

STATUS REPORT

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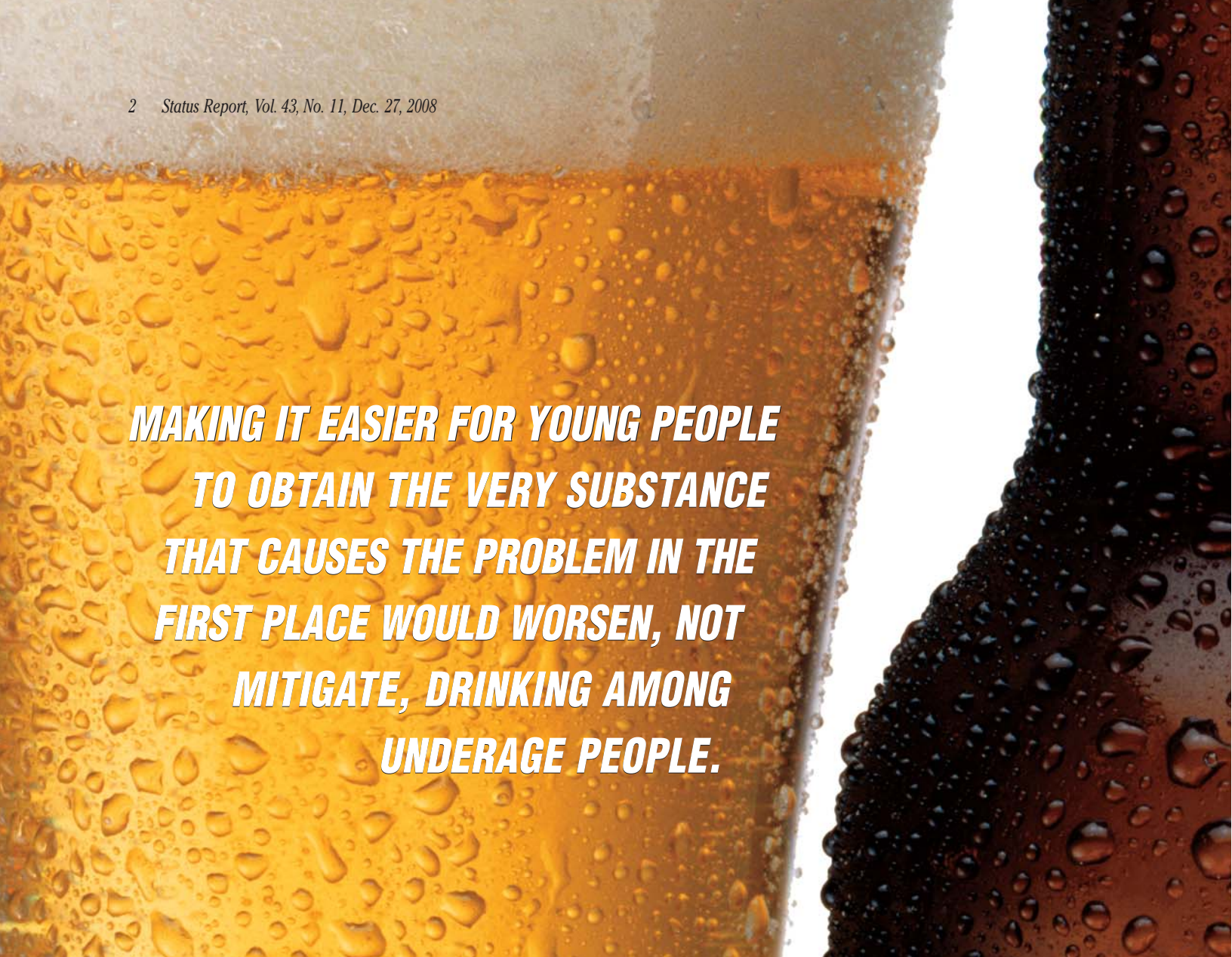
Sometimes research findings are mixed, so they can be, and often are, used to support competing policy positions.

