A Public Health Perspective on What Works

Ann Dellinger, PhD, MPH
Branch Chief: Home, Recreation, and Transportation Branch; Division of Unintentional Injury Prevention

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What Will be Covered?

- What/Who is the CDC and Injury Center?
- Public Health approach to motor vehicle injury prevention
- CDC resources, tools and programs that can support safety efforts in rural communities
What Will be Covered?

- Public Health approach to motor vehicle injury prevention
 Fatal Crashes  

 Injuy Crashes  

 Property Damage Only  

 Police-Reported Crashes  

 $242 Billion in Economic Cost  

 $836 Billion in Societal Harm  

 NHTSA DOT HS 812 349 – Sept 2016  

 https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812501
Fatals

Injuries requiring hospital stay or result in disability

Injuries requiring emergency department treatment

Injuries resulting in primary care treatment

Injuries that do not receive care in a health facility
THE FULL IMPACT OF MOTOR VEHICLE CRASHES

For every 1 person killed in a motor vehicle crash:

- 8 people were hospitalized
- 99 people were treated and released from emergency departments

Source: CDC WISQARS (Web-based Injury Statistics Query and Reporting System) and NHTSA (National Highway Traffic Safety Administration) FARS (Fatality Analysis Reporting System)
Four Pillars of Intervention

- Safer Roads
- Safer Vehicles
- Safer Road Users
- Improved Post Crash Response
Vision
Keep people safe on the road—every day

Mission
To reduce injury and death due to motor vehicle crashes and promote safe travel
Motor Vehicle Injury Prevention Priority Areas

- Restraints
- Tribes
- Impaired Driving
- Older Adult Mobility
- Data Linkage
What do we know about motor vehicle-related injuries and deaths in state, local, and rural communities?

Research & Surveillance
Rural and Urban Differences in Passenger-Vehicle–
Occupant Deaths and Seat Belt Use Among Adults —
United States, 2014

Full report available at:
https://www.cdc.gov/mmwr/volumes/66/ss/ss6617a1.htm?s_cid=ss6617a1_w
What do we know about motor vehicle-related injuries and deaths in state, local, and rural communities?

Surveillance Tools for Practitioners
Welcome to WISQARS™

CDC’s WISQARS™ (Web-based Injury Statistics Query and Reporting System) is an interactive, online database that provides fatal and nonfatal injury, violent death, and cost of injury data from a variety of trusted sources. Researchers, the media, public health professionals, and the public can use WISQARS™ data to learn more about the public health and economic burden associated with unintentional and violence-related injury in the United States.

- Fatal Injury Data
- Cost of Injury Data
- Nonfatal Injury Data
- Fatal Injury Mapping
- Violent Deaths
- About Us

https://www.cdc.gov/injury/wisqars
## 2016, 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

<table>
<thead>
<tr>
<th>2013 Urbanization (Collapsed) Classification</th>
<th>Number of Deaths</th>
<th>Population</th>
<th>Crude Rate</th>
<th>Age-Adjusted Rate**</th>
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<tbody>
<tr>
<td>Metro Areas</td>
<td>29,583</td>
<td>277,016,929</td>
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<td>Non-metro Areas</td>
<td>9,165</td>
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<td><strong>38,748</strong></td>
<td><strong>323,127,513</strong></td>
<td><strong>11.99</strong></td>
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</tr>
</tbody>
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*Note: The table above provides data on unintentional motor vehicle traffic deaths and rates per 100,000 in the United States in 2016. The data includes deaths by urbanization category and adjusted rates for age.*
2008-2014, United States
Age-adjusted Death Rates per 100,000 Population
Motor Vehicle, Traffic, Unintentional, All Races, All Ethnicities, Both Sexes, All Ages
Annualized Age-adjusted Rate for United States: 10.88

Reports for All Ages include those of unknown age.
* Rates based on 20 or fewer deaths may be unstable. States with these rates are cross-hatched in the map (see legend above). Such rates have an asterisk.
The standard population for age-adjustment represents the year 2000, all races, both sexes.

Produced by the Statistics, Programming & Economics Branch, National Center for Injury Prevention & Control, CDC
Data Sources: NCHS National Vital Statistics System for numbers of deaths; US Census Bureau for population estimates.
2008-2014, Montana
Death Rates per 100,000 Population
Motor Vehicle, Traffic, All Intents, All Races, All Ethnicities, Both Sexes, All Ages
Annualized Crude Rate for Montana: 20.00

Reports for All Ages include those of unknown age.
* Rates based on 20 or fewer deaths may be unstable. These rates are suppressed for counties (see legend above); such rates in the title have an asterisk.

