

Status Report

Reducing Crash Injuries: A Policy Options Analysis

Motor vehicle crash injuries – now the second most costly of all health impairments to Americans – are continuing to increase. A range of options is available to substantially, permanently reduce the crash injury toll – but in too many cases, these options simply haven't been pursued. An analysis published by the Institute identifies both the cost of the crash injury problem and the alternatives available for handling it. The following is excerpted from the Institute's new paper, "Policy Options for Reducing the Motor Vehicle Crash Injury Cost Burden."

1. A public health problem of staggering proportions, in terms of both damage to human health and economic waste, is confronting the nation today. By 1975, motor vehicle crash injuries, conservatively estimated, were costing the nation more than \$14 billion annually, including the cost of emergency medical aid, hospital care, rehabilitation, lost wages, and other direct and indirect costs. These costs exceed \$20 billion today.

Of the leading causes of death to Americans, motor vehicle crash injuries are second only to cancer in their economic burden. They are accounting for about 52,000 deaths a year. They account for the majority of new cases of paraplegia and quadriplegia. They are the leading cause of severe facial lacerations and fractures. They contribute prominently to new cases of epilepsy and brain damage. They kill more Americans ages 1-35 than any other cause.

2. The cost burden is growing worse. It will continue to worsen, with serious consequences for the nation, unless conditions are changed. *Preventing* and *ameliorating* motor vehicle crash injuries, on the other hand, would be a far less expensive course of action than suffering the present economic cost burden.

3. Scientifically well-documented approaches are available to reduce motor vehicle deaths, injuries, and their costs. Some of these approaches are already partially in place. They center on:

- Getting long available crash-packaging technologies, developed over recent decades by auto companies and their suppliers, off the shelf and into new cars.
- Maintaining the 55 mile per hour national speed limit.
- Increasing the use of motorcycle helmets and manual automobile restraint systems – two examples of engineering approaches that effectively reduce death and injury.
- Cleaning up highway and roadside hazards that greatly increase both the frequency of crashes and the severity of injuries in crashes.

4. A number of other sensible (if inadequately proven by science) approaches are also widely in place. In this group are the best of current state driver licensing programs, police enforcement programs, traffic signs and signals, and ambulance and related emergency medical services. *(Cont'd on next page)*

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5. At the same time, it is important to avoid diverting scarce public funds into approaches – including, for example, various expensive driver crackdowns – that the most careful research has shown fail to produce substantial, durable reductions in motor vehicle crash injuries.

6. A large part of the motor vehicle crash injury problem involves the extent to which vehicles are *not* designed to protect their human occupants in crashes. The present vehicle fleet is technologically obsolete in terms of such protection. As a result, a large part of the motor vehicle crash injury problem facing Americans is one of technological omission.

Conclusion

Technology, like nature, is an indifferent partner to man. Used and promoted with zest and innovation, it can work to better the human condition – to create more jobs, stimulate more profits, increase productivity, lengthen the span of human life, and better the national health and well being. Misused or ignored, it can frustrate progress, discourage growth, and hurt the very people who should benefit from it.

The world's most successful incentive to technological achievement is the free enterprise system. Manufacturers could use this system to sell vehicles with the most up to date crash protection technologies. If they were to do so, much of the need for federal regulations specifying minimum levels of crash protection would be eliminated, fewer Americans would die or be injured in crashes, and the huge cost of such injuries would be reduced.

Effective approaches to achieving large reductions in deaths and injuries have been at hand for years – energy-managing roadside structures, safety belts, child restraints, air bags, and motorcycle helmets. Yet a combination of resistance to technological innovation and government aimlessness has left these approaches largely unavailable or under-utilized.

Facing up to the technological omissions means putting available lifesaving approaches and technologies into place and into the fullest use as soon as possible. This course of action must be a central emphasis in any adequate program to reduce deaths and injuries – and their costs – now coming from the nation's highways.

Single copies of the full paper, "Policy Options for Reducing the Motor Vehicle Crash Injury Cost Burden," are available at no cost by writing "Options," The Insurance Institute for Highway Safety, Watergate 600, Washington, D.C. 20037.

IIHS Poses Key Questions On Occupant Protection

Cutting through the legal and economic issues that have delayed implementation of automatic protection requirements for American cars are two fundamental questions, the Insurance Institute for Highway Safety has told the U.S. Department of Transportation. They are:

- What occupant restraint system – manual lap/shoulder belts, automatic belts, or air cushions with lap belts – would result in the most people being protected in crashes?
- What is the United States Department of Transportation doing – as it is required by its statutory mandate – to encourage the availability to Americans of the restraint system which results in the most people being protected?

