

# Highlights

## Chapter III – Preventing Unintentional Injury

Injuries are the primary cause of death for adolescents. Health experts classify injury deaths as unintentional (such as auto crash fatalities) or intentional (homicide and suicide). Unintentional injuries make up the greatest proportion of deaths among adolescents both nationally and in Colorado.

### COLORADO TRENDS

Unintentional injuries kill about 228 Colorado youth annually. While the rate of adolescent deaths from all injuries has declined over the last decade, unintentional injury remains the leading cause of death for youth 10 to 19 years of age.

- For teens aged 15 to 19 years, over three-quarters of unintentional injury deaths are motor vehicle-related. On the basis of miles driven, this age group is involved in three times as many fatal crashes as are all drivers. Fifty-eight percent of teen fatalities were not wearing seatbelts.
- The decline in motor vehicle injury deaths has occurred in Colorado during initiation, implementation and enforcement of statutory measures to make teen drivers safer, such as lowered blood alcohol content thresholds and graduated drivers' licensing.
- In Colorado, during the period 1993 to 1997, there were 193 unintentional firearm-related fatalities to children ages 0 to 17.
- From 1996 to 1998, the leading types of recreational fatalities for Colorado adolescents, ages 10 to 19, were snow skiing and boarding, bicycling/climbing/hiking and non-pool swimming.

### 2000 OBJECTIVES

#### *Progress Report*

#### REDUCE TEEN MOTOR VEHICLE DEATHS

- By 2000, reduce motor vehicle deaths among adolescents aged 15-19 to 25.0 per 100,000, from the 1990 baseline of 34.2 per 100,000

*Status:* Objective exceeded. Motor vehicle deaths declined to 22.6 per 100,000

*Source:* Vital Statistics, Colorado Department of Public Health and Environment

#### INCREASE USE OF SEAT BELTS

- By 2000, increase the percent of high school students who report that they wear a seat belt most of the time or always to 65%, from the 1990 baseline of 52%

*Status:* Objective exceeded. Seat belt use increased to 75%

*Source:* 2001 Colorado Youth Risk Behavior Survey, Colorado Department of Public Health and Environment

#### BEST PRACTICES

- **Parents** – Parents have a key role in injury prevention. They provide the transportation and the financial and emotional support for sports and recreational activities, and are in control of the car keys and insurance. They provide role modeling with their own behavior and set boundaries with appropriate consequences related to alcohol and drug use, behavior and rules of the road.



- **Schools** – Schools have a responsibility to prevent injuries from occurring at school and school-sponsored events. They can also teach the skills needed to prevent unintentional injuries, violence and suicide in all domains and throughout their lives. They have the means to provide recreation injury prevention information to parents, students and athletic staff.
- **Communities** – Communities can integrate and tailor strategies to meet their unique needs and opportunities for injury prevention. It is important to involve relevant stakeholders in planning and implementation of safety plans to increase commitment and involvement in carrying out solutions. Graduated Drivers' License programs are a clear example of an injury prevention strategy established by policy.

100,000, from the 2000 baseline of 22.6 per 100,000

- By 2010, reduce motor vehicle deaths among adolescents aged 16-17 to 16.6 per 100,000, from the 2000 baseline of 19.5 per 100,000  
*Source:* Vital Statistics, Colorado Department of Public Health and Environment

## Websites

- Alive @ 25: A Survival Course in Traffic Safety, by the National Safety Council  
[www.aliveat25.com](http://www.aliveat25.com)
- American Academy of Orthopaedic Surgeons  
[www.orthoinfo.aaos.org](http://www.orthoinfo.aaos.org)
- American Academy of Pediatrics  
[www.aap.org](http://www.aap.org)
- Brain Injury Association of America  
[www.biausa.org](http://www.biausa.org)
- Bright Futures, Georgetown University  
[www.brightfutures.org](http://www.brightfutures.org)
- Center for Enforcing Underage Drinking Laws  
[www.udetc.org](http://www.udetc.org)
- Centers for Disease Control and Prevention  
[www.cdc.gov](http://www.cdc.gov)
- Child Fatality Review Committee, CDPHE  
[www.cdphe.state.co.us/pp/cfrc](http://www.cdphe.state.co.us/pp/cfrc)
- Children's Defense Fund  
[www.childrensdefense.org](http://www.childrensdefense.org)
- Children's Safety Network  
[childrensafetynetwork.org](http://childrensafetynetwork.org)
- Colorado Department of Transportation  
[www.dot.state.co.us](http://www.dot.state.co.us)
- Colorado Trauma Registry/Colorado Trauma Program, CDPHE  
[www.cdphe.state.co.us/tp](http://www.cdphe.state.co.us/tp)
- Colorado Youth Risk Behavior Survey Results  
[www.cdphe.state.co.us/hs/coyrbs.html](http://www.cdphe.state.co.us/hs/coyrbs.html)
- David and Lucile Packard Foundation  
[www.packard.org](http://www.packard.org)
- Healthy People 2010  
[www.healthypeople.gov](http://www.healthypeople.gov)
- Mothers Against Drunk Driving (MADD)  
[www.madd.org](http://www.madd.org)
- National Adolescent Health Information Center  
[www.youth.ucsf.edu/nahic](http://www.youth.ucsf.edu/nahic)
- National Center for Injury Prevention and Control  
[www.cdc.gov/ncipc](http://www.cdc.gov/ncipc)
- National Highway Traffic Safety Administration  
[www.nhtsa.dot.gov](http://www.nhtsa.dot.gov)
- National Institute for Occupational Safety and Health  
[www.cdc.gov/niosh](http://www.cdc.gov/niosh)
- National Safety Council  
[www.nsc.org](http://www.nsc.org)
- Office of Juvenile Justice and Delinquency Prevention  
[www.ojjdp.ncjrs.org](http://www.ojjdp.ncjrs.org)
- US Consumer Product Safety Commission  
[www.cpsc.gov](http://www.cpsc.gov)

