

EVIDENCE-STATEMENT:

MOTOR VEHICLE-RELATED INJURY PREVENTION (Counseling)

Why This Chapter is
Important for
Employers:
An Overview

- Motor vehicle-related injuries kill more children and young adults than any other single cause in the United States.¹ In 2004, 1,638 children ages 14 years and younger died as occupants in motor vehicle-related crashes, and approximately 214,000 were injured resulting in an average of 6 deaths and 673 injuries each day.²
- In a given year, 41,000 Americans will die in motor vehicle crashes, 500,000 will have crash injuries requiring hospitalization, and 4 million will have crash injuries requiring a visit to an emergency department.¹
- Motor vehicle-related deaths and injuries cost the United States a total of \$230 billion dollars per year (in year 2000 dollars).³ Costs due to motor vehicle-related injuries in children are estimated to approach \$20 billion annually. The average cost, per child, for a motor-vehicle related injury is estimated to be \$10,600 (updated to year 2000 dollars).⁴
- The workplace burden of motor vehicle-related crashes is also substantial: each year, motor vehicle-related crashes result in \$61 billion in lost productivity and \$5 billion in workplace administrative costs (in year 2000 dollars).³
- Motor vehicle-related fatal and nonfatal injuries are highly preventable. Seatbelts, child safety seats, safety helmets (for motorcycles), and not driving while impaired by alcohol or drugs, are proven to reduce the risk of motor vehicle-related injuries.⁵⁻¹¹

Clinical Preventive Service Recommendations

U.S. Preventive
Services Task Force

The U.S. Preventive Services Task Force (USPSTF) issued a recommendation on counseling to prevent motor vehicle crash injuries in 1996. Given the availability of new evidence, the USPSTF decided to update its 1996 recommendation. This work is currently in progress. Please refer to the USPSTF website for updates (www.ahrq.gov/clinic/prevenix.htm).

American Academy
of Family Physicians
(AAFP)

The American Academy of Family Physicians (AAFP) recommends that physicians counsel all parents and patients over the age of 2 years regarding accidental injury prevention including, as appropriate: child safety seats, lap and shoulder belt use, bicycle safety, motorcycle helmet use, and driving while intoxicated.¹²

Evidence Rating: R
(Recommended)

Although evidence exists which demonstrates net benefit, either the benefit is only moderate in magnitude or the evidence supporting a substantial benefit is only fair. The intervention is perceived to be cost effective and acceptable to most patients. The AAFP Summary of Recommendations for Clinical Preventive Services (RCPS) originated in the Commission on Clinical Policies and Research and was approved by the AAFP Board of Directors in August 2005.

The starting point for the recommendations is the rigorous analysis of scientific knowledge available as presented by the U.S. Preventive Services Task Force (USPSTF) in their *Guide to Clinical Preventive Services*, 2nd Edition and ongoing releases of evidence reports and recommendations from the 3rd Edition.

The AMA urges physicians to educate their patients about the dangers of alcohol abuse and operating a motor vehicle while under the influence of alcohol.¹³

Other Recommended
Guidance
American Medical
Association (AMA)

The AMA recommends that all adolescents receive health guidance annually to promote the reduction of injuries.¹⁴ Health guidance for injury prevention includes the following:

- Counseling to avoid the use of alcohol or other substances while using motor or recreational vehicles, or where impaired judgment may lead to injury;
- Counseling to use safety devices, including seat belts, and motorcycle and bicycle helmets.

Evidence Rating:

Expert Opinion. The AMA developed its recommendations with contributions from a Scientific Advisory Panel, comprised of national experts, as well as representatives of primary care medical organizations and the health insurance industry. The body of scientific evidence indicated that the periodicity and content of preventive services can be important in promoting the health and well-being of adolescents.