Analyzing these basic questions in comments submitted to the occupant restraint docket, the Institute concluded, "Only by taking every reasonable action to encourage air cushion availability will the Department be fulfilling the relevant Congressional mandate of its enabling legislation: to reduce 'deaths and injuries to persons resulting from traffic accidents.' "

Some Belts Easily Defeated

Most manufacturers have indicated that they will meet the requirements of FMVSS 208 almost exclusively with automatic belts, the Institute observed, yet some of the belt designs they have chosen can easily be defeated, which may result in little improvement in use rates over the present manual belts.

"If some manufacturers are determined to subvert the intent of the standard by choosing ineffective belt designs," the Institute commented, "then the standard's requirements should be modified so that easy-to-disconnect belt designs are prohibited.

"Thus, the success of automatic belts in achieving higher numbers of restrained occupants will depend largely on the specific designs chosen by the manufacturers. Even the best automatic belt designs, however, cannot be expected to achieve anything like 100 percent usage."

On the other hand, air cushions would have a use level of virtually 100 percent, the Institute pointed out, and this would promise sharp reductions in fatalities and serious injuries in frontal crashes. When used in combination with lap belts the benefits would be even greater. Lingering questions about the reliability, side effects, and performance limits of the air bags "have long since been settled in favor of the technology – settled, indeed, by the auto companies and the suppliers themselves," the Institute commented.

'Department Is Doing Very Little'

As to what the Department is doing to promote air cushions, the Institute observed that "the Department is doing very little, if anything at all."

It pointed out that, "In fact, no words from the Department in connection with the reopening of FMVSS 208 have warned the American public that it presently is being denied the opportunity to enjoy the benefits – on any basis, at any cost, whether as optional or standard equipment – of the single most important crash protection system ever developed by this country's auto industry.

"No words from the Department have expressed dismay or anger that the very manufacturers who applied their engineering skills to developing air cushion technology, and who repeatedly promised for a decade to give Americans a chance to buy that technology in the marketplace, with or without a federal passive restraint standard, have broken their promises.

"No words from the Department have shown concern with the terrible future – death, crippling injury, pain, grief, burdensome expense – that needlessly awaits many of the thousands of Americans who will be in serious crashes without air cushions in their cars."

The Institute suggested that the Department could be – but is not – seeking Congressional cooperation in encouraging the availability of air bag restraint systems in the marketplace. The Department should also be "heeding warning signals that manufacturers of imports may be preparing future auto designs and marketing strategies based on selling safety to Americans," to place domestic auto makers at an even greater economic disadvantage.

Automatic Restraint Delay: Costs Outweigh Benefits

Citing an economic study that puts the cost of automatic restraint delay at about \$2.4 billion annually, Rep. Tim Wirth (D.-Colo.) has urged the National Highway Traffic Safety Administration (NHTSA) to implement its automatic protection rule by the 1983 model year for small and intermediate cars.

In comments to Transportation Secretary Drew Lewis, Wirth, chairman of the House Subcommittee on Telecommunications, Consumer Protection, and Finance, said the study "strongly points to the necessity of requiring the installation of automatic crash protection systems, at a minimum, on a substantial portion of the new car fleet at the earliest possible date."

The study to which Wirth referred also was filed with Secretary Lewis. It was sponsored by several large insurance companies and was conducted by Yale economist William Nordhaus, a former member of the President's Council of Economic Advisors with responsibility for regulatory policies.

Nordhaus said "the current requirement to install automatic crash protection (FMVSS 208) will have substantial net benefits compared to current lap and shoulder belt usage," with the cost of rescission 3½ times the benefits. A total rescission would cost society more than \$30 billion, Nordhaus said, in a discussion of his findings.

The comments were elicited by a series of NHTSA proposals issued at the time the agency announced it would delay the standard's introduction in next year's large car model. (See *Status Report*, Vol. 16, No. 6, April 27, 1981.) (Cont'd on next page)

AOPA Discloses Air Bag Cost Figures

How much an air bag restraint system would cost a car buyer has been a subject of great controversy and considerably varying estimates in recent months. Now the Automobile Occupant Protection Association (AOPA), the organization representing manufacturers of air bag components, has given *Status Report* an authoritative set of figures, based on annual volumes of production. They are:

Full Front Seat Bag-Equipped Cars, Production-Model	Price Increase Per Car To Consumers
2,000,000 cars	\$ 185
1,000,000 cars	240
500,000 cars	280
100,000 cars	500
10,000 cars	1,100

(Domestic auto production has ranged recently between 8.4 million and 9.5 million cars per year, except for last year when it dropped to 6.4 million.)

