

Preventing Motor Vehicle-related Deaths and Injuries:

*Keeping People Safe on the Road –
Every Day*

Gwen Bergen, PhD, MPH

Behavioral Scientist

Division of Unintentional Injury Prevention
National Center for Injury Prevention and Control
Centers for Disease Control and Prevention

Contact: gjb8@cdc.gov



Preventing motor vehicle injuries and deaths is a CDC “Winnable Battle”

- ❑ Tobacco use
- ❑ Nutrition/obesity (including food safety)
- ❑ HIV
- ❑ Healthcare-associated infections
- ❑ **Motor vehicle crashes**
- ❑ Teen pregnancy



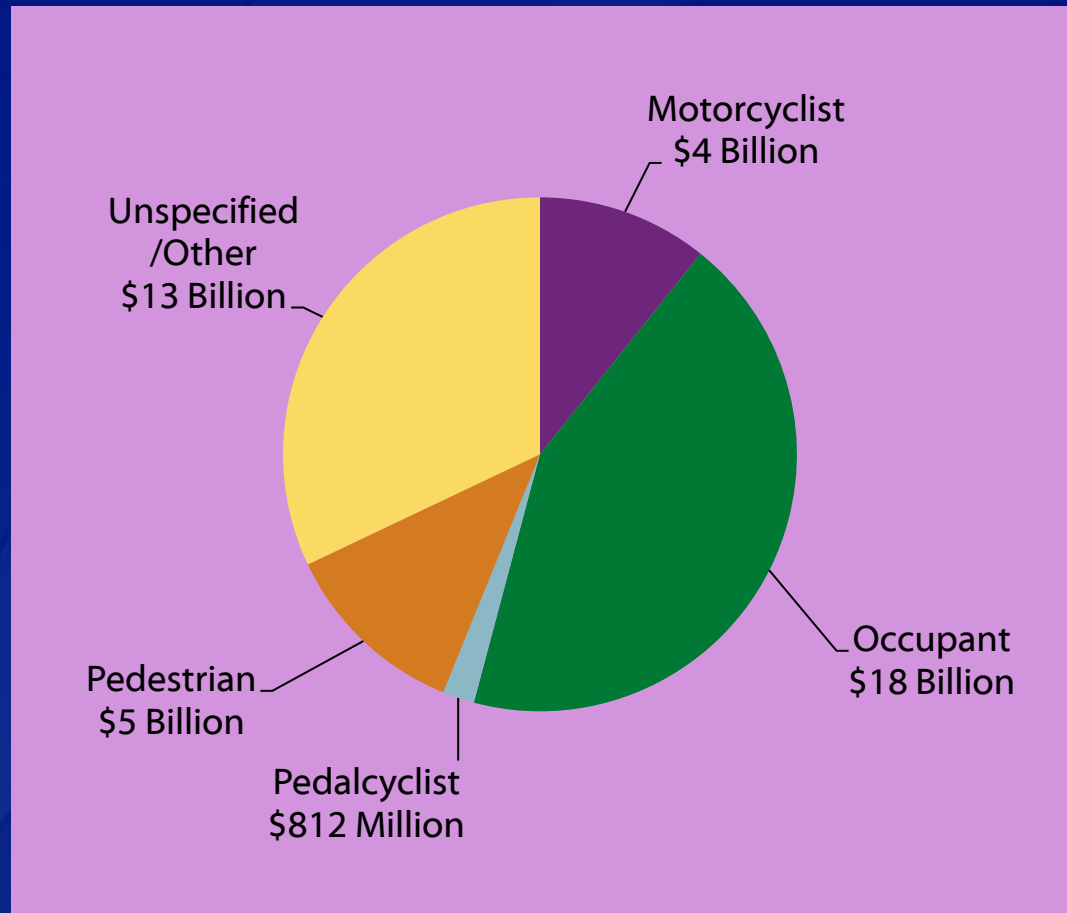
Crashes are the # 1 cause of injury death

- ❑ **Motor vehicle crashes are the leading cause of injury death in the United States**
 - Leading cause of death for those aged 5-34
- ❑ **Motor vehicle-related injuries send more than 4 million people to hospital emergency departments every year**
- ❑ **Motor vehicle crashes killed more than 33,000 people in 2009 – more than 90 people every day**

Dept of Transportation (US), National Highway Traffic Safety Administration (NHTSA). Traffic Safety Facts: Highlights of 2009 Motor Vehicle Crashes. Washington (DC): NHTSA; 2010. <http://www-nrd.nhtsa.dot.gov/Pubs/811363.pdf>.

