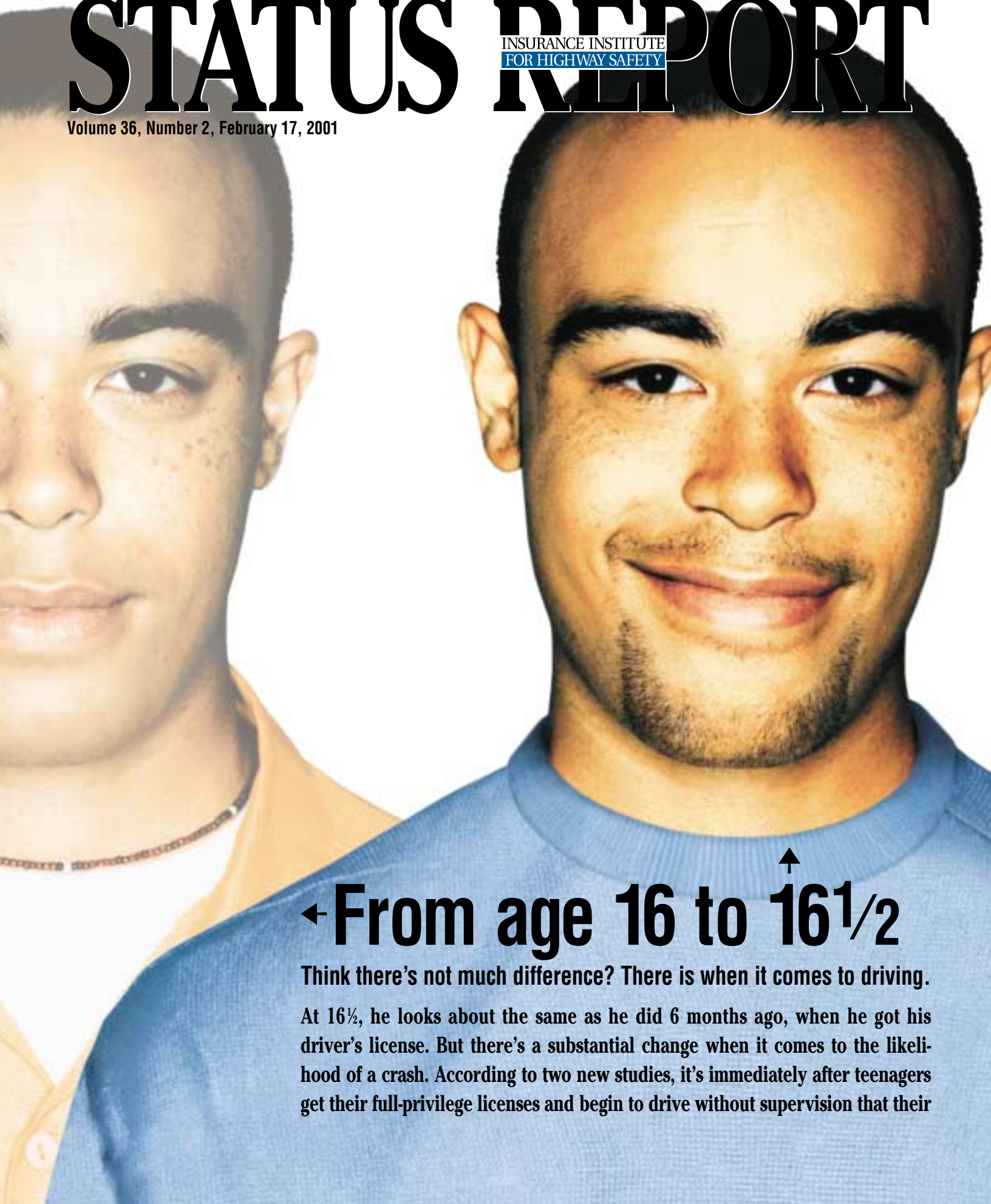


STATUS REPORT

INSURANCE INSTITUTE
FOR HIGHWAY SAFETY

Volume 36, Number 2, February 17, 2001



← From age 16 to 16¹/₂

Think there's not much difference? There is when it comes to driving.

