

# ***Addressing the Public Health Crisis on our Roads***

## ▶ Moderator:

▶ **Garrett Eucalitto**, Program Director, NGA

## ▶ Speakers:

▶ **Erin Sauber Schatz**, PhD, MPH, Team Lead, Transportation Safety Team, Centers for Disease Control & Prevention

▶ **Colonel Matthew Packard**, Chief of the Colorado State Patrol

▶ **Daniel Chen**, VP and GM, Traffic Safety Division, 3M



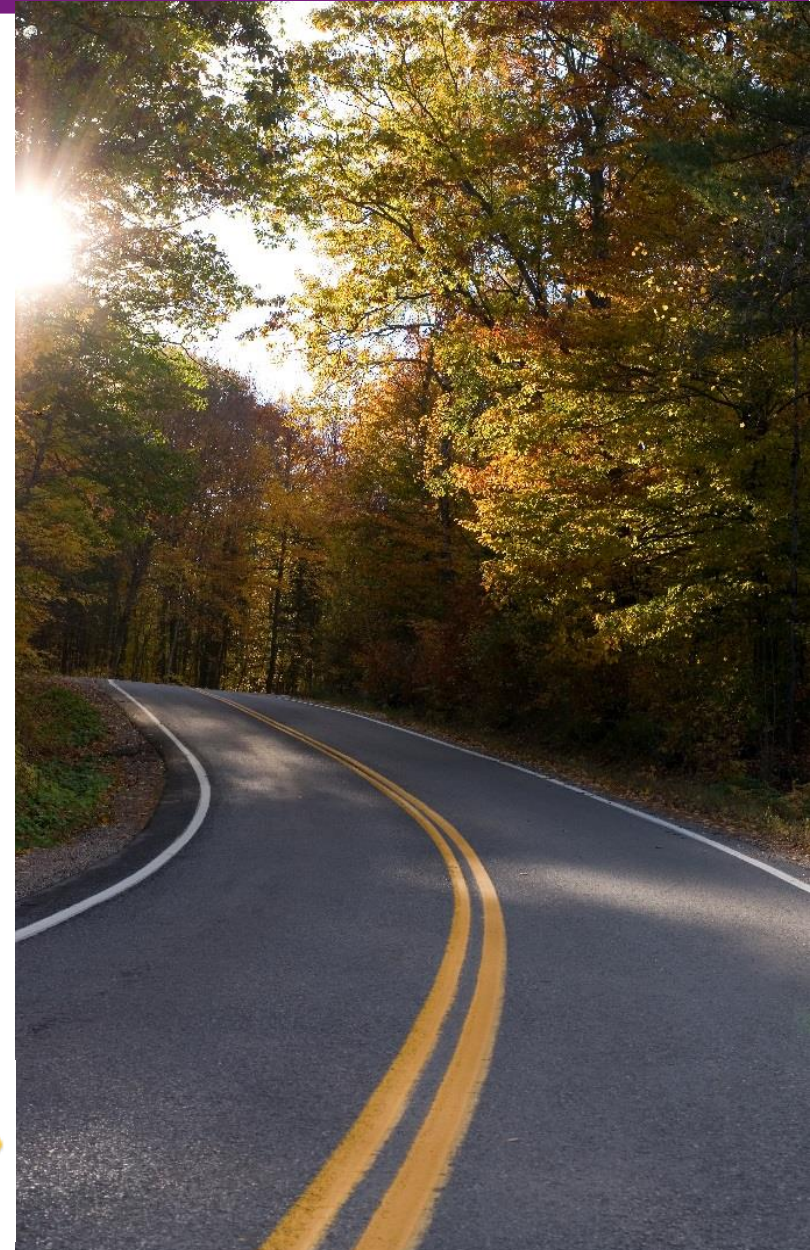
**#WeTheStates**

## Public Health and Motor Vehicle Injury Prevention

**Erin Sauber-Schatz, PHD, MPH**

Team Lead, Transportation Safety Team

National Center for Injury Prevention and Control  
Centers for Disease Control and Prevention

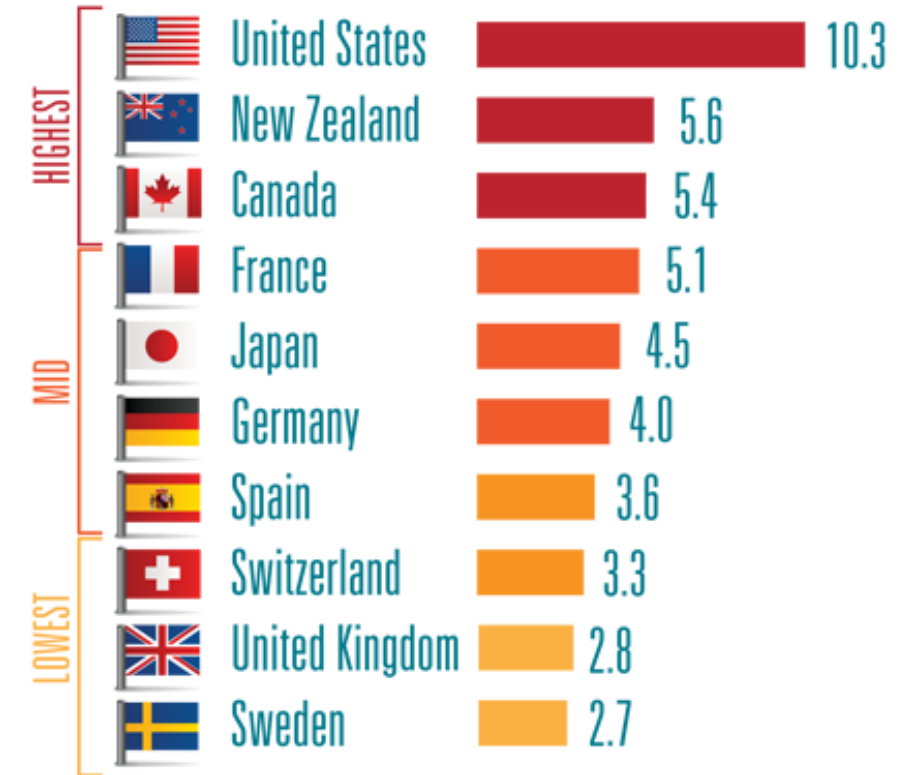


# Why Motor Vehicle Injury is a Public Health Problem

In the United States:

- Crashes are the leading cause of death in the first three decades of life
- Each year motor vehicle-related injuries send about 3 million people to an emergency department
- 37,800+ deaths on U.S. roads in 2017