But sometimes research findings are so

CRYSTAL CLEAR

that there's not much room for dis-sension. This is true when it comes to the minimum age for legally purchasing alcohol, often referred to as the drinking age. Study after study published in scientific journals since the 1970s indicates that when this age is lowered, more people die in crashes. When it's raised, the





***MAKING IT EASIER FOR YOUNG PEOPLE
TO OBTAIN THE VERY SUBSTANCE
THAT CAUSES THE PROBLEM IN THE
FIRST PLACE WOULD WORSEN, NOT
MITIGATE, DRINKING AMONG
UNDERAGE PEOPLE.***

STATE POLICIES SINCE THE 1960s

There never has been a federal law establishing a minimum age for purchasing alcohol in all US states. Each state sets its own policy on the legal age to drink and, once prohibition ended in 1933, most states adopted 21 and kept this policy until the 1960s. Then the war in Vietnam, where many US soldiers were younger than 21, became an impetus to lower the drinking age. So did the enactment in 1971 of the 26th Amendment, which lowered the voting age to 18. For a decade beginning in the late 1960s, legislators in most states lowered the drinking age. Then this policy was reversed during 1978-88.

1969: Maine and Nebraska lower the drinking age to 20

1975: 38 states allow 18-20 year-olds to legally buy alcohol

1978: Michigan reinstates 21

1980-84: 9 states adopt 21

1984: Congress enacts Uniform Drinking Age Act, penalizing states that don't adopt 21

1985-86: 21 states adopt 21

1987: 5 states adopt 21


1988: Last 2 states, South Dakota and Wyoming, adopt 21

Since 1988 all states have retained 21 drinking age policies. However, these policies have been challenged in recent years by legislators in some states and by coalitions such as Choose Responsibility and the Amethyst Initiative (see facing page).

deaths go down. These are the conclusions of a new review by Institute researchers.

Similar reviews have been conducted by the Centers for Disease Control and Prevention, National Academy of Sciences, and others. The reviewed studies aren't confined to the United States. They cover various age groups over various periods of time, with remarkably consistent results.

"The public health benefits of a 21 drinking age are as clear as they possibly can be. People younger than 21 do still drink and then get behind the wheel, but fewer are doing this and we'd worsen the problem, not alleviate it, if we lower the age and make it easier for young people to obtain the very substance that's causing the problem in the first place," says Anne McCartt, Institute senior vice president for research and the review's lead author.



Underage drinking: The studies McCartt collected cover the effects of drinking age policies on patterns of behavior including not only drinking and driving but also alcohol consumption, relying in large part on a University of Michigan survey that has been tracking consumption among high school students and young adults since the 1970s. Drinking by people in these age groups has declined since the late 1970s, and most of the decline occurred by the early 1990s. These were the years when states were establishing, or reinstating, 21 drinking ages (see facing page).

Binge drinking, defined as consuming at least 5 drinks on 1 occasion, peaked in the early 1980s among 18-20 year-olds and then began declining as most states adopted 21 policies. Similar declines weren't noted among 21-22 year-olds, who weren't affected by the policy changes.

High school seniors in states that still had drinking ages of 18 in 1976-81 said they drank more than peers in states that already had adopted 21. All states adopted 21 by 1988.

Researchers concluded that drinking age policies were significant predictors of alcohol consumption. This is timely in light of the Amethyst Initiative (see accompanying story), which flatly states that "[t]wenty-one is not working" and wants to rethink it in light of the "culture of binge drinking." The University of Michigan survey results indicate otherwise, suggesting that 21 policies reduce alcohol consumption.

Drinking and driving: National roadside breath surveys of nighttime drivers on weekends reveal a 74 percent decline in driving with blood alcohol concentrations (BACs) of 0.05 percent or more among people younger than 21 during 1973-96. This is a much bigger decline than in older age groups, which weren't affected when drinking age laws were changed during the 1970-80s.

Crash deaths: The major benefit of raising the drinking age has been to prevent deaths in motor vehicle crashes. Among fatally injured drivers 16-20 years old, the percentage with positive BACs declined from 61 in 1982 to 31 in 1995. This was a bigger decline than in older age groups.

Even more persuasive evidence of the benefits of 21 is supplied by studies designed specifically to gauge the effects of drinking age changes among states. For example, a 1975 Institute study showed that (*continues on p.6*)

PUSH TO LOWER DRINKING AGE IGNORES 30 YEARS OF RESEARCH

If it's crystal clear that retaining 21 as the minimum drinking age in US states reduces crashes and prevents deaths (see p.1), who's disagreeing? A grass-roots group calling itself Choose Responsibility, for one. Organized in 2007 by John M. McCardell Jr., former president of Middlebury College, this group favors rolling back the drinking age to 18, saying we need "a fresh approach" because 21 has pushed college drinking underground and encouraged students to binge. McCardell also inspired the Amethyst Initiative, a coalition of chancellors and presidents of US colleges and universities that wants to rethink 21.

