

The Young Impaired Driver Problem

Prospects for a Safer Future

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Young drivers pose particular risks and problems in traffic safety. Until they reach their mid- to late 20s, drivers have a higher crash risk, especially when crashes are adjusted for the amount of driving. Impairment by alcohol and drugs exacerbates these risks. Lack of driving experience, coupled with immature judgment, makes impairment by alcohol and drugs particularly dangerous.

Research has provided more information about the nature of the young impaired driving problem and the strategies that can improve traffic safety. In a two-day symposium in June 2008, the Transportation Research Board's Alcohol, Other Drugs, and Transportation Committee brought together experts

Drivers under age 21 with blood-alcohol content (BAC) of .07 are more than five times more likely to crash than drivers over 21 with the same BAC.



Photo: AAATIS

from around the world to discuss issues related to alcohol and drug impairment among young drivers, 16 to 24 years old. The workshop examined the nature of the impaired driving problem among young drivers, as well as a range of strategies to reduce the problem. Following is a summary and update of the research presented at the workshop.

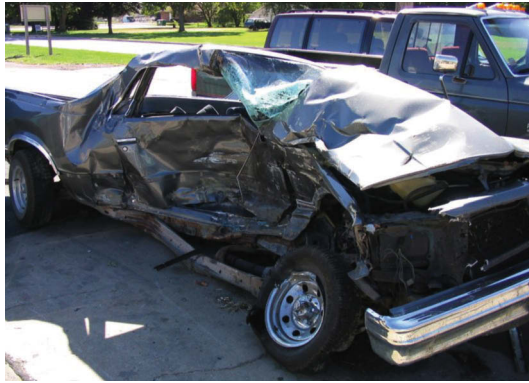
The U.S. Problem

Compared with older drivers, teenagers drink and drive less often, but when they drive after drinking, they are at considerably greater risk of involvement in a crash. Drugs also play a role in crashes among young drivers.



Photo: NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

Teenagers are 20 times more likely to be involved in vehicle crashes that feature alcohol, speeding, and other passengers than are middle-aged adults; nighttime crashes involving alcohol and passengers are approximately nine times more likely for teens.



Until they reach their mid- to late 20s, drivers have a higher crash risk, especially when crashes are adjusted for exposure (1). After the drinking age was changed to 21 in the United States in the 1980s, alcohol-related crashes declined dramatically among drivers under 21.

Currently, when adjusted for exposure, 21- to 29-year-old drivers in the United States are at highest risk for drinking driver fatalities (2). When younger drivers drink, the risk of crashing is much higher than for older drivers. Among drivers with a blood alcohol concentration (BAC) of .07—the U.S. legal limit is .08—those under 21 are more than five times more likely to be involved in a crash than those over 21 (3).

When the risk associated with impaired driving is adjusted for exposure, drivers ages 16 to 20 have the highest risk of crashing per vehicle miles traveled, followed by drivers 21 to 29. Young male drivers are at dramatically greater risk than young female drivers. The differentials between the sexes persist through all ages but become less marked as drivers get older.

Research on the characteristics of risky young drivers and the crashes in which they are likely to be involved yield insights into ways to make these drivers safer.

Predictors of Impaired Driving

Personal and social factors among adolescents and young adults can predict impaired driving and risky driving (4); these can be categorized as follows:

- ◆ **The perceived environment:** more social support for drinking and drink driving, less parental monitoring, more parental permissiveness, and less perceived risk of drink driving, along with less parental nurturing during adolescence;
- ◆ **Personality:** more tolerance of deviance, less orientation to parents, more susceptibility to peer pressure, more risk-taking, more hostility, more aggression, and poorer grades in school, as well as less family connectedness; and
- ◆ **Behavior:** early and heavier drinking, cigarette and marijuana use, and more use of other drugs.

The perceived environment factors and the personality factors also predicted risky driving outcomes.

Characteristics of Crashes

The characteristics of crashes involving young drivers differ from those involving older drivers in some important ways. For example, underage drinkers typically consume larger amounts of alcohol in a single sitting compared with older drinkers (5). Therefore, when they drink and drive, they are likely to have a higher BAC than adults.