## 2010 OBJECTIVES

### REDUCE ALCOHOL-RELATED MOTOR VEHICLE DEATHS

- By 2010, reduce alcohol-related motor vehicle deaths among adolescents aged 15-19 to 5.8 per 100,000, from the 2000 baseline of 6.8 per 100,000
- By 2010, reduce alcohol-related motor vehicle deaths among adolescents aged 16-17 to 2.0 per 100,000, from the 2000 baseline of 2.4 per 100,000  
*Source:* Colorado Department of Transportation

### REDUCE RIDING WITH DRINKERS; INCREASE SEAT BELT USE

- By 2010, reduce the proportion of high school students that rode, in the last 30 days, with a driver who had been drinking alcohol to 27%, from the 2000 baseline of 30%
- By 2010, increase the proportion of high school students who wear a seat belt most or all of the time to 90%, from the 2000 baseline of 75%  
*Source:* 2001 Colorado Youth Risk Behavior Survey, Colorado Department of Public Health and Environment

### REDUCE TEEN MOTOR VEHICLE DEATHS

- By 2010, reduce motor vehicle deaths among adolescents aged 15-19 to 19.1 per

# Chapter III

## Safe Adolescents: Preventing Unintentional Injury

### *Moments for Colorado Children*

- Every two days, a child or youth dies from an unintentional injury.
- Every three days, a child or youth dies from a motor vehicle incident.
- Every six days, a child or youth is killed by a firearm.

*Source:* State of Colorado’s Children, Children’s Defense Fund (published annually)

Injuries are the primary cause of death for adolescents. Health experts classify injury deaths as unintentional (such as auto crash fatalities) or intentional (homicide and suicide). Unintentional injuries make up the greatest proportion of deaths among adolescents both nationally and in Colorado.



### PREVENTION PAYS

While tragic, deaths from injuries are a small part of the picture. Experts estimate that for every injury death, there are 41 injury hospitalizations and 1,100 cases of injuries treated in emergency departments.<sup>1</sup> Unintentional childhood injuries cost billions of dollars every year (including medical expenses, future work lost, and lost quality of life), with an estimated cost per childhood injury of \$17,000.<sup>2</sup>

The real tragedy is that most injuries to adolescents, whether unintentional or intentional, are preventable events. Adolescents often act on impulse, underestimate danger, may not comprehend the consequences of their actions and have less experience coping with potentially hazardous situations. Adolescence is when the brain is creating the “wiring” for perspective and judgment. Thus, opportunities for injury prevention education present themselves in every domain of an adolescent’s life: home, school, community and workplace. Teachable moments exist every time an adolescent learns a new skill – for example, on the athletic field or behind the wheel of a car. Injury

prevention strategies can be embedded in a variety of arenas: education, law enforcement, parental modeling and the media, for example.

### UNINTENTIONAL INJURY: WHAT WE KNOW

#### *Trends*

Injuries kill about 228 Colorado youth annually.<sup>3</sup> In Colorado, the rate of adolescent deaths from all injuries has declined over the last decade. However, unintentional injury *still* remains the leading cause of death for youth 10 to 19 years of age.<sup>4</sup>

#### *Age Matters*

As with all of the behaviors discussed in this report, the data differ when younger adolescents are compared with older adolescents. Older Colorado teens (ages 15-19) are more likely to be involved in a fatal injury than younger teens. The primary reason for the difference in unintentional injury deaths between younger and older teens is the fact that older teens are driving. (See Figure 2.)