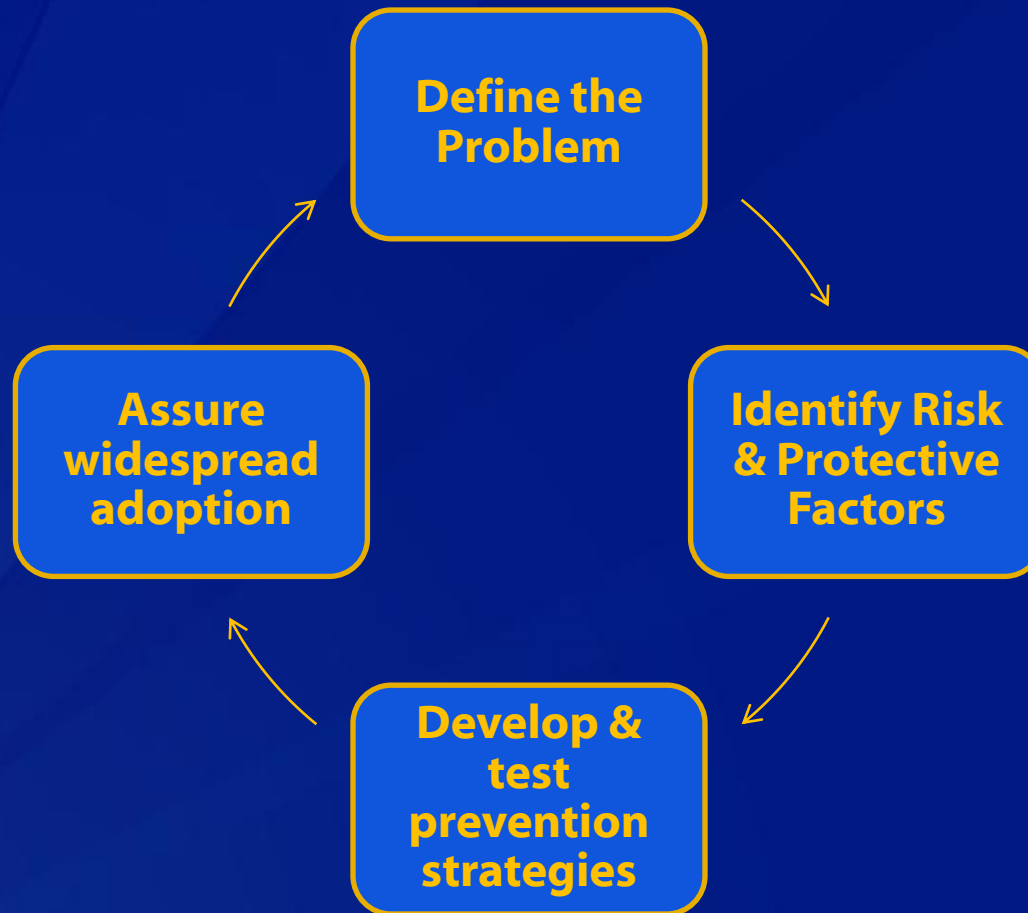
Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. Web-based Injury Statistics Query and Reporting System (WISQARS) [online]. www.cdc.gov/injury/wisqars.

Motor vehicle-related crash deaths cost ~\$41 billion in 2005



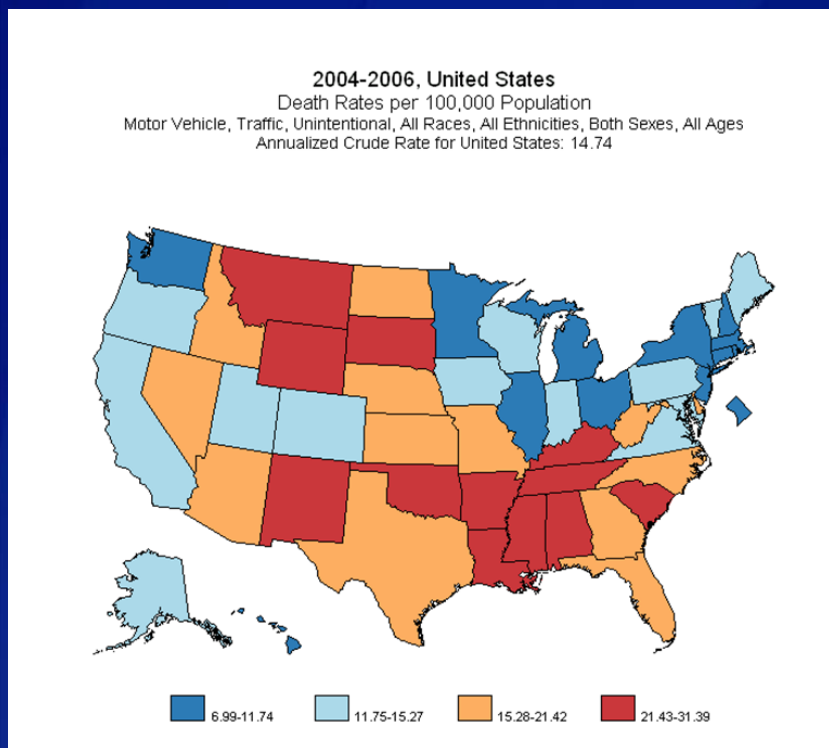
**Total Cost:
\$41 Billion**
in medical and lost work
costs