American Academy
of Pediatrics (AAP)

The American Academy of Pediatrics (AAP) recommends that pediatricians counsel parents of most children (those who weigh more than 12 lbs at 4 months of age) to encourage use of a convertible car safety seat that will accommodate them rear facing at higher weights.¹⁵ Further, the AAP encourages pediatricians to emphasize to parents and teenagers repeatedly the paramount importance of safe driving behavior. During office visits, pediatricians can address risk factors, especially driving while impaired by alcohol or other drugs and nighttime driving. Pediatricians are encouraged to counsel parents that adolescents, despite their physical maturity, are still developing their driving skills and need time to master this complex task by practicing while supervised in a low-risk environment. The pediatrician should address the tendency of some parents to deny that their teenagers might be unsafe drivers. Pediatricians should advise parents that their parenting responsibilities include the following¹⁵:

- Setting a good driving example (e.g., no drinking and driving, no speeding, and requiring all occupants to use safety belts);
- Establishing driving behavior limits on their teenagers, such as limiting the number and age of passengers, restricting nighttime driving for novice drivers, and delaying the onset of unsupervised driving as they see fit;
- Showing that they expect responsible driving behavior from their teenagers and imposing penalties for irresponsible actions; Supervising novice drivers in a vehicle;
- Ensuring the mechanical safety of any car used by a teenager.

Evidence Rating:

Not Specified

Information Sources

The recommendations and supporting information contained in this document came from several sources, including the:

- American Academy of Family Physicians (AAFP)
- American Academy of Pediatrics (AAP)
- American Medical Association (AMA)
- Centers for Disease Control and Prevention (CDC), National Center for Injury Prevention and Control
- National Highway Traffic Safety Administration (NHTSA)
- Peer-reviewed research
- U.S. Department of Transportation (DOT)

The background and supporting information contained in this document is a compilation of research findings. All information presented in this document should be attributed to its referenced source and should not be considered a reflection of other organizations cited in the text.

Condition/Disease Specific Information

Epidemiology
of Injury

Motor vehicle-related injuries kill more children and young adults (18 to 34 years of age) than any other single cause in the United States.¹ In a given year, 41,000 Americans will die in motor vehicle crashes, 500,000 will have crash injuries requiring hospitalization, and 4 million will have crash injuries requiring a visit to an emergency department.¹

In the United States during 2004, 1,638 children ages 14 years and younger died as occupants in motor vehicle-related crashes, and approximately 214,000 were injured resulting in an average of 6 deaths and 673 injuries each day.²

During 2004, 16,694 people in the United States died in alcohol-related motor vehicle crashes, representing 39% of all traffic-related deaths.¹⁶ Drugs other than alcohol (e.g., marijuana and cocaine) are involved in about 18% of motor vehicle deaths. These drugs are usually used in combination with alcohol.¹⁷ Nearly three quarters of those convicted of driving while impaired are either frequent heavy drinkers (alcohol abusers) or alcoholics (alcohol dependent).¹⁷

Injury Risk Factors

Risk factors for motor vehicle-related injuries among children include failing to use occupant protection, improper use of occupant protection, and being a passenger in a vehicle driven by a person under the influence of alcohol or other drugs. Restraint use among young children often depends upon the driver's restraint use. Almost 40% of children riding with unbelted drivers were themselves unrestrained.¹⁸ Even children who do use child restraints are at risk if they are improperly secured. A survey of more than 17,500 children found that only 15% of children in safety seats were correctly harnessed into correctly installed seats.¹⁸