#### *Motor Vehicle Crashes*

For teens aged 15 to 19 years, both nationally and in Colorado, over three-quarters of unintentional injury deaths are motor vehicle-

#### **This chapter focuses on unintentional injuries.**

Chapter IV highlights violence and intentional injuries; Chapter II on mental health highlights suicide. This chapter explores:

- Trends in adolescent deaths and hospitalizations due to injury, and the major causes of unintentional injury
- The data snapshots highlight motor vehicle crashes (which are the leading cause of unintentional injury in Colorado for adolescents), farm injuries, unintentional firearm injuries and sports/recreation injuries
- The chapter ends with a discussion of strategies and best practices for prevention efforts, including roles for parents and communities

## Adolescent (10-19) Death Rates by Selected Cause, 1991-2001

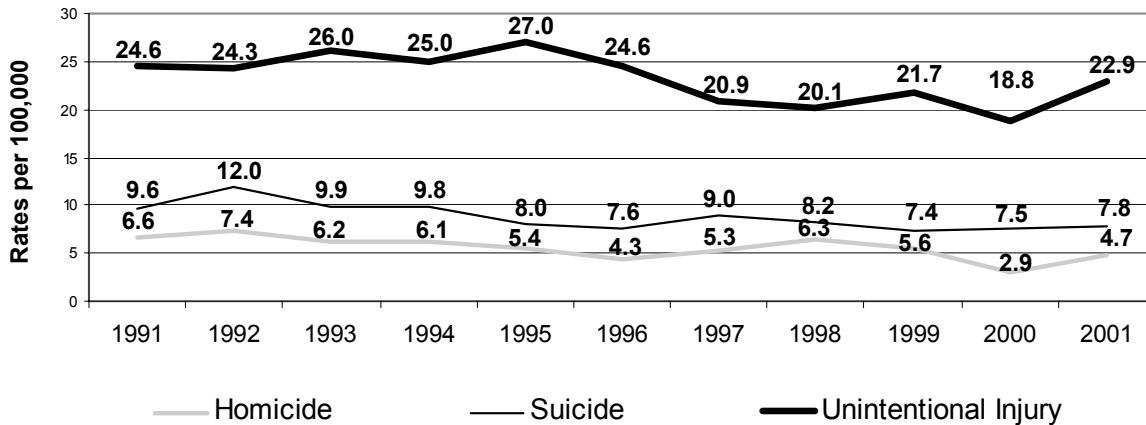


Figure 1: *Source:* Data from Colorado Health Information Dataset; 1993 was nicknamed “the summer of violence,” the Columbine shootings were in 1999.

## Leading Causes of Death, Teens 15-19: Colorado 1991-2001

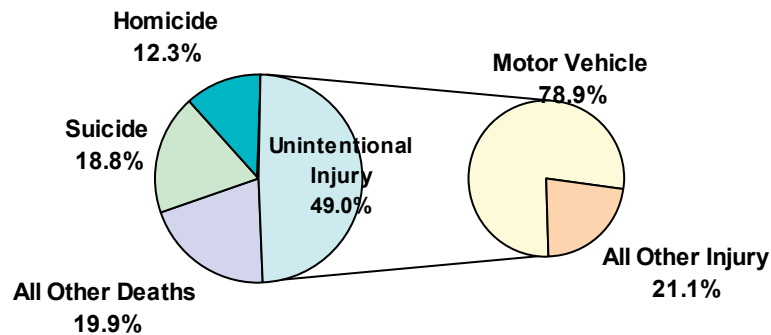


Figure 2: *Source:* Colorado Health Information Dataset

related. On the basis of miles driven, teenagers in this age group are involved in three times as many fatal crashes as are all drivers.<sup>5</sup> Implementing strategies during adolescence to prevent motor vehicle crashes is critical to adult health and well being because young adults experience many of the same behavioral issues as adolescents. A total of 204 young people aged 15-25 died on Colorado highways in 2001, representing 28% of all motor vehicle fatalities. Fifty-eight percent of teen fatalities were not wearing seatbelts. In Colorado, the highest rate of motor vehicle-related deaths occurred in young male adults aged 20 to 24.



### PREVENTION PAYS

Motor vehicle crashes are expensive. In 1999, the economic cost of police-reported crashes (both fatal and nonfatal) involving drivers aged 15 to 20 was \$32 billion.<sup>6</sup>

- In Colorado, adolescent motor vehicle fatality rates generally parallel those of the nation as a whole.
- Colorado rates for motor vehicle fatalities for all teens, ages 15 to 19, declined over the last

decade. This decline met the state's 2000 health objective of 25 deaths per 100,000. However, the decline was driven by the decline in rates for female teens; rates for male teens, ages 15 to 19, though declining over the decade, are still higher than the state's 2000 goal. The average rate from 1990-2001 is 28.9 deaths per 100,000.

- The decline in motor vehicle injury deaths has occurred in Colorado against a backdrop of initiation, implementation and enforcement of various measures designed to make teen drivers safer, such as lowered blood alcohol content (BAC) thresholds and graduated drivers' licensing for teens.<sup>7</sup>

**KidSpeak**  
 "Don't let your friends tell you to drive faster, or to run a red light. If they were really your friends, they wouldn't be putting that kind of pressure on you." Boy, age 16, Routt County, [www.dot.state.co.us/Programs/Drivetimeviewpoint.html](http://www.dot.state.co.us/Programs/Drivetimeviewpoint.html)

- Motor vehicle injury death rates for younger male adolescents (ages 10-14) have also declined. However, fatality rates for younger girls have been increasing for the past several years and are higher now than they were in 1990.

