Housekeeping

• Q & A to follow – Submit questions using Q&A area

• Slides are available at https://www.ruralhealthinfo.org/webinars/injury-prevention-and-control

• Technical difficulties please call 866-229-3239
Rural and Urban Differences in Passenger Vehicle Occupant Deaths and Seat Belt Use Among Adults United States, 2014

Laurie Beck, MPH
Epidemiologist
National Center for Injury Prevention and Control
Centers for Disease Control and Prevention

Webinar: Insights from the CDC MMWR Rural Health Series
November 15, 2017
Acknowledgments

- Erin Sauber-Schatz, PhD, CDC/NCIPC/Division of Unintentional Injury Prevention (DUIP)
- Jon Downs, MPH, CDC/NCIPC/DUIP*
- Mark Stevens, MSPH, CDC/NCIPC/Division of Analysis, Research and Practice Integration

*affiliation at time of report

Background
### 10 Leading Causes of Death by Age Group, United States - 2015

<table>
<thead>
<tr>
<th>Rank</th>
<th>&lt;1</th>
<th>1-4</th>
<th>5-9</th>
<th>10-14</th>
<th>15-24</th>
<th>25-34</th>
<th>35-44</th>
<th>45-54</th>
<th>55-64</th>
<th>65+</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cancer</td>
<td>147,330</td>
<td>44,205</td>
<td>33,580</td>
<td>20,120</td>
<td>12,200</td>
<td>9,124</td>
<td>6,518</td>
<td>5,268</td>
<td>4,170</td>
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<td>Heart Disease</td>
<td>139,122</td>
<td>41,266</td>
<td>31,891</td>
<td>19,603</td>
<td>11,958</td>
<td>8,837</td>
<td>6,092</td>
<td>5,003</td>
<td>3,913</td>
<td>74,567</td>
</tr>
<tr>
<td>3</td>
<td>Chronic lower respiratory diseases</td>
<td>101,997</td>
<td>32,298</td>
<td>24,928</td>
<td>15,731</td>
<td>9,568</td>
<td>6,883</td>
<td>4,904</td>
<td>3,822</td>
<td>2,950</td>
<td>74,969</td>
</tr>
<tr>
<td>4</td>
<td>Stroke</td>
<td>41,230</td>
<td>13,830</td>
<td>10,300</td>
<td>6,620</td>
<td>4,120</td>
<td>2,940</td>
<td>2,070</td>
<td>1,570</td>
<td>1,150</td>
<td>29,330</td>
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<td>5</td>
<td>Cancer</td>
<td>13,961</td>
<td>4,240</td>
<td>3,340</td>
<td>2,110</td>
<td>1,370</td>
<td>1,006</td>
<td>777</td>
<td>605</td>
<td>460</td>
<td>7,684</td>
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<tr>
<td>6</td>
<td>Alzheimer's disease</td>
<td>11,361</td>
<td>3,590</td>
<td>2,810</td>
<td>1,820</td>
<td>1,180</td>
<td>850</td>
<td>654</td>
<td>523</td>
<td>392</td>
<td>5,649</td>
</tr>
<tr>
<td>7</td>
<td>Chronic lower respiratory diseases</td>
<td>11,210</td>
<td>3,460</td>
<td>2,700</td>
<td>1,800</td>
<td>1,150</td>
<td>823</td>
<td>622</td>
<td>499</td>
<td>387</td>
<td>5,199</td>
</tr>
<tr>
<td>8</td>
<td>Chronic lower respiratory diseases</td>
<td>10,330</td>
<td>3,240</td>
<td>2,510</td>
<td>1,660</td>
<td>1,100</td>
<td>802</td>
<td>612</td>
<td>490</td>
<td>370</td>
<td>4,950</td>
</tr>
<tr>
<td>9</td>
<td>Chronic lower respiratory diseases</td>
<td>9,850</td>
<td>2,950</td>
<td>2,240</td>
<td>1,530</td>
<td>1,000</td>
<td>712</td>
<td>541</td>
<td>430</td>
<td>320</td>
<td>4,340</td>
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<tr>
<td>10</td>
<td>Diabetes</td>
<td>9,110</td>
<td>2,700</td>
<td>2,070</td>
<td>1,380</td>
<td>920</td>
<td>680</td>
<td>534</td>
<td>425</td>
<td>315</td>
<td>3,900</td>
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</table>