The Public Health Approach



Taken from CDC Violence Prevention website http://www.cdc.gov/ncipc/dvp/publichealthapproachto_violenceprevention.htm

WISQARS



Welcome to WISQARS™
WISQARS™ (Web-based Injury Statistics Query and Reporting System) is an interactive database system available at <http://www.cdc.gov/injury/wisqars/index.html> that provides customized reports of injury-related data.



SAFER • HEALTHIER • PEOPLE™

[CDC Home](#)[Search](#)[Health Topics A-Z](#)

National Center for Injury Prevention and Control

[Facts](#)[Data](#)[Publications](#)[Funding](#)[Search](#)[Contact Us](#)

Injury Mortality Reports

- [Advanced Options](#)
- [Data from 1998 and earlier](#)
- [Help](#)

WISQARS

- [Home](#)
- [Injury Mortality Reports](#)
- [Leading Causes of Death Reports](#)
- [Years of Potential Life Lost Reports](#)

Search Injury

GO

WISQARS Injury Mortality Reports, 1999 - 2006

Choose your **Report Options**, then click the **Submit Request** button.

For more information about an option or a category of options, click on the underlined name or phrase. To return to this page, click on the "back" button in your browser toolbar.

Report Options

1. What was the intent or manner of the injury? (Select one)

- All Intents
- Unintentional
- Violence-related
 - Homicide and Legal intervention
 - Homicide
 - Legal Intervention
 - Suicide
- Undetermined intent

2. What was the cause or mechanism of the injury? (Select one)

- All injury
- All injury and adverse effects
- Suffocation
- Terrorism

[Adverse Effects](#)[Transportation-Related](#)

2006, United States Unintentional MV Traffic Deaths and Rates per 100,000

All Races, Both Sexes, All Ages

ICD-10 Codes: V30-V39 (4-.9), V40-V49 (4-.9), V50-V59 (4-.9),
V60-V69 (4-.9), V70-V79 (4-.9), V81.1 V82.1, V83-V86 (0-.3),
V20-V28 (3-.9), V29 (4-.9), V12-V14 (3-.9), V19 (4-.6),
V02-V04 (1-.9), V09.2, V80 (3-.5), V87(0-.8), V89.2