McCardell asserts that proponents of 21 "cannot offer a cause and effect relationship" between this policy and its benefits, but this assertion ignores 30 years of research. It also sells short efforts to reduce underage drinking by vigorous enforcement of 21 policies. In one example, Marshall University and the city of Huntington, W.Va., showed they could reduce underage alcohol purchases and curb alcohol-impaired driving among both teens and young adults (see *Status Report*, July 24, 2008; on the web at ihs.org).

McCardell's "fresh approach" would replace the 21 drinking age with teen education about responsible alcohol use. There's no evidence that education would be effective and plenty of experience with teen driver education that warns this approach could backfire. Although millions of teens take driver education, research shows it doesn't reduce their crashes. In fact, it increases them. This increase is an unintended consequence of education encouraging earlier licensure — more than offsetting any improvement in driving skill.

Driver education isn't without benefits. It can help people learn driving skills and understand traffic laws, but it isn't an effective public health strategy because it doesn't reduce crashes (see *Status Report*, May 19, 2001; on the web at ihs.org). In the same way, we can expect drinking education to give us teenagers who know more about alcohol and laws about drinking and driving — and who also drink more so they get behind the wheel more often after consuming alcohol.

From a presentation in 2007 by Institute president Adrian Lund at "Protecting teens from the dangers of alcohol use and abuse: wishful thinking versus science" convened by MADD, the American Medical Association, and the Institute.

OLDER DRIVERS' FATAL CRASHES TREND DOWN

Despite growing numbers on the road, fewer older drivers died in crashes and fewer were involved in fatal collisions during 1997-2006 than in years past, a new Institute study finds. Crash deaths among drivers 70 and older fell 21 percent during the period, reversing an upward trend, even as the population of people 70 and older rose 10 percent. Compared with drivers ages 35-54, older drivers experienced much bigger declines in fatal crash involvements. Reasons for the fatality declines aren't clear, but another new Institute study indicates that older adults increasingly self-limit driving as they age and develop physical and cognitive impairments.

Compared with drivers ages 20-69, fewer people 70 and older are licensed to drive, and they drive fewer miles per licensed driver. However, older people now hang onto their licenses longer, drive more miles, and make up a bigger proportion of the population than in past years as baby boomers age. There were more than 20 million licensed drivers 70 and older in 2006, compared with just under 18 million in 1997. The total annual miles these older drivers traveled climbed 29 percent from 1995 to 2001, compared with a 6 percent rise among drivers 35-54 years old. Per mile traveled, crash rates and fatal crash rates increase starting at age 70 and rise markedly after age 80.

These trends have raised concerns about older drivers in fatal crashes. Their fragility makes them vulnerable to getting hurt in a crash and then to dying from their injuries (see *Status Report*, March 15, 2003; on the web at iihs.org). Physical, cognitive, and visual declines associated with aging may lead to increased crash risk.

Fatal crash involvements decline: Earlier research predicted that older drivers would make up a substantially larger proportion of drivers in fatal crashes, so "the findings are a welcome surprise," says Anne McCartt, Institute senior vice president for research and an author of the new studies.

"No matter how we looked at the fatal crash data for this age group — whether by miles driven, licensed drivers, or population — the fatal crash involvement rates for drivers 70 and older declined, and did so at a faster pace than the rates for drivers 35-54 years old."

Declines per licensed driver increased with age so that drivers 80 and older had the most dramatic decreases. If the fatal crash involvement rates for older drivers had mirrored the trend for younger ones from 1997 to 2006, nearly 7,000 additional older drivers would have been in fatal crashes (1,376 drivers 70-74 years old, 1,680 drivers 75-79, and 3,935 drivers 80 and older). Fatal crash rates fell among older drivers for most types of crashes, and the decline was dramatic for crashes at intersections.

"The large drop in intersection crashes is especially important because Institute and other studies have shown that older drivers are overrepresented in multiple-vehicle crashes at intersections," McCartt says (see *Status Report*, March 19, 2007; on the web at iihs.org). "The data don't allow us to point to any one reason why older drivers' fatal

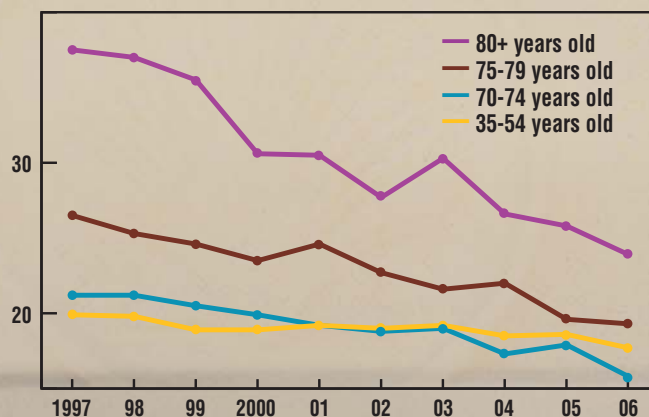
crash experience has improved. Some drivers may have benefited from newer and safer vehicles, and older people generally are more fit than in years past, with better access to health care."