## Motor vehicle crash deaths in 10 comparison high-income countries, 2013

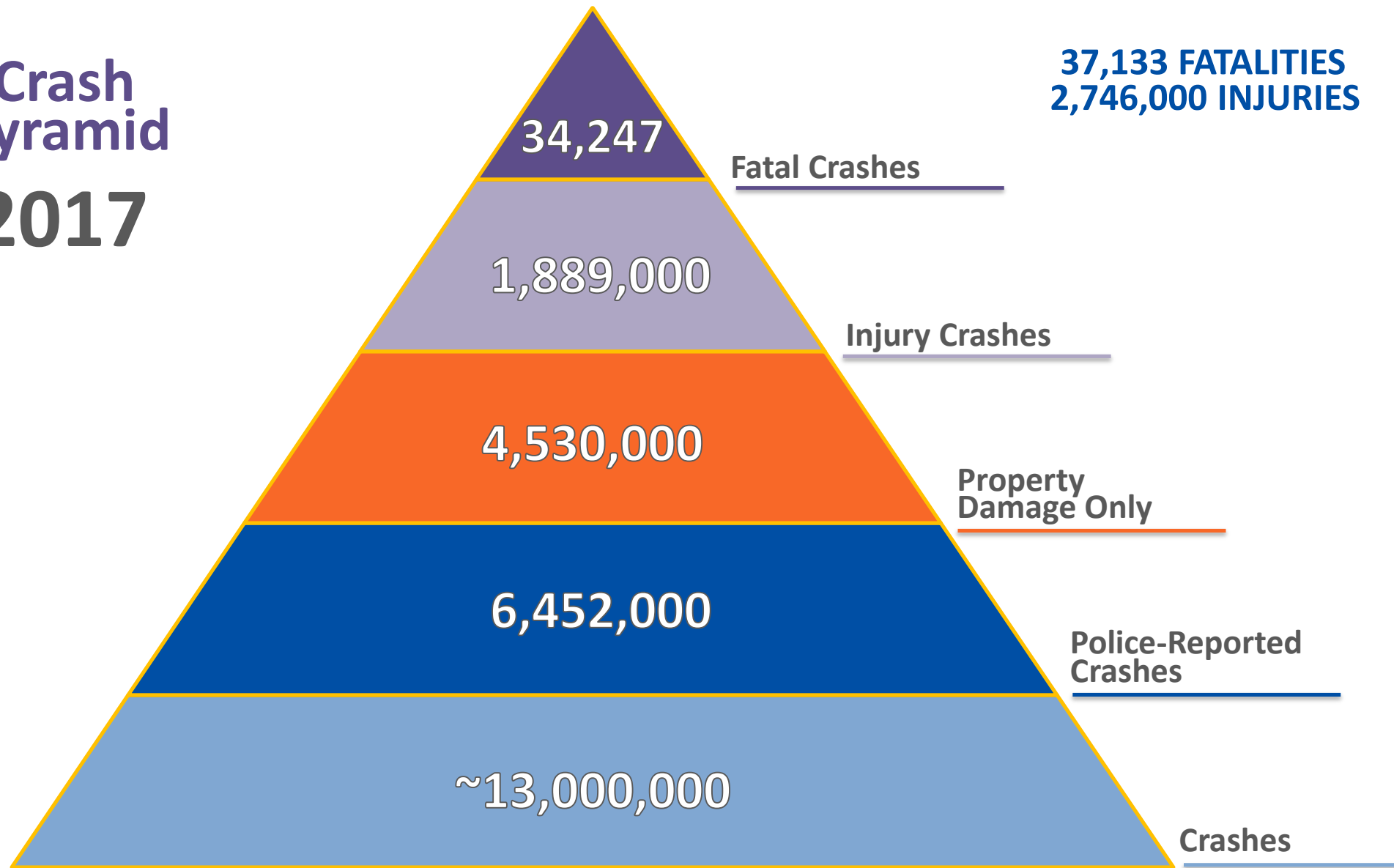


Deaths per 100,000 people

SOURCE: WHO Global Status Report on Road Safety, 2015.

<https://www.cdc.gov/vitalsigns/motor-vehicle-safety>

# Crash Pyramid 2017

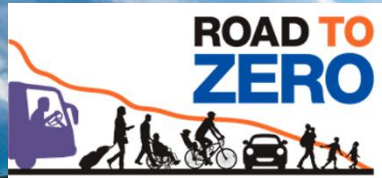


**37,133 FATALITIES**  
**2,746,000 INJURIES**

**\$242 Billion in Economic Cost**

**\$836 Billion in Societal Harm**





**Safe System  
Approach**

Safer Roads

Safer  
Vehicles

Safer Road  
Users

Improved Post  
Crash Response

Road Safety Management





# Motor Vehicle Injury Prevention Priority Areas



Restraints



Tribes

Impaired Driving



Older Adult  
Mobility



Data Linkage





# Motor Vehicle Injury Prevention Priority Areas



Restraints

# 47% in 2017

Percent of occupants killed who  
were not buckled

2,549 more lives saved in 2017 if  
everyone buckled



**RESTRAINTS**

<https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812691>





# Motor Vehicle Injury Prevention Priority Areas

Impaired Driving



A close-up photograph of a glass containing an amber-colored liquid, likely alcohol, on the left side of the frame. In the foreground, a set of car keys with a black fob and a metal key is lying on a dark, reflective surface. The background is blurred, showing what appears to be a person's hand and other indistinct objects.

