Auto Hazard Control

Lessons for addressing obesity

From the history of auto hazard control

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Death and injury from motor vehicle crashes had reached epidemic levels by the 1950s and continues at unacceptably high levels today. The lessons learned in failed and successful attempts to reduce auto crash losses can provide guideposts for obesity control efforts.

From Behavioral to Environmental Changes

The early decades of motor vehicle crash injury control were devoted almost entirely to behavior-change efforts. These reflected two premises that heavily influenced public and industry policies related to injury prevention.

1. Since all "traffic accidents" involved a driver and the driver's actions, drivers were presumed to be the cause of severe and fatal crash injuries occurring in collisions. Indeed, the word "accident," which is pre-scientific and fatalistic, says much about the conventional wisdom of injury prevention during those decades and, to some extent, at present. (This "blame the victim" mindset toward drivers ignores the exposure to injury of non-driver occupants in crashes, whether the driver was at fault or not.)

2. The principal way to prevent severe and fatal injuries was to prevent "accidents." Since these were "caused" by drivers, common sense dictated that modifying the driver behavior would achieve adequate injury control.

Until the 1960s this view dominated auto crash injury control policies, and is influential even today. The problem was addressed in terms of individual behavior rather than the population-based countermeasures that an epidemiological framework would dictate. Consequently, resources have been devoted to making drivers "safe," i.e., less likely to cause collisions, but with disappointing results. Interventions using environmental and policy changes are more apt to produce useful results than those directed purely at educating, persuading or browbeating drivers.

Environmental approaches use laws and rules to govern and shape the actions of motor vehicle operators in the highway environment. These include adopting signing and signal standards, improving roadway design, setting driver licensing age and performance criteria, and mandating enforceable controls over speed and patently unsafe driving such as driving under the influence (DUI). Without doubt these steps, largely carried out at the state level, have kept highway crash death and injury increases from rising even more alarmingly. They can accurately be defined as a series of environmental alterations intended, with some success, to modify driver behavior.

But can efforts directed at making drivers safer *without* changing the environment succeed? For an answer, it is useful to examine the history of driver education.

The Limits of Driver Education

After WWII the explosion in demand for automobiles and highways led to the initiation of driver education (DE) courses in high schools across the country. Offered to teenagers as an inducement to early procurement of licenses, the courses employed cars that were provided *gratis* by auto companies, and coursework supported by the companies and by auto casualty insurers. Although their end purpose was to expand the purchase and use of cars by lowering the age of drivers, they were heavily touted as a way to turn young people, who are especially at risk on the highway, into "safe drivers."

Driver education thus became a mainstay of the behavior-change approach and was held to be an essential component of highway crash injury control from the early 1950s until 1968, when Daniel Patrick Moynihan authored a report for the Department of Health, Education and Welfare in which he questioned the conventional wisdom favoring DE. It was not until the 1970s, however, that DE's effectiveness or lack thereof was systematically evaluated. Starting in 1975 and continuing through the 1980s, studies found that high school DE courses had no effect of reducing collision involvement by their graduates, and in fact seemed to have a negative outcome because they increased the collision exposure of young people by putting them behind the wheel at an earlier age. DEs are no longer a high priority in auto-safety programming at the National Highway Traffic Safety Administration (NHTSA), though research and demonstration projects devoted to finding ways to make DE "work" as an effective injury-control approach continue in and out of government.[1]

From "Accident Prevention" to Injury Control

Another approach to motor vehicle crash injury control emerged in the 1930s. A few crash investigators, physicians, researchers and independent engineers were becoming aware that auto design was playing a large and ominous role in causing injuries generated in crashes. They began calling for basic design improvements that would minimize the harmful impact of energy released in a crash — improvements such as seat belts, non-lacerating windshields, and non-rigid steering columns. They recognized that the direct cause of crash injuries is occupants' exposure to intolerably high forces over extended moments of time. These were the earliest, largely unheralded attempts to force auto manufacturers to provide what would come to be called "crashworthiness" in their products.[2]

Initially these suggestions were met with indifference by the industry. The car companies, who vigorously promoted the "driver accident causation" view and the behavioral change programs it led to, took the position that little could be done to prevent injuries once an "accident" was occurring. They argued against most of the injury-control design measures urged by independent research. It wasn't the product that was causing the injuries, they maintained; it was the user.