The number of motor vehicle deaths among Colorado 16-year-olds fell from 18 in 1999 to six in 2000, so that the rate for just that age fell from 30.6 to 9.8 per 100,000. The graduated licensing bill passed in 1999, focused on impacting teens at age 16, appears to have contributed to lowered death rates among that age group. The motor vehicle death rate for teens ages 17, 18 and 19 actually increased between 1999 and 2000 (from 26.4 to 30.6), while

**Fatalities Caused by Teen Drivers in 1999 in Crashes Investigated by the Colorado State Patrol, by Cause of Crash**

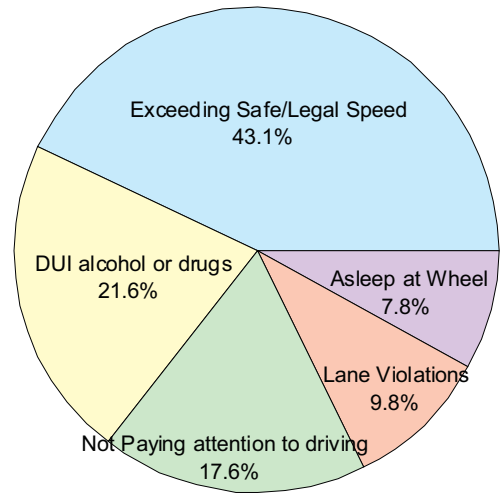


Figure 3: Source: Colorado State Patrol: Alive at 25

the rate for 15-year-olds declined fractionally (11.7 to 11.3). Therefore, the entire decline for the age group 15 to 19, from 23.6 in 1999 to 22.6 in 2000, can be attributed to a decrease in deaths among 16-year-olds.

**WHY IS DRIVING SO DANGEROUS?**

Teen driving is relatively deadly due to a combination of inexperience, overconfidence, risk-taking behavior and greater risk exposure.

- Teens have less experience behind the wheel than older drivers.
- Teens are less likely to wear seatbelts than older drivers.

**TABLE 1: MOTOR VEHICLE INJURY RISK BEHAVIORS BY GENDER, PERCENT OF HIGH SCHOOL STUDENTS REPORTING RISK**

	United States(National YRBS 2001)			Colorado(CO YRBS 2001)		
	M	F	M/F	M	F	M/F
Drove after Drinking	17.2	9.5	13.3	15.5	10.7	13.2
Rarely/Never Wear Seat Belt	18.1	10.2	14.1	14.8	10.0	12.6
Rode with Drinking Driver	31.8	29.6	30.7	30.5	29.6	30.0

Source: National Youth Risk Behavior Survey, Colorado Youth Risk Behavior Survey

- Teens are more likely to drive at night, with other teens as passengers, thus increasing the risks of distraction and the influence of peer pressure.<sup>8</sup>

The Youth Risk Behavior Survey (YRBS) provides an indication of risks that teens take with regard to motor vehicles. Teens report on drinking and driving, seatbelt use, and riding in cars with drivers who have been drinking. Colorado data generally mirror national data. These reports show boys taking more risks than girls, and almost one-third of teens reporting riding in a car with a driver who has been drinking. (See Figure 3 and Table 1 for a comparison of driving risks reported on the national YRBS and the Colorado YRBS).<sup>9</sup>

### Unintentional Firearm Injuries

In Colorado, during the period 1993 to 1997, there were 193 firearm-related fatalities to children ages 0 to 17. Eighty percent of those child fatalities occurred among boys ages 10 to 17, and the weapon used was usually a handgun.<sup>10</sup> Most adolescent firearm fatalities can be described as intentional. However, some are not. In Colorado, about one in five (19.4 percent) firearm fatalities in younger adolescents over the last decade was unintentional, with about one in 50 where the intent was unknown. For older adolescents, unintentional firearms fatalities were very rare over the last decade – less than 6 percent of all firearm deaths.<sup>11</sup>



### PREVENTION PAYS

Experts estimate that the total cost (estimated lifetime productivity loss plus medical, legal and administrative costs) of unintentional firearm fatalities to Colorado adolescents ages 15 to 19, during the period 1993-1996, was \$3.68 million.<sup>12</sup>

Unintentional Firearm Deaths: The Tip of the Iceberg  
UI Deaths and Hospitalizations by Age of Teen, CO 1996-2000