Older drivers are mostly a danger to themselves. Seventy-five percent of people who die in crashes involving older drivers are these drivers themselves or their older passengers.

Drivers limit car trips: One way some older drivers lower their crash risk is to limit driving. A separate ongoing Institute study is examining how older adults restrict their driving in response to declines in their health, mobility, vision, and memory. Researchers recruited drivers 65 and older in 3 states as they renewed their licenses between November 2006 and December 2007. In the first of several planned interviews, more than 9 in 10 of these drivers said that driving themselves



FATAL CRASH INVOLVEMENTS PER 100,000 LICENSED DRIVERS, BY DRIVER AGE, 1997-2006



is their primary way to travel. Fewer than 1 percent said they'd been advised by family, friends, or a doctor to give up driving.

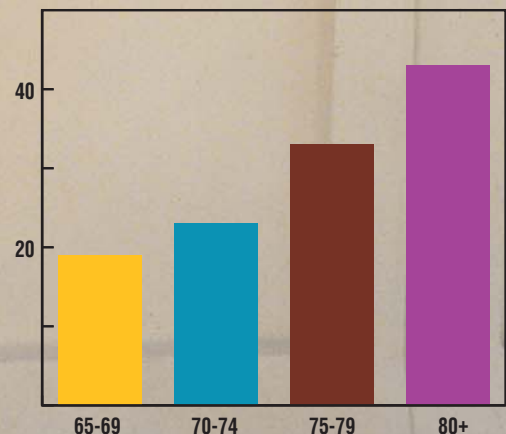
Most drivers reported at least some impairment, and the extent of impairment increased with age. For example, 26 percent of drivers 65-69 years old reported having at least some type of mobility issue, compared with 43 percent of drivers 80 and older. The oldest drivers were more likely to say they restrict their own driving. Those 80 and older were more than twice as likely as 65-69 year-olds to self-limit driving by doing such things as avoiding night driving, making fewer trips, traveling shorter distances, and avoiding interstate highways and roads that are icy or snowy.

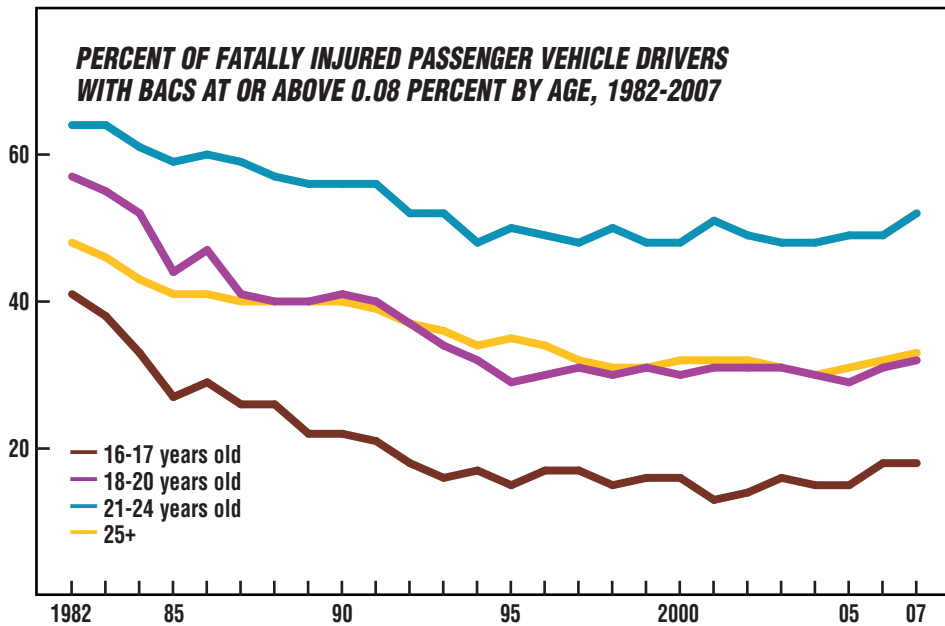
The percentage of drivers who said they limit their driving increased with each added degree of impairment. Drivers cited memory and medical impairments more often than vision or mobility ones. For example, among drivers 80 and older, 74 percent reported medical conditions such as diabetes or arthritis. Sixty-nine percent cited some memory impairment, such as more often forgetting names and appointments or misplacing items, compared with 5 years ago.