Other variables related to driving, alcohol use, or



The crash risks of teen drivers differ from those of adults in many ways; for example, the effect of passengers in the car. A teen driver's crash risk increases with each teen passenger; for adults, the presence of passengers has far less of an effect on crash risk.

the characteristics of crashes combine to have a greater effect on teenage drink drivers than on adult drink drivers. For example, adult drivers experience either no change in risk or a small safety benefit from having passengers; teenage drivers, however, have a greatly increased crash risk with teenage passengers, and the risk increases significantly with each additional passenger. As a result, crashes that involve alcohol, speeding, and passengers are about 20 times more likely for teenagers than for middle-aged adults. Crashes at night that involve alcohol and passengers are approximately nine times more likely (3).

The Problem in Europe

A more global perspective on the young driver problem offers additional insights. In Europe, the drinking age is lower than in the United States—18 in most countries, or even younger for some beverages and in some circumstances. In addition, enforcement of the drinking age traditionally has received little emphasis. The legal age of driver licensure, typically 18, tends to be higher than in the United States (6).

The belief that introducing drinking at an earlier age reduces heavy and harmful drinking is erroneous. The percentage of 15- to 16-year-olds who report drinking in the past 30 days is greater in nearly all European countries than in the United States. In addition, intoxication rates are higher among young people in most European countries than among youth in the United States. In a majority of European countries, a greater percentage of young people reports having been intoxicated before the age of 13 (7). If and how these drinking patterns change when European young people begin to drive is not known, but European statistics show an overrepresentation of young drivers in crashes (8).

According to some reports, binge drinking is rising across Europe. In France, health authorities report that from 2004 to 2007 the number of young people ages 15 to 24 who were hospitalized in an inebriated condition rose by 50 percent. France has introduced a bill to raise the drinking age for beer and wine from 16 to 18 (8).

Legal Strategies

A variety of laws have aimed to improve safety among young drivers. In many countries, graduated licensing has become the dominant strategy. The laws establish a staged licensing system restricting young and novice drivers as to how, when, and under what circumstances they may drive; as they gain more experience, the young drivers are allowed to increase their independence and flexibility.

Three elements contribute most to the effective-



An exhibit is set up to discourage drink driving at the U.S. Naval Base in Guam; adjusted for exposure, 21- to 29-year-olds have the highest risk for drinking driver fatalities.

ness of graduated licensing: minimum holding periods at each phase of licensure, nighttime restrictions on driving, and restrictions on carrying passengers. Also key are zero-tolerance laws prohibiting any use of alcohol during the learning and probationary phases of licensing (9). Graduated licensing and zero-tolerance laws are highly effective in reducing crashes among young drivers—studies consistently show a 12 to 40 percent reduction in crashes among affected drivers (10).

A recent study indicates that the risk of alcohol-impaired crashes is reduced significantly by specific state laws, including prohibition of possession of alcohol by those under 21, prohibition of underage purchase of alcohol, use-and-lose laws that impose driver's license penalties on youth convicted of alcohol purchase or possession violations, and zero-tolerance laws (11).

Australia's well-structured graduated licensing system sets a minimum age of 17 for licensing young drivers and imposes several specific restrictions not common in other countries. These provisions include a relatively long maximum tenure for learner