At 16½, he looks about the same as he did 6 months ago, when he got his driver's license. But there's a substantial change when it comes to the likelihood of a crash. According to two new studies, it's immediately after teenagers get their full-privilege licenses and begin to drive without supervision that their

crash rates are highest. Then the rates go down during subsequent months so that, by the time beginners have been driving unsupervised for 6 months, their crash rates are 40 percent lower than when they first got their licenses. This is the main finding of a new study conducted in Nova Scotia.

It's not that 16½ is a magic age. It's that getting a few months of experience behind the wheel helps a lot. Then the decline in crash risk continues more gradually over the next year and a half.

Supervised drivers have few crashes:

The big problem isn't among the least experienced drivers on the road, those with learner's permits. Other drivers may give them a wide berth, but learning drivers who are supervised by licensed adults have very few crashes. It's when the beginners start to drive unsupervised that crash rates go up.

"The low-risk learner's period followed by a spike in crash rates when drivers first get licenses indicates the need for a graduated system," says Dan Mayhew of Canada's Traffic Injury Research Foundation, lead author of the Nova Scotia study. He's referring to the graduated licensing systems for young beginning drivers that are being adopted in the United States and Canada.

"There's a powerful argument for extending the period of supervision and then phasing in full driving privileges, keeping new license holders out of the highest risk driving situations." This is what graduated licensing does by extending the process of earning full privileges.

U.S. study shows first month is worst:

For another study conducted in the United States, researchers looked at the crash rates of young drivers in relation to the number of months and miles driven since licensure. They found that the risk of a crash during the first month of licensure is substantially higher than during any of the next 11 months. The likelihood of a citation also is higher during the first month than in any month the rest of the year.

When viewed as a function of cumulative miles driven, the risk *(continues on p.6)*

Young drivers' crash rates decline sharply under graduated licensing in 3 states

States that adopted graduated licensing during the 1990s have realized large crash

reductions among the newest drivers. This is the finding of preliminary research conducted for the National Highway Traffic Safety Administration in three states.

lan Williams. He points out that state graduated licensing programs include a range of restrictions, and crash reductions depend on how comprehensive the restrictions are. A model graduated licensing law should include three distinct stages — a supervised learner's period, an intermediate license that permits some unsupervised driving in circumstances when the risk is



reductions among the newest drivers. This is the finding of preliminary research conducted for the National Highway Traffic Safety Administration in three states.

Crashes involving 16-year-old drivers in North Carolina dropped 26 percent. The decline in Michigan was 31 percent, while 16 year-olds in Kentucky experienced a 32 percent reduction in crashes.

These results follow earlier Institute findings of an 11 percent reduction in crashes among 16 year-olds during the first year of Florida's graduated licensing law (see *Status Report*, Feb. 6, 1999; on the web at www.highwaysafety.org).

"The crash reductions we're seeing are impressive," says Institute chief scientist Al-

lan Williams. He points out that state graduated licensing programs include a range of restrictions, and crash reductions depend on how comprehensive the restrictions are. A model graduated licensing law should include three distinct stages — a supervised learner's period, an intermediate license that permits some unsupervised driving in circumstances when the risk is

Night crashes drop in North Carolina:

A graduated licensing program with distinct learner and intermediate stages was adopted in 1997. During the intermediate stage, beginners cannot drive unsupervised from 9 p.m. to 5 a.m. The importance of this is clear from the results of the new research — crashes involving 16 year-olds declined 47 percent during the restricted nighttime hours compared with 22 percent during the day. Most parents and teens across the state approve of this and other restrictions (see facing page).

