

**Statement before the
Committee on Energy
and Commerce**

U.S. House of Representatives

**Approaches to achieving
vehicle safety improvements**

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The Insurance Institute for Highway Safety is a nonprofit research and communications organization that identifies ways to reduce motor vehicle crash deaths, injuries, and property damage. I am the Institute's president, and I am here to discuss various approaches to improving vehicle safety. The first approach, beginning in the late 1960s, was to establish federal motor vehicle safety standards. Then in the 1980s, after the National Highway Traffic Safety Administration (NHTSA) began crash testing to provide consumers with comparative safety information, manufacturers responded by making improvements to get better crash test ratings. This also created a marketplace for safety, as car buyers began factoring the ratings into their purchasing decisions. More recently, automakers have responded to some well-publicized safety issues by cooperating among themselves to establish industry-wide safety standards.

Improving vehicle safety outside the federal rulemaking process

For years after the federal government began regulating motor vehicle safety, both automakers and safety advocates accepted the premise that this was the *only* way safety could be improved. The automakers believed safety wouldn't sell, and the advocates believed automakers wouldn't try to sell safety. Therefore, it had to be mandated.

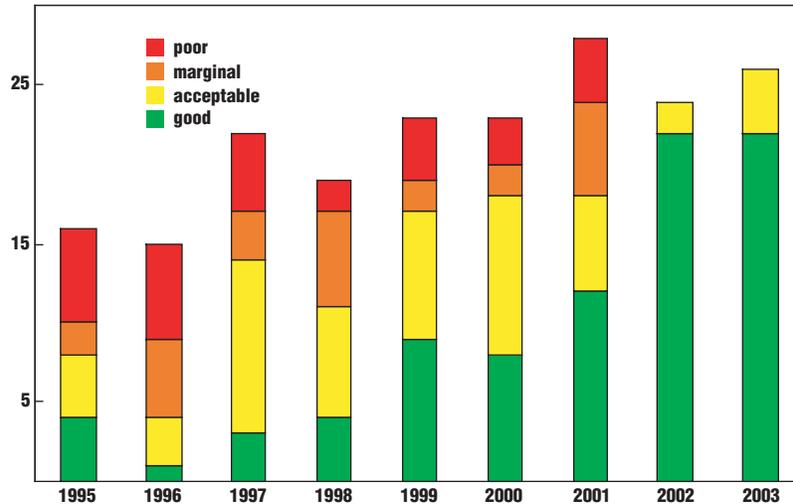
In the 1960s-70s, auto companies employed few engineers working on safety, and this wasn't a good career path because safety wasn't a high priority in designing vehicles. But times have changed, and now the industry is very different. Auto companies employ lots of safety engineers and compete to equip vehicles with the latest safety technologies. Huge international companies exist, apart from the automakers, for the sole purpose of developing and selling vehicle safety technologies. Stockholm-based Autoliv, for example, operates in 29 countries and achieves sales of more than \$4 billion annually.

Today it is clear that safety does sell, and many safety improvements have been made outside the framework of federal rulemaking. For example, side impact airbags that protect people's heads are likely to become standard in most new passenger vehicles during the next few years. Recent research indicates these airbags reduce the risk of driver death in side impacts by about 45 percent. The widespread adoption of this impressive safety technology is *not* being driven by government regulation but by consumer demand for safety.

Consumer interest in the comparative vehicle safety ratings published by NHTSA and the Institute has produced significant improvements. A good example involves the front-end crashworthiness improvements that have been introduced in response to the Institute's offset crash test program. When

we began testing cars in 1995, few of them performed well enough to earn good ratings. Most were rated marginal or poor. As consumers began paying attention to these and subsequent passenger vehicle ratings, automakers responded by improving frontal crashworthiness to provide better protection in serious frontal crashes. In 2002-03, a total of 44 of the 50 vehicles we tested were rated good, and the other 6 were acceptable. None was rated marginal or poor.

FRONTAL CRASHWORTHINESS RATINGS
 Number of vehicles tested by calendar year of release, 1995-2003



The Institute's new side impact test program already is prompting automakers to improve designs to get good ratings. In particular, plans to introduce side impact airbags with head protection have been accelerated because automakers know car buying choices will be influenced by the ratings produced by this program — and vehicles without side impact airbags will not get good ratings.

As important as marketplace competition is, it is not an appropriate or effective way to address all vehicle safety issues. An example involves the recent concerns about the harm that SUVs inflict on people in cars. So there continues to be a place for safety standards, though the standards do not necessarily have to be federally mandated. This is especially the case when a timely response is needed to a particular problem. Voluntary cooperation among auto manufacturers is another approach that recently has been used. The Institute has participated in two such initiatives, so I can offer some insights about the effectiveness of this approach. First it is important to recognize that NHTSA instigated both of the initiatives in which we recently participated — one to ensure that injury risks from inflating side impact airbags are negligible and the other to develop approaches to reducing incompatibilities

in collisions between cars and light trucks. NHTSA prompted these efforts by challenging the auto manufacturers to respond quickly to issues that were generating public concerns. This is important because such cooperative initiatives should not be viewed as attempts to “go around” NHTSA or to circumvent federal rulemaking.