Produced by: the Statistics, Programming & Economics Branch, National Center for Injury Prevention & Control, CDC
Data Sources: NCHS National Vital Statistics System for numbers of deaths; US Census Bureau for population estimates.
2008-2014, Montana
Death Rates per 100,000 Population
All Injury, All Intents, All Races, All Ethnicities, Both Sexes, All Ages
Annualized Crude Rate for Montana: 88.74

Reports for All Ages include those of unknown age.
* Rates based on 20 or fewer deaths may be unstable. These rates are suppressed for counties (see legend above); such rates in the title have an asterisk.

Produced by: the Statistics, Programming & Economics Branch, National Center for Injury Prevention & Control, CDC
Data Sources: NCHS National Vital Statistics System for numbers of deaths; US Census Bureau for population estimates.
Behavioral Risk Factor Surveillance System (BRFSS)

- Health-related telephone survey
- Administered every year to adults 18+ years
- Completes more than 400,000 interviews
- Collects state data regarding residents
- Health-related risk behaviors, chronic health conditions, and use of preventive services
- Collects data on alcohol-impaired driving and seat belt use every two years

https://www.cdc.gov/brfss/index.html
Prevalence Data & Data Analysis Tools

Find city and county data collected through the Selected Metropolitan/Micropolitan Area Risk Trends (SMART) project, the Web Enabled Analysis Tool (WEAT), interactive maps, and other resources provided through BRFSS.

PREVALENCE AND TRENDS DATA
Using the Prevalence and Trends Data Tools, users may produce charts for individual states or the nation by health topic. Users may select specific years or request multiple year data. The Prevalence and Trend Data Tools will produce line graphs for multiple years and bar charts for single years for each selected indicator.

SMART: CITY AND COUNTY DATA
Selected Metropolitan/Micropolitan Area Risk Trends (SMART) is an ongoing project that uses BRFSS data to produce some local area estimates. Counties and Metropolitan/Micropolitan Areas (MMSAs) were selected for SMART if there were 500 or more respondents BRFSS combined landline and cell phone data for any year.
Prevalence of having driven after drinking too much (self-reported), BRFSS, 2014
Youth Risk Behavior Surveillance System (YRBSS)

- School-based survey
  - Administered every other year
  - Anonymous, self-administered
  - National, State, territorial, tribal, and local surveys

- Monitors priority risk behaviors, including transportation topics
  - Rode with a driver who had been drinking alcohol
  - Drove after drinking alcohol
  - Texted or e-mailed while driving a car or other vehicle
  - Seat belt use
  - Bicycle helmet use

https://www.cdc.gov/healthyyouth/data/yrbs/index.htm
2015 Seat Belt Use by US High School Students Riding as Passengers*, by Type of Seat Belt Law, 32 States

- National Average (61%)
  - Primary Seat Belt Law
  - Secondary Seat Belt Law
  - Secondary Law with Teen Driver
  - Primary Provision

* Percentage of students who always wear a seat belt when riding in a car as passengers.
** NH does not have a seat belt law for adults, but their child passenger safety law has a primary enforcement seat belt provision for drivers and passengers <18 years.

Developing Tools for State Decision-Makers
MV PICCS 3.0

Motor Vehicle Prioritizing Interventions and Cost Calculator for States (MV PICCS 3.0)

Find the right motor vehicle strategies for your state!

https://www.cdc.gov/motorvehiclesafety/calculator/index.html
States can choose among many options

- Many interventions are implemented at state level
- States must prioritize options
- To prioritize, states can use information about the costs and benefits of each option
MV PICCS Includes

14 Evidence-based Interventions

- Bicycle helmet laws for children
- Motorcycle helmet use laws
- High-visibility enforcement for seat belts and child restraint/booster laws
- Primary enforcement seat belt laws
Cost and Benefit Calculations

- **Calculates the expected:**
  - **Costs:** Monetary costs of implementation as well as costs paid by individuals to states
  - **Benefits:** Number of injuries prevented and lives saved
  - **Benefits:** Monetized value of injuries prevented and lives saved

- **Data sources:**
  - **Costs:** Published articles and reports, interviews with state officials and safety experts
  - **Benefits:** Peer-reviewed articles and reports that use reduction in deaths as the basis for evaluating effectiveness
Developing Tools for State Decision-Makers

MV PICCS 3.0

Motor Vehicle Crash Death Rates

MV PICCS provides results specific to each state. To start your analysis, click "Select View". Keyboard users: Use left or right arrow keys to navigate between view options.