# **29% in 2017**

**Percent of fatalities still involving alcohol**

**N = 10,874 alcohol impaired driving deaths**

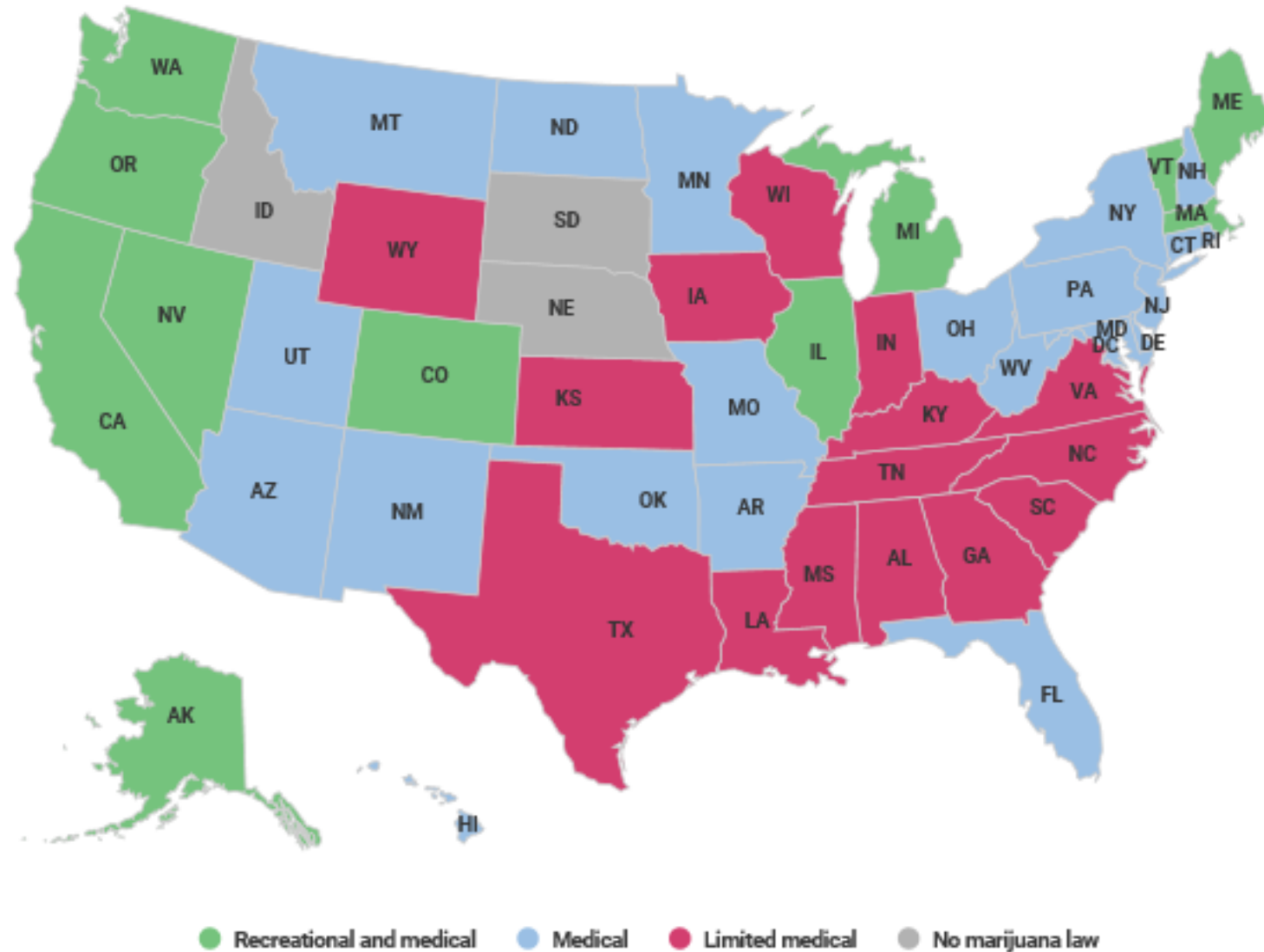
## **Alcohol-Impaired Driving**

<https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812630>

# Polysubstance Use



# IIHS: Marijuana Laws (July 2019)



<https://www.iihs.org/iihs/topics/laws/marijuana-laws/marijuana-map?topicName=alcohol-and-drugs>



# Motor Vehicle Injury Prevention Priority Areas

Older Adult  
Mobility





**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

## MyMobility Plan

### What can you do to 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 doing household chores.

You might not have mobility problems now, but you could in the future. You may even know others who already do—perhaps a parent, relative, friend, or neighbor. While it may not be possible to prevent all of these changes, there are actions you and your loved ones can take today, and as you age, to help keep you safe and independent tomorrow.

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

**MySelf**  
A plan to stay independent

**MyHome**  
A plan to stay safe at home

**MyNeighborhood**  
A plan to stay mobile in my community

Centers for Disease Control and Prevention  
National Center for Injury Prevention and Control

