



WHAT WORKS

Motor Vehicle-Related Injury Prevention

Evidence-Based Interventions for Your Community



Motor vehicle-related injuries kill more children and young adults than any other single cause in the United States. For people of all ages, motor vehicle crashes are the leading cause of death from injury.¹

This brochure is designed to help public health program planners, community advocates, educators, and policymakers find proven intervention strategies—including programs, services, and policies—for preventing motor vehicle-related injury. It can help decision makers in both public and private sectors make choices about what intervention strategies are best for their communities. This brochure summarizes information in *The Guide to Community Preventive Services (The Community Guide)*, an essential resource for people who want to know what works in public health.

Use the information in this brochure to help select intervention strategies you can adapt for your community to:

- Increase the use of child safety seats
- Increase the use of motorcycle helmets
- Increase the use of seat belts
- Reduce alcohol-impaired driving

The Community Guide provides evidence-based findings and recommendations from the Community Preventive Services Task Force (Task Force) about community preventive services, programs, and policies to improve health. Learn more about *The Community Guide* and what works to reduce motor vehicle-related injuries and deaths by visiting www.thecommunityguide.org/mvoi.

The Centers for Disease Control and Prevention provides administrative, research, and technical support for the Community Preventive Services Task Force.

WHAT WORKS Motor Vehicle-Related Injury Prevention

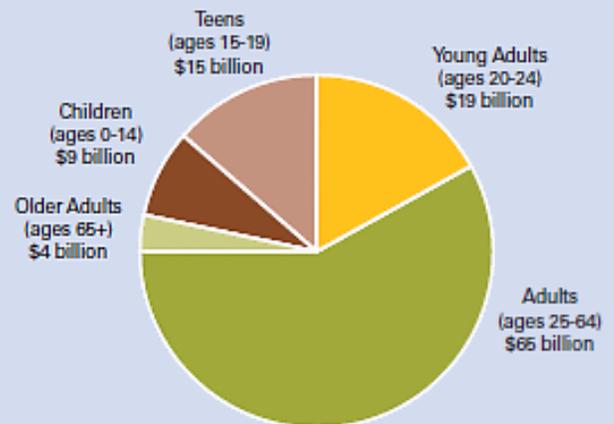
THE PUBLIC HEALTH CHALLENGE

In 2010, **nearly 33,000 people died** in motor vehicle crashes. That's 90 people a day. Millions more sustained non-fatal injuries in a crash.² The annual cost of motor vehicle crashes exceeds **\$99 billion** in medical costs and lost productivity.³

Motor vehicle-related injuries—statistics and costs

Number of teen deaths from motor vehicle crashes	 1 in 3 ¹
Number of adults who don't wear a seat belt on every trip	 1 in 7 ⁴
Number of crash deaths involving a drunk driver	 1 in 3 ⁵
Percentage of children riding without restraint	 11% ⁶
Number of additional lives that would have been saved if all passenger vehicle occupants wore seat belts	 More than 3,300²

Annual Costs of Motor Vehicle-Related Fatal and Nonfatal Injuries, by Age Group*



*United States, in 2005 dollars
Source: Web-based Injury Statistics Query and Reporting System (WISQARS), 2005

For more information on motor vehicle-related injuries in the U.S., including costs of deaths from crashes by state, see www.cdc.gov/injury/wisqars.

EVALUATING THE EVIDENCE

- The Task Force findings and recommendations for interventions that prevent motor vehicle-related injury use are based on systematic reviews of the available evidence.
- The systematic reviews look at the results of research and evaluation studies published in peer-reviewed journals and other sources.
- Each systematic review looks at the intervention's effectiveness and how it works in different populations and settings. If found effective, cost and return on investment are also reviewed when available.
- For each intervention, a summary of the systematic review, evidence gaps, and journal publications can be found on the Motor Vehicle-Related Injury Prevention section of the website at www.thecommunityguide.org/mvoi.

▶ Community Preventive Services Task Force

The Guide to Community Preventive Services (The Community Guide) is an essential resource for people who want to know what works in public health. It provides evidence-based recommendations and findings about public health interventions and policies to improve health and promote safety. The Community Preventive Services Task Force (Task Force)—an independent, nonfederal, unpaid body of public health and prevention experts—bases its findings and recommendations on systematic reviews of the scientific literature. With oversight from the Task Force, scientists and subject matter experts from the Centers for Disease Control and Prevention conduct these reviews in collaboration with a wide range of government, academic, policy, and practice-based partners.