For a copy of "Exploring the declines in older driver fatal crash involvement" by I. Cheung et al. and "Characteristics of older drivers who self-limit their driving" by K. Braitman and A. McCart, write Publications, Insurance Institute for Highway Safety, 1005 N. Glebe Rd., Arlington, VA 22201, or email publications@iihs.org.



PERCENT OF DRIVERS WHO SAY THEY LIMIT THEIR DRIVING, BY DRIVER AGE





when the ages went up. The effects were consistent during follow-up time periods ranging from 7 months to 9 years.

More evidence comes from a review of 57 studies by University of Minnesota researchers. This review, published in 2002, found older drinking ages associated with lower crash rates.

“It’s crystal clear,” McCartt says. “Lowering the drinking age costs lives. Raising it saves lives. Too many scientific studies with too many consistent findings have been published to conclude otherwise.”

The National Highway Traffic Safety Administration agrees, reporting earlier this year that adopting 21 policies in every state has saved more than 26,000 lives since the mid-1970s, including 4,441 lives during the

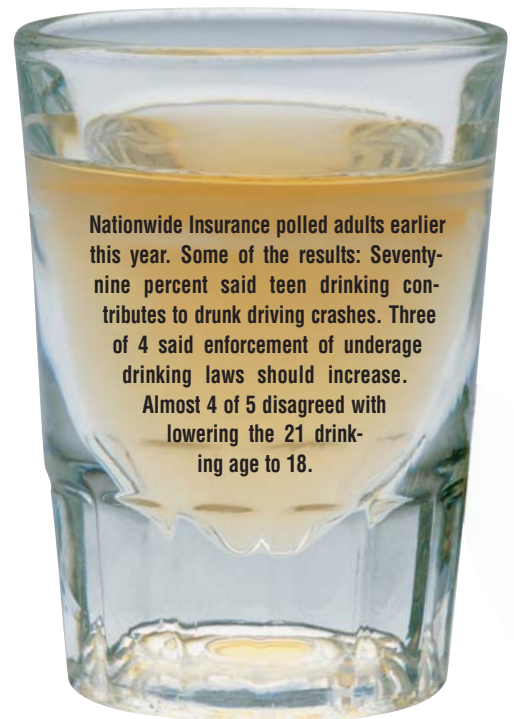
FATAL CRASHES INVOLVING DRIVERS WITH BACS AT OR ABOVE 0.08 PERCENT FELL SHARPLY DURING THE 1980S. THE DECLINE WAS MUCH LARGER FOR DRIVERS YOUNGER THAN 21, THE GROUP MOST AFFECTED BY 21 DRINKING AGE LAWS. THE NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION SAYS THESE LAWS HAVE SAVED ALMOST 900 LIVES PER YEAR DURING EACH OF THE PAST 5 YEARS AMONG PEOPLE OF ALL AGES.

(continued from p.3) lowering the drinking age to 18 in 2 US states and a Canadian province increased fatal crashes among drivers younger than 21, compared with adjacent states where drinking ages weren’t changed.

Conversely, studies published by the Institute and others in 1983 found reductions in crashes among young drivers who were affected by states’ reinstatement of 21. A wealth of studies since then confirms the lifesaving benefits of 21 as the minimum drinking age.

For example, in 1999 New Zealand lowered the drinking age from 20 to 18. A study published during 2006 reported that crash injury rates among 18-19 year-old boys were 12 percent higher than expected after the policy change, based on comparisons with 20-24 year-olds. The relative increase was even larger for 18-19 year-old girls, at 51 percent, and higher injury rates also were observed for 15-17 year-olds.

Reviews yield consistent findings: Besides the Institute’s new review of drinking age studies, there’s a 2001 report from the Centers for Disease Control and Prevention that collected the findings of 33 studies and reported 10 to 16 percent changes in outcomes for drivers 18-20 years old in crashes involving alcohol. Crashes increased when drinking ages were lowered and declined



past 5 years. This finding is based on studies that found an average reduction of 13 percent in fatal crashes involving drivers 18-20 years old when drinking ages were raised.