Data Source: National Vital Statistics System, National Center for Health Statistics, CDC. Produced by: National Center for Injury Prevention and Control, CDC, using NVSS/ICD-10-AM™

### 10 Leading Causes of Injury Deaths by Age Group Highlighting Unintentional Injury Deaths, United States - 2015

<table>
<thead>
<tr>
<th>Rank</th>
<th>&lt;1</th>
<th>1-4</th>
<th>5-9</th>
<th>10-14</th>
<th>15-24</th>
<th>25-34</th>
<th>35-44</th>
<th>45-54</th>
<th>55-64</th>
<th>65+</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Unintentional Fall Deaths</td>
<td>17,571</td>
<td>5,605</td>
<td>4,151</td>
<td>2,650</td>
<td>1,693</td>
<td>1,179</td>
<td>868</td>
<td>694</td>
<td>556</td>
<td>6,775</td>
</tr>
<tr>
<td>2</td>
<td>Unintentional Injury Deaths</td>
<td>16,034</td>
<td>5,003</td>
<td>3,705</td>
<td>2,370</td>
<td>1,560</td>
<td>1,120</td>
<td>840</td>
<td>684</td>
<td>544</td>
<td>6,604</td>
</tr>
<tr>
<td>3</td>
<td>Unintentional Injury Deaths</td>
<td>15,584</td>
<td>4,793</td>
<td>3,481</td>
<td>2,224</td>
<td>1,448</td>
<td>1,040</td>
<td>790</td>
<td>646</td>
<td>516</td>
<td>6,583</td>
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<tr>
<td>4</td>
<td>Unintentional Injury Deaths</td>
<td>15,184</td>
<td>4,681</td>
<td>3,399</td>
<td>2,220</td>
<td>1,420</td>
<td>1,020</td>
<td>770</td>
<td>630</td>
<td>500</td>
<td>6,540</td>
</tr>
<tr>
<td>5</td>
<td>Unintentional Injury Deaths</td>
<td>14,784</td>
<td>4,570</td>
<td>3,300</td>
<td>2,120</td>
<td>1,380</td>
<td>980</td>
<td>750</td>
<td>590</td>
<td>460</td>
<td>6,500</td>
</tr>
<tr>
<td>6</td>
<td>Unintentional Injury Deaths</td>
<td>14,384</td>
<td>4,460</td>
<td>3,210</td>
<td>2,060</td>
<td>1,300</td>
<td>940</td>
<td>720</td>
<td>570</td>
<td>430</td>
<td>6,460</td>
</tr>
<tr>
<td>7</td>
<td>Unintentional Injury Deaths</td>
<td>13,984</td>
<td>4,350</td>
<td>3,120</td>
<td>1,990</td>
<td>1,230</td>
<td>880</td>
<td>660</td>
<td>520</td>
<td>390</td>
<td>6,420</td>
</tr>
<tr>
<td>8</td>
<td>Unintentional Injury Deaths</td>
<td>13,584</td>
<td>4,250</td>
<td>3,030</td>
<td>1,970</td>
<td>1,180</td>
<td>840</td>
<td>620</td>
<td>480</td>
<td>350</td>
<td>6,380</td>
</tr>
<tr>
<td>9</td>
<td>Unintentional Injury Deaths</td>
<td>13,184</td>
<td>4,150</td>
<td>2,940</td>
<td>1,920</td>
<td>1,130</td>
<td>800</td>
<td>580</td>
<td>450</td>
<td>320</td>
<td>6,340</td>
</tr>
<tr>
<td>10</td>
<td>Unintentional Injury Deaths</td>
<td>12,784</td>
<td>4,050</td>
<td>2,850</td>
<td>1,850</td>
<td>1,070</td>
<td>760</td>
<td>560</td>
<td>430</td>
<td>300</td>
<td>6,300</td>
</tr>
</tbody>
</table>


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4
Importance of Seat Belts

- In the U.S., $\frac{2}{3}$ of all crash deaths are to passenger vehicle occupants.