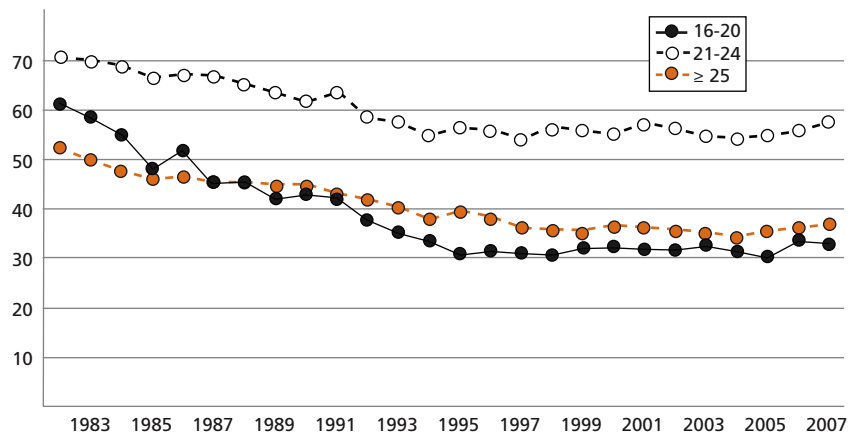


FIGURE 1 Percent of U.S. fatally injured passenger vehicle drivers with positive BAC by age, 1982–2007. [Sources: Fatality Analysis Reporting System (FARS), 1982–2007; Insurance Institute for Highway Safety, 2008.]

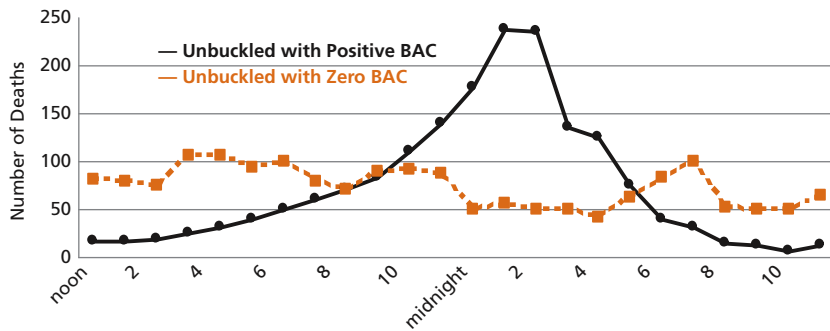


FIGURE 2 Number of U.S. unbuckled fatalities, by time of day, and by presence or absence of alcohol among drivers, ages 16–24. (Source: FARS, 2006 data.)

and provisional licenses, which reduces any pressure for novice drivers to progress to the next stage before the current license stage expires; requirements to display an identifying plate on the vehicle to indicate license status to other drivers, road users, and police; speed restrictions according to license category; and a zero alcohol requirement. The minimum purchase age for alcohol in Australia is 18 (12).

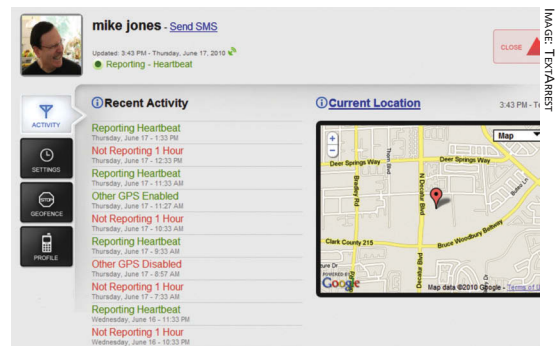
In the United States, the minimum drinking age of 21 has been a primary legal strategy for reducing impaired driving among young drivers. Dramatic effects of the higher drinking age have been demonstrated repeatedly on drinking and driving and on other alcohol-related harms. As shown in Figure 1 (page 5), U.S. rates of alcohol-related fatalities have declined in all age groups in the past 25 years, but the rates have declined most dramatically for drivers ages 16 to 20. Moreover, delaying the drinking age until 21 does not cause a rebound effect—patterns of alcohol-related crashes for 21- to 24-year olds are

similar to those for 24- to 35-year olds (13).

A study of the consequences of the legal change lowering the drinking age in New Zealand from 20 to 18 in 1999 found that traffic crashes and other alcohol-related injuries and problems among youth have increased. Drinking and associated problems have trickled down to 15- to 17-year-olds (14).

Role of Enforcement

Enforcement plays a key role in reducing impaired driving among all populations. For example, highly publicized random breath tests and sobriety checkpoints have been effective in reducing impaired driving crashes. The primary effects of enforcement are



Technology can help reduce impaired or distracted driving by controlling behaviors; the mobile application TextArrest prevents phone use while driving and can track a cell phone’s movement in transit.