By the late 1950s car-crash deaths were approaching 50,000 annually, with severe injuries at six to ten times that level. But the demands of a few injury-control advocates for technological change were having no real influence on industry's design decisions, nor were they getting much public attention. The information environment was largely dictated by the industry's marketing, public-relations and "research" messages. The mainstream "traffic safety" movement, which included the Automobile Association of America, the Highway Users Federation and the President's Advisory Council on Traffic Safety, was dominated by a coalition of domestic car companies and highway construction firms.[3]

Persistent increases in car crash injury levels, along with the failure of "drive safely" slogans and scare tactics, ultimately forced the recognition by policy makers that the role of auto design in injury causation deserved examination. A 1959 article by Moynihan in *The Reporter,* entitled "Epidemic on the Highways," warned that car crash carnage had reached literally epidemic proportions. Moynihan, at that time an Assistant Secretary for Labor, urged that approaches toward injury reduction be rethought and that national policy be redirected toward changing the behavior not simply of drivers, but also of car companies.

Moynihan's article was the beginning of crucially important changes in press and public perception of the kinds of countermeasures needed to control and reduce auto crash deaths and injuries. One of his aides was Ralph Nader, whose own article on the subject, "The Safe Car You Can't Buy," appeared the same year in *The Nation*. Nader was at work on *Unsafe at Any Speed*, an expanded version of the article which would attract national attention when General Motors was discovered to have hired private detectives to follow and possibly entrap Nader so as to damage his reputation and discourage sales of his book. As principals in the emerging move to force safety into cars as well as drivers, Moynihan and Nader were joined by a number of U.S. Senators holding leadership committee roles with jurisdiction over auto safety-related issues. These included Abe Ribicoff and Warren Magnuson, who chaired the Government Operations Committee and Commerce Committee, respectively. Through these two committees, the Senate was able to press intensive investigations into auto industry practices and ultimately to shape legislation regulating the industry.

The Senate hearings, held in 1966, put a harsh spotlight on the auto industry and its self-serving view of "traffic safety." Industry leaders were forced to admit that in the interest of greater profits, for years they had ignored opportunities to make their products crashworthy even when urged to do so by their own engineers. Still, they blamed their customers: "Safety doesn't sell" was the free-market excuse repeated time and again by company witnesses.

Their displays of arrogance made headlines. After scores of independent engineers, physicians, crash investigators, and safety advocates testified about proposed crash-protection improvements that would save thousands of lives a year, Henry Ford II declaimed that the industry would be "shut down" if it were forced to make such "unreasonable, arbitrary and technically unfeasible" changes in its products.

The publicity and editorial comment that he and other company executives received for such remarks was not the kind an industry likes to attract. Nor were the incredulous responses of Senators to industry insistence that the companies would make their cars safer by voluntary "self-regulation." Senator Neuberger said that she saw about as much good in that as had resulted from tobacco industry "self-regulation" gestures a few years earlier, i.e., none at all.

The hearings gained added attention when the White House, in a message to Congress, urged adoption of highway safety legislation that would include a degree of Federal regulatory control over auto safety performance. Although the industry continued to press for self-regulation, both the House and Senate were committed to passing bills that would establish a regulatory authority in Washington. The National Traffic and Motor Vehicle Safety Act of 1966 (PL 89-563) was the outcome. Passed by unanimous vote in the Senate and House, it called on the Department of Transportation to set minimum safety performance levels for new motor vehicles, oversee recall of defective vehicles, publish auto safety information for consumers, and conduct auto safety research. A companion law, the National Highway Safety Act (Public Law 89-564), mandated Federal guidelines and funding for State programs to influence driver behavior in such areas as licensing criteria and law enforcement. It also provided support for emergency medical care services.

Underlying the 1966 Act is a conviction that controlling product hazards is a key component of injury reduction measures — that it is always insufficient and sometimes inappropriate to seek injury reductions solely through programs to change the behavior of the product's users. This in turn reflected the thinking of a Moynihan colleague, William Haddon, who developed a matrix for analyzing injuries in terms of their agent-vector-host characteristics

and environmental settings. Haddon, a physician with a strong public health background, became the first head of the agency within the Department of Transportation (DOT).