Michigan's restriction begins later:

This state's graduated licensing program, adopted in 1997, includes all three stages. To reach the second (intermediate) stage, a learner must hold a permit for at least 6 months and have parental certification that 50 hours of supervised driving have been completed (10 of the 50 hours at night). The intermediate stage includes a nighttime driving restriction but, unlike North Carolina's 9 p.m. start, Michigan's restriction begins at midnight. Research indicates that the majority of teenagers' nighttime crashes occur before midnight.

Approach in Kentucky is different: A teen must be 16 to get a learner's permit, which then must be held for at least 6 months. This effectively raises the minimum licensing age to 16½, but once beginners get past the learner's stage there's no intermediate stage nor any further restriction on young drivers once they're licensed.

Among drivers ages 16 to 16½, crashes dropped 83 percent compared with before graduated licensing was adopted. But among drivers ages 16½ to 17, there was a 3 percent increase in crashes. The researchers say "these results support a need for extending restrictions and requirements for teen drivers who have completed the permit stage in order to increase the learning experience, reduce risk exposure, improve driving skills, and increase motivation for safe driving."

These findings are from three new research reports: "An Evaluation of Michigan's Graduated Driver Licensing Program" from the University of Michigan Transportation Research Institute (contact Jean Shope at 734/763-2466); "Preliminary Evaluation of the North Carolina Graduated Driver Licensing System: Effects on Young Driver Crashes" from the University of North Carolina Highway Safety Research Center (go to www.hsrb.unc.edu); and "Impact of the Graduated Driver License Program in Kentucky on Teen Motor Vehicle Crashes" from the Kentucky Transportation Center and Kentucky Injury and Prevention Research Center (contact Kenneth Agent at 859/257-4513).

Rural vs. urban

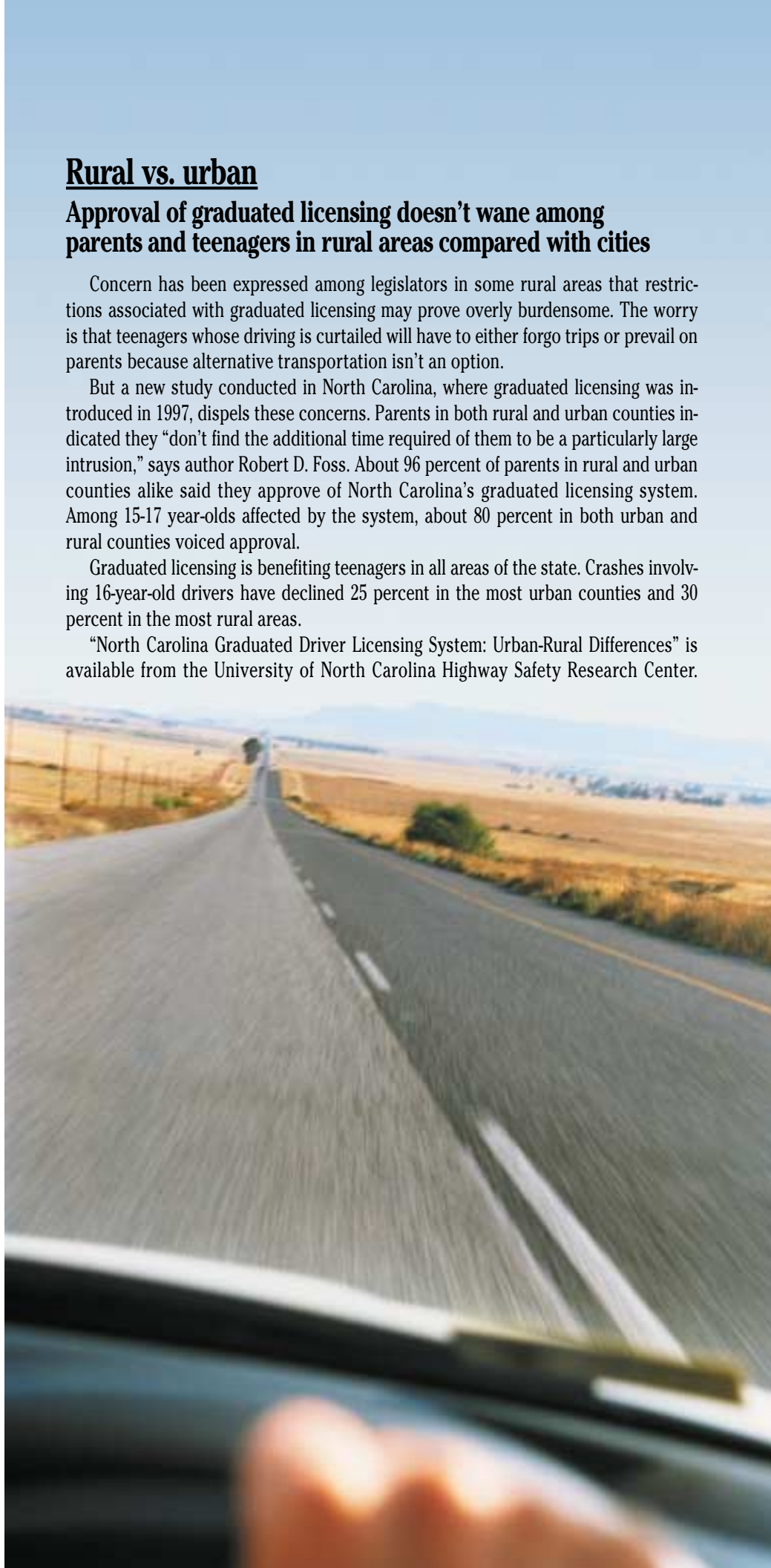
Approval of graduated licensing doesn't wane among parents and teenagers in rural areas compared with cities