Addressing potential harm from inflating side impact airbags: In the wake of injuries and deaths to out-of-position occupants from inflating frontal airbags, then-NHTSA Administrator Ricardo Martinez challenged automakers in December 1998 to develop test procedures to ensure that the side impact airbags then being introduced would not have similar harmful side effects. The automakers asked Institute chief operating officer Adrian Lund to lead this collaborative effort, which included representatives of auto companies, restraint suppliers, government agencies, and safety research groups.

One year later the working group completed the primary phase of its work and presented test protocols for assessing out-of-position occupant injury risk, especially to children, from side impact airbags. All automakers now are designing side airbags to meet the voluntary standards established by the working group. The success of this collaborative effort is underscored by the fact that, while more and more vehicles are being equipped with side impact airbags, there have been no reports that they have caused serious injuries when they have inflated. And now that the automakers are testing their airbag designs using these protocols, NHTSA is taking a more active role by conducting its own tests to measure compliance. The agency also is providing consumer information about the agreements and which vehicles comply.

Addressing vehicle incompatibilities in crashes: In February 2003 major automakers responded to a challenge from NHTSA Administrator Jeffrey Runge to address problems caused by the design attributes of light trucks that can increase the risks for car occupants with whom the light trucks collide. The Institute and the Alliance of Automobile Manufacturers are leading this effort. To begin the process, experts from around the world presented the latest research on crash compatibility at a technical meeting convened in Washington, D.C. Then two groups of engineers and other technical experts from car companies and safety organizations began meeting on a weekly basis, one group addressing incompatibility in front-to-side impacts and the other addressing front-to-front crashes. Within a matter of months, the working groups had completed the first phase of their work, and all of the major automakers have agreed to adopt the performance and design requirements developed by these two groups.

The requirements addressing front-to-side crashes will improve occupant head protection in such collisions. In effect, by September 2009 auto manufacturers will have to equip their vehicles with side impact airbags that protect the head. To address incompatibility in front-to-front crashes, participating automakers agreed that by September 2009 all of their new pickups and SUVs will have front-end energy-absorbing structures that overlap the federally mandated bumper zone for cars. This is a necessary first step toward reducing the chances of override and underride, thus enhancing the ability of the front ends of both vehicles to absorb crash energy and keep damage away from the occupant compartments. In effect, this particular agreement sets geometric design restrictions for the front ends of SUVs and pickups — something that would be harder and more complicated to achieve through the NHTSA rulemaking process because federal motor vehicle safety standards must specify performance, not design, requirements.

This is not the end of the collaborative effort. In fact, it is more like the beginning. The next phase calls for research that should lead to additional performance requirements addressing front-to-front crash compatibility. A series of barrier and vehicle-to-vehicle crash tests will be conducted to develop procedures to measure the distribution of crash forces across vehicles' front ends. This should lead, in turn, to requirements that will match front-end forces in head-on crashes between cars and light trucks. Similarly, research planned for side impacts is expected to lead to performance criteria for body regions in addition to the head as well as evaluations of advanced dummies for use in side impact testing.

It should not be assumed that achieving these kinds of voluntary standards is an easy process. Virtually every major automaker participated in the compatibility meetings, and there were frequent disagreements. Exchanges sometimes became contentious as we negotiated our way through the collaborative process. To achieve consensus we met frequently, conducted teleconferences, debated myriad options, and revisited thorny issues again and again.

We at the Institute signed on to this process knowing our credibility would be at stake if the outcomes of the collaboration turned out to be standards reflecting the lowest common denominators. So we were committed to making sure the process led to important safety improvements. I believe such improvements will happen, especially as the research phases of this initiative progress and we develop new knowledge about countermeasures to reduce crash incompatibilities.

Establishing rulemaking priorities

Even though we can achieve improvements on a voluntary basis, federal rulemaking remains indispensable to establish a broad range of *minimum* levels of safety for all vehicles. A question is, who should establish NHTSA's rulemaking priorities? Should it be Congress with help from safety advocates? Or should the agency set its own priorities? Ideally NHTSA should have both the commitment and the technical expertise to set priorities and complete the rulemaking process by issuing standards. But history is mixed in this regard. Few NHTSA administrators have been knowledgeable about highway safety when they were appointed, so lags to accommodate learning frequently have slowed the agency's progress. Plus the political leadership sometimes has been ideologically opposed to rulemaking, which has further slowed progress toward vehicle safety improvements.