More information about how the Task Force conducts its reviews is available at www.thecommunityguide.org/about/methods.html.

SUMMARIZING THE FINDINGS ON MOTOR VEHICLE SAFETY

All Task Force findings and recommendations on preventing motor vehicle-related injuries are available online at www.thecommunityguide.org/mvoi. Some of the Task Force recommendations related to motor vehicle safety are below.

✓ **Use of child safety seats.** Laws mandating use of child safety seats can substantially increase their use and decrease injuries. Community-wide information and law enforcement campaigns—like media campaigns and checkpoints—can also increase child safety seat use. Distribution programs, which give away or loan child safety seats, and incentive programs, which allow parents to rent safety seats at reduced cost, can boost safety seat use. These programs should include educational components on the importance of correctly using child safety seats. Distribution programs are effective when conducted at hospitals and clinics, during postnatal home visits, and when provided by auto insurance companies. Incentive and education programs that offer children and parents rewards for purchasing and learning how to correctly use child safety seats can also increase their use.

✓ **Use of seat belts.** Laws requiring seat belt use in motor vehicles can cut the number of total motor vehicle-related injuries by a median of 8 percentage points and the number of fatal motor vehicle-related injuries by a median of 9 percentage points. Primary seat belt laws, which allow police to ticket drivers solely for being unbelted, reduce motor vehicle-related injuries and deaths more than secondary laws, which allow police to ticket unbelted drivers only if they're

pulled over for another reason. Seat belt use improves when laws are enforced by increasing either the number of tickets issued or the number of officers on patrol. Studies show that seat belt use in states with primary laws is 9 percentage points higher compared to states with secondary laws.⁷

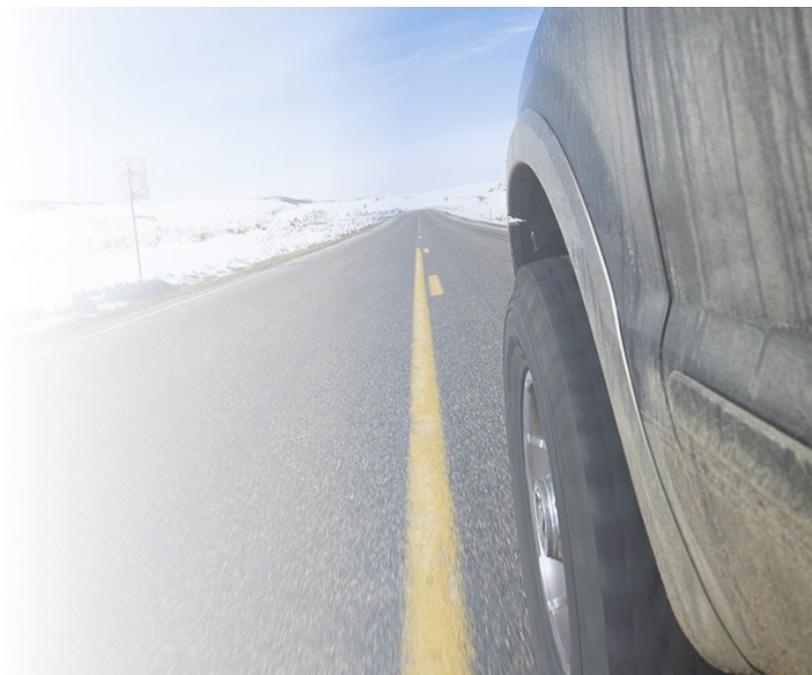
✓ **Alcohol-impaired driving.** Laws prohibiting driving with a blood alcohol concentration (BAC) of 0.08 percent or higher can decrease fatal crashes by a median of 7 percent. Now enacted nationwide, BAC laws may save 400-600 lives a year. Maintaining the minimum legal drinking age at 21 and instituting lower BAC limits for drivers under this age are also recommended. Sobriety checkpoints and ignition interlocks (in-car breathalyzers) can help enforce these laws and prevent drivers from being re-arrested.

Mass media campaigns designed to persuade people to either avoid drinking and driving or prevent others from doing so may decrease alcohol-related crashes. To be effective, campaigns must be carefully planned and well executed, attain adequate audience exposure, and be implemented in settings that have other ongoing alcohol-impaired driving prevention activities. School-based education programs to reduce drunk driving can keep students from riding with drunk drivers.