Concern has been expressed among legislators in some rural areas that restrictions associated with graduated licensing may prove overly burdensome. The worry is that teenagers whose driving is curtailed will have to either forgo trips or prevail on parents because alternative transportation isn't an option.

But a new study conducted in North Carolina, where graduated licensing was introduced in 1997, dispels these concerns. Parents in both rural and urban counties indicated they "don't find the additional time required of them to be a particularly large intrusion," says author Robert D. Foss. About 96 percent of parents in rural and urban counties alike said they approve of North Carolina's graduated licensing system. Among 15-17 year-olds affected by the system, about 80 percent in both urban and rural counties voiced approval.

Graduated licensing is benefiting teenagers in all areas of the state. Crashes involving 16-year-old drivers have declined 25 percent in the most urban counties and 30 percent in the most rural areas.

"North Carolina Graduated Driver Licensing System: Urban-Rural Differences" is available from the University of North Carolina Highway Safety Research Center.



New child restraint attachments are simpler to use, but designs need refining

Rigid attachments appear superior to flexible variety

In an effort to make child seats easier to install correctly, they're being outfitted with new attachments, either rigid or flexible, that connect directly to special anchors in new cars. This makes installation simpler than before, but Institute evaluations of some child seats with the new attachments show the designs being offered aren't easy to use in all cars with new anchors.

The anchors already are appearing in many new cars, but only a few available child seats have the corresponding attachments. Cosco and Fisher-Price have such models for sale now, and Britax will offer one by April.

How these three restraints compare:

The Institute tried installing the two available models, Cosco Triad and Fisher-Price Safe Embrace II, in 13 cars with anchors to see how well the new attachments work. Each model is a convertible restraint that can be used in either rear-facing (infant) or forward-facing (toddler) mode. Each has flexible strap connectors. For comparison, the Institute also tried installing Volkswagen's Bobsy G1 Isofix, a toddler seat manufactured by Britax but not available in the United States.

The rigid connectors built into the underside of the Bobsy G1 facilitated perfect installation in every vehicle. The flexible attachments on the Cosco and Fisher-Price models generally worked well, but under some circumstances in certain cars they didn't install correctly. They also weren't as easy to use as the rigid connectors on the Bobsy G1.