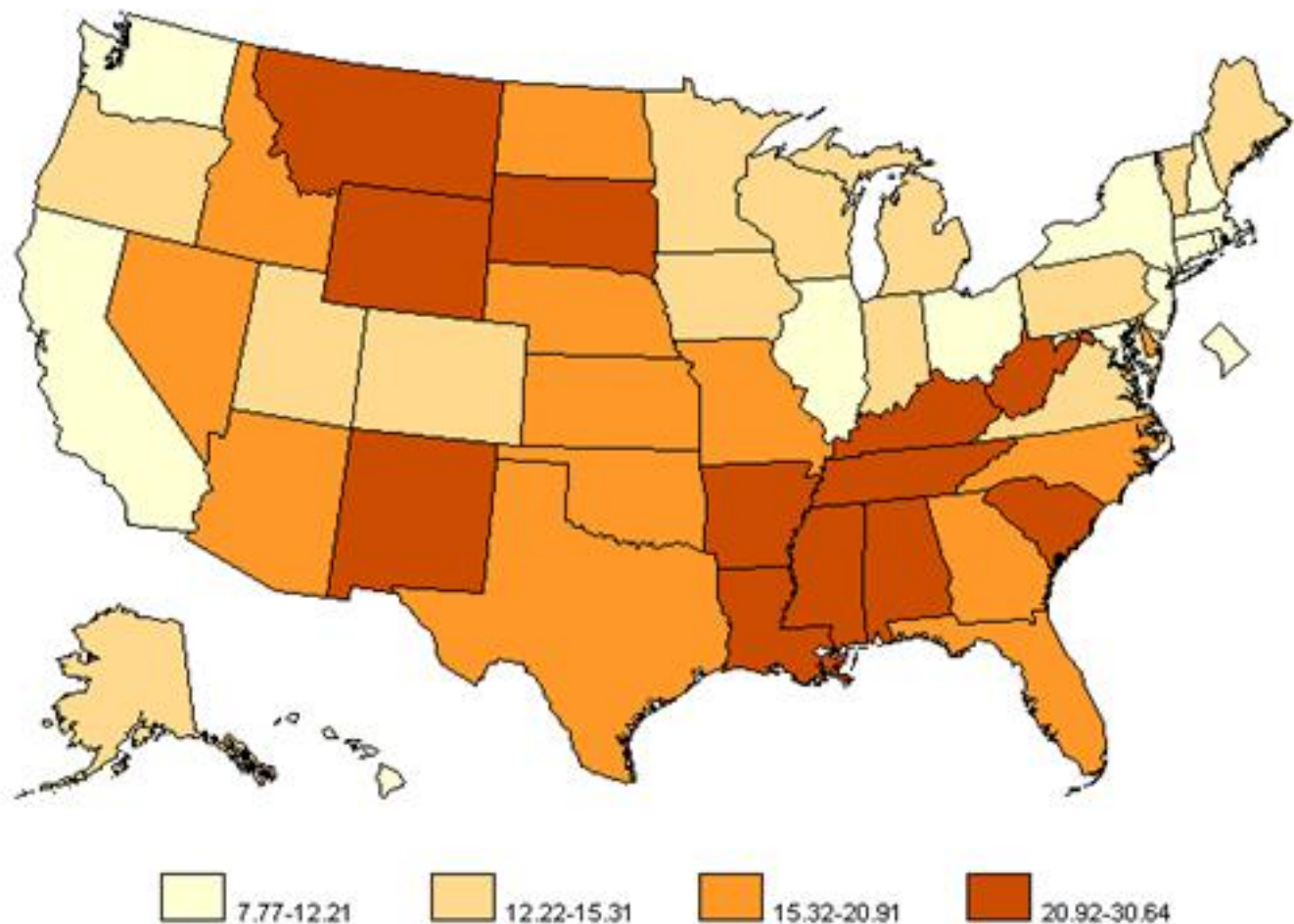
State	Number of Deaths	Population	Crude Rate	Age-Adjusted Rate**
Alabama	1,195	4,597,688	25.99	25.98
Alaska	76	677,325	11.22	11.43
Arizona	1,264	6,192,100	20.41	20.39
Arkansas	701	2,815,097	24.90	24.96
California	4,291	35,979,208	11.93	11.86
Colorado	567	4,753,044	11.93	11.79
Connecticut	355	3,485,162	10.19	10.02
Delaware	137	853,022	16.06	16.11
District of Columbia	40	583,978	6.85	6.90
Florida	3,378	18,088,505	18.67	18.37
Georgia	1,686	9,330,086	18.07	18.27
Hawaii	150	1,275,599	11.76	11.50
Idaho	275	1,464,413	18.78	18.87
Illinois	1,365	12,718,011	10.73	10.60
Indiana	922	6,301,700	14.63	14.51
Iowa	431	2,964,391	14.54	13.88

2000-2006, United States

Death Rates per 100,000 Population

Motor Vehicle, Traffic, Unintentional, All Races, All Ethnicities, Both Sexes, All Ages

Annualized Crude Rate for United States: 14.90





Data & Statistics (WISQARS™): Cost of Injury Reports

[Printable View](#) [Report Data](#)

Fatal Injuries, Both Sexes, All Ages, United States, 2005

Intent: Unintentional

Mechanism: MVT Motorcyclist, MVT Occupant, MVT Pedal cyclist, MVT Pedestrian, MVT Other person, MVT Unspecified person

Number of Deaths and Estimated Lifetime Costs Classified by Mechanism

Costs Expressed in Year 2005 United States Prices

Deaths and Type of Cost	Deaths	Medical Cost	Work Loss Cost	Combined Cost			
	—	Average			Total	Average	Total
Mechanism							
MVT Motorcyclist	4,296	\$11,192	\$48,080,000	\$1,003,654	\$4,311,698,000	\$1,014,846	\$4,359,778,000
MVT Occupant	19,125	\$8,904	\$170,281,000	\$910,942	\$17,421,766,000	\$919,846	\$17,592,047,000
MVT Pedal Cyclist	700	\$14,870	\$10,409,000	\$887,774	\$621,442,000	\$902,644	\$631,851,000
MVT Pedestrian	4,917	\$13,263	\$65,214,000	\$772,825	\$3,799,979,000	\$786,088	\$3,865,193,000
MVT Other Person	12*	\$9,326*	\$112,000*	\$967,304*	\$11,608,000*	\$976,630*	\$11,720,000*
MVT Unspecified Person	14,617	\$8,542	\$124,853,000	\$879,620	\$12,857,403,000	\$888,161	\$12,982,256,000
Total	43,667	\$9,594	\$418,949,000	\$893,670	\$39,023,896,000	\$903,264	\$39,442,845,000

Injury Classification Scheme: Mechanism by Intent of Injury

Reports for All Ages Include those of unknown age.