| Value of Prevention | |
|---|--|
| Economic Burden of Injury | <p>The economic burden of motor vehicle-related deaths and injuries is enormous, costing the United States more than \$230 billion each year (year 2000 dollars).³ Of the estimated \$230 billion, \$61 billion is due to lost workplace productivity, \$59 billion due to property damages, \$34 billion due to medical expenses, \$25 billion due to delayed transit, \$20 billion due to lost household productivity, \$15 billion due to insurance administration, \$11 billion due to legal fees, and \$5 billion due to workplace administration.³</p> <p>Costs due to motor vehicle injuries in children are estimated to approach \$20 billion annually. Costs per child injured (when a child occupies a vehicle involved in a crash) are estimated at \$10,600 per injury (updated to year 2000 dollars).⁴</p> <p>Alcohol-involved crashes pose a great economic burden in the United States. The economic costs for motor vehicle injuries involving alcohol are estimated at \$50.9 billion annually (year 2000 dollars).³</p> |
| Workplace Burden of Injury | <p>As stated above, the workplace burden of motor vehicle-related crashes is substantial. Each year, motor vehicle-related crashes result in \$61 billion in lost productivity and \$5 billion in workplace administrative costs (year 2000 dollars).³</p> |
| Economic Benefit of Preventive Intervention | <p>The savings associated with preventable medical-care costs, lost productivity, and other injury-related expenditures constitute the major economic benefit of counseling to prevent motor vehicle-related injuries. Including intangible consequences such as pain and suffering, the total value of preventing a motor vehicle-related death was estimated to be \$3.4 million (in year 2000 dollars) per life saved.¹⁹</p> |
| Estimated Cost of Preventive Intervention | <p>In 2004, the private-sector cost of injury prevention counseling averaged \$38 per session; approximately 95% of paid claims fell within the range of \$0 to \$129 per session.¹⁹</p> |
| Estimated Cost of Treatment | <p>The cost of motor-vehicle injuries varies tremendously depending on the type and severity of the injury.</p> |
| Cost-Effectiveness and/or Cost-Benefit Analysis of Preventive Intervention | <p>Injury prevention counseling by pediatricians has been shown to be cost-saving in some studies. The studied intervention included 11 brief sessions of approximately 1.5 minutes each, one of which was related to the use of child safety seats. Cost savings from the child safety seat counseling session ranged from \$24 to \$69 per child counseled. These counseling costs are comparable with the costs of counseling for other prevention messages.²⁰⁻²²</p> <p>Counseling trauma patients (an injured patient treated in an emergency department or admitted to a hospital) on the dangers of alcohol was estimated to have a net cost-savings of \$330 per patient intervention due to reduced future alcohol related trauma. The counseling included a brief screening and intervention session by a healthcare professional.²³</p> |

| Preventive Intervention Information | |
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| <p style="color: #008080; font-weight: bold;">Preventive Intervention: Purpose of Counseling</p> | <p>Motor vehicle-related fatal and nonfatal injuries are highly preventable. Seatbelts, child safety seats, safety helmets (for motorcycles), and not driving while impaired by alcohol or drugs, are proven to reduce the risk of motor vehicle-related injuries.⁵⁻¹¹ The rates of fatal and non-fatal motor vehicle-related injuries have declined in recent years, partially due to program and policy interventions designed to prevent these injuries.⁵⁻¹¹ For example, over 80% of all adults use seat belts. However, children remain at high risk for motor-vehicle related injuries because only 15% of children are correctly harnessed into correctly installed safety seats.¹⁸</p> |
| <p style="color: #008080; font-weight: bold;">Benefits and Risks of Intervention</p> | <p>Several studies have evaluated counseling parents to increase seat belt usage among their children²⁴⁻²⁹ and to use safety seats for infants and newborns.³⁰⁻⁴⁰ Other studies have shown that counseling adolescents and adults can increase seat belt usage.^{26,41-44} In general, most of the evidence suggests that there is a relatively short-term effect of clinician counseling on the use of occupant restraints, indicating the need for periodic reinforcement of this message.</p> <p>While little is known about how effectively clinicians can influence patients to refrain from driving while impaired by alcohol or other drugs, there is good evidence that brief clinician counseling can reduce alcohol consumption in problem drinkers, which may, in turn, result in reduced drinking and driving.⁴⁵⁻⁴⁷ Studies also find that counseling provided as a component of trauma care (care delivered to an injured patient in an emergency department or through hospitalization) significantly reduces injuries and the rate of trauma recidivism (re-injury).⁴⁸⁻⁵⁰ Further, despite the fact that there are over 159 million episodes of alcohol-impaired driving each year, only 1.5 million persons are arrested annually for driving under the influence of alcohol.⁵¹ Thus, it is likely that many patients would benefit from clinician counseling to modify their behaviors as drivers and passengers in motor vehicles. Since motor vehicle crashes represent a leading cause of death and nonfatal injury in the United States, even modest successes through clinical interventions could have major public health benefits.</p> |
| <p style="color: #008080; font-weight: bold;">Initiation, Cessation, and Interval of Counseling</p> | <p>Although the harms associated with counseling are not well-studied, they may include stigma, psychological stress, and anxiety. It is likely that these risks are minimal, and the harms associated with counseling are far outweighed by the benefits.</p> <p>There is insufficient evidence to determine the optimal ages at which to begin and cease counseling to prevent motor vehicle-related injuries. Experts agree that counseling for motor vehicle-related injuries should be initiated and stopped when deemed appropriate by the clinician.</p> <p>Likely initiation periods might be: 1) when patients first begin to drive (age 15, 16 or older depending on state law), 2) when patients first become parents, 3) when patients seek other preventive services for young children, 4) when patients present with alcohol or other drug dependencies, and 5) when patients receive trauma care for alcohol-related injuries.</p> |