PUTTING THE TASK FORCE FINDINGS TO WORK

As a public health decision maker, practitioner, community leader, or someone who can influence the health of your community, you can use The Community Guide to create a blueprint for success.

- ✓ Identify your community's needs. Review the intervention strategies recommended by the Task Force and determine which ones best match your needs. Adopt, adapt, or develop evidence-based programs, services, and policies that can prevent motor vehicle-related injuries.
- ✓ See how other communities have applied the Task Force recommendations and other intervention strategies for motor vehicle safety at www.thecommunityguide.org/CG-in-Action. Get ideas from their Community Guide in Action stories.
- ✓ Consult the **Partnership for Prevention report on transportation and health** at www.prevent.org/Additional-Pages/Transportation-and-Health.aspx for suggestions on putting evidence-based recommendations on driving and health into practice.



FOR MORE INFORMATION

The Community Guide: Motor Vehicle-Related Injury Prevention

www.thecommunityguide.org/tobacco

National Center for Injury Prevention and Control, CDC

www.cdc.gov/motorvehiclesafety

CDC's Vital Signs: Adult Seat Belt Use

www.cdc.gov/vitalsigns/SeatBeltUse

CDC's Vital Signs: Drinking and Driving

www.cdc.gov/vitalsigns/DrinkingAndDriving

Healthy People 2020 Interventions and Resources on Injury and Violence Prevention

www.healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=24



THE COMMUNITY GUIDE IN ACTION



Ho-Chunk Nation Launches Road Safety Program

Motor vehicle crashes are the leading cause of injury death for Native Americans. In Wisconsin, the Ho-Chunk Nation Division of Health created a culturally targeted prevention program to improve road safety and reduce injuries and deaths among tribal members. Program staff worked closely with local county police departments, providing special training for officers, conducting child safety seat clinics, and performing safety seat checks. They also conducted a media campaign and held community education events. In the wake of the program, the use of seat belts and child safety seats increased substantially. Read more about this story and other tribal motor vehicle-related injury prevention programs at www.cdc.gov/injury/pdfs/ss/Wisconsin_mvs-a/pdf.



Lower Blood Alcohol Content (BAC) Limit Goes Nationwide

In the late 1990s, states began lowering BAC limits to legally operate a vehicle from 0.10 to 0.08 g/DL. Critics were skeptical that these lower limits could decrease deaths from motor vehicle crashes. To assess their effects, a team of experts from the Task Force with CDC and other federal agencies led a review of the evidence using The Community Guide's systematic review process. The review revealed a 7 percent decrease in fatalities resulting from the lowered BAC limit.⁸ Based on strong evidence that lower BAC limits are effective in reducing alcohol-related motor vehicle fatalities, the Task Force recommended nationwide adoption of 0.08 BAC laws. Congress considered the findings and mandated that all states adopt the stricter limit or risk losing funding. Read more on this and other stories in The Community Guide in Action series at www.thecommunityguide.org/CG-in-Action.

REFERENCES

¹Centers for Disease Control and Prevention. Web-based Injury Statistics Query and Reporting System (WISQARS). U.S. Department of Health and Human Services. Available at www.cdc.gov/injury/wisqars.

²National Highway Traffic Safety Administration. Traffic Safety Facts: 2010 Data. 2012. Available at www.nrd.nhtsa.dot.gov/Pubs/811630.pdf.

³Naumann, RB, Dellinger, AM, Zaloshnja, E, Lawrence, BA, Miller, TR. Incidence and total lifetime costs of motor vehicle-related fatal and nonfatal injury by road user type, United States, 2005. *Traffic Injury Prevention* 2010;11(4):353-360.

⁴Centers for Disease Control and Prevention. Vital Signs: Nonfatal, motor vehicle occupant injuries (2009) and seat belt use (2008) among adults—United States. *Morbidity and Mortality Weekly Report* 2011;59(51):1681-1686.

⁵National Highway Traffic Safety Administration. Traffic Safety Facts, 2011 Data: Alcohol- Impaired Driving. 2012. Available at www.nrd.nhtsa.dot.gov/Pubs/811700.pdf.

⁶National Highway Traffic Safety Administration. Occupant Restraint Use in 2010: Results from the national occupant protection use survey controlled intersection study. 2012. Available at www.nrd.nhtsa.dot.gov/Pubs/811527.pdf.

