

What You Should Know About:

► *Motor Vehicle Injury*

National Statistics

Motor vehicle travel is the primary means of transportation in the United States. There has been much progress in reducing the number of deaths and injuries on U.S. roads and highways.¹ However, motor vehicle crashes are still the leading cause of injury death for persons 1 to 34 years of age. In 1999, more than 3 million Americans were injured and more than 42,000 were killed in motor vehicle crashes. Of those who died, approximately 5% were children, 13% teens, and 19% seniors aged 65 years and older.² It is estimated that an American is killed every 13 minutes in a motor vehicle crash.³ The economic costs related to motor vehicle crashes were more than \$230 billion in 2000.⁴



According to the National Highway Traffic Safety Administration (NHTSA), seven risk factors have been found to be associated with motor vehicle crashes. These include alcohol, cell phones, gender, young drivers, senior drivers, speed, and location. The greatest risk factor involves the use of alcohol. An estimated three in ten Americans will be involved in an alcohol-related crash in their lifetime.² In 2002, 41% of the 42,815 motor vehicle deaths were alcohol-related. This translates to an average of one alcohol-related fatality every 30 minutes.⁵ For more information about alcohol-related motor vehicle crashes, see the section on [What You Should Know About Impaired Driving](#) in this manual.

The Cellular Telecommunication Industry Association reports there are more than 100 million cell phone subscribers, or more than 36% of the U.S. population. Although cell phones are convenient, their use while driving has been found to be dangerous. An evaluation by the Harvard Center for Risk Analysis estimates that the use of cell phones by drivers may result in 2,600 deaths, 330,000 moderate to critical injuries, and 1.5 million instances of property damage in the U.S. each year.⁶ Cell phone users are four to five times more likely to have crashes than nonusers. The primary factor is driver

Risk Factors for Operating A Motor Vehicle

- 1. Alcohol**
- 2. Cell Phones**
- 3. Gender**
- 4. Young Drivers**
- 5. Senior Drivers**
- 6. Speed**
- 7. Location**

inattentiveness. Cell phone units that allow the hands to be "free" offer no safety advantage.⁷

The gender and age of the driver is also an important risk factor. Male drivers are nearly three times more likely to be involved in a fatal vehicle crash than female drivers.⁸ Teens represented 10% of the US population in 2002, but accounted for 14% of all motor vehicle-related deaths.⁹ Per mile driven, teen drivers 16-19 years of age are 4 times more likely than older drivers to crash. About two out of every three teenagers killed in motor vehicle crashes in 2002 were males.⁹ Teens are more likely than older drivers to speed, run red lights, make illegal turns, ride with intoxicated drivers, and drive after using alcohol or drugs.¹⁰ Teens also have the lowest seat belt use, reporting only 14% use among high school students in 2001, with males and African Americans most likely to report *rarely or never wearing a seat belt*.¹¹ In 2000, 29% of drivers aged 15-20 years killed in motor vehicle crashes had been drinking, 77% were unrestrained, and 43% of crashes occurred between 9 p.m. and 6 a.m.¹² The mere presence of teen passengers has been found to increase the crash risk for unsupervised teen drivers.⁸



According to the U.S. Census Bureau, seniors aged 65 years and older are one of the fastest growing segments of our population. However, increasingly these older drivers are keeping their licenses longer and driving more miles than ever before. Older people have higher rates of fatal crashes than all but the youngest drivers per mile driven. This is largely due to their increased susceptibility to injury, particularly chest injuries and medical complications, rather than an increased tendency to get into crashes.¹³

Fast cars may sell movies, but the reality is that speeding is dangerous. According to NHTSA, speeding is one of the main causes of motor vehicle crashes. Speeding was a factor in 31% of all fatal crashes, and 13,380 lives were lost in speeding-related crashes in 2003 alone.¹⁴ Speeding reduces a driver's ability to steer safely around curves or objects in the roadway. High speed extends the distance necessary to stop a vehicle and increases the distance a vehicle travels while the driver reacts to a dangerous situation. Also, speed increases the force of impact in a crash, increasing the likely severity of the collision. For drivers involved in fatal crashes, young males are the most likely to speed.¹⁴