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

- Among adults, examine rural-urban differences in:
  - Passenger vehicle occupant (PVO) death rates
  - Proportion of PVOs who were unrestrained at time of fatal crash
  - Self-reported seat belt use

- Use six-level rural-urban continuum variable to assess outcomes above

- Examine differences in outcomes by
  - type of state seat belt enforcement
  - (primary vs. secondary)

**Study Method**
Data Source:
Fatality Analysis Reporting System (FARS), 2014

- Census of all fatal traffic crashes in U.S.
- Maintained by National Highway Traffic Safety Administration (NHTSA)
- Outcomes selected for study:
  - PVO deaths among adults
  - Adult PVOs killed who were unrestrained at time of fatal crash

Data Source:
Behavioral Risk Factor Surveillance System (BRFSS), 2014

- National- and state-based annual surveillance of selected health-related risk behaviors, chronic health conditions, and use of preventive services
- Maintained by Centers for Disease Control and Prevention
- Outcome selected for study:
  - Self-reported seat belt use, defined as “always” use

How often do you use seat belts when you drive or ride in a car? Would you say—
Always, Nearly always, Sometimes, Seldom, Never, Never drive or ride in a car
Data Source:
USDA 2013 Rural-Urban Continuum Codes (RUCCs)

- County-level codes (n=9)
  - Metropolitan (metro) counties classified by population size of the metro area
  - Nonmetropolitan counties classified by degree of urbanization and physical adjacency to a metro area

USDA 2013 RUCCs, modified

- Rural-urban continuum used for study:
  - Metropolitan counties
    - Level 1 (most urban): in metro areas of ≥1,000,000 population
    - Level 2: in metro areas of 250,000–999,999 population
    - Level 3: in metro areas of <250,000 population
  - Nonmetropolitan counties
    - Level 4: nonmetro areas with an urban population of ≥20,000
    - Level 5: nonmetro areas with an urban population of 2,500–19,999
    - Level 6 (most rural): nonmetro areas with an urban population of <2,500
Data Source:
Insurance Institute for Highway Safety (IIHS)

State Seat Belt Enforcement Type, 2014

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
Death Rates Increase With Increasing Rurality

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

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Death Rates Increase With Increasing Rurality

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Death Rates Increase With Increasing Rurality

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

Northeast

Figure 2. PVO age-adjusted death rates per 100,000 population, among adults, by metropolitan status and type of state seat belt enforcement, NORTHEAST, FARS, 2014
Northeast: Death Rates Lower With Primary Seat Belt Enforcement in Metro Areas

Figure 2. PVO age-adjusted death rates per 100,000 population, among adults, by metropolitan status and type of state seat belt enforcement, NORTHEAST, FARS, 2014
Midwest

Figure 3. PVO age-adjusted death rates per 100,000 population, among adults, by metropolitan status and type of state seat belt enforcement, MIDWEST, FARS, 2014

Midwest: Death Rates Lower With Primary Seat Belt Enforcement

Figure 3. PVO age-adjusted death rates per 100,000 population, among adults, by metropolitan status and type of state seat belt enforcement, MIDWEST, FARS, 2014
Midwest: Death Rates Lower With Primary Seat Belt Enforcement

Figure 3. PVO age-adjusted death rates per 100,000 population, among adults, by metropolitan status and type of state seat belt enforcement, MIDWEST, FARS, 2014