* Cost estimates based on 20 or fewer deaths may be unstable. Interpret with caution.

Note: For injury-related deaths, lifetime medical costs refer to the medical costs associated with the fatal injury event.

Produced by: Office of Statistics and Programming, National Center for Injury Prevention and Control, CDC

Data Source: NCHS Vital Statistics System for numbers of deaths. NEISS All Injury Program operated by the U.S. Consumer Product Safety

Commission (CPSC) for numbers of nonfatal injuries. Pacific Institute for Research and Evaluation (PIRE), Calverton, MD for unit cost estimates.

Crash Outcome Data Evaluation System CODES

- ❑ **Facilitated by National Highway Traffic Safety Administration**
- ❑ **Currently in 16 states**
- ❑ **Probabilistically links crash data to medical outcome datasets such as inpatient, ED and EMS**
- ❑ **Produces a complete picture of the crash including:**
 - Factors that contributed to the crash
 - Severity of injury from a medical viewpoint
 - Hospital charges for the crash injury

Examples of use of CODES to influence policy

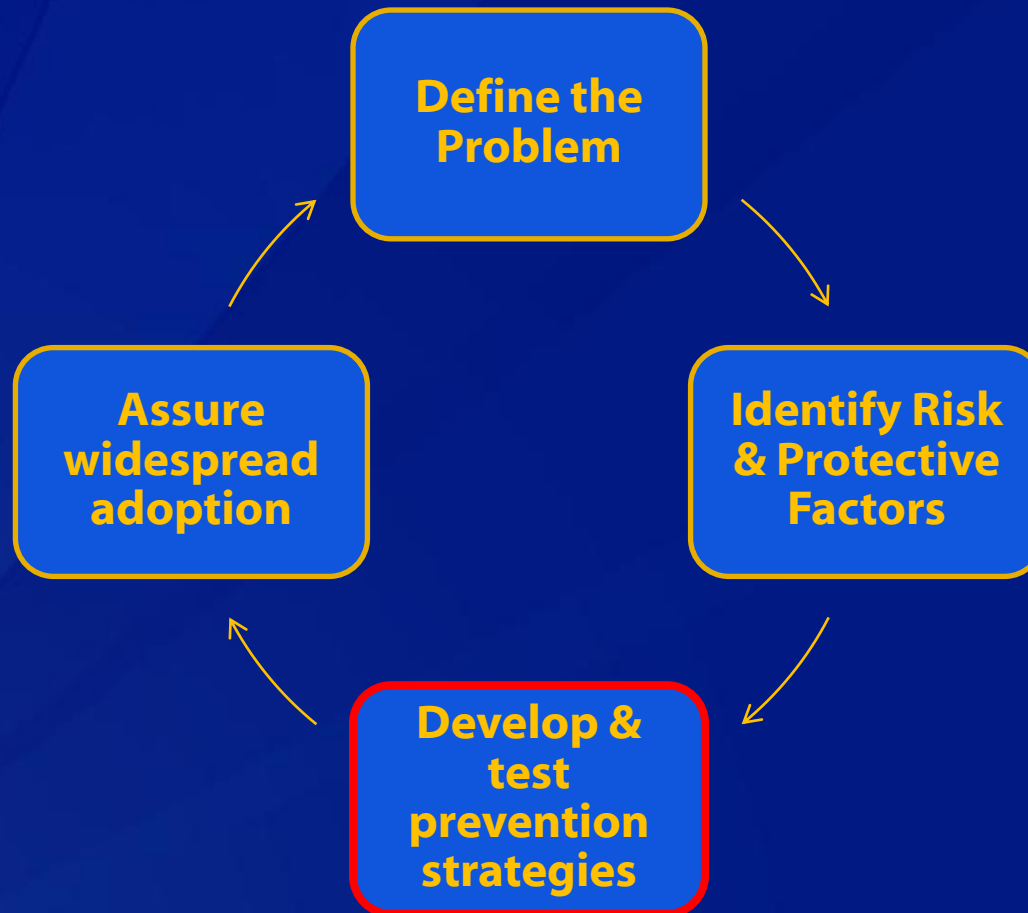
□ Georgia

- Primary seat belt law excluded pickup trucks
 - Used CODES data to show cost savings if pickup seatbelt use same as passenger
 - Exclusion removed in 2010