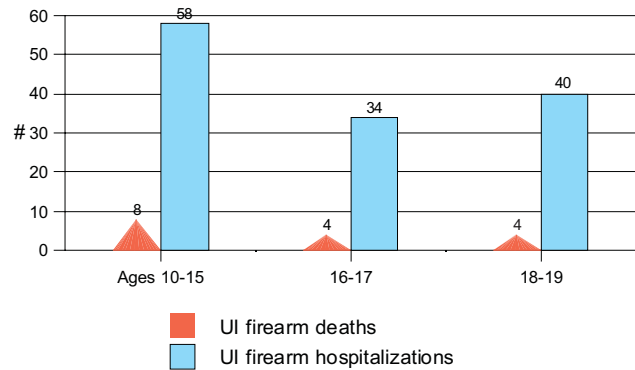
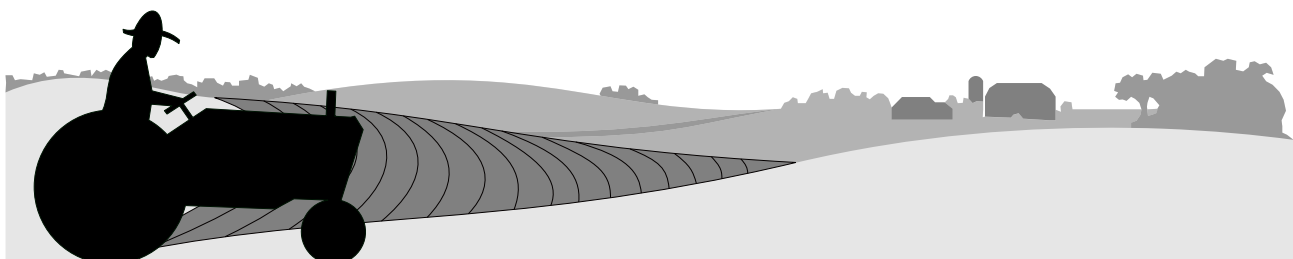


Figure 4: *Source:* death data, Colorado Health Information Dataset; hospitalization data, Colorado Department of Public Health and Environment, Colorado Trauma Registry

While the actual number of adolescent unintentional firearm fatalities is small, the number of unintentional firearm-related injuries is not. Figure 4 shows the dramatic difference between the number of unintentional firearm injuries and unintentional deaths from firearms.

### Farm Injuries

Youth who live, work and play on farms and ranches potentially are exposed to safety hazards involving machinery, electric current, firearms, bodies of water, agricultural chemicals, grain storage facilities and livestock. From 1982 to 1996, about one-third of Colorado's youth farm deaths were to teens between the ages of 15 and 19. Surprisingly, nearly half of these were females. Farm machinery (including tractors), drowning and firearm-related deaths represented almost three-quarters of fatal farm injuries to youth.<sup>13</sup>



## ***Down on the Farm***

- Injury Hospitalization and Death Prevention Strategies for Adolescents
- Improve emergency medical and trauma care in rural areas.
- Use safe farm machinery, e.g., tractors and other machines with rollover protective structures.
- Direct educational campaigns toward agricultural communities, such as Farm Safety Day Camps, Future Farmers of America, 4-H programs in farm machinery safety.
- Evaluate youth's maturity, knowledge and physical abilities to operate machinery before assigning a chore or work task.

• Ensure that youth adhere to standard safety practices such as using seat belts on tractors.  
Source: Fatal Unintentional Farm Injuries among Persons Less Than 20 Years of Age In the United States: Geographic Profiles, National Institute for Occupational Safety and Health (2001)

## ***Sports And Recreation Injuries***

Young athletes are not small adults. Adolescents may recover from injuries quicker than adults, but their bones, muscles, tendons and ligaments are still growing, which makes them more susceptible to injury. Sports injuries include broken bones, soft tissue damage (sprains, strains and tendonitis), growth plate injuries, dehydration, overheating (cramps, exhaustion, heat stroke, sunburn), repetitive motion injuries, internal injuries (bruised or damaged organs), back injuries, and head injuries. Each year, U.S. health care providers treat more than 3.5 million sports-related injuries in children under age 15.<sup>14</sup> Knees and ankles are the most common injury sites but other injury sites, such as head and neck, may have more severe implications. For example, 20 percent of high school football players will suffer a head injury (i.e., concussion) at some point in their career, and those who have had a head injury are at two to four times greater risk of having another concussion.<sup>15</sup>

From 1996 to 1998, the three leading types of recreational fatalities for Colorado adolescents, ages 10 to 19, were snow skiing and boarding, bicycling/climbing/hiking and non-pool swimming.<sup>16</sup> Teens were the second age group most likely to be killed in a cycling (recreational and non-recreational)

incident. These deaths indicate that teens were taking risks. For example:

- Out of all drowning deaths to Colorado children and adolescents from 1996 to 1998, Colorado teens ages 13 to 17 were the most likely to die in river and pond/lake recreation drownings (including fishing, wading, rafting, boating and swimming). Most of these deaths were caused by the victim's failure to wear a personal flotation device (life jacket) or losing the device, either because it was too large or not fastened properly.<sup>17</sup> The Colorado Child Fatality Review Committee noted that post-mortem autopsies in several drowning incidents involving teens indicated the presence of significant amounts of alcohol and/or other drugs.<sup>18</sup>
- Teens are one of the age groups least likely to wear helmets when bicycling.<sup>19</sup> The most common reasons given for not wearing a bicycle helmet were "uncomfortable," "annoying," "it's too hot," "don't need it" and "don't own one." Slightly less than half (42.8 percent) of students responding to the most recent Colorado Youth Risk Behavior Survey reported never or rarely wearing a helmet while motorcycling. Four out of five (83.3 percent) reported never or rarely wearing a helmet while bicycling. Girls and boys reported equal aversion to bike helmets.<sup>20</sup>