The Safety Belt Paradigm

Vehicle crashworthiness goals and behavior modification obstacles meet at a crossroads created by safety belts. Even before 1966, the injury-reducing effectiveness of safety belts in restraining occupants in crashes had been well established by Volvo. On its own, the Swedish car maker had been providing front-seat lap-shoulder belts as standard equipment in its cars since 1963. Injury data emerging from the Volvo experience in Europe were confirming what physicians and engineers had long maintained: seat belts would substantially reduce harm in car crashes by preventing occupant injuries from ejection and violent contacts with interior structures.

Starting in 1961 with New York, states had increasingly been attempting to mandate that car companies provide anchorage points, if not the belts themselves, for front-seat lap-only belts. By and large the U.S. companies were opposed to even these measures, let alone providing belts as standard equipment. The 1966 Act gave seat belts special attention by specifically mandating that the DOT move quickly to require seat belts in new cars. By 1968 lap-only belts were standard in new cars; within a few years lap-shoulder belts were being required in front-seat outboard positions.

But the availability of belts did not equate to their use. The DOT had no authority to require that motorists wear them. Indeed, no federal authority for such a mandate existed. Along with other driver behavior matters, belt use was within the jurisdiction of the states. Initially and for two decades thereafter, the seat belt approach to crash injury control was by and large a failure; fewer than 15 per cent of motorists were routinely wearing their belts. Worse yet, motorists in crashes, especially young people, were belted at even lower rates.

How to achieve reasonably high belt use levels and resulting injury reductions became a major policy question for injury control advocates. Australia, the UK, Sweden and other countries were reporting higher levels; they had realized them by passing laws requiring belt wearing. This seemingly straightforward approach, however, appeared to be out of reach in the United States. The lack of Federal authority and the need for state legislative action to put so-called “mandatory use laws” (MULs) in place were a serious handicap. Auto makers, still resentful at being required to provide belts in the first place, declined to use their tremendous lobbying power to secure state legislation; their position was that it was “up to motorists” to decide whether belts should be used or not. This was an early example of the “consumer choice” arguments used by industries, such as the tobacco and food industry, to deflect law-based changes in potentially hazardous products and commercial practices.

With MULs apparently unachievable, approaches to increase belt wearing fell into the well-worn behavior modification patterns of “education,” principally meaning sloganeering (“Buckle up for safety”) and scare tactics (the Vince and Larry crash test spots — “You could learn a lot from a dummy!”). Along with these, efforts were directed at making belts more “comfortable and convenient” as a way to induce greater use. Ironically, the resulting “comfortable” belt designs made the systems, which were not routinely well designed in the first place, even less protective. The allegedly “comfortable” belts tended to be slack and ill-fitting; in some crashes they created rather than minimized injuries. But because use rates were so low, especially in crashes, real-world evidence of design deficiencies was limited.

For a time it appeared that belt use levels in this country would remain below 20 per cent no matter what kind of persuasive rhetoric was directed at motorists. An alternative to belts was offered by air bags — completely automatic restraint systems that required no "cooperation" by users, were deployed only when needed (at the moment of a crash), and in some circumstances could provide energy-managing protection superior to belts. Air bags alone provided good protection. So did belts alone, when worn. The protective qualities of each differed depending on crash characteristics; when both were at work in a crash, the levels of protection were even greater than either could provide independently.

A movement began among some injury control advocates, insurance companies and physicians' groups to urge Federal standards to require air bags or similar "passive restraint" systems in new cars. It was aggressively contested by the U.S. auto companies. The DOT vacillated between issuing a requirement and acceding to industry opposition. The debate went on until 1984, when the Supreme Court settled it by refusing to let the Reagan Administration withdraw a 1979 standard requiring passive restraints in future cars. In the interim, tens of thousands of crash deaths occurred that could have been prevented by the combination of air bags and seat belts.

Ironically, the Court's decision led not only to mandates for air bags in new cars, but also to the very goal that had eluded safety advocates for decades — a Federal push for MULs, *backed by the car companies themselves*. To comply with the Court's decision, the DOT issued a standard requiring passive restraints in new cars starting four years later, but added an intriguing condition: the standard would not take effect if, within two years, enough states had passed MULs so that a majority of the U.S. population was covered by such laws.