West

Figure 4. PVO age-adjusted death rates per 100,000 population, among adults, by metropolitan status and type of state seat belt enforcement, WEST, FARS, 2014
West: Death Rates Lower With Primary Seat Belt Enforcement

Figure 4. PVO age-adjusted death rates per 100,000 population, among adults, by metropolitan status and type of state seat belt enforcement, WEST, FARS, 2014
South

Figure 5. PVO age-adjusted death rates per 100,000 population, among adults, by metropolitan status and type of state seat belt enforcement, SOUTH, FARS, 2014

South: Death Rates Higher With Primary Seat Belt Enforcement

Figure 5. PVO age-adjusted death rates per 100,000 population, among adults, by metropolitan status and type of state seat belt enforcement, SOUTH, FARS, 2014
South: Death Rates Higher With Primary Seat Belt Enforcement

Figure 5. PVO age-adjusted death rates per 100,000 population, among adults, by metropolitan status and type of state seat belt enforcement, SOUTH, FARS, 2014

State Seat Belt Enforcement in the South, 2014

Source: Insurance Institute for Highway Safety
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
Conclusions

Study Highlights

- As rurality increases
  - Passenger vehicle occupant death rates among adults increase
  - Proportion of PVOs 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:*
  - Higher self-reported seat belt use
  - Lower PVO death rates in each census region except for the South
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.

Resources
CDC Resources

- **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://wwwn.cdc.gov/MVIP](https://wwwn.cdc.gov/MVIP)

CDC Resources (continued)

- **State 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 resources**
  - 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)
CDC and Other Resources

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

- CDC WISQARS

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

- Rural Health Information Hub – Rural Transportation Toolkit
  https://www.ruralhealthinfo.org/community-health/transportation

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.
Suicide in Rural Areas

Asha Ivey-Stephenson, Ph.D., M.A.
Behavioral Scientist/Epidemiologist
National Center for Injury Prevention and Control
Centers for Disease Control and Prevention

Webinar: Insights from the CDC MMWR Rural Health Series
November 15, 2017

Background
Why is suicidal behavior a public health issue?

- Morbidity and mortality
  - 10th leading cause of death in 2015 accounted for 44,193 deaths
  - Estimated 469,096 emergency dept visits for self-inflicted injury in 2014 (NEISS-AIP*)
  - Health consequences in many areas
    - Physical, mental, behavioral

- Potential for impact by public health
  - Focus on prevention
  - Science base
  - Stresses multi-disciplinary approach

*National Electronic Injury Surveillance System -- All Injury Program

CDC’s Unique Role in Suicide Prevention

Assess the Problem
What’s the problem?

Identify the Causes
Why did it happen?

Implement & Dissemination
How do you do it?

Develop & Evaluate Programs & Policies
What works?
### Leading causes of death – United States, 2015

<table>
<thead>
<tr>
<th>Rank</th>
<th>Cause</th>
<th>Number of deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Heart Disease</td>
<td>633,842</td>
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<tr>
<td>2</td>
<td>Malignant Neoplasms</td>
<td>595,930</td>
</tr>
<tr>
<td>3</td>
<td>Chronic Lower Respiratory Disease</td>
<td>155,041</td>
</tr>
<tr>
<td>4</td>
<td>Unintentional Injuries</td>
<td>146,571</td>
</tr>
<tr>
<td>5</td>
<td>Cerebrovascular Disease</td>
<td>140,323</td>
</tr>
<tr>
<td>6</td>
<td>Alzheimer’s Disease</td>
<td>110,561</td>
</tr>
<tr>
<td>7</td>
<td>Diabetes mellitus</td>
<td>79,535</td>
</tr>
<tr>
<td>8</td>
<td>Influenza and pneumonia</td>
<td>57,062</td>
</tr>
<tr>
<td>9</td>
<td>Nephritis</td>
<td>49,959</td>
</tr>
<tr>
<td>10</td>
<td>Suicide</td>
<td>44,193</td>
</tr>
</tbody>
</table>