For a copy of “Effects of 21 minimum legal drinking age laws on alcohol-related driving in the United States” by A.T. McCartt et al., write: Publications, Insurance Institute for Highway Safety, 1005 N. Glebe Rd., Arlington VA 22201, or email publications@iihs.org.

STOP AHEAD ROAD MARKINGS REDUCE CRASHES

Pavement markings that alert approaching drivers to stop signs at intersections reduce crashes and are inexpensive to install, says a recent report from the Federal Highway Administration. "STOP AHEAD" wording on roadways reduces crashes by at least 15 percent at intersections.

The agency evaluated use of the markings at intersections in Maryland, Arkansas, and Minnesota. The number of crashes declined when markers were installed. These indicators were more effective at 3-legged intersections, where crashes went down 60 percent, than at 4-legged ones (down 23 percent). Intersections with all-way stops showed a 56 percent crash reduction, 4 times greater than at intersections with 1- or 2-way stops. The all-way stop intersections also showed a 42 percent decrease in injury crashes, 5 times greater than at 1- and 2-way intersections.

Even though intersections account for a small portion of the highway system, in 2007 there were about 2.4 million intersection-related crashes, representing 41 percent of all police-reported crashes. Stop signs are the primary form of traffic control at US intersections. Most intersections without signals are on roads with low to moderate volume in rural and suburban areas that generally have higher-speed travel and less complicated traffic patterns than those in more developed areas. Approaching drivers may not expect or see stop signs at such intersections. In 2007, there were 561,000 police-reported crashes at intersections with stop signs, and about 2,800 of them were fatal.

The Federal Highway Administration estimates it costs \$55,060 per crash at intersections without traffic lights. This includes medical expenses, emergency services, property damage, and lost productivity. The agency adds that STOP AHEAD is well worth the cost of about \$78 to \$366 per approach. For a copy of "Safety evaluation of STOP AHEAD pavement markings" go to www.tfhrc.gov/safety.



**TOYOTA
MATRIX RATES
GOOD IN SIDE TEST**



**CHRYSLER
PT CRUISER
RATES POOR**

NEW SMALL CAR CRASH TEST RATINGS

Most new small cars now earn good ratings in frontal crash tests but not when it comes to side and rear crashes. The Institute recently completed front, side, and rear tests of seven 2009 model small cars: Chevrolet HHR, Chrysler PT Cruiser, Ford Focus, Hyundai Elantra, Saturn Astra, Suzuki SX4, and Toyota Matrix. All earn the highest rating of good for occupant protection in frontal crashes. Only the SX4 and Matrix and its twin Pontiac Vibe also earn good ratings for protection in side crashes. Among seat/head restraints evaluated, only those in the Focus earn a good rating for protection in rear impacts. The Institute also tested the Mini Cooper, a minicar that earns good ratings for front and rear crashworthiness but not for side protection. Go to iihs.org for the complete ratings.

Eleven of the 21 current small car models the Institute has rated earn good ratings for side protection. "This is a huge improvement from our last comprehensive round of small car crashworthiness evaluations in 2006," says Institute senior vice president Joe Nolan. "Then, only 3 of the 19 tested earned a good rating in the side evaluation. Most earned a poor rating."

Small cars have grown especially popular as gasoline prices fluctuate and consumers become more conservation-minded. Nolan cautions that even though current models do a better job of protecting people in front, side, and rear crashes than earlier ones, small cars inherently afford less crash protection than bigger, heavier vehicles.

The Chrysler PT Cruiser is the only small car in the recent test series to earn poor marks in both side and rear evaluations. In the side test, measures recorded on the driver dummy indicate that in a real-world crash of similar severity, rib fractures and internal organ injuries would be likely, along with a possible pelvic fracture. The rear passenger dummy's head contacted the C-pillar during the test because this car doesn't have rear-seat side airbags. Measures recorded on the dummy indicate that serious neck injuries and a fractured pelvis would be possible in a crash of this severity. The PT Cruiser's seat/head restraints are the only ones the Institute tested this time around that earn the lowest rating of poor for occupant protection in rear crashes.

"The PT Cruiser doesn't offer the same level of crash protection as other small cars," Nolan says. "For consumers who want to drive a small car, there are many good alternatives to the PT Cruiser, including the six *TOP SAFETY PICK* winners the Institute announced last month. There are lots of good choices, too, among midsize and large cars."

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