Suddenly — very suddenly — the auto industry was faced with a major dilemma. It could do nothing and let the passive restraint standard take effect, or it could scramble to use its immense lobbying power in state legislatures to advocate MULs. Within weeks it had chosen the latter course. The companies established a new entity, Traffic Safety Now, which deployed industry money and lobbying talent across the country to win adoption of the seat belt legislation formerly belittled by Detroit. The industry found itself working side by side with the safety advocates it traditionally had opposed on such issues as air bag standards and state MULs, but with very different purposes. The companies wanted to stop air bags. The advocates wanted both air bags and MULs.

And they got them. For the second time in history — the first being when they failed to stop Congress from passing the 1966 Act — the companies could not marshal enough lobbying firepower to halt injury control progress. Although state MULs were being passed, not enough were enacted by the cut-off set by the DOT. The companies were forced to accept both seat belt use mandates and the air bag standard. In the process, a major public education campaign had materialized as media coverage was focused on the state legislative hearings, arguments for and against belt use, and data on the injury-reducing effect of belt use. Downstream, enforcement of belt use laws would slowly but surely bring about motorists' compliance; without doubt it was aided by the increased public awareness of belt use benefits that had been generated by the news media's MUL coverage.

Because domestic auto industry resources had for decades been diverted away from needed R&D and invested instead in lobbying and legal campaigns to prevent air bag and belt-use requirements, the restraint systems that now became available to the public were seriously

deficient. Belts were badly engineered leftovers from the earlier “low use rate” era, when it hadn’t seemed to matter whether belts gave adequate protection because, the industry argued, very few people actually wore them. The companies’ air bag design work had been brought to a halt years earlier in the belief that there would never be a federal “passive restraint” standard; off-the-shelf systems thrown into new cars by some companies to meet the new standard were archaic and in some cases dangerous. In crashes on the roads today, occupants of older cars are still paying the price for these derelictions in needlessly frequent and severe injuries. As older cars pass down the chain of ownership, they are driven by the young and the poor, who increasingly bear the brunt of defective belt and air bag designs.

Maintaining and hopefully increasing current levels of belt use remains a challenge that requires vigorous enforcement supported by public education. A particularly tough problem persists for small children, for whom car crash injuries are the leading cause of death. State laws require that they be in child restraints while traveling in cars, but the restraints themselves are often difficult for parents to install and thus of uncertain dependability in crashes. Injury-prevention interventions that rely on active restraints will continue to present challenges to auto safety advocates.

A recent phenomenon is the emergence of “safety” as an emphasis in auto industry marketing. Major manufacturers are advertising the safety aspects of their vehicles; many of these do no more than reflect compliance with federal standards, but some — antilock brakes and self-tightening seat belts, for instance — go beyond the standards’ requirements. The promotion of product safety in industry marketing can have benefits by encouraging greater public attention to motor vehicle hazard reduction, but it can also have drawbacks by implying that it is acceptable for improved vehicle safety performance to be an option, available only to those who can afford it. From an injury control standpoint, feasible crashworthiness and other vehicle performance technologies should be standard on all cars.

Litigating Safer Vehicles

Injury-causing hazards have been the subject of product-liability litigation against various vehicle designs: defective seat belts, especially lap-only belts that can cause spinal cord and internal damage, rupture-prone (and so fire-prone) fuel tanks, rollover tendencies and weak roofs as on many SUVs, and defective seats and seat backs that collapse in rear crashes and catapult their occupants into injurious contacts with vehicle interiors, to name a few.

While “tort reform” supporters in the insurance and product-manufacturing sectors argue that the rights of injured people to sue the makers of defectively hazardous products should be curtailed, history indicates that such litigation has had a beneficial effect on injury levels by forcing the modification or removal from the marketplace of some product hazards and drawing the attention of consumers, the public-health community and regulators to others. Court cases finding against the companies for failing to provide adequate belts led to somewhat improved belt designs even before they were required by federal standards, for example. Information that the companies have been forced to divulge in discovery, when not sealed from public disclosure, has revealed the nature of previously undisclosed motor vehicle hazards and the extent to which they have been kept secret from the public.

Companies do not like to be sued, of course, nor do their insurers like to pay claims in such suits. But without litigation as a component of product hazard and injury control, it is certain that motor vehicles would be considerably more hazardous than at present. The civil justice

system, like regulation and legislation, should be encouraged to play a leading role in the control of motor vehicle crash harm.