Source: CDC vital statistics

### Leading causes of death for selected age groups – United States, 2015

<table>
<thead>
<tr>
<th>Rank</th>
<th>10-14 years</th>
<th>15-19 years</th>
<th>20-29 years</th>
<th>30-39 years</th>
<th>40-49 years</th>
<th>50-59 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Unintentional Injuries</td>
<td>Unintentional Injuries</td>
<td>Unintentional Injuries</td>
<td>Malignant Neoplasms</td>
<td>Malignant Neoplasms</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Malignant Neoplasms</td>
<td>Suicide</td>
<td>Suicide</td>
<td>Suicide</td>
<td>Heart Disease</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Suicide</td>
<td>Homicide</td>
<td>Homicide</td>
<td>Malignant Neoplasms</td>
<td>Unintentional Injuries</td>
<td></td>
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<tr>
<td>4</td>
<td>Homicide</td>
<td>Malignant Neoplasms</td>
<td>Malignant Neoplasms</td>
<td>Heart Disease</td>
<td>Liver Disease</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Congenital Malformations</td>
<td>Heart Disease</td>
<td>Heart Disease</td>
<td>Homicide</td>
<td>Liver Disease</td>
<td></td>
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<td>6</td>
<td>Heart Disease</td>
<td>Congenital Malformations</td>
<td>Diabetes Mellitus</td>
<td>Liver Disease</td>
<td>Diabetes Mellitus</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Chronic Lower Respiratory Disease</td>
<td>Influenza and Pneumonia</td>
<td>Congenital Malformations</td>
<td>Diabetes Mellitus</td>
<td>Cerebro-Vascular</td>
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<td>8</td>
<td>Cerebro-Vascular</td>
<td>Chronic Lower Respiratory Disease</td>
<td>Complicated pregnancy</td>
<td>Cerebro-Vascular</td>
<td>Homicide</td>
<td></td>
</tr>
</tbody>
</table>

Source: CDC vital statistics
Suicide rates among all persons by sex – United States, 2000-2015

Source: CDC vital statistics

Suicide rates among persons aged 15-19 years by sex – United States, 2000-2015

Source: CDC vital statistics
Suicide rates among all persons by age group and sex—United States, 2015

Source: CDC vital statistics

Suicide rates by age group and race/ethnicity—United States, 2011-2015

Source: CDC vital statistics
Suicide by Method – United States, 2015

- Firearms: 49.8%
- Suffocation: 26.8%
- Poisoning: 15.4%
- Cut/pierce: 1.7%
- Fall: 2.3%
- Other: 3.9%

Source: CDC vital statistics

Age-adjusted suicide rates among all persons by state -- United States, 2015 (U.S. avg 13.3)

Source: CDC vital statistics
### Burden of Injury

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deaths</td>
<td>41,425</td>
<td>(1)</td>
</tr>
<tr>
<td>医院izations</td>
<td>111,410</td>
<td>(2.7)</td>
</tr>
<tr>
<td>Emergency Dept visits</td>
<td>375,530</td>
<td>(9.1)</td>
</tr>
<tr>
<td>Events reported on surveys</td>
<td>1,120,000</td>
<td>(27.0)</td>
</tr>
<tr>
<td>Unreported events</td>
<td>9,436,000</td>
<td>(227.8)</td>
</tr>
</tbody>
</table>

*Source: CDC's National Vital Statistics System, †Source: Agency for Healthcare Research and Quality’s Healthcare Cost and Utilization Project - Nationwide Inpatient Sample (HCUP-NIS), §Source: CDC's National Electronic Injury Surveillance System-All Injury Program, ¶Source: SAMHSA’s National Survey on Drug Use and Health, **Source: SAMHSA’s National Survey on Drug Use and Health

Number in parentheses represent the ratio of deaths to other categories
Number and ratio of persons affected by suicidal thoughts and behavior among adults aged ≥18 years — United States, 2014 & 2015

