A National Perspective on Passenger Vehicle
Occupant Safety and Seat Belt Use in Rural Areas

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Acknowledgments

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  CDC/NCIPC/Division of Analysis, Research and Practice Integration

*affiliation at time of report
Background
# 10 Leading Causes of Death, United States

2017, All Races, Both Sexes

<table>
<thead>
<tr>
<th>Rank</th>
<th>Age Groups</th>
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<tbody>
<tr>
<td>1</td>
<td>Congenital Anomalies 4,680</td>
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<td>Short Gestation 3,749</td>
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<td>8</td>
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<td>Respiratory Distress 4,440</td>
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<td>Heart Disease 977</td>
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Produced By: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention

Data Source: National Center for Health Statistics (NCHS), National Vital Statistics System
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), 2015
Importance of Seat Belts

- In the U.S., 2/3 of all crash deaths are among passenger vehicle occupants.

- Seat belts reduce the risk of serious injury or death in a crash by half.
Study Description
Study Purpose

- **Outcomes**
  - Passenger vehicle occupant (PVO) death rates
  - Proportion of PVOs who were unrestrained at time of fatal crash
  - Self-reported seat belt use

- **Study questions**
  1. How do these outcomes differ across rural & urban areas?
  2. In rural & urban areas, how do these outcomes vary by type of state seat belt law (primary/secondary)?
USDA 2013 Rural-Urban Continuum Codes (RUCCs)

- We collapsed 9 county-level RUCC codes into 6 categories:
  - Level 1 (most urban): county in metro area with ≥1M population
  - ...
  - Level 6 (most rural): county in nonmetro area, with no urban population or urban population <2,500

Source: USDA, Economic Research Service using data from the U.S. Census Bureau.
State Seat Belt Enforcement Type, 2014

Source: Insurance Institute for Highway Safety
Key Findings
Death Rates Increase With Increasing Rurality

Figure 1. PVO age-adjusted death rates per 100,000 population, among adults, by region, US, FARS, 2014

Rural-urban designation and metropolitan status

- PVO = Passenger Vehicle Occupant
- FARS = Fatality Analysis Reporting System
Death Rates Increase With Increasing Rurality

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Unrestrained Deaths Increase With Increasing Rurality

Figure 6. Percentage of PVOs who were unrestrained at time of fatal crash, among adults, US, FARS 2014
Seat Belt Use Decreases With Increasing Rurality

Figure 7. Self-reported seat belt use among adults aged ≥18 years, US, BRFSS 2014
Study Highlights

- As rurality increases
  - Passenger vehicle occupant (PVO) death rates among adults increase
  - Proportion of PVOs killed who were unrestrained at time of fatal crash increases
  - Self-reported seat belt use decreases

- Primary seat belt enforcement laws are effective, *even in the most rural areas*
Conclusions

- Improving seat belt use remains a critical strategy to reduce crash-related deaths in the United States, especially in rural areas.

- States and communities can consider using evidence-based interventions to reduce rural-urban disparities in seat belt use and passenger vehicle occupant death rates.
CDC Resources For State, Local, and Tribal Communities
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
State-Based Fact Sheets

- Restraints
  [https://www.cdc.gov/motorvehiclesafety/seatbelts/states.html](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](https://www.cdc.gov/motorvehiclesafety/statecosts/index.html)
Tribal Road Safety

- Tribal Communities Toolkit
  [https://www.cdc.gov/motorvehiclesafety/native/toolkit.html](https://www.cdc.gov/motorvehiclesafety/native/toolkit.html)

- Best Practices Guide
  [https://www.cdc.gov/motorvehiclesafety/native/best_practices_guide.html](https://www.cdc.gov/motorvehiclesafety/native/best_practices_guide.html)
Injury Center Funded Programs

- Core State Violence and Injury Prevention Program (Core SVIPP)
  https://www.cdc.gov/injury/stateprograms/

- Injury Control Research Centers (ICRC)
  https://www.cdc.gov/injury/erpo/icrc/
Additional CDC and Other Resources

- CDC Injury Center  https://www.cdc.gov/injury/


- CDC Rural Health  https://www.cdc.gov/ruralhealth/

- Federal Office of Rural Health Policy (FORHP)  
  Rural Transportation Toolkit  
  https://www.ruralhealthinfo.org/community-health/transportation
Thank you

Contact:
Laurie Beck, LDF8@cdc.gov

For more information, contact CDC
1-800-CDC-INFO (232-4636)

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.
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