Figures cover the entire air bag system according to AOPA, including sensors, diagnostic systems, inflators, air bags, sheet metal housings, decorative covers, associated wiring, and labor — plus a profit for both auto maker and dealer.

Nordhaus said the effect of rescission on the domestic auto industry would be “miniscule.” He said Ford and General Motors “have unwittingly provided evidence of a major inconsistency between their cost estimates [for automatic restraints] and their estimated investment programs,” in submissions earlier this year. Using the companies’ own data, which indicate an incremental savings of \$3 per car if the rule is rescinded, Nordhaus said, “these figures suggest that the capital savings are *extremely small* for a delay.” Nordhaus suggested the manufacturers’ costs had been “puffed up” to provide the federal government with ammunition for delay.

Wirth Questions Rulemaking Procedures

Concerning NHTSA’s earlier decision to delay automatic restraints for at least a year, Wirth said the subcommittee had questions regarding new cost-benefit analyses and rulemaking procedures “raised by indications of bias and prejudgment in this area by key administration officials.”

Wirth also questioned new assumptions put forth by NHTSA in a recent regulatory analysis, which estimates the usage rate of automatic restraints would be between 15 and 60 percent, with overall use falling at the low end of the scale. Wirth asked why NHTSA had failed to mention a February report it had commissioned, in which respondents reported use of automatic restraints in Chevettes and Rabbits is between 70 to 89 percent or that GM’s own survey had shown automatic belt usage of nearly 60 percent in Chevettes. Those reported use rates are far higher than the 28 percent rate the agency uses as its estimated “break-even” point, when the costs of the automatic restraint standard would begin to be outweighed by their benefits.

Wirth noted that during recent hearings on the issue before his subcommittee, NHTSA Administrator Ray Peck was unable to provide specific studies of usage rates relied upon by the agency in its finding that automatic restraint usage would fall below the break-even level. (See *Status Report*, Vol. 16, No. 7, May 13, 1981.)

There were more than 45 comments filed in response to the administration’s proposals to either delay and reverse the implementation of the automatic restraint rule, require its implementation in all 1983 models, or rescind the rule entirely. Auto manufacturers and auto dealers opposed the rule, while consumers, safety groups, and insurers submitted comments in support of it.

Exploding Rims Continue To Inflict Death, Injury

Deaths and maiming injuries caused by exploding multipiece wheel rims on many trucks and campers continue to mount, despite government assurances that the problem does not require further Department of Transportation attention.

In a letter to Raymond Peck, head of the National Highway Traffic Safety Administration (NHTSA), William Haddon, Jr., M.D., president of the Insurance Institute for Highway Safety, has supplied information on 21 additional cases of explosive separations of hazardous multipiece rims. Six people died as a result of their injuries.

“These cases are representative of the 362 others we have reported to NHTSA,” Haddon said. “They include one pedestrian injury and one child bystander who is now blind and mute as a result of the explosion.”

Six workers – who were not tire service employees – were seriously injured in the blasts, three of them fatally, the Institute reported. Another suffered arm fractures and nearly lost a foot when he began inflating the tire of a used vehicle he was thinking of buying.

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Exploding Rims Continue To Inflict Death, Injury (Cont'd from page 5)

In April, NHTSA announced plans to abandon proposed rulemaking on multipiece rims. NHTSA said in its notice that “introduction of the problematic multipiece rims has virtually ceased” and cited a new work rule issued by the Occupational Safety and Health Administration (OSHA) designed to help protect tire service workers.

In his letter to Peck, Haddon said, “The Institute has found no evidence that multipiece rims are no longer being manufactured, nor that only a few ‘problematic’ designs are hazardous.” (The Institute filed two petitions with NHTSA in 1978. One asked NHTSA to conduct a defect investigation into the design hazards of multipiece rims and another asked for rulemaking that would, in effect, ban their production. See *Status Report*, Vol. 15, No. 14, Sept. 17, 1980.)

The Institute has pointed out that all multipiece rim designs are inherently hazardous since they consist of components that can separate violently under a variety of common conditions. Their manufacturers have generally characterized them as a workplace problem that can be ameliorated by following OSHA rules.