The Cosco Triad couldn't be securely installed as a forward-facing restraint in a few vehicles. In one of the rear seats in the



RIGID ATTACHMENTS
on this child seat from Britax
allowed a secure fit every time.



FLEXIBLE STRAP ATTACHMENTS
on these child seats made installation
didn't always allow for a secure fit.



ATTACHMENTS
 by Fisher-Price (left) and Cosco
 secure installation.

Mitsubishi Montero and in both rear seats of the BMW X5 and Mercedes C class (2001 models), the Triad's attachment straps couldn't be tightened enough to keep the seat from moving more than an inch when pushed or pulled. That's unacceptable according to National Highway Traffic Safety Administration guidelines.

The Fisher-Price Safe Embrace II couldn't be securely installed in the rear-facing mode in more than half of the 13 vehicles, including the 1999 Volkswagen New Beetle and 2001 models of the BMW X5, Dodge Caravan, Dodge Stratus, Honda Civic, Hyundai Elantra, Lexus LS 430, and Mercedes C class. The problem is that the buckles on the attachment straps bind up on the restraint frame, preventing the straps from being fully tightened.

"What we learned is that child seat manufacturers, at least in the United States, aren't yet offering anchor attachments that accommodate all the seating and anchor differences among cars," explains Susan Ferguson, Institute senior vice president for research.

The dimensions and placement of anchors in vehicles are standardized, but the regulations permit slight differences. For example, the 2001 Mercedes C class has retractable anchors that fold out from the seat. Other characteristics that affect the fit of child restraints, such as seat geometry and cushion stiffness, also vary among cars.

What new federal rules require: Starting September 1, 2002, regulations will require all new passenger vehicles to come with 6 mm metal bars in the folds of rear seats to anchor child restraints (see *Status Report*, Jan. 16, 1999; on the web at www.highwaysafety.org). In vehicles without rear seats and with airbag on/off switches, the anchors will be in the front passenger seat.

By the same date, all new child restraints will be required to have latch attachments that connect to the anchors. Child seat makers can design

the attachments in either of two ways — as rigid metal connectors or as flexible strap connectors, much like adult safety belts with hooks or buckles at the end.

Tether anchors, the other component of the new anchorage systems, have been required in new passenger cars since 1999 and in light trucks since 2000. Located either on the parcel shelf or on the floor behind the seat, a tether anchor provides a way to secure the upper part of a child restraint. Forward-facing restraints now generally come with top tethers to meet the requirements of dynamic tests, although a tether isn't specifically required.

Taking the easiest route: Car seat makers may be choosing to go with flexible attachments because, unlike rigid systems, "the flexible straps can be added to the child seats already being marketed. Little or no fundamental design changes are required," Ferguson says.

For example, the new Cosco and Fisher-Price seats are virtually identical to previous models except for the addition of flexible anchor straps. Sometime this year, Century Brand plans to offer an add-on kit so existing models can be retrofitted with flexible attachments. Graco also will add flexible attachments to some of its models.

The rigid attachment system on the Volkswagen Bobsy G1 is fundamentally different from conventional models. The metal hardware adds weight and cost, but installation is simple. When the restraint is pushed back into the seat, the brackets latch onto the anchors and easily adjust for a snug fit.

"It remains to be seen what the child seat makers will offer later, but right now the flexible anchor attachments haven't been perfected," Ferguson adds. "They still have a long way to go before parents have a foolproof means of correctly installing child seats in all cars."

(continued from p.2) of a crash or a citation is highest during the first 500 miles after getting a full-privilege license to drive without supervision.

“The findings show teenagers face a substantially higher crash risk during the first weeks and the first miles of licensure, when most teens begin to drive independently for the first time,” says Anne McCartt of the Preusser Research Group, lead author of the U.S. study.