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| | <p>Evidence is insufficient to determine the optimal interval to counsel patients about motor vehicle-related injuries. Thus, clinicians are encouraged to use their judgment in deciding how frequently to counsel patients for motor vehicle-related injuries. Clinicians should be encouraged to periodically reinforce prevention messages with all patients (at least once per year), particularly with those patients at high-risk of motor vehicle-related injuries (patients aged 18 to 33 years, parents of small children or adolescents, and substance and alcohol abusers).</p> |
| <p>Intervention Process</p> | <p>The specific method of counseling is left to the discretion of the clinician. Common methods of counseling include brief clinician counseling (3 minutes or less) and intensive counseling.</p> <p>The provider of any patient who has suffered an alcohol-related motor vehicle crash should screen the individual for alcohol misuse. For more information on alcohol misuse screening and counseling please refer to the <i>Alcohol Misuse Screening and Counseling Evidence-Statement</i>.</p> |
| <p>Treatment Information</p> | <p>Not Applicable</p> |

Strength of Evidence for the Clinical Preventive Service
 The level of evidence supporting the recommendations contained in this chapter is described below.

Evidence-Based Research:

American Academy of Family Physicians (AAFP)
 Strength of Evidence: R (Recommended)

- The AAFP recommends that physicians counsel all parents and patients over the age of 2 years regarding accidental injury prevention including, as appropriate: child safety seats, lap and shoulder belt use, and driving while intoxicated.¹²

Recommended Guidance:

American Medical Association (AMA)
 Strength of Evidence: Not Specified

- The AMA urges physicians to educate their patients about the dangers of alcohol abuse and operating a motor vehicle while under the influence of alcohol.²
- The AMA recommends that all adolescents receive health guidance annually to promote the reduction of injuries.¹⁴ Health guidance for injury prevention includes the following:
 - > Counseling to avoid the use of alcohol or other substances while using motor or recreational vehicles, or where impaired judgment may lead to injury;

- > Counseling to use safety devices, including seat belts, and motorcycle and bicycle helmets.

American Academy of Pediatrics (AAP)

Strength of Evidence: Not Specified

- The AAP recommends that pediatricians counsel parents of most children (those who weigh more than 12 lb at 4 months of age) to encourage use of a convertible car safety seat that will accommodate them rear facing at higher weights.⁵
- The AAP encourages pediatricians to emphasize to parents and teenagers repeatedly the paramount importance of safe driving behavior. During office visits, pediatricians can address risk factors, especially driving while impaired by alcohol or other drugs and nighttime driving. Pediatricians are encouraged to counsel parents that adolescents, despite their physical maturity, are still developing their driving skills and need time to master this complex task by practicing while supervised in a low-risk environment. The pediatrician should address the tendency of some parents deny that their teenagers might be unsafe drivers.⁵

Authored by:

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