MAP VIEW  TABLE VIEW

The darker the shade, the higher the traffic crash fatality rate per 100,000 people in that state.

Select the interventions you want to analyze, enter a budget, and then hit 'RUN MODEL'.

Potential Injuries Prevented with Selected Interventions

Total: 102

- License Plate Impoundment
- Seat Belt Enforcement Campaign
- Increased Seat Belt Fine
- SATURATION PATROL
- Limits on Diversion
- In Person Renewal

This chart shows the number of injuries prevented by each intervention. If the numbers are hard to read or not shown, hover over the individual slice. These interventions would reduce the number of people who are injured in vehicle crashes every year in District of Columbia by 6.5 percent.

Potential Monetary Benefit of Selected Interventions

Total: $4.16M

- SATURATION PATROL
- Increased Seat Belt Fine
- Seat Belt Enforcement Campaign
- Other

This is the value of all lives saved and injuries prevented, based on an assumed value of saving a life and preventing an injury. If the numbers are hard to read or not visible, hover over the individual slice. These values are based on estimates of things like medical costs, lost productivity, and insurance.

The grey "Other" slice consists of the following interventions: In Person Renewal ($0.10M benefit), License Plate Impoundment ($0.10M benefit), Limits on Diversion ($0.05M benefit), Vehicle Impoundment ($0.10M benefit).
PARENT-TEEN DRIVING AGREEMENT

I promise that I will drive carefully and cautiously and will be courteous to other drivers, bicyclists, and pedestrians at all times.

I PROMISE.

I promise that I will obey all the rules of the road.
- Always wear a seat belt and make all my passengers buckle up
- Obey all traffic lights, stop signs, other street signs, and road markings
- Stay within the speed limit and drive safely
- Never use the car to race or to try to impress others
- Never give rides to hitchhikers

I promise that I will make sure I can stay focused on driving.
- Never text while driving (writing, reading or sending messages)
- Never talk on the cell phone — including hands-free devices or a speakerphone — while driving
- Drive with both hands on the wheel
- Never eat or drink while driving
- Drive only when I am alert and in emotional control
- Call my parents for a ride home if I am impaired in any way that interferes with my ability to drive safely, or if my driver is impaired in any way
- Never use headsets or earphones to listen to music while I drive

http://www.cdc.gov/parentsarethekey/
Motor Vehicle Crash Deaths

How is the US doing?

Reducing motor vehicle crash deaths was one of the great public health achievements of the 20th century for the US. However, more than 32,000 people are killed and 2 million are injured each year from motor vehicle crashes. In 2014, the US crash death rate was more than twice the average of other high-income countries. In the US, front seat belt use was lower than in most other countries. One in 3 crash deaths in the US involved drunk driving, and almost 1 in 3 involved speeding. Lower death rates in other high-income countries and a high percentage of risk factors in the US suggest that we can make more progress in reducing crash deaths.

Drivers and passengers can:
- Use a seat belt in every seat, on every trip, no matter how short.
- Make sure children are always properly buckled: in the back seat in a car seat, booster seat, or seat belt, whichever is appropriate for their age, height, and weight.
- Choose not to drive while impaired by alcohol or drugs, and help others do the same.
- Observe speed limits.
- Drive without distractions (such as using a cell phone or texting).


http://www.cdc.gov/vitalsigns
Tribal Motor Vehicle Toolkit

https://www.cdc.gov/motorvehiclesafety/native/index.html
Sobering Facts: Drunk Driving in GEORGIA

ALCOHOL-INVOLVED DEATHS
Persons Killed in Crashes Involving a Drunk Driver

What Works
The strategies in this section are effective for reducing or preventing drunk driving. They are recommended by The Guide to Community Preventive Services and/or have been demonstrated to be effective in reviews by the National Highway Traffic Safety Administration. Different strategies may require different resources for implementation or have different levels of impact. Find strategies that are right for your state.