**Make a plan today.  
Stay independent tomorrow.**

- 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



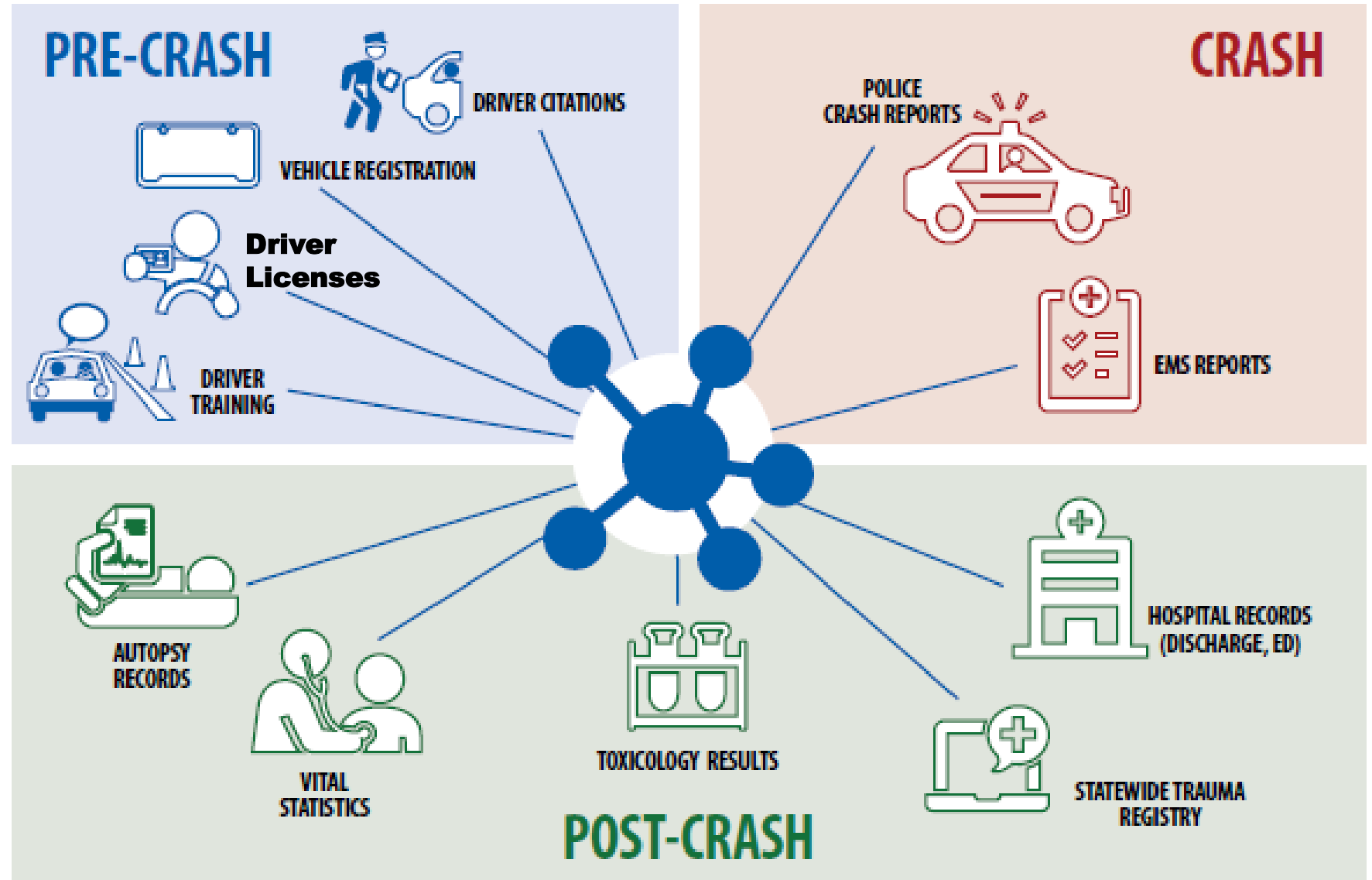


# Motor Vehicle Injury Prevention Priority Areas

Data Linkage

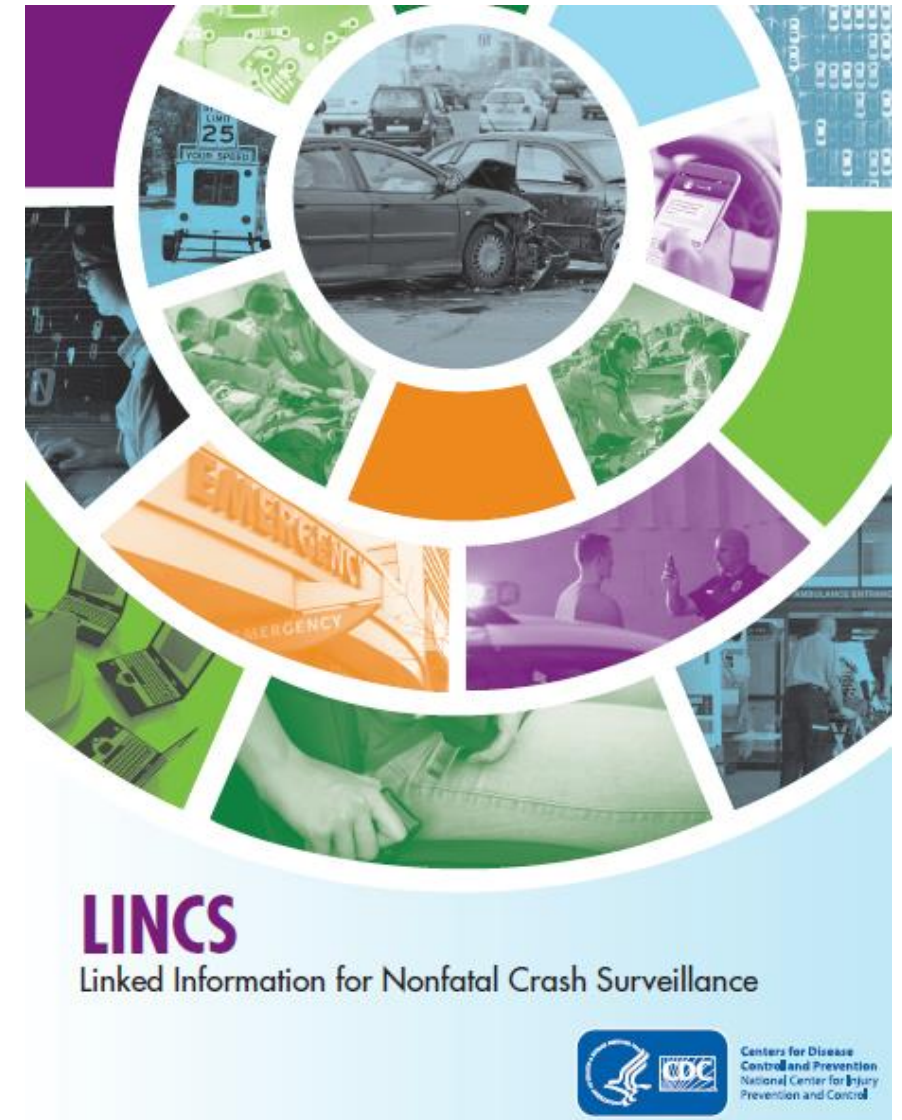


# Data Sources



# LINCS: Linking Information for Nonfatal Crash Surveillance

- Coming soon!
  - <https://www.cdc.gov/motorvehiclesafety/linkage/index.html>





**What Works**

# MV PICCS

## Motor Vehicle Prioritizing Interventions and Cost Calculator for States

- Helps state decision makers prioritize and select from a suite of 14 evidence-based interventions
- Selected interventions based on
  - Type
  - Effectiveness
  - State role in implementation
  - Current use
- To prioritize, states can use information about costs and benefits of each option
- Available at: <https://www.cdc.gov/motorvehiclesafety/calculator>



# MV PICCS Interventions

1. [Automated Red-Light Enforcement](#)
2. [Automated Speed-Camera Enforcement](#)
3. [Alcohol Interlocks](#)
4. [Sobriety Checkpoints](#)
5. [Saturation Patrols](#)
6. [Bicycle Helmet Laws for Children](#)
7. [Universal Motorcycle Helmet Laws](#)
8. [Primary Enforcement of Seat Belt Laws](#)
9. [High-Visibility Enforcement for Seat Belts and Child Restraint and Booster Laws](#)
10. [License Plate Impoundment](#)
11. [Limits on Diversion and Plea Agreements](#)
12. [Vehicle Impoundment](#)
13. [In-Person License Renewal](#)
14. [Increased Fines for Seat Belt Use](#)



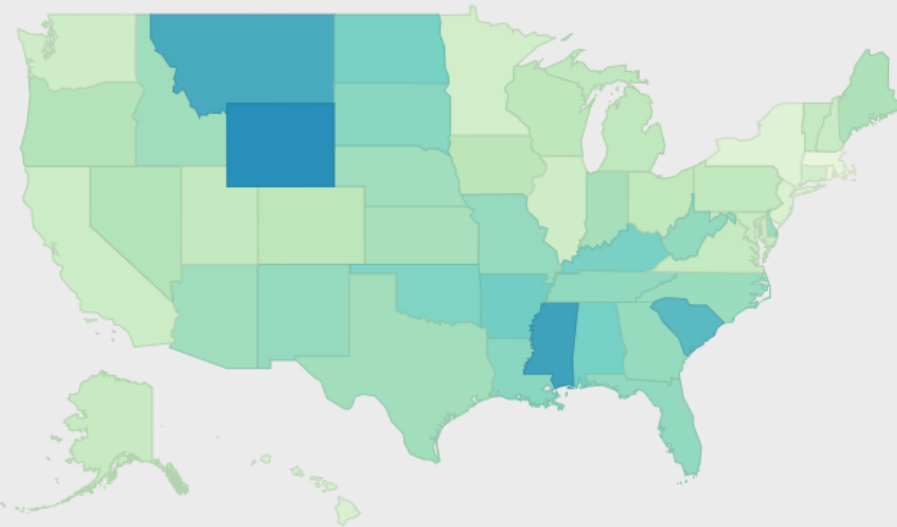
# MV PICCS 3.0

## Motor Vehicle Crash Death Rates in 2015

MV PICCS provides results specific to each state. To start your analysis, click on a state from the Map View or Table View tab.  
(Keyboard users: Use left or right arrow keys to navigate between tabs and enter key to select tab)

MAP VIEW

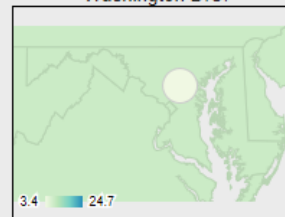
TABLE VIEW



3.4 24.7

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

Washington D.C.



# MV PICCS 3.0

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

\$ Enter a budget amount here

☐ Use Fines and Fees

The "Use Fines and Fees" box means whether the money collected from violators should be used to offset the cost of implementation. If you do not select this box, the tool will only select those interventions whose implementation cost is less than the budget you provide.

☐ Add Sensitivity Analysis

Sensitivity analysis allows you to change the default values for the percent reductions in deaths and injuries and the dollar values of saving lives and preventing injuries.