Lessons from Auto Hazard Control and Implications for Obesity Prevention

1. Approaches to personal behavioral changes needed to reduce motor vehicle deaths and injuries have been two-fold. Traditional attempts have been directed at changing the personal behaviors of drivers; these have met with mixed success. When policy changes bring about environmental modifications that promote, require or otherwise lead to changed driver behaviors, they tend to get results. When drivers are "educated" to change their actions without the accompanying encouragement of environment-altering laws and policies, results are poor.

To the extent this may hold true for obesity control efforts, it suggests that simply instructing people to eat less and eat healthier may have little effect without meaningful changes in the food environment. That environment strongly influences consumer product-purchase and consumption (use) behaviors. In turn, it is strongly shaped by the food industry.

2. The role of law — legislation, regulation, litigation — in achieving needed highway injury-reduction goals has been central. MULs, new-car passive restraint standards, mandated recalls of unsafe vehicles, and court decisions on behalf of people injured by motor vehicle hazards are examples of the law's potential for addressing injury causation problems effectively. Public education, particularly via news coverage, has an important part to play in laying a foundation of general support and encouragement of the law's role. This is well understood by industries and other interests vested in maintaining the status quo or further weakening the power of law to protect people from injury. They control vast segments of information directed at the public through advertising, public relations, infiltration of school systems and astute news management.

So far, little in the way of legal intervention has been attempted on behalf of obesity control. Fledgling attempts at litigation against food companies have been poorly designed; although there has been discussion of broad-scale civil action along the lines of Committee on Children's Television v. General Foods, no such suit has yet been filed. Senator Tom Harkin has introduced legislation that among other things would require some controls over marketing of high-calorie, low-nutrition foods to children, but it has little chance of passage in the current congressional climate. Food companies, meanwhile, have moved to head off civil action involving health threats posed by their products; federal "can't sue" bills are pending, and some states have passed such laws. Their constitutionality remains to be tested.

3. Changing the behavior of a few companies can sometimes achieve an injury management result far greater than that of personal behavior-modification efforts. Forcing air bags and MULs into being as a matter of law over the objections of the auto industry brought about important improvements in the industry's behavior, and eventually have led to the availability of comparatively well-performing restraint systems that otherwise would not be in the highway environment.

Currently food companies are regarded as collaborators and "stakeholders" with government agencies (FTC, FDA and USDA, for example) whose authorities could bring about changes in those companies' influence over the obesity-encouraging food environment, by mandating advertising, labeling, and product changes or seeking legislative powers to issue such

mandates. Whether these "partnerships" between government and industry will bring about needed improvements remains to be seen. They should be closely watched.

4. Fortuitous and unplanned events — such as the 1966 revelations of General Motor's spying on Ralph Nader, or the 1984 Supreme Court "passive restraint" decision — can change the advocacy landscape in interesting and equally unplanned ways.

Although food industry spokespeople have taken swipes at such obesity control advocates as Yale's Kelly Brownell, Marion Nestle of "Food Politics" fame, and the Public Health Advocacy Institute and its principals, so far these have failed to reach the level established by General Motors in its attacks on Nader. Meanwhile, it is possible that, were an effective lawsuit brought against a food company for its harmful contribution to the obesity epidemic, information produced by the company in discovery might reveal damaging and previously unknown product marketing and content information. Fears of this and of whistle-blowing may account for the industry's push for "can't sue" protection.

5. Reliance on industry collaboration with health and safety advocates and on the natural forces of the marketplace has been of limited and often negative use in motor vehicle injury control efforts. Companies cannot be expected to voluntarily make safety-promoting changes in their products and practices when they are already profiting from "business as usual." The auto industry maintained that it didn't make safe-enough cars because "safety doesn't sell." Never did it admit that is had chosen not to sell safety, or even discuss it.

The food industry, while not entirely analogous to the auto industry, relies heavily on claims that it is promoting high-energy low-nutrition foods because of consumer demand. "Consumer choice" is a watchword of the industry's defensive position (See, for example, www.consumerfreedom.com). Current promises by some food companies to voluntarily modify their marketing and product-content practices in the interest of obesity reduction (Kraft Foods and McDonalds are among industry leaders who have made such claims) must be closely monitored to determine whether, after the attractive statements have been published in press releases, the promised actions actually are taken.

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