Strategies to reduce or prevent drunk driving

Drunk driving laws make it illegal nationwide to drive with a BAC at or above 0.08%. For people under 21, "zero tolerance" laws make it illegal to drive with any measurable amount of alcohol in their system. These laws, along with laws that maintain the minimum legal drinking age at 21, are in place in all 50 states and the District of Columbia, and have had a clear effect on highway safety, saving tens of thousands of lives since their implementation.

Soberly checkpoints allow police to briefly stop vehicles at specific, highly visible locations to see if the driver is impaired. Police may stop all or a certain portion of drivers. Breath tests may be given if police have a reason to suspect the driver is intoxicated.

Ignition interlocks installed in cars measure alcohol on the driver's breath. Interlocks keep the car from starting if the driver has a BAC above a certain level, usually 0.02%. They're used for people convicted of drunk driving and are highly effective at preventing repeat offenses while installed. Mandating interlocks for all offenders, including first-time offenders, will have the greatest impact.

Multi-component interventions combine several programs or policies to prevent drunk driving. The key to these comprehensive efforts is community mobilization by involving coalitions or task forces in design and implementation.

https://www.cdc.gov/motorvehiclesafety/impaired_driving/states.html
Motor Vehicle Safety

State-Based Motor Vehicle Data & Information

Motor vehicle crashes are a leading cause of injury and death in the U.S., and because many proven prevention strategies occur on the state-level, it can be helpful to see things broken down by state.

On this page, find links to state-based data, MMWR, and Vital Signs reports, and recommendations on a variety of topics, such as: child passenger safety, seat belts, impaired driving, teen drivers, and motorcycle safety.

Crash Deaths

- CDC MMWR: Rural and Urban Differences in Passenger-Vehicle-Occupant Deaths and Seat Belt Use Among Adults — United States, 2014 (September 2017)
- Motor Vehicle Occupant Deaths by State (January 2015)
- Motor Vehicle Occupant Deaths in States, 2000-2012 (January 2015)
- CDC MMWR: Motor Vehicle Crash Deaths in Metropolitan Areas — United States, 2009 (July 2012)
  - Map: Motor vehicle crash death rates for the 50 most populous metropolitan statistical areas, 2009

Child Passenger Safety

https://www.cdc.gov/motorvehiclesafety/states
Mobility-related deaths are the leading cause of injury death for adults aged 65 years and above

Mobility Planning Tool
- Targets adults age 60-74
- Plan for mobility changes as you age in the same way that you may plan financially for retirement
- Leverages broad array of partner resources
CONSIDER THAT:

Making a plan to stay mobile as you get older is important to help you stay independent.

Many people make financial plans for retirement, but not everyone plans for other changes that may come with age. This includes changes in your mobility—your ability to get around.

It’s not easy to talk about, but as we get older, physical changes can make it harder to get around and do things we want or need to do—like driving, shopping, or even doing simple chores around the house.

These physical changes can also make us more likely to get injured.

This planning tool can help you begin doing things to protect your mobility and stay independent longer.

Work through MyMobility plan on the next few pages to help you keep your freedom and independence as you get older. The plan will take you through these three sections:

- Myself—a plan to keep me healthy
- My House—a plan to keep me safe inside my home
- My Community—a plan to stay mobile in my community

There may be a time when you still need to get around, but can no longer drive.
Data Linkage

- Linking Information for Non-Fatal Crash Surveillance
  - LINCS Guide; early 2019
  - MITRE
- National Governors Association
  - Learning Labs
    - Annapolis; February 2018
    - Utah; June 2018

http://www.cdc.gov/motorvehiclesafety/linkage
Data Linkage

**BUILDING PARTNERSHIPS**
1. Build coalition
2. Communicate with stakeholders

**DEVELOPING A BUSINESS MODEL AND POLICIES**
1. Establish funding
2. Identify staff and computer resource needs
3. Decide who will host linkage program
4. Define security and privacy policies

**ESTABLISHING THE LINKAGE PROCESS**
1. Define goals
2. Establish or update data use agreements
3. Develop data linkage plan
4. Assess data quality
5. Prepare data
6. Perform data linkage
7. Evaluate linked data
8. Recalibrate methods
9. Select linked records for analysis
10. Conduct, share, and use analysis
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.

Thank You!
amd1@cdc.gov