The American Academy of Pediatrics, the Centers for Disease Control and Prevention (CDC), the U.S. Consumer Product Safety Commission and other sports and health organizations recommend the use of appropriate and properly fitted safety gear, including helmets, for bicyclists, all terrain vehicle drivers and riders, scooter riders, motorcyclists, roller-bladers, skate boarders, equestrians, and football, lacrosse and baseball players, among others.<sup>21</sup> Mandatory use of helmets while skiing and snow boarding may be on the horizon for Colorado ski slopes, at least for children under 12.<sup>22</sup>

## **BEST PRACTICES**

### ***Parents***

Parents have the initial role in injury prevention. They are the ones providing the transportation and the financial and emotional support for sports and

recreational activities. They are the ones handing over the car or boat keys and paying for the insurance. They are the first adults in an adolescent's life providing role modeling, and setting clear boundaries, with appropriate consequences, related to alcohol and drug use, curfews, behavior and rules of the road.

### ***SPORTS/RECREATION***

- Enroll youth in organized sports through schools, community clubs, and recreation areas where there are adults who are certified athletic trainers (trained in the prevention, recognition and immediate care of athletic injuries).
- Make sure youth use the proper protective gear for a particular sport or recreational activity and make sure it is properly fitted.
- Ask the coach to provide warm-up exercises, such as stretching and light jogging, to help minimize the chance of muscle strain or other soft tissue injury during sports, and cooling-down exercises to loosen the body's muscles that have tightened during exercise.
- Make sure coaches and staff are diligent about the necessity of sunscreen, a hat or sunglasses (where possible) to increase protection against the sun, and proper hydration techniques.
- Make sure coaches and staff discuss proper nutrition and strength-building techniques with young athletes.

### ***DRIVING***

- Make sure your teen does not get a driver's license until *you* are satisfied that he or she can drive in varied terrains and in various weather conditions. The same goes for driving a boat, all-terrain vehicle, ski-do, motorcycle, or truck.
- Be a good role model: buckle up and don't drink and drive; insist that front and rear seat passengers "buckle up".

### ***FIREARMS***

- If your teen handles a firearm, make sure he or she has been properly trained in the proper use and storage of the firearm and ammunition.
- Install trigger locks and load indicators.

- Keep firearms and ammunition in secure storage.
- Remove firearms from the house if you have a depressed teen.

### ***SAFETY***

- Have your teen take a basic first aid course.
- Be a good role model: do warm-up and cool-down exercises; don't drink while skiing or boating; wear a helmet and protective gear when on a bike, motorcycle, or when roller-blading; store firearms safely; have a fire safety plan for your house; control personal use of fireworks.

*Source:* Childhood Sports Injuries and Their Prevention: A Guide for Parents with Ideas for Kids, National Institute of Arthritis and Musculoskeletal and Skin Diseases (2000)

### ***Schools***

According to the experts at the National Center for Injury Prevention and Control, schools have a responsibility to prevent injuries from occurring on school property and at school-sponsored events. In addition, schools can teach students the skills needed to promote safety and to prevent unintentional injuries, violence and suicide while at home, at work, at play, in their communities, and throughout their lives.<sup>23</sup> Schools have a variety of opportunities to make recreation injury prevention information available to parents, students and athletic staff. It can be delivered in the context of a comprehensive health education curriculum (see Chapter X); on the playing fields, through after-school activities, and in educational materials for parents.

### ***SCHOOLS CAN ENSURE THAT:***

- Coaches, referees, parents and students understand grades of concussions and follow "return to play" rules
- Young athletes know and follow safe sports techniques in warm-up, play and cool-down periods; nutrition and hydration; and risk avoidance

### **KidSpeak**

"Sometimes it's not just your friends [driving under the influence]; it's your parents."  
Girl, age 18, Boulder County

- Athletic equipment is safety-oriented with attention paid to maintenance and appropriateness of playing surfaces
- School personnel participate in staff development opportunities to gain knowledge, skills and confidence to promote safety and prevent unintentional injuries
- Requirements for pre-season physical examination and for appropriate protective equipment during sports are enforced
- Appropriate medical coverage is provided at school-sponsored sporting events<sup>24</sup>

### **Communities**

To change behaviors that cause injuries, communities can integrate strategies into the community and tailor them to meet their unique safety needs and opportunities for injury prevention.