The number and type of motor vehicle crash deaths differ widely among the 50 states and the District of Columbia.¹⁵ Western states with large rural areas typically have high fatality rates because of such factors as higher speed traffic. Reasons for state variations include differing degrees of urbanization, amounts of travel, types of travel, types of vehicles, state

laws, emergency care capabilities, weather, topography, and a variety of other factors.¹⁵

Oklahoma Statistics

According to Oklahoma Vital Statistics data, from 1992 to 2001, 5,990 motor vehicle occupants were killed in traffic-related events. From 1992-2000, the Oklahoma motor vehicle fatality rate was 32% higher than the U.S. rate (11.7 and 8.8 per 100,000 population, respectively).¹ In Oklahoma, traffic death rates among rural populations were 74% higher than death rates for urban populations (27.7 and 15.9, respectively). Sixty-four percent of persons who died in traffic crashes were not wearing a seat belt. From 1992 to 2001, 157 children 0-9 years of age died as a result of a motor vehicle crash; 91 deaths were among children 0-4 years of age.

The traffic fatality rate for males was almost twice that for females (27.5 and 14.2 per 100,000 population, respectively). Fatality rates were highest among teenagers, young adults, and males 75 years of age and older.

► What Works

Seat Belt Use

Seat belts are estimated to reduce the risk of death among front seat car occupants by 45% and the risk of moderate to critical injury by 50%.^{16,17} Among occupants of light trucks, seat belts are estimated to reduce fatal injury by 60% and moderate to critical injury by 65%. In addition, the data suggests that seat belts may reduce hospital admissions by 65% and hospital charges by 67%. To be most effective, seat belts should be worn over the shoulder, across the chest, and low across the hips. Data also confirms the importance of all pregnant women correctly wearing seat belts.^{18,19}



Car Seat Use

Motor vehicle injuries are a prominent cause of death and disability for children of all ages. The trauma causing most deaths and disabilities occurs a fraction of a second after a crash, when an unrestrained child strikes the vehicle interior. In addition to injuries in crashes, many children are injured during non-crash incidents such as striking the vehicle interior during a sudden stop, turn, or swerve. These incidents are most common among unrestrained children 1-4 years of age. Research has found that the correct use of car safety seats may reduce fatal injury by 70% among

infants less than one year of age, and 47% for toddlers (1-4 years of age) in passenger cars.^{20,21} Among infants and toddlers in light trucks, car safety seats are found to reduce fatal injury by 58% for infants and 59% for toddlers.²¹



Booster Seats

Once a child outgrows a convertible car seat that fits children up to 40 pounds and 40 inches (approximately 3 years of age), parents often use a seat belt to restrain the child. However, seat belts are designed for persons 4'9" tall and weighing approximately 80 pounds (approximately 9 years of age). Belt positioning booster seats lower the risk of injuries in crashes by 59% compared to the use of vehicle seat belts.²²

Car Seat Inspection Clinics

Studies have indicated that as many as four out of five car seats may be installed incorrectly.²³ Children may be severely injured or killed if they are improperly restrained. Common errors include facing the seat the wrong direction, using the wrong car seat for a child's height and weight, not buckling the car seat in tightly enough with the vehicle seat belt, and putting a rear-facing infant seat in front of an air bag. Car seat inspections are available through several Oklahoma organizations including the Oklahoma SAFE KIDS Coalition, Oklahoma State Department of Health, and Emergency Medical Services Authority (EMSA).

Car Seats for Children with Special Needs

Children with disabilities who are not able to sit in an approved car seat should also be properly secured. There are protective restraints available for children with special needs such as premature or low birth weight infants, small children in hip spica casts, larger children who have full body casts, and children with poor trunk and head control.

Occupant Protection Counseling Through Health Care Providers

Pediatricians and public health nurses are likely to have several opportunities to provide occupant protection counseling. During counseling, parents and caregivers should be informed about the risks associated with children not being restrained while traveling in a motor vehicle.