□ National Level

- Relationship of motorcycle helmet use to head and facial injuries
 - Helmeted less likely TBI
 - TBI hospital charges higher

The Public Health Approach



Taken from CDC Violence Prevention website http://www.cdc.gov/ncipc/dvp/publichealthapproachto_violenceprevention.htm



- Community Guide Topics**
- Adolescent Health
 - Alcohol
 - Asthma
 - Birth Defects
 - Cancer
 - Diabetes
 - HIV/AIDS, STIs & Pregnancy
 - Mental Health
 - Motor Vehicle**
 - Child safety seats
 - Safety belts
 - Alcohol-impaired driving
 - Nutrition
 - Obesity
 - Oral Health
 - Physical Activity
 - Social Environment
 - Tobacco
 - Vaccines

[Community Guide Topics](#)

Motor Vehicle-Related Injury Prevention



- Motor vehicle-related injuries kill more children and young adults than any other single cause in the United States and are the leading cause of death from injury for people of all ages ([CDC](#)).
- Each year, motor vehicle crashes take the lives of more than 40,000 people in the United States and result in 2.7 million emergency department visits ([CDC](#)).
- Use of child safety seats and safety belts and deterrence of alcohol-impaired driving are among the most important preventive measures to reduce motor vehicle-related injuries and deaths.

Community Guide Systematic Reviews

The Community Guide includes systematic reviews of interventions in the following areas:

- [Use of child safety seats](#)
- [Use of safety belts](#)
- [Reducing alcohol-impaired driving](#)

Text size: **S** M L XL

[Email page](#)

[Print page](#)

[Bookmark and share](#)

[Get email updates](#)

To receive email updates about Motor Vehicle-related Injury Prevention, enter your email address:

[What's this?](#)

The Guide to Clinical Preventive Services

Together, the Community Guide and the Clinical Guide provide evidence-based recommendations across the prevention spectrum.

[More >>](#)

Preventing crash-related deaths involves three priority areas



**Seat belts and
child passenger safety**

Teen driver safety



**Alcohol-impaired
driving**

Seat belts save thousands of lives each year

- ❑ **Seat belts saved an estimated 12,713 lives in 2009**
- ❑ **Seat belt use still varies widely**
 - In some states seat belt use exceeds 90%, while in others more than 30% of drivers fail to buckle up

If everyone had worn a seat belt on every trip in 2009, **more than 3,688 additional lives would have been saved**

Dept of Transportation (US), National Highway Traffic Safety Administration (NHTSA). Traffic Safety Facts : Lives Saved in 2009 by Restraint Use and Minimum-Drinking-Age Laws. Washington (DC): NHTSA; 2010. <http://www-nrd.nhtsa.dot.gov/Pubs/811383.pdf>.

Dept of Transportation (US), National Highway Traffic Safety Administration (NHTSA). Traffic Safety Facts: Seat Belt Use in 2009. Washington (DC): NHTSA; 2010. <http://www-nrd.nhtsa.dot.gov/Pubs/811324.pdf>.

Child passenger restraints prevent serious injury and death

- ❑ Motor vehicle crashes are the leading cause of death for children**
- ❑ Child safety seats reduce deaths by 71% for infants (younger than 1 year old) and by 54% for toddlers (1-4 years old)**
- ❑ Among children under age 5, an estimated 309 lives were saved by child safety seat use in 2009**

Primary enforcement seat belt laws increase seat belt use

❑ What are they?

- Primary enforcement seat belt laws allow law enforcement to pull over a motorist solely for not wearing a seat belt

❑ Do they work?

- Yes – states with primary enforcement seat belt laws achieve significantly higher seat belt use than secondary law states

In 2010,
nineteen
states still did
not have a
primary
enforcement
law

Dept of Transportation (US), National Highway Traffic Safety Administration (NHTSA). Traffic Safety Facts: Occupant Protection. Washington (DC): NHTSA; 2009. <http://www-nrd.nhtsa.dot.gov/Pubs/811160.pdf>.

Dept of Transportation (US), National Highway Traffic Safety Administration (NHTSA). Traffic Safety Facts: Seat Belt Use in 2010. Washington (DC): NHTSA; 2010. <http://www-nrd.nhtsa.dot.gov/Pubs/811378.pdf>.