## Select interventions to run

The interventions in ***bold italics*** are *not implemented* in this state

☒ Select All Unimplemented

***Alcohol Interlocks***



Bicycle Helmet



***Increased Seat Belt Fine***



***In Person Renewal***



License Plate Impoundment



***Limits on Diversion***



Motorcycle Helmet



Primary Enforcement Seat Belt Law



Red Light Camera



***Saturation Patrols***



***Seat Belt Enforcement Campaign***



Sobriety Checkpoints



***Speed Camera***



***Vehicle Impoundment***



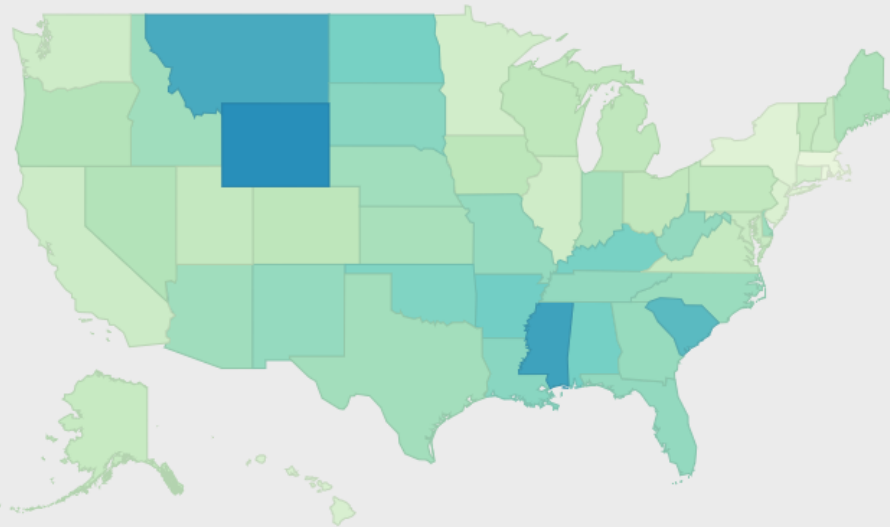
RUN MODEL

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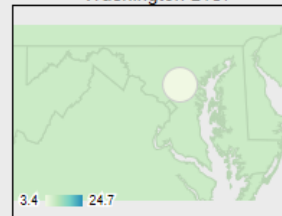
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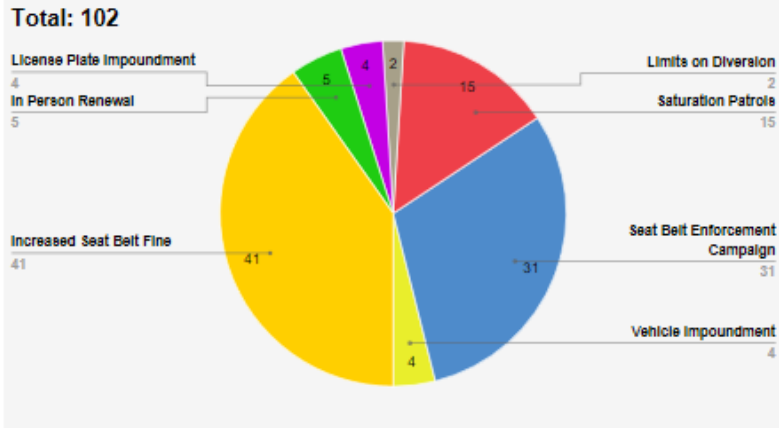
3.4 24.7

RUN MODEL

# MV PICCS 3.0

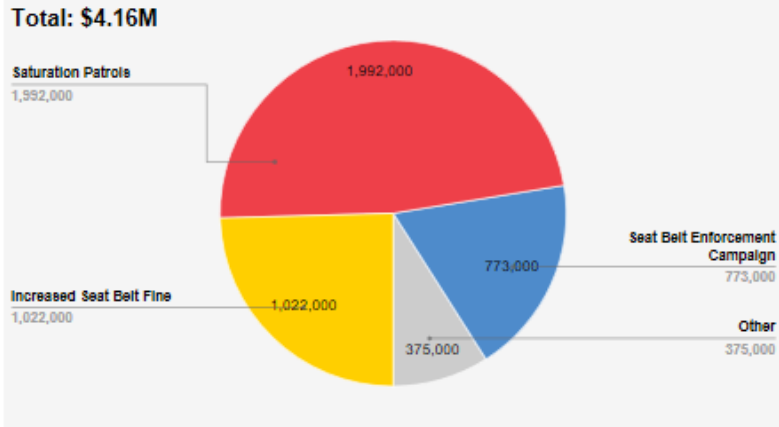
Select the interventions you want to analyze, enter a budget, and then hit 'RUN MODEL'

## Potential Injuries Prevented with Selected Interventions



This chart shows the number of injuries prevented by each intervention. If the numbers are hard to read or not visible, 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 6.3 percent.

## Potential Monetary Benefit of Selected Interventions



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 gray 'Other' slice consists of the following interventions: In Person Renewal (\$0.13M benefit), License Plate Impoundment (\$0.10M benefit), Limits on Diversion (\$0.05M benefit), Vehicle Impoundment (\$0.10M benefit).

## Select interventions to run

The interventions in ***bold italics*** are *not implemented* in this state

- Select All Unimplemented
- Alcohol Interlocks*** ☒
  - Bicycle Helmet ☐
  - Increased Seat Belt Fine*** ☒
  - In Person Renewal*** ☒
  - License Plate Impoundment ☐
  - Limits on Diversion*** ☒
  - Motorcycle Helmet ☐
  - Primary Enforcement Seat Belt Law ☐
  - Red Light Camera ☐
  - Saturation Patrols*** ☒
  - Seat Belt Enforcement Campaign*** ☒
  - Sobriety Checkpoints ☐
  - Speed Camera*** ☒
  - Vehicle Impoundment*** ☒

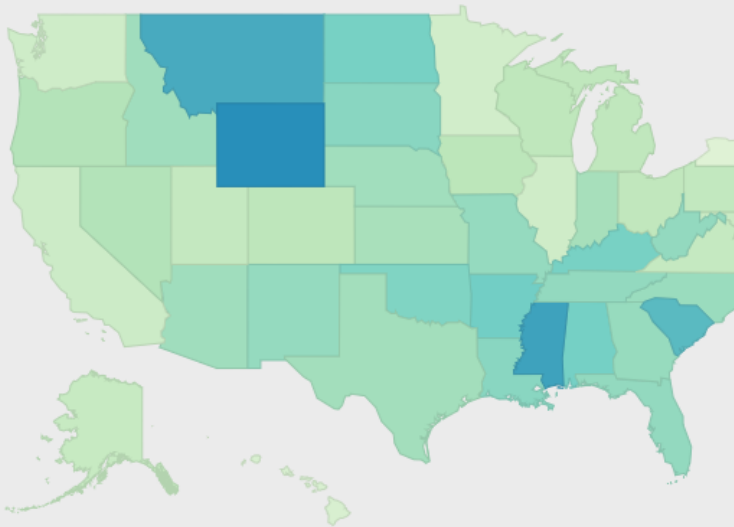
RUN MODEL

## Motor Vehicle Crash Death Rates i

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

MAP VIEW

TABLE VIEW



3.4 24.7








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

Search The Community Guide



Search

## Reducing Alcohol-Impaired Driving

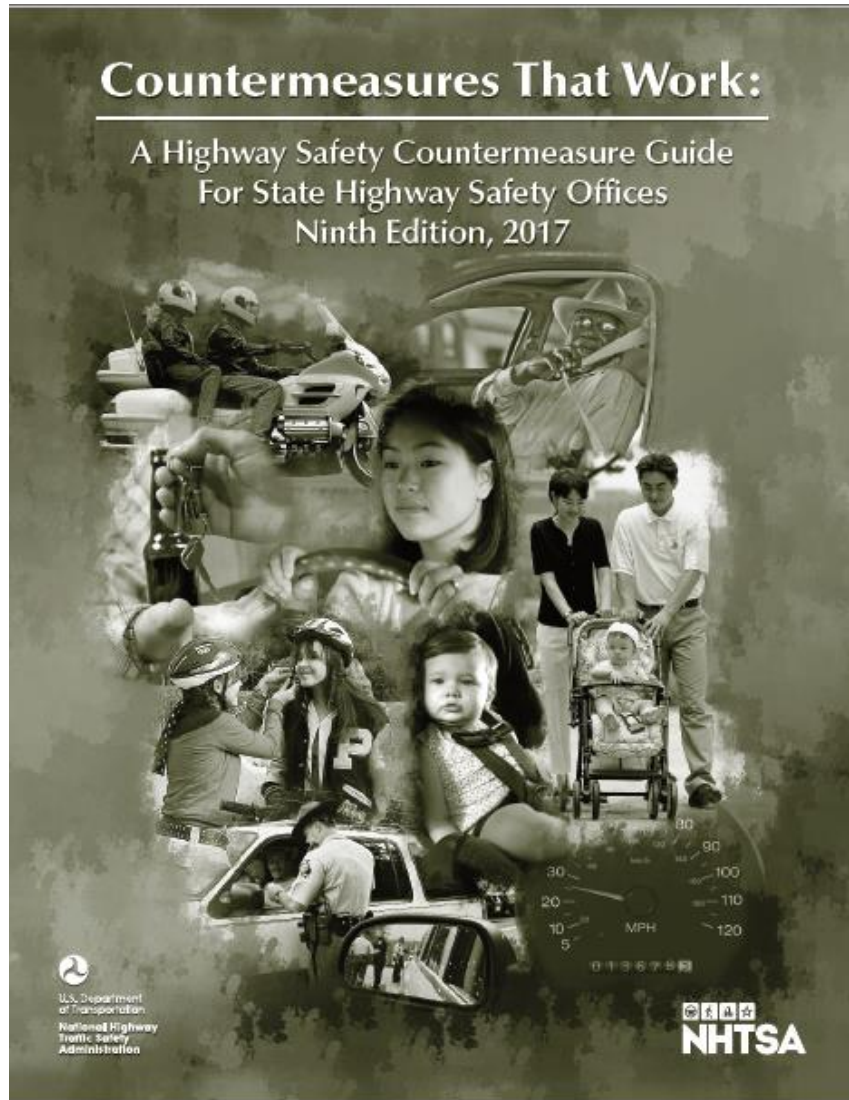
Intervention	CPSTF Finding
<a href="#">0.08% Blood Alcohol Concentration (BAC) Laws</a>	 Recommended (strong evidence) August 2000
<a href="#">Ignition Interlocks</a>	 Recommended (strong evidence) April 2006
<a href="#">Lower BAC Laws for Young or Inexperienced Drivers</a>	 Recommended (sufficient evidence) June 2000
<a href="#">Maintaining Current Minimum Legal Drinking Age (MLDA) Laws</a>	 Recommended (strong evidence) August 2000
<a href="#">Mass Media Campaigns</a>	 Recommended (strong evidence) June 2002
<a href="#">Multicomponent Interventions with Community Mobilization</a>	 Recommended (strong evidence) June 2005
<a href="#">Publicized Sobriety Checkpoint Programs</a>	 Recommended (strong evidence) August 2012



