transportation) and at the state and local levels (such as the state highway safety agencies). In particular, CDC should link the public health and traffic safety communities at the federal, state, and local levels and emphasize the importance of motor vehicle injuries within the broader field of injury control.

Enhance Public Recognition and Support

Public awareness of the preventability of motor vehicle injuries must increase because it will contribute to individual prevention efforts, public support for laws and enforcement efforts, and demands for legislative action in funding research and programs.

Implement Proven Interventions

Many technologies and behaviors are known to prevent or mitigate motor vehicle injuries, but they have not been widely used or adopted. The following **legislative** and **law enforcement** interventions must be fully implemented:

- Adopt and enforce primary enforcement safety belt use laws and ordinances and extend them to cover all seating positions in all motorized vehicles, where feasible.

- Adopt and enforce administrative license suspension for drivers with a blood alcohol concentration $\geq$0.08% and >0.00% for youths under the age of 21.
- Adopt and enforce laws and ordinances requiring all motorcyclists and bicyclists to wear helmets.
- Enforce existing speed limits, oppose further increases in speed limits, and encourage legislation to ban the use of radar detectors.
- Strictly enforce minimum drinking age laws as they apply both to sellers and purchasers.
- Strengthen and enforce existing laws and ordinances requiring child safety seat use and extend them to cover all passenger seating positions in all motorized vehicles.

In addition to adopting, strengthening, and enforcing these laws, information on factors facilitating and impeding effective enforcement should be identified and disseminated.

The panel recommends that vehicles be equipped with both driver and passenger airbags and that vehicle designs protect both occupants and pedestrians. Vehicle designs that protect **occupants** include improved occupant-compartment integrity (including enhanced side-impact protection), energy-absorbing interior surfaces, and improved door design, roof crush resistance, seats, and restraint systems. Designers of protective restraint systems should give attention to the comfort and convenience of persons of all sizes and ages. Vehicle designs that protect **pedestrians** include softer hood and fender designs and lower front bumpers. In addition, comprehensive community-based pedestrian and bicycle safety programs that target defined problems and high-risk populations should be developed.

The panel recommends that roadway delineation be improved through increased use of effective reflective pavement markings and signs, and that safer, "forgiving" roadsides be provided for errant vehicles.

Despite recent progress, alcohol and other drugs continue to play a significant role in motor vehicle injuries and fatalities. Although several research and programmatic recommendations in this document specifically address impaired driving, the panel concurs with the Surgeon General's Workshop on Drunk Driving (5) that the extent of the alcohol problem must be addressed at a broader, more comprehensive level. It is unlikely that we will substantially reduce impaired driving until and unless we reduce problem drinking, drug use, and total per capita alcohol consumption and modify many commonly accepted practices related to the availability and promotion of alcoholic beverages.

Expand the Scientific Base

Continued progress in reducing motor vehicle injury cannot be achieved without technologic advances and a better understanding of human tolerance to injury. A scientific, rigorous understanding of human performance, behavior, capabilities, and motivation is also needed. The following measures are needed to expand and maintain the field's vital scientific base:

- Expand intramural and extramural research programs within the U.S. Department of Transportation and the U.S. Department of Health and Human Services; specifically, CDC should play a key role in developing an applied injury research laboratory to study both human and engineering factors.
- Enhance the training of professionals at all levels.
- Develop data systems; specifically, link traffic and medical records to improve our ability to develop and evaluate effective interventions.
- Support cooperative industry-government research and development projects with adequate protection of both the public's interests and manufacturers' proprietary concerns.
- Build the fields of engineering, biomechanics, human behavior research, and policy development in the areas related to injury prevention. Specifically, develop university-based centers of excellence in these areas.
- Enhance the knowledge and understanding of factors facilitating and impeding safe driving behaviors among various population subgroups, including youth, minorities, women, and the elderly, and use these data to develop and target prevention and intervention efforts.
- Encourage collaborative interdisciplinary research among scientists working in fields that affect motor vehicle injury control, such as engineering, biomechanics, behavioral science, public policy, medicine, public health, and rehabilitation.

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