⁷Shults, RA, Beck, LF. Self-reported seatbelt use, United States, 2002-2010: Does prevalence vary by state and type of seatbelt law? *Journal of Safety Research* 2012;43(5-6):417-420.

⁸Mercer, SL, Sleet, DA, Elder, RW, Cole, KH, Shults, RA, Nichols, JL. Translating evidence into policy: Lessons learned from the case of lowering the legal blood alcohol limit for drivers. *Annals of Epidemiology* 2010;20(6):412-420.



WHAT WORKS

Motor Vehicle-Related Injury Prevention

Evidence-Based Interventions for Your Community

TASK FORCE FINDINGS ON MOTOR VEHICLE-RELATED INJURY PREVENTION

The Community Preventive Services Task Force (Task Force) has released the following findings on what works in public health to reduce motor vehicle-related injuries and deaths. These findings are compiled in The Guide to Community Preventive Services (The Community Guide) and listed in the table below. Use the findings to identify strategies and interventions you could use for your community.

Legend for Task Force Findings: Recommended Insufficient Evidence Recommended Against (See reverse for detailed descriptions.)

Intervention	Task Force Finding
Use of child safety seats	
Laws mandating use	
Community-wide information and enhanced enforcement campaigns	
Distribution and education programs	
Incentive and education programs	
Education programs when used alone	
Use of motorcycle helmets	
Universal helmet laws	
Use of safety belts	
Laws mandating use	
Primary (vs. secondary) enforcement laws	
Enhanced enforcement programs	
Reducing alcohol-impaired driving	
0.08% blood alcohol concentration (BAC) laws	
Lower BAC laws for young or inexperienced drivers	
Maintaining current minimum legal drinking age (MLDA) laws	

Intervention	Task Force Finding
Sobriety checkpoints	
Mass media campaigns	
Multicomponent interventions with community mobilization	
Ignition interlocks	
School-based instructional programs*	
School-based peer organizing interventions	
School-based social norming campaigns	
Designated driver incentive programs	
Designated driver population-based campaigns	
* School-based instructional programs are recommended to reduce riding with alcohol-impaired drivers; however, the Task Force found insufficient evidence to determine whether these programs reduce alcohol-impaired driving or alcohol-related crashes.	

Visit the “Motor Vehicle-Related Injury Prevention” page of The Community Guide website at www.thecommunityguide.org/mvoi to find summaries of Task Force findings and recommendations on preventing motor vehicle-related injuries. Click on each topic area to find results from the systematic reviews, included studies, evidence gaps, and journal publications.

UNDERSTANDING THE FINDINGS

The Task Force bases its findings and recommendations on systematic reviews of the scientific literature. With oversight from the Task Force, scientists and subject matter experts from the Centers for Disease Control and Prevention conduct these reviews in collaboration with a wide range of government, academic, policy, and practice-based partners. Based on the strength of the evidence, the Task Force assigns each intervention to one of the categories below.

CATEGORY	DESCRIPTION	ICON
Recommended	There is strong or sufficient evidence that the intervention is effective . This finding is based on the number of studies, how well the studies were designed and carried out, and the consistency and strength of the results.	
Insufficient Evidence	There is not enough evidence to determine whether the intervention is effective. This does not mean the intervention does not work. There is not enough research available or the results are too inconsistent to make a firm conclusion about the intervention’s effectiveness. The Task Force encourages those who use interventions with insufficient evidence to evaluate their efforts.	
Recommended Against	There is strong or sufficient evidence that the strategy is harmful or not effective .	

Visit the “Systematic Review Methods” page on The Community Guide website at www.thecommunityguide.org/about/methods.html for more information about the methods used to conduct the systematic reviews and the criteria the Task Force uses to make findings and recommendations.

RESOURCES

You can use the following resources to guide the implementation of evidence-based strategies and put the Task Force findings to work.

- **The Community Guide in Action: Stories from the Field**
Lowering Legal Blood Alcohol Limits Saves Lives
www.thecommunityguide.org/CG-in-Action/BAC.pdf
- **Partnership for Prevention**
www.prevent.org/Additional-Pages/Transportation-and-health.aspx
- **Healthy People 2020 Interventions and Resources on Injury and Violence Prevention**
U.S. Department of Health and Human Services
www.healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=24