The Impact of Underage Drinking Laws on Alcohol-Related Fatal Crashes of Young Drivers

A recent study evaluated the effects that 10 laws related to alcohol and driving have had on drinking-and-driving fatal crashes among young drivers (11). Significant decreases in crashes among young drivers resulted from

- ◆ Laws against the possession and purchase of alcohol by persons under the age of 21;
- ◆ Use-and-lose laws that impose driver’s license penalties for violations of the possession and purchase laws; and
- ◆ Zero-tolerance laws that make it illegal for drivers under age 21 to drive with any alcohol in their system.



Research shows that well-publicized sobriety checkpoints—which often involve breath tests to determine BAC—are effective deterrents against impaired driving.

Other laws that aim at all drivers also were found to decrease alcohol-related fatal crashes among young drivers, including

- ◆ Laws declaring a blood alcohol concentration of 0.08 illegal per se;
- ◆ Primary seat belt laws, which allow enforcement officers to ticket a driver solely for not wearing a seat belt, as well as secondary seat belt laws, which allow ticketing if the driver has committed another citable traffic infraction; and
- ◆ Administrative license revocation laws.

The researchers estimated that the two core underage drinking laws addressing purchase and possession and the zero-tolerance law are saving an estimated 732 lives per year. If all states adopted use-and-lose laws, the authors conclude, an additional 165 lives could be saved annually.

to deter illegal behavior—apprehending and punishing violators are secondary effects (15).

Recent enforcement campaigns to reduce impaired driving deaths have extended beyond the enforcement of impaired driving laws per se. For example, vigorous enforcement of speed limits in France appears to have reduced crashes among both impaired and sober drivers (14).

The enforcement of seat belt laws has similar potential to reduce impaired driving and alcohol-related deaths and injuries. As shown in Figure 2 (page 6), most deaths involving unbelted vehicle occupants in the United States occur between midnight and 3 a.m.—also a prime time for impaired driving. Young drivers have lower seat belt use rates. Nighttime enforcement of seatbelt laws, therefore, can be effective in encouraging seat belt use, as well as in deterring impaired driving (16).

Potential of Technology

In addition to enforcement and education to change driver behavior, vehicle design and road design have contributed greatly to progress in traffic safety. Recently developed technologies may enable further progress. Some are relevant to novice drivers, who may lack skills, and to young drivers, who may lack judgment.

The first 1,000 miles of driving tend to be the most dangerous (17). In addition, teenage drivers tend to speed more and to use seat belts less than older drivers—behaviors that could be controlled through technology. Technology can improve driving performance through three main channels:

- ◆ **Forcing**—designing systems that do not permit dangerous behavior; for example, installing speed

governors on the cars of young drivers or preventing driving unless the seat belt is fastened;

- ◆ **Feedback**—alerting the driver to dangerous behavior; for example, following too closely; and

- ◆ **Reporting**—alerting parents or other authorities when dangerous driving has occurred.

Systems are now available that include some of these features (18); others are in development. The most sophisticated systems recognize who is driving the car—the teenager or a parent—and set appropriate limits for the teenage driver. An alcohol interlock may be included to prevent driving after drinking.

Some systems include a data base with Global Positioning System technology that indicates the current driving context—for example, the current speed limit. When the young driver violates the parameters set by parents, the system can report the dangerous behavior to the parents or another authority. For example, if the young driver exceeds the local speed limit, a warning sounds. If the driver does not slow down after the second warning, the parent is notified via text message or telephone. One valuable feature prevents the use of cell phones or entertainment systems while the young driver is driving (18).

Continuing the Progress

Young drivers pose a particular danger in traffic from their inexperience and lack of mature judgment. This high risk is exacerbated by impairment with alcohol or other drugs. Some predictable characteristics are associated with young driver crashes, including excessive speed, carrying passengers, and not wearing seat belts.

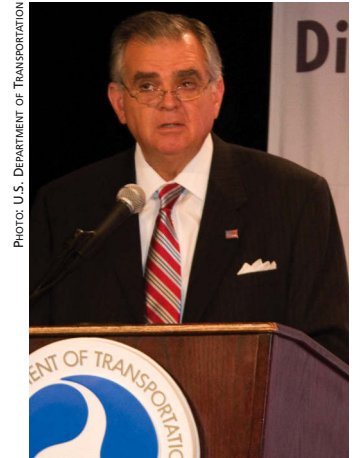


PHOTO: U.S. DEPARTMENT OF TRANSPORTATION

U.S. Transportation Secretary Ray LaHood hosted the Distracted Driving Summit in September 2010 to focus on a major prevention initiative of his administration. Research shows that the first 1,000 miles of driving tend to be the most dangerous; for young drivers this can be compounded by distractions such as peers, cell phone conversations, and use of electronic devices.