OSHA requires multipiece rims to be handled in a safety cage, but the explosions can occur when a wheel and tire assembly is being demounted and remounted on the vehicle or in the process of being rolled to and from the safety cage. Even though work rules are posted, the Institute says, not everyone is aware of them or follows them.

For example, the Institute reported a separation in which an employee at a tire center in Tulsa, Okla., received serious injuries when the locking ring from a multipiece wheel separated as he was tightening the lug nuts during mounting. The force of the explosion reportedly threw him 15 feet into the air.

Another incident last summer involved a young boy who was crouching near a truck at an Arco station in Moody, Texas. The locking ring from a recently-mounted multipiece wheel assembly suddenly exploded and the boy was struck in the head, leaving him permanently blinded and unable to speak.

In February of this year, a 24-year old man received fatal head injuries in Springfield, Mo., when he tried to pry away a locking ring from the wheel of a 2½-ton pickup truck.

In his letter to Peck, Haddon noted, “The OSHA regulation will protect the millions of workers and ordinary citizens who, unaware of the hazards of handling a multipiece wheel, are constantly exposed to them simply because they share the road with them or drive a vehicle equipped with them.”

Pass/Fail Approach Seen Too Rigid For Crash

Several commenters on the National Highway Traffic Safety Administration’s (NHTSA) proposed vehicle crashworthiness ratings program have urged a more flexible substitute for the agency’s rigid pass/fail rating system.

In a rulemaking notice earlier this year, NHTSA said it intends to establish a program of voluntary manufacturer ratings of new-car performance in 35 mph front and rear barrier crashes. (See *Status Report*, Vol. 16, No. 2, Feb. 9, 1981.)

Consumers Union said the pass/fail rating scheme should be dropped in favor of a five-step best-to-worst classification system. Ford Motor Co. also said the pass/fail classification is misleading, and urged NHTSA to drop its proposal.

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Government scientists from a British research laboratory said car safety levels could be raised significantly, without the need for new legislation, if crashworthiness rating systems were established in both the U.S. and Europe.

In response to NHTSA's January notice, researchers from England's Transport and Road Research Laboratory urged the adoption of a rating plan that could facilitate the introduction of a similar program in both the United Kingdom and Europe.

I.D. Neilson, head of the laboratory's vehicle safety division, and S. Penoyre endorsed NHTSA's suggested use of anthropomorphic dummies to measure the effects of an impact upon human vehicle occupants, but suggested an alternative to NHTSA's proposed crash test. Instead of a single, front-into-barrier crash at 35 mph, Neilson and Penoyre urged a frontal 30-degree angled 60 kilometers per hour (about 37 mph) barrier test and a side-impact test. An alternative test methodology was also urged by Consumers Union.

Like Consumers Union, they also suggested a single numerical crash injury index be used to rate the vehicles, "that would probably range from about 80 for the best cars to about 200 for the worst," they said.

The range, said the scientists, could then be divided into starred bands, – for instance, a single star for the worst, ranging to five stars for the best – like some hotel or restaurant ratings. Such an approach, they said, could remove the arbitrariness of a single pass/fail rating and provide more useful information to consumers.

They said the controversial pass/fail approach used by NHTSA in earlier tests can be misleading, since crash test results can vary between identical vehicles due to variations in production tolerances and slight test-to-test variations.

The comments can be found in NHTSA Docket 79-17, Crashworthiness Ratings, Room 5108, 400 Seventh St., S.W., Washington, D.C. 20590. The period for public comment on the proposal has been extended to Oct. 22, 1981.

Low Levels Of Restraint Use Continue

Only 11 percent of drivers observed in a 19-city study were wearing their safety belts, Opinion Research Corp. has noted in an interim report on a continuing study of belt use trends.

Data collected November 1980 through February 1981 showed belt use ranged from 4 percent in Dallas to 29 percent in Seattle. A total of 11,149 vehicle observations were made during that phase of the study, conducted under contract with the National Highway Traffic Safety Administration (NHTSA).

Restraint use among infants was higher than for adults. Thirty-five percent of 316 infants less than one year old were observed riding in child restraint systems secured by lap belts. Another 10 percent were seen riding in unsecured restraints.

Restraint use for small children was lower, with 12 percent of the observed 1,269 children ages 1-4 riding in restraints secured with lap belts. Another 4 percent were seated in unsecured restraints.

The progress report has been filed in NHTSA Docket 74-14, Occupant Crash Protection.

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