A good example involves the rule for side impact protection. Federal Motor Vehicle Safety Standard (FMVSS) 214, first issued in 1970, was an adaptation of internal General Motors requirements for beams in car doors to resist intrusion. Somewhat later NHTSA conducted extensive research aimed at upgrading the standard to include crash testing with instrumented dummies. This research increased knowledge about vehicle performance in side impacts, but largely for political reasons NHTSA was not pursuing many new rules during the 1980s. Upgrading side impact requirements was put on hold. In November 1989 the newly appointed administrator, Jerry Curry, responded to what was by then strong political pressure to move forward with an upgrade, and he committed to do so early in his tenure. An upgraded rule was issued within a year of his arrival at NHTSA. Because of continuing technical controversy about the adequacy of the new side impact test dummy, Curry acknowledged when he issued the rule in October 1990 that it was not perfect. But adding that waiting for a perfect rule would only delay the timely establishment of a good rule, he said he expected the agency to pursue further upgrades as new research became available. Fourteen years later, NHTSA finally is close to proposing an upgrade to FMVSS 214 that will, in effect, require head protection. In the meantime, the Institute's side impact crashworthiness program and the voluntary agreement on front-to-side compatibility already are accelerating the installation of side airbags that protect people's heads. By the time any FMVSS 214 revisions can take effect, virtually all cars will afford such protection. So in this case marketplace demands and voluntary standards have superceded agency action.

As this example indicates, the rulemaking process has not always proceeded as expeditiously as it should. Sometimes this is because the agency's leadership has failed, and sometimes it is because Congress has changed the agency's own priorities. I believe NHTSA's present administrator, Jeff

Runge, is competent, knowledgeable, and committed. Therefore, I believe extensive Congressional dictates for new rulemaking are not needed. Any dictates should be confined to issues that have been outstanding for a long time. And even then, Congress should ensure that what it legislates NHTSA to undertake is feasible and based on sound science and adequate data.

One longstanding issue is roof strength. The relevant standard (FMVSS 216) is essentially unchanged since it was issued in 1971, even though various groups have been advocating an upgrade for a long time. In response, this committee is considering legislation that would instruct NHTSA to consider setting new roof strength standards “based on dynamic tests that realistically duplicate the actual forces transmitted to a passenger motor vehicle during an on-roof rollover crash” and to consider requiring safety technologies and design improvements that would help to protect people in such crashes.

The Institute supports efforts to reduce the approximately 10,000 deaths and 20,000 serious injuries that occur each year in rollover crashes. But in the context of vehicle design changes intended to reduce this toll, it is important to remember that about 70 percent of the 10,000 annual deaths in rollovers involve unbelted occupants. The precise contribution of vehicle roof strength to the deaths and injuries in rollovers is not fully understood, in part because FMVSS 216 (like all federal safety standards) specifies minimum performance levels and many automakers are designing their vehicles so that the strengths of their roofs significantly exceed the federally mandated minimum. Plus the Institute’s front and side crash test programs are producing stronger roofs on some vehicles. For example, the roof of the 2004 model Ford F-150 pickup truck is likely to be stronger than the roof on the 2001 model. This is because the current model’s occupant compartment was strengthened to improve the pickup truck’s performance in the Institute’s 40 mph frontal offset crash test.



2001 FORD F-150 PICKUP
Major collapse of the occupant compartment and roof deformation occurred in the Institute’s 40 mph frontal offset crash test.



2004 FORD F-150 PICKUP
Occupant compartment and roof remain intact in the Institute’s 40 mph frontal offset crash test.

What this means is that we do not know how strong the roofs are in the current vehicle fleet. Because we do not know how strong roofs are today, relative to the existing standard, it is difficult to estimate the benefits of a new standard. Another issue involves the relationship between roof strength and real-world crash outcomes. As NHTSA has noted, “vehicles that perform well in roof crush tests do not appear to better protect occupants from more severe roof intrusion in real-world crashes.” Yet another issue involves the difficulty in making dynamic tests sufficiently repeatable for them to be feasible as part of a federal standard. These issues must be resolved before NHTSA can issue a rule requiring dynamic tests. So even though upgrading FMVSS 216 may be long overdue, Congress should not mandate a timetable or an outcome (for example, a dynamic test) that precludes NHTSA from conducting the research that is needed to produce a sound rule.

Conclusion: voluntary and regulatory approaches complement each other

Vehicle safety is being improved through regulation, consumer information, and voluntary standards. This mix should mean that important safety improvements will be achieved much faster than when we relied *solely* on the slow and deliberative regulatory process. Federal standards set minimum levels of safety, but in some areas the manufacturers are designing their vehicles substantially beyond these minimums to earn good ratings in consumer crash test programs. Not every vehicle safety issue can be addressed this way, of course. For example, it is hard to imagine consumers demanding vehicles that are less aggressive, or harmful, to people in other vehicles. So another alternative is needed, especially when changes need to be made quickly. Then the best approach may be for automakers to collaborate to set voluntary safety standards. The main reason the Institute has signed on to collaborative approaches is that sometimes they can offer a faster track toward improvements than federal rulemaking would allow.

Voluntary approaches do not replace rulemaking, which is and will continue to be a crucial NHTSA function. While the agency need not address every issue with a standard, it should have in place a long-term program to review and upgrade (or in some cases to eliminate) its rules. If the agency stays on such a course, there should be no need for Congressional dictates on rulemaking.

What is important to recognize is the range of options available today to achieve vehicle safety improvements. The wisest course is to proceed on a case-by-case basis, making full use of the most advantageous approach in any given situation.