Beck LF, West BA. Vital Signs: Motor Vehicle Occupant Nonfatal Injuries (2009) and Seat Belt Use (2008) Among Adults—United States. Centers for Disease Control and Prevention. *In Review* 2011.

CDC's Injury Center leads the way in promoting seat belts, child restraints

❑ **Booster Seats**

- CDC is collaborating with national and state partners to develop a Booster Seat Planning Guide to provide technical assistance on improving booster seat policies



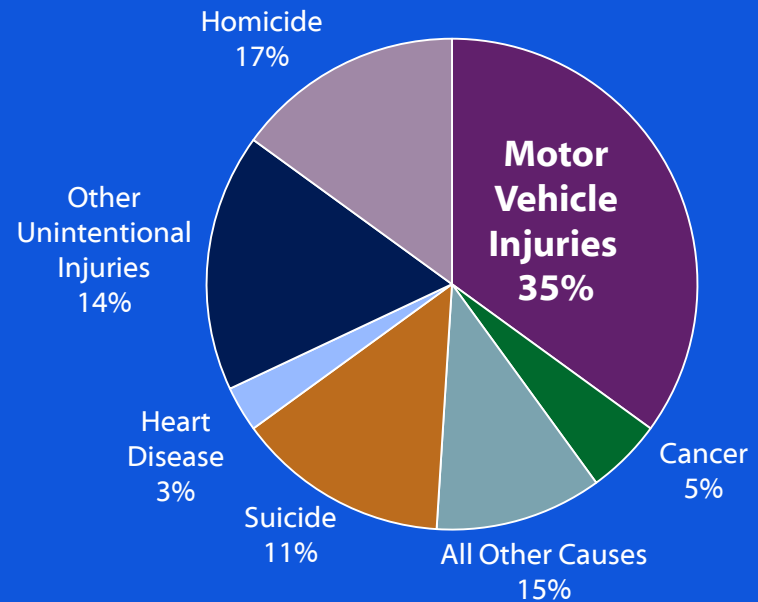
❑ **Seat Belts**

- CDC is providing technical assistance and consultation, and engaging with stakeholders to strengthen seat belt laws in one third of the secondary law states in the next five years

Motor vehicle crashes are the #1 killer of teens

- ❑ **Motor vehicle crashes are the leading cause of death for U.S. teens**
 - About 3,000 teens ages 15-19 were killed in vehicle crashes in 2009
- ❑ **Crashes involving teens ages 15-19 cost \$14 billion annually**

Leading Cause of Death for Teens (ages 15-19, 2007)



Centers for Disease Control and Prevention. Web-based Injury Statistics Query and Reporting System (WISQARS) [Online]. (2010). National Center for Injury Prevention and Control, Centers for Disease Control and Prevention (producer). www.cdc.gov/injury/wisqars.
NHTSA [2010]. Fatality Analysis Reporting System (FARS), 2009. Washington, DC: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis. www-fars.nhtsa.dot.gov/Main/index.aspx.

Graduated Driver Licensing (GDL) saves teen lives

□ What is GDL?

- GDL gives teens driving privileges in stages, helping new drivers gain experience in low-risk conditions

□ Does it work?

- Absolutely – if every state had a strong GDL policy, 175 deaths and 350,000 injuries would be prevented each year

Research suggests that the most comprehensive GDL programs can reduce fatal crashes by 38%

Effective GDL programs require three stages

CDC recommends strong GDL programs with a three-stage process:

1. Learner's Permit

- Permits should only be available to drivers at least 16 years old, and should be held for a mandatory 6 months

2. Probationary License

- Probationary licenses should prohibit unsupervised nighttime driving and limit the number of passengers accompanying a driver without adult supervision

3. Full License

- A driver should only obtain full driving privileges after turning 18

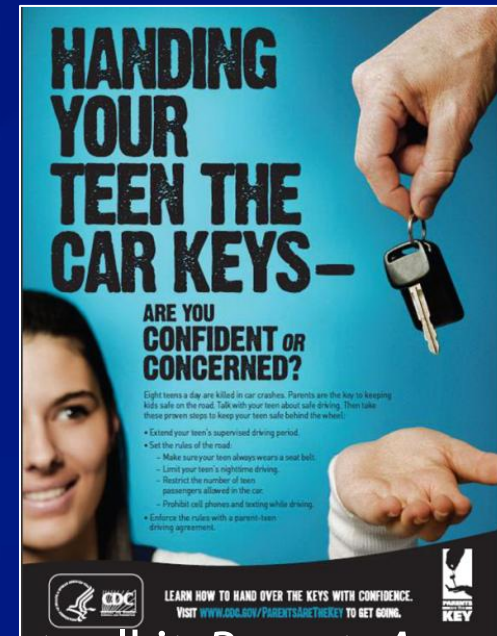
CDC's Injury Center promotes GDL programs across the country