Findings of the U.S. and Nova Scotia studies aren't confined to North America. A 1998 study of new drivers in Norway, where the licensing age is 18, reported a sharp decline in crash risk per kilometer driven during the first few months of licen-



sure. Australian researchers have reported similar results.

Taken together, these studies add scientific evidence to the common-sense case for graduated licensing (see *Status Report*, Dec. 4, 1999; on the web at www.highwaysafety.org). Such programs restrict driving during the first year of licensure, creating an interim period that leads up to full unrestricted licensure. The idea is that beginning drivers will improve with on-road experience, which initially should be acquired in low-

risk circumstances — that is, during daylight hours and without teenage passengers in the car.

Details of Canadian and U.S. studies:

The Nova Scotia study focuses on a sample of drivers who obtained their learner's permits during 1990-93, before a provincial graduated licensing program was introduced. Driver records and police reports were used to compare month-to-month changes in the crash rates of newly licensed drivers.

Their crash rates went from 123 collisions per 10,000 drivers during the first month of licensure to 73 in the seventh month, a decrease of 41 percent. The crash rate continued to decline gradually over the two years of the study until it was 60 percent lower at the end of the study period compared with the first month the teenagers were licensed.

For the U.S. study, a total of 911 teenagers in Connecticut, Delaware, New Jersey, and New York were surveyed. Crash involvements and citations were examined for the first year of licensure and for the first 3,500 miles driven. The crash rate per 100 drivers was 5.9 in the first month after licensure, dropping to 3.4 in the second month and ranging from 1.3 to 3.0 during the subsequent 10 months. Per 10,000 miles driven, the crash rate was 3.2 for the first 250 miles, 1.8 for the second 250 miles, and 1.3 for the third.

The per-mile crash rate also was calculated for each of the first 12 months of licensure, falling from 2.3 crashes per 10,000 miles in the first month to 1.1 per 10,000 in the second month. Declines continued in subsequent months.

To obtain a copy of “Changes in Collision Rates among Novice Drivers During the First Months of Driving” by D. Mayhew et al. and/or “Crashes and Traffic Citations of Newly Licensed Teens in Relation to Months Elapsed and Miles Driven After Licensure” by A. McCartt et al., write: Publications, Insurance Institute for Highway Safety, 1005 North Glebe Road, Arlington, VA 22201.

Teen passengers add to crash risk

New Institute publication exclusively available at www.highwaysafety.org

The term “teenage driver” taps into a well-known safety problem, but less well publicized is the importance of teenage passengers in the risk equation. Teenag-



ers often ride with same-age drivers, a scenario that substantially increases the likelihood of a crash, putting both drivers and passengers at risk of death or injury.

Facts about this problem are available in the first research report the Institute has published for the internet only. To access "Teenage Passengers in Motor Vehicle Crashes: A Summary of Current Research," go to www.highwaysafety.org/safety_facts/teens/teen_passengers.pdf. This location

includes a discussion of whether some combinations of drivers and passengers are more dangerous than others (they are) and details the types of crashes most likely.

The report has been published exclusively for the web to facilitate updating. More and more states are considering passenger restrictions as part of graduated licensing, and new information is becoming available on the effects of such restrictions. The latest on driver licensing requirements

throughout the United States and current teenage fatality trends already are available at the Institute's website.

Also available is information about the passenger restriction that's part of California's graduated licensing law. Preliminary study results indicate this policy reduced deaths and injuries among teenage passengers riding with 16-year-old drivers by 23 percent in 1999 compared with the previous 5 years.



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First few months of driving unsupervised are the most hazardousp.1

Kentucky, Michigan, and North Carolina post lower crash rates among new drivers after adopting graduated licensingp.2

Rural versus urban debate about graduated licensing systemsp.3

First child restraint attachments offered under new federal requirements don't necessarily secure seats snuglyp.4

Teen passengers increase the risk associated with young beginning driversp.6

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