- “Communities” can be as population-dense as a county, as geographically limited as a ski resort or as individual as a health care provider and patient.<sup>25</sup>
- Strategies can include increasing public awareness through education or message marketing efforts, enhancing regulation and enforcement efforts, requiring parent involvement or creating safer environments.

It is important to involve the relevant stakeholders in the planning and implementation process to increase their commitment and involvement in carrying our solutions.<sup>26</sup>

Graduated Drivers’ License (GDL) programs are a clear example of an injury prevention strategy established by policy. GDL programs restrict when adolescents can obtain a license and the conditions under which they can drive. Teens have to “earn” full driving privileges.<sup>27</sup> Colorado’s GDL law, CRS 42-2-105.5, focuses on many of the factors that lead to motor vehicle injuries in adolescents.

- A first-time driver under age 18 must have a learner’s permit for six months.
- A teen must be 16 before he or she can take a driver’s test and obtain a driver’s license.
- To obtain a license, a teen must also show proof of 50 hours of driving under adult supervision (including 10 hours of night driving experience) and proof of driving instruction.

- Drivers under age 17 are restricted to only one passenger in the front seat; the number of back seat passengers is limited to available seat belts. Driver and passengers must wear seat belts.
- Drivers under age 17 are prohibited from driving between midnight and 5 a.m. unless accompanied by an adult. Teens who must drive to or from work between midnight and 5:00 a.m. may have a note signed by an employer, parent, guardian or other responsible adult stating the time the driver arrives at and leaves his or her employment. There is an exception to the night driving restriction in the case of a medical or other emergency.
- Violations of these restrictions can mean points assessed against the teen’s license. In Colorado, minor drivers lose their license when they have more than five points within a 12-month period or when they have more than six points against their license, a much stricter threshold than that required for adult drivers.<sup>28</sup>
- Colorado has a zero-tolerance policy for teenaged drinking and driving. Youth under age 21 will lose their license if caught drinking and driving.

### **WHAT COULD COLORADO DO TO IMPROVE MOTOR VEHICLE SAFETY FOR ADOLESCENTS?**

- Make seatbelt infractions primary offenses.
- Extend the length of time a teen must have a learner’s permit.
- Limit the number of passengers in a car driven by a teen.

The U.S. Department of Transportation’s Community Guide to Preventive Services, Motor Vehicle Occupant Protection strongly recommends:<sup>29</sup>

- Primary enforcement *and* enhanced, consistent enforcement of safety belt-use laws and alcohol/drug-impaired driving laws<sup>30</sup> (wearing seatbelts reduces the risk of a fatality by 45 percent and reduces the risk of a moderate to critical injury by half<sup>31</sup>)

- Maximum .08 BAC for adult drivers<sup>32</sup>
- Sobriety checkpoints (e.g., on prom nights)<sup>33</sup>
- Hospitality employee training so that these employees can recognize underage or impaired drinkers.
- Other states are exploring:
  - Extending the length of time required for a learner's permit (e.g., North Carolina requires 365 days)
  - Restricting the number of teen passengers<sup>34</sup>
  - Emphasizing school prevention programs, addressing alcohol use on college campuses
  - Targeting judges, prosecutors and law enforcement officers for special training on youth alcohol and substance use<sup>35</sup>