[https://www.thecommunityguide.org/  
topic/motor-vehicle-injury](https://www.thecommunityguide.org/topic/motor-vehicle-injury)



# NHTSA's Countermeasures That Work



- Alcohol- and Drug-Impaired Driving
- Seat Belts and Child Restraints
- Speeding and Speed Management
- Distracted and Drowsy Driving
- Motorcycle Safety
- Young Drivers
- Older Drivers
- Pedestrian Safety
- Bicycle Safety

[https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/812478\\_countermeasures-that-work-a-highway-safety-countermeasures-guide-.pdf](https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/812478_countermeasures-that-work-a-highway-safety-countermeasures-guide-.pdf)

# We Know What Works: Immediate Impact

- **Restraint use**
  - Primary enforcement seat belt laws covering occupants in all seating positions
  - Car seats and booster seats for motor vehicle passengers through at least age 8 years
- **Alcohol-impaired driving**
  - Publicized sobriety checkpoints
  - Ignition interlocks for all convicted offenders
  - Having lower blood alcohol concentration limits
  - Maintaining and enforcing the minimum legal drinking age of 21
- **Speed Management**

# State-Based Fact Sheets

## Being updated!

- Restraints <https://www.cdc.gov/motorvehiclesafety/seatbelts/states.html>
- Alcohol-impaired driving  
[https://www.cdc.gov/motorvehiclesafety/impaired\\_driving/states.html](https://www.cdc.gov/motorvehiclesafety/impaired_driving/states.html)
- Costs of motor vehicle crash deaths  
<https://www.cdc.gov/motorvehiclesafety/statecosts/index.html>

# CDC and NGA Partnership

- Data Linkage Learning Labs
  - Annapolis and Salt Lake City 2018
- MV PICCS Update
  - February 2018
- NGA Road Map for States
  - February 2018
- Impaired Driving Summit
  - Ohio 2019



State Strategies to Reduce Highway and Traffic  
Fatalities and Injuries  
*A Road Map for States*



# Road to Zero



**FHWA**  
FMCSA







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](mailto:cdcinfo@cdc.gov)

Web: [www.cdc.gov](http://www.cdc.gov)

<https://www.cdc.gov/motorvehicle/safety/index.html>

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.



**Extra Slides**

## 10 Leading Causes of Death by Age Group, United States – 2017

Rank	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	Total
1	Congenital Anomalies 4,580	Unintentional Injury 1,267	Unintentional Injury 718	Unintentional Injury 860	Unintentional Injury 13,441	Unintentional Injury 25,669	Unintentional Injury 22,828	Malignant Neoplasms 39,266	Malignant Neoplasms 114,810	Heart Disease 519,052	Heart Disease 647,457
2	Short Gestation 3,749	Congenital Anomalies 424	Malignant Neoplasms 418	Suicide 517	Suicide 6,252	Suicide 7,948	Malignant Neoplasms 10,900	Heart Disease 32,658	Heart Disease 80,102	Malignant Neoplasms 427,896	Malignant Neoplasms 599,108
3	Maternal Pregnancy Comp. 1,432	Malignant Neoplasms 325	Congenital Anomalies 188	Malignant Neoplasms 437	Homicide 4,905	Homicide 5,488	Heart Disease 10,401	Unintentional Injury 24,461	Unintentional Injury 23,408	Chronic Low. Respiratory Disease 136,139	Unintentional Injury 169,936
4	SIDS 1,363	Homicide 303	Homicide 154	Congenital Anomalies 191	Malignant Neoplasms 1,374	Heart Disease 3,681	Suicide 7,335	Suicide 8,561	Chronic Low. Respiratory Disease 18,667	Cerebro-vascular 125,653	Chronic Low. Respiratory Disease 160,201
5	Unintentional Injury 1,317	Heart Disease 127	Heart Disease 75	Homicide 178	Heart Disease 913	Malignant Neoplasms 3,616	Homicide 3,351	Liver Disease 8,312	Diabetes Mellitus 14,904	Alzheimer's Disease 120,107	Cerebro-vascular 146,383
6	Placenta Cord. Membranes 843	Influenza & Pneumonia 104	Influenza & Pneumonia 62	Heart Disease 104	Congenital Anomalies 355	Liver Disease 918	Liver Disease 3,000	Diabetes Mellitus 6,409	Liver Disease 13,737	Diabetes Mellitus 59,020	Alzheimer's Disease 121,404
7	Bacterial Sepsis 592	Cerebro-vascular 66	Chronic Low. Respiratory Disease 59	Chronic Low. Respiratory Disease 75	Diabetes Mellitus 248	Diabetes Mellitus 823	Diabetes Mellitus 2,118	Cerebro-vascular 5,198	Cerebro-vascular 12,708	Unintentional Injury 55,951	Diabetes Mellitus 83,564
8	Circulatory System Disease 449	Septicemia 48	Cerebro-vascular 41	Cerebro-vascular 56	Influenza & Pneumonia 190	Cerebro-vascular 593	Cerebro-vascular 1,811	Chronic Low. Respiratory Disease 3,975	Suicide 7,982	Influenza & Pneumonia 46,862	Influenza & Pneumonia 55,672
9	Respiratory Distress 440	Benign Neoplasms 44	Septicemia 33	Influenza & Pneumonia 51	Chronic Low. Respiratory Disease 188	HIV 513	Septicemia 854	Septicemia 2,441	Septicemia 5,838	Nephritis 41,670	Nephritis 50,633
10	Neonatal Hemorrhage 379	Perinatal Period 42	Benign Neoplasms 31	Benign Neoplasms 31	Complicated Pregnancy 168	Complicated Pregnancy 512	HIV 831	Homicide 2,275	Nephritis 5,671	Parkinson's Disease 31,177	Suicide 47,173

Data Source: National Vital Statistics System, National Center for Health Statistics, CDC.  
Produced by: National Center for Injury Prevention and Control, CDC using WISQARS™.