Physician Evaluation of Senior Drivers

Medical conditions and poor vision are commonly cited as reasons for seniors to stop driving. Physicians are respected members of a community and often considered a trusted, extended member of the family. To assist doctors in evaluation, the American Medical Association (AMA) has a guide available with a checklist for doctors to test patients' vision and motor skills. The guide also offers strategies for best persuading impaired older drivers to retire from the road. Alternatives for senior drivers, such as larger mirrors, hand gears and a steering wheel knob for arthritic patients, are also given. For more information on the Physician's Guide to Assessing and Counseling Older Drivers go to <http://www.ama-assn.org/ama/pub/category/10791.html>.

Graduated Driver Licensing

Graduated driver licensing (GDL) systems are designed to phase in beginning drivers to full driving privileges through a three-stage process as they mature and develop their driving skills, instead of the traditional approach in which a young driver gets unrestricted driving privileges after passing a test.²⁴⁻²⁶ Evaluations of these systems have demonstrated crash reduction impacts of up to 16% among Oregon males,²⁷ 5-9% in Maryland and California,²⁵ 9% in Canada,²⁷ and 8% in New Zealand.²⁸ In North Carolina, the number of fatal crashes among 16 year-old drivers dropped by 57% from 1996 - 1999, and the number of nonfatal injury crashes dropped by 27%.²⁹ In Michigan, overall crash risk for 16 year-olds was reduced by 25%.³⁰ Model GDL systems have a minimum age of entry (usually 15 1/2) and require one to two full years to complete a 3-tiered licensing program: learning stage, intermediate stage, and full licensure. Graduated licensing ensures that the initial driving experience is accumulated under lower-risk conditions, usually imposing a nighttime driving restriction and passenger limits for young novice drivers. In a 1994 report to Congress, NHTSA showed that driver's education alone did not significantly reduce crashes among teenagers.³¹

Limiting Cellular Phone Use While Driving

Based on a broad range of estimates for cell phone-related crashes, further scientific study is needed to determine the actual extent of such injuries. Limiting cell phone use to hands-free devices may not be enough. Current data suggests that legislative initiatives restricting handheld devices but permitting hands-free devices are not likely to reduce interference from the cognitive processes involved with maintaining a cell phone conversation.

► What You Can Do

Distribute Free Car Seats and Educate Parents

Communities should make available free car seats and booster seats for families with children less than 6 years of age. Car seats can be distributed at county health departments, hospitals, Indian Health Services and tribal health clinics, and other agencies and organizations. Persons distributing car seats should attend either a one-day training class or the NHTSA four-day certification workshop. The car seat program should include parental education about how to install and use the car seats and booster seats. Providers should give up-to-date information about the availability of special needs car seats to families who have children with disabilities.



Provide Car Seat Inspection Clinics

Communities should partner with other organizations (e.g., SAFE KIDS, etc.), car dealerships, or media to offer car seat inspection clinics.

Encourage Graduated Driver Licensing Programs

Communities should encourage graduated driver licensing programs that have a minimum age of entry and require one to two full years to complete a 3-tiered licensing program.

Consider Cellular Phone Use Legislation

The precise effects of cell phone use on public safety are unknown. However, because of the possible increase in risks associated with the use of cell phones while driving, several states have proposed or enacted legislation to limit cell phone use while operating a motor vehicle. Communities should consider enacting legislation restricting cellular phone use while driving.

► Where You Can Go

The following organizations can provide information about motor vehicle crashes and injuries as well as links to other organizations and web sites.

State

- Oklahoma Highway Safety Office
405/523-1570
www.dps.state.ok.us/ohso
- Injury Prevention Service
Oklahoma State Department of Health
405/271-3430
www.health.state.ok.us/PROGRAMS/injury
- Oklahoma SAFE KIDS Coalition
405/271-5695
www.oksafekids.org

National

- National Highway Traffic Safety Administration
www.nhtsa.dot.gov
- National Center for Injury Prevention and Control
www.cdc.gov/injury
- National SAFE KIDS Campaign
www.safekids.org
- Safe Ride News
www.saferidenews.com
- Safe USA
www.safeusa.org
- Safety Belt Safe USA
www.carseat.org
- Boost America
www.boostamerica.org
- Children's Safety Network
www.childrenssafetynetwork.org
- Insurance Institute for Highway Safety
www.iihs.org
- Indian Health Service
www.ihs.gov/MedicalPrograms/InjuryPrevention/index.cfm

Local

Highway Patrol
Police Departments

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