## END NOTES

1. National Center for Injury Prevention and Control, Facts on Adolescent Injury (1999).
2. ER Danseco, TR Miller and RS Spicer, "Incidence and costs of 1987-1994 childhood injuries: Demographic breakdowns," *Pediatrics* 105(2): 417-418 (2000).
3. National Center for Injury Prevention and Control, Colorado Injury Profiles (2001).
4. National Adolescent Health Information Center, Fact Sheet on Unintentional Injury: Adolescents and Young Adults (2001); NCIPC, Colorado Injury Profiles, see note 3.
5. National Highway Safety Transportation Administration, Saving Teenage Lives: The Case for Graduated Driver Licensing (no date).
6. National Center for Injury Prevention and Control, "Teens behind the wheel," in *Injury Fact Book 2001-2002*.
7. See, e.g., JT Shope et al., "Graduated driver licensing in Michigan: Early impact on motor vehicle crashes among 16-year-old drivers," *Journal of the American Medical Association* 286(13): 1593-1598 (2001); LH Chen et al., "Potential benefits of restrictions on the transport of teenage passengers by 16 and 17 year old drivers," *Injury Prevention* 7(2): 129-134 (2001); RD Foss, JR Feaganes and EA Rodgman, "Initial effects of graduated driver licensing on 16-year-old driver crashes in North Carolina," *Journal of the American Medical Association* 286(13): 1588-1592 (2001); AT McCartt, "Graduated driver licensing systems: Reducing crashes among teenage drivers," *Journal of the American Medical Association* 286(13): 1631-1632 (2001).
8. Chen et al., "Potential benefits," see note 7.
9. See Introduction for a discussion of the uses and limitations of the Colorado Youth Risk Behavior Survey.
10. Child Fatality Review Committee, Colorado Department of Public Health and Environment, Firearm Child (0-17) Fatalities Colorado 1993-1997 (1999).
11. Colorado Department of Public Health and Environment, Colorado Health Information Dataset (CoHID).
12. Children's Safety Network, National Injury Data Technical Assistance Center, The Injury Mortality Matrix for Unintentional and Intentional Childhood Injury, 2nd ed. (2000).
13. National Institute for Occupational Safety and Health, "Fatal unintentional farm injuries among persons less than 20 years of age in the United States," *Geographic Profiles* (Pub. No. 2001-131), Table 28 (2001).
14. See, e.g., American Academy of Orthopaedic Surgeons, *Play it safe!* (2002); R Requa, "The scope of the problem: The impact of sports-related injuries," in *Proceedings of Sports Injuries in Youth: Surveillance Strategies*, p.19, National Institute of Arthritis and Musculoskeletal and Skin Diseases (2000).
15. American Academy of Pediatrics, *Sports Shorts: Guidelines for Parents and Athletes: Head Injuries* (2000).
16. Health Statistics Section, Colorado Department of Public Health and Environment, *Recreational Fatalities in Colorado, 1996-1998* (2000).
17. Child Fatality Review Committee, Colorado Department of Public Health and Environment, *Accidental Drowning Fatalities Colorado Children 1993-1997* (2000).
18. National Highway Transportation Safety Administration, *Final Regulatory Impact Analysis: Amendment to FMVSS No. 208: Passenger Car Front Seat Occupant Protection* (1984).
19. JT Finnoff et al., "Barriers to bicycle helmet use," *Pediatrics* 108(1): 167-168 (2001).
20. Colorado Department of Public Health and Environment, *Child Safety Belt, Car Safety Seat, and Bicycle Helmet Use: Colorado Behavioral Risk Factor Surveillance System, 1995 and 1997* (1999).
21. See, e.g., Centers for Disease Control and Prevention, *Safe USA* (2002); Brain Injury Association, *Scooter Safety, Transportation Safety, Sports Injuries (factsheets)* (2001); US Consumer Product Safety Commission, *Skates and Skateboard Safety* (2001); American Academy of Pediatrics, Committee on Injury and Poison Prevention, "All-terrain vehicle injury prevention: two-, three-, and four-wheeled unlicensed motor vehicles," *Pediatrics* 105(6): 1352-1354 (2000); American Academy of Pediatrics, Committee on Injury and Poison Prevention and Committee on Sports Medicine and Fitness, "In-line skating injuries in children and adolescents," *Pediatrics* 101(4): 720-722 (1998).
22. J Blevins, "Ski-helmet rules on horizon for kids," *Denver Post*, March 26, 2002.
23. Centers for Disease Control and Prevention, "School health guidelines to prevent unintentional injuries and violence," *MMWR* 50(RR-22):1-74 (2001).
24. See generally TL Cheng et al., "Sports injuries: An important cause of morbidity in urban youth," *Pediatrics* 105(3): 625-626 (2000); National Safety Council, *Report on Injuries in America, 2001* (2001).
25. The mental health provider also has a role in injury prevention for adolescents because emotional and behavioral effects of injuries contribute to morbidity and mortality in children and adolescents. Adolescents in general, maltreated children, suicide attempters and substance abusers have been identified as being at especially high risk for injuries. FJ Stoddard and G Saxe, "Ten-year research review of physical injuries," *Journal of the American Academy of Child and Adolescent Psychiatry* 40(10):1128-1145 (2001).
26. TP Klassen et al., "Community-based injury prevention interventions," *The Future of Children* 10(1), The David and Lucile Packard Foundation (2000).
27. National Safety Council, "How state laws prevent young-driver tragedies," in *Driver Safety* (2000); NHTSA, *Saving Teenage Lives*, see note 5.
28. Colorado Department of Transportation, *Drive Time: Teen Driving: What's Up?* ([www.coloradodrivetime.com](http://www.coloradodrivetime.com); an informational website for teens and their parents on Colorado's graduated driver's license program).

29. National Highway Traffic Safety Administration, Community How-To Guides on Underage Drinking Prevention (2001).
30. LC Steenbergen et al., "Kentucky's graduated driver licensing program for young drivers: Barriers to effective local implementation," *Injury Prevention* 7(4): 286-291 (2001).
31. NHTSA, Final Regulatory Impact Analysis, see note 18.
32. National Highway Traffic Safety Administration, *Setting Limits, Saving Lives* (2001).
33. See, e.g., Mothers Against Drunk Driving (MADD), *Promotion: Promise to Keep It Safe* (no date). Also available in Spanish.
34. Child Fatality Review Committee, Colorado Department of Public Health and Environment, *Motor Vehicle-Related Child Fatalities Colorado 1995-97* (1999).
35. Pacific Institute for Research and Evaluation, *Enforcing the Underage Drinking Laws Program: Year 3 Database Overview*, Office of Juvenile Justice and Delinquency Prevention (2000).