Centers for Disease  
Control and Prevention  
National Center for Injury  
Prevention and Control



# 10 Leading Causes of Injury Deaths by Age Group Highlighting Unintentional Injury Deaths, United States – 2017

Rank	Age Groups										Total
	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	
1	Unintentional Suffocation 1,106	Unintentional Drowning 424	Unintentional MV Traffic 327	Unintentional MV Traffic 428	Unintentional MV Traffic 6,697	Unintentional Poisoning 16,478	Unintentional Poisoning 15,032	Unintentional Poisoning 14,707	Unintentional Poisoning 10,581	Unintentional Fall 31,190	Unintentional Poisoning 64,795
2	Homicide Unspecified 139	Unintentional MV Traffic 362	Unintentional Drowning 125	Suicide Suffocation 280	Unintentional Poisoning 5,030	Unintentional MV Traffic 6,871	Unintentional MV Traffic 5,162	Unintentional MV Traffic 5,471	Unintentional MV Traffic 5,584	Unintentional MV Traffic 7,667	Unintentional MV Traffic 38,659
3	Unintentional MV Traffic 90	Homicide Unspecified 129	Unintentional Fire/Burn 94	Suicide Firearm 185	Homicide Firearm 4,391	Homicide Firearm 4,594	Suicide Firearm 3,098	Suicide Firearm 3,937	Suicide Firearm 4,219	Suicide Firearm 5,996	Unintentional Fall 36,338
4	Homicide Other Spec., Classifiable 76	Unintentional Suffocation 110	Homicide Firearm 78	Homicide Firearm 126	Suicide Firearm 2,959	Suicide Firearm 3,458	Suicide Suffocation 2,562	Suicide Suffocation 2,294	Unintentional Fall 2,760	Unintentional Unspecified 5,125	Suicide Firearm 23,854
5	Undetermined Suffocation 56	Unintentional Fire/Burn 95	Unintentional Suffocation 36	Unintentional Drowning 110	Suicide Suffocation 2,321	Suicide Suffocation 3,063	Homicide Firearm 2,561	Suicide Poisoning 1,604	Suicide Suffocation 1,631	Unintentional Suffocation 3,920	Homicide Firearm 14,542
6	Unintentional Drowning 43	Unintentional Pedestrian, Other 88	Unintentional Other Land Transport 25	Unintentional Other Land Transport 66	Unintentional Drowning 469	Undetermined Poisoning 887	Suicide Poisoning 1,089	Homicide Firearm 1,447	Suicide Poisoning 1,459	Adverse Effects 2,902	Suicide Suffocation 13,075
7	Undetermined Unspecified 37	Homicide Other Spec., Classifiable 49	Homicide Suffocation 15	Unintentional Fire/Burn 56	Suicide Poisoning 463	Suicide Poisoning 788	Undetermined Poisoning 792	Unintentional Fall 1,248	Homicide Firearm 824	Unintentional Poisoning 2,871	Unintentional Suffocation 6,946
8	Homicide Suffocation 26	Homicide Firearm 44	Homicide Cut/pierce 14	Suicide Poisoning 39	Undetermined Poisoning 280	Unintentional Drowning 479	Unintentional Fall 522	Undetermined Poisoning 887	Unintentional Suffocation 811	Unintentional Fire/Burn 1,278	Unintentional Unspecified 6,606
9	Unintentional Natural/Environment 18	Unintentional Natural/Environment 34	Unintentional Firearm 14	Unintentional Poisoning 39	Homicide Cut/pierce 266	Homicide Cut/Pierce 404	Unintentional Drowning 397	Unintentional Drowning 451	Adverse Effects 773	Suicide Poisoning 1,111	Suicide Poisoning 6,554
10	Three Tied 16	Unintentional Firearm 31	Two Tied 13	Unintentional Suffocation 35	Unintentional Fall 212	Unintentional Fall 351	Homicide Cut/Pierce 337	Unintentional Suffocation 441	Undetermined Poisoning 732	Suicide Suffocation 919	Adverse Effects 4,459

Data Source: National Center for Health Statistics (NCHS), National Vital Statistics System.  
Produced by: National Center for Injury Prevention and Control, CDC using WISQARS™.



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National Center for Injury  
Prevention and Control



# PUBLIC HEALTH CRISIS ON OUR ROADS

COLONEL MATTHEW C. PACKARD  
CHIEF, COLORADO STATE PATROL



# Presentation Agenda

Colorado Highlights

The Legalization of Marijuana

Legalization Strategy Challenges

Drug Recognition Expert Program

## About Us

The Colorado State Patrol, founded in 1935 is now responsible for patrolling 8,400 miles of highway and 57,000 miles of country roads.

There are approximately 830 sworn troopers and a total of 1,230 members supporting the mission of the Colorado State Patrol.

In 2018, 5.39B VMT travelled and 632 lives lost on Colorado's roadways.

# Colorado State Patrol Overall Summary

- Crash Causal Factors
  - Lane Violations
  - Speeding
  - Inattentive driving
  - Impairment
- Enforcement Philosophy
  - The CSP focuses on what we know through data analysis (when, where, how, etc.)
  - Public education
  - Community Engagement
- Traffic Safety as a Community Priority
  - Lack of consistent enforcement
  - Local law enforcement have conflicting priorities
  - Prosecutorial/judicial discretion creates differences
- Acknowledgement of Traffic Risk
  - *The public is more worried about the destination than the journey...*

## Colorado Fatalities

2018 – 632

2017 – 648

2016 - 609

# Legalization Strategy Challenges

The legalization of marijuana has presented multiple challenges for Colorado law enforcement

## Cultural Tolerance

- Alcohol impairment is socially unacceptable when driving, however, drug impairment does not share the same sentiment.
- Public education campaign is a necessary component – fact based not agenda driven and bias free.
- Understanding the increase in poly substance use and the effects on traffic safety.