■ Strengthening GDL

- CDC developed a GDL Planning Guide, in collaboration with external partners, to assist states in strengthening GDL policies
- Currently being pilot tested in eight states

■ Getting parents involved

- CDC released a communications campaign toolkit, *Parents Are the Key*, to help parents learn about the most dangerous driving situations for their young driver and how to avoid them. (Available online at: www.cdc.gov/parentsarethekey)



Nearly 1 in 3 crash deaths involve an impaired driver

- ❑ **In 2009, 10,839 people died in alcohol-impaired crashes**
- ❑ **Young people have the highest risk of being involved in an alcohol-impaired crash**

If all drivers had a blood alcohol content (BAC) level less than the illegal threshold (0.08%), more than 7,000 lives would have been saved in 2009

Dept of Transportation (US), National Highway Traffic Safety Administration (NHTSA).). Traffic Safety Facts: Highlights of 2009 Motor Vehicle Crashes. Washington (DC): NHTSA; 2010. <http://www-nrd.nhtsa.dot.gov/Pubs/811363.pdf>.

Zador PL, Krawchuk SA, Voas RB. Alcohol-related relative risk of driver fatalities and driver involvement in fatal crashes in relation to driver age and gender: an update using 1996 data. *Journal of Studies on Alcohol* 2000;61:387-95.

Quinlan KP, Brewer RD, Siegel P, Sleet DA, Mokdad AH, Shults RA, Flowers N. Alcohol-impaired driving among U.S. adults, 1993-2002. *American Journal of Preventive Medicine* 2005;28(4):346-350.

Sobriety checkpoints reduce impaired driving

- ❑ **What are sobriety checkpoints?**
 - At sobriety checkpoints, law enforcement officers stop drivers systematically to assess their level of alcohol impairment
- ❑ **Do they work?**
 - Yes – checkpoints reduce impaired driving crashes and deaths by a median of 20%
- ❑ **What should be done?**
 - Local and state law enforcement should use sobriety checkpoints aggressively to improve enforcement and deter impaired driving

Zero tolerance laws reduce teen drinking and driving crashes

❑ What are zero tolerance laws?

- Zero tolerance laws set a lower legal blood alcohol content (BAC), usually between any detectable BAC and 0.02%, for drivers under 21

❑ Do they work?

- Yes – zero tolerance laws lower fatal crash rates between 9 to 24%

❑ What should be done?

- States should actively enforce zero tolerance laws and maintain the current minimum legal drinking age at 21

Ignition interlocks keep DUI offenders from offending again

❑ What are ignition interlocks?

- Ignition interlocks are devices installed in vehicles to prevent people who have consumed alcohol from driving

❑ Do they work?

- Yes – installation of interlocks reduces the re-arrest rate of convicted DUI offenders by about 70%

❑ What should be done?

- States should mandate ignition interlocks for everyone convicted of a DUI, even on a first offense

CDC's Injury Center supports efforts to keep impaired drivers off the road

❑ Evaluating ignition interlock programs

- CDC and the National Highway Traffic Safety Administration sponsored a National Ignition Interlock Summit and are evaluating ignition interlock programs

❑ Updating sobriety checkpoints review in the Community Guide

- Incorporating new evidence

❑ Working to prevent alcohol-related injuries in college communities

- CDC's Injury Center is working to develop and test strategies for colleges and universities to prevent impaired driving

For More Information, Visit...

- ❑ **Motor Vehicle Safety:**
cdc.gov/motorvehiclesafety
- ❑ **Seat Belts:**
cdc.gov/motorvehiclesafety/SeatBelts
- ❑ **Child Passenger Safety:**
cdc.gov/Motorvehiclesafety/Child_Passenger_Safety
- ❑ **Teen Driving:**
cdc.gov/Motorvehiclesafety/Teen_Drivers
- ❑ **Alcohol-Impaired Driving:**
cdc.gov/Motorvehiclesafety/Impaired_Driving

Motor Vehicle Crashes Are Preventable

*Keeping People Safe on the Road –
Every Day*

For more information please contact Centers for Disease Control and Prevention

1600 Clifton Road NE, Atlanta, GA 30333

Telephone: 1-800-CDC-INFO (232-4636)/TTY: 1-888-232-6348

E-mail: cdcinfo@cdc.gov Web: <http://www.cdc.gov>

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

National Center for Injury Prevention and Control
Division of Unintentional Injury Prevention