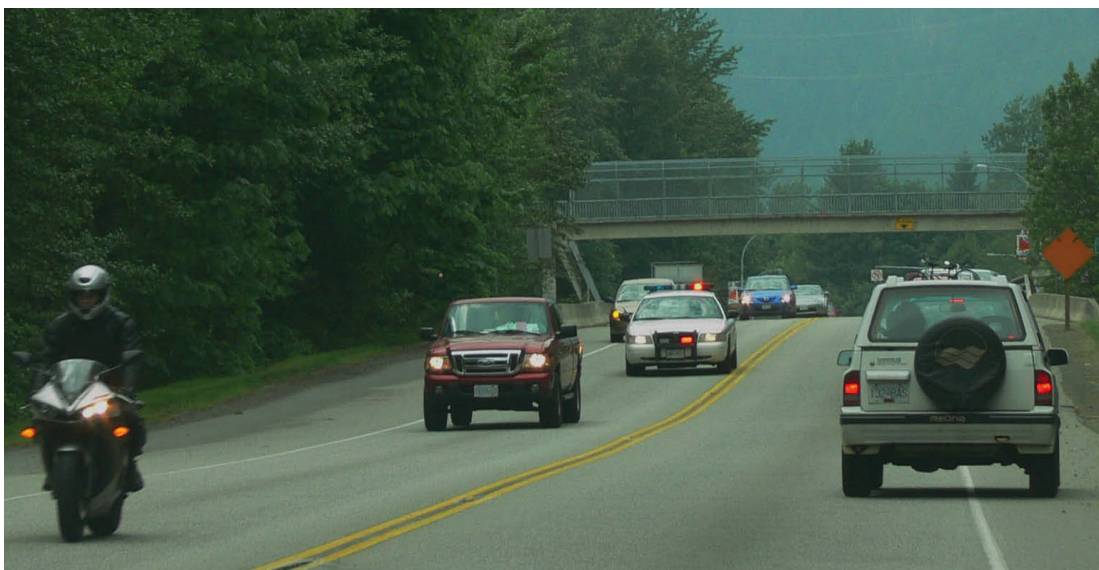
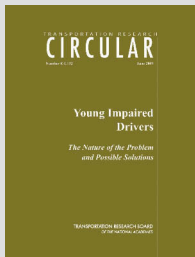


PHOTO: AAAFTS

Traffic law enforcement campaigns such as speed limit enforcement also have had success in reducing impaired driving.



Addressing the Problem of Young Impaired Drivers

TRB's *Transportation Research Circular E-C132: Young Impaired Drivers: The Nature of the Problem and Possible Solutions* provides an overview of the information presented at a June 3–4, 2008, workshop that explored the risks posed by young impaired drivers and how these risks might be addressed. The 254-

page document includes technical background papers prepared for the workshop, as well as summaries of discussions. The workshop offered perspectives on the issues from the United States, Canada, Europe, and Australia. *Young Impaired Drivers* is available on the TRB website, <http://onlinepubs.trb.org/onlinepubs/circulars/ec132.pdf>.

Increased knowledge about the nature of the problem has enabled progress in reducing impairment and crashes among this segment of the population. Legal structures have played an important role—in the United States, raising the drinking age to 21 dramatically reduced impaired driving crashes, as well as other alcohol-related problems. Zero-tolerance laws and graduated licensing systems also have proved effective.

Enforcement ensures the effectiveness of these laws. Although legal structures and enforcement have been effective, newly developed technologies may further reduce risky and impaired driving by young persons.

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PHOTO: AAATTS

Historically, the number of drink driving crashes has been reduced by legal measures such as raising the drinking age to 21, zero-tolerance laws, and graduated licensing systems.