## Data Collection

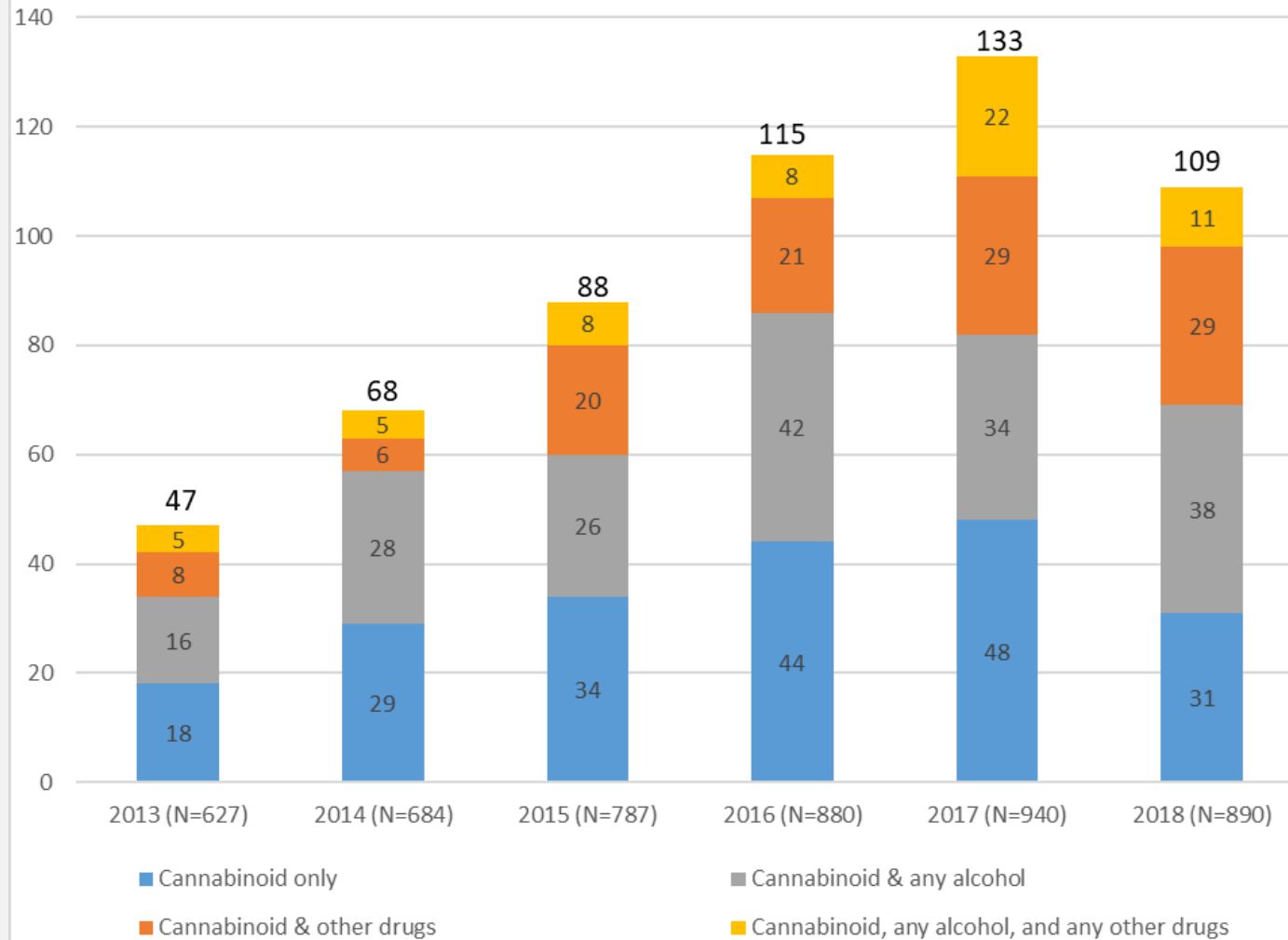
- Lacked good data to add to the conversation on how legalization has impacted impaired driving and traffic safety.
- Can not compare now vs. then.
- Small sample experiential blood testing on adjudicated cases, 72% positive for additional substance.



## Testing & Enforcement

- Improving toxicology processes.
- Struggle with data collection, proactive strategy development.
- Scientific determination of impairment levels (marijuana).

## Drivers Testing Positive for Cannabinoids, 2013-18



Source: Colorado Department of Transportation, Data Intelligence Group, Toxicology Data (2019).

Note: Numbers are based on toxicology results where at least one driver was tested for drugs after a crash. See Table 1 for number and percent of drivers tested each year.

The presence of a cannabinoid does not necessarily indicate recent use of marijuana or impairment.

# DRE & ARIDE Programs

- Early in Legalization
  - Lack of education in law enforcement and judicial system
  - Lack of confidence in detection and prosecution of an impaired driver
- Advancement of ARIDE training
  - All troopers trained
  - More troopers certified as DRE's
  - Impaired driving is having a more significant role with basic and continuing education
  - Arrests have been increasing over the years
    - Why? More impaired drivers or LE is better trained?
- Court System Needs
  - Focused effort to train judiciary and prosecution on process for detection and statutory framework.
    - Two choices (per se level of impairment based on active substance or leave law open that a trained officer can articulate level of impairment).
    - Colorado's third option - chose presumptive inference, challenge
  - Per se problems - science doesn't agree on impairment threshold, substances are different





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PROTECTING  
YOURS** SINCE 1935®

**COLONEL MATTHEW C. PACKARD**  
**CHIEF, COLORADO STATE PATROL**

**MATTHEW.PACKARD@STATE.CO.US**



# Addressing the Public Health Crisis on our Roads

Dan Chen

Vice President and General Manager  
3M Transportation Safety Division

August 28, 2019





# Engineering Approaches

*High performance technologies for cost effective safety improvements*

## Brighter Traffic Signs



Studies have found that where more-visible signs are installed, crash numbers have fallen

**25% to 46%**

In three to six years<sup>1</sup>

## Visible Road Markings



Brighter road markings resulted in crash reductions of up to

**28% | 25%**

Dry conditions<sup>2</sup>

Wet reflective markings in wet conditions<sup>2</sup>

## Fluorescent Devices



Regardless of available light, highly-conspicuous fluorescent materials are recognized at

**Greater Distances**

With more accurate color perception<sup>3</sup>

# Cost Effective Safety Improvements at Work

## Colorado DOT Lane Delineation



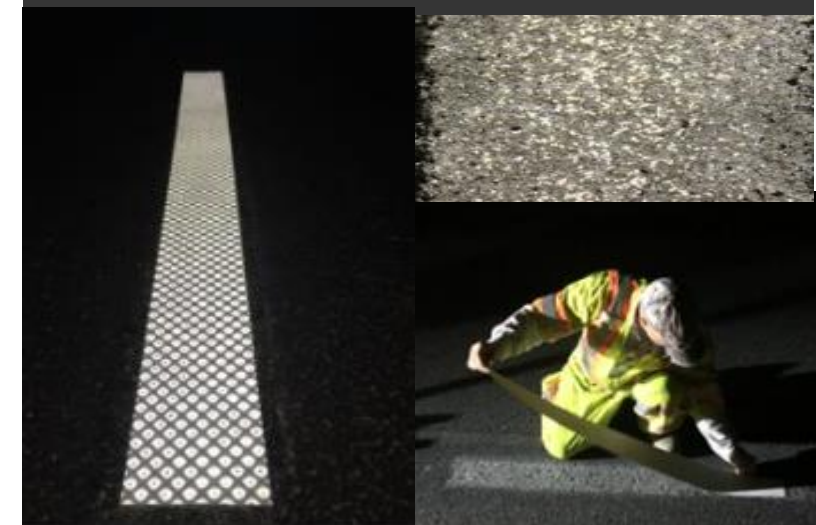
- Increasing lane delineation in daylight hours
- Increase skip lines from 4" to 6"
- Move away from traditional contrast PMs to "shadow" PMs
- Lower life cycle costs

## South Carolina Intersection Safety Program



- FHWA Focus State Program to address intersection safety
- 2000 intersections; \$6,200 average cost per intersection
- FHWA and SC calculated a 16 to 1 cost benefit ratio

## MassDot RPM and other markings to all weather solutions



- Replacement of raised pavement markers with all weather tape and elements
- Move to 4"x2 ft tape skips and all weather elements for edge lines
- Reduced life cycle cost of markings



# Transportation Trends

*The future of road safety*

## Connected-Automated Vehicles



## Urban Mobility





Thank you

# ***Addressing the Public Health Crisis on our Roads***

- ▶ Moderator:

- ▶ **Garrett Eucalitto**, Program Director, NGA

- ▶ Speakers:

- ▶ **Erin Sauber Schatz**, PhD, MPH, Team Lead, Transportation Safety Team, Centers for Disease Control & Prevention

- ▶ **Colonel Matthew Packard**, Chief of the Colorado State Patrol

- ▶ **Daniel Chen**, VP and GM, Traffic Safety Division, 3M



**#WeTheStates**