2015 Data

- **Deaths**: 41,425 (1)
- **Hospitalizations**: 111,410 (2.7)
- **Emergency Department visits**: 375,530 (9.1)
- **Suicide attempts**: 1,120,000 (27.0)
- **Seriously considered suicide**: 9,436,000 (227.8)

*Source: CDC's National Vital Statistics System, †Source: Agency for Healthcare Research and Quality's Healthcare Cost and Utilization Project - Nationwide Inpatient Sample (HCUP-NIS), ‡Source: CDC’s National Electronic Injury Surveillance System - All Injury Program, ¶Source: SAMHSA’s National Survey on Drug Use and Health, ** Source: SAMHSA’s National Survey on Drug Use and Health

Number in parentheses represent the ratio of deaths to other categories

Highlighted Risk and Protective Factors

- **Risk**: Isolation, a feeling of being cut off from other people
  - Rurality
    - Physical isolation
    - Barriers to accessing mental health treatment
      - Uninsured
      - Unemployment
    - Agricultural challenges
    - Stigma
- **Protective**: Family and community support (Connectedness)
  - Connectedness in rural areas
  - Telemental health

Suicide Trends Among and Within Urbanization Levels by Sex, Race/Ethnicity, Age Group, and Mechanism of Death — United States, 2001–2015

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Shane P. D. Jack, PhD
Tedene Hailu, MS
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2Division of Analysis, Research, and Practice Integration, National Center for Injury Prevention and Control, CDC
Suicide – Key Findings

- Suicide rates were consistently higher in rural areas than in metropolitan areas.

FIGURE 1. Suicide rates* among persons aged ≥10 years, by county urbanization level† – United States, 2001–2015

Suicide – Key Findings

- Across all urbanization levels, suicide rates for males were 4 to 5 times higher than females with all rates highest in rural areas.
Suicide – Key Findings

- Rates for all racial/ethnic groups typically increased in all areas
  - Non-Hispanic American Indian/Alaska Natives had the highest rates in rural counties
  - Non-Hispanic whites had the highest rates in metropolitan counties
  - Non-Hispanic blacks had the lowest rates in rural counties

Suicide – Key Findings

- Rates increased for all age groups across all counties, with the highest rates among those aged 35-64 years
Suicide – Key Findings

- Suicide rates by firearm in rural areas were almost double the rates in metropolitan areas.

Conclusion
Suicide – Conclusion

- Prevention efforts are needed for suicides occurring in rural areas

- Comprehensive suicide prevention efforts might include
  - Leveraging protective factors
  - Providing innovative prevention strategies that increase access to health care and mental health care in rural communities

- Distribution of socioeconomic factors varies in different communities and needs to be better understood in the context of suicide prevention

Resources
Suicide Prevention Technical Package

Preventing Suicide

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strengthen economic supports</td>
<td>• Strengthen household financial security</td>
</tr>
<tr>
<td></td>
<td>• Housing stabilization policies</td>
</tr>
<tr>
<td>Strengthen access and delivery</td>
<td>• Coverage of mental health conditions in health insurance policies</td>
</tr>
<tr>
<td>of suicide care</td>
<td>• Reduce provider shortages in underserved areas</td>
</tr>
<tr>
<td></td>
<td>• Safer suicide care through systems change</td>
</tr>
<tr>
<td>Create protective environments</td>
<td>• Reduce access to lethal means among persons at risk of suicide</td>
</tr>
<tr>
<td></td>
<td>• Organizational policies and culture</td>
</tr>
<tr>
<td></td>
<td>• Community-based policies to reduce excessive alcohol use</td>
</tr>
<tr>
<td>Promote connectedness</td>
<td>• Peer norm programs</td>
</tr>
<tr>
<td></td>
<td>• Community engagement activities</td>
</tr>
<tr>
<td>Teach coping and problem-solving skills</td>
<td>• Social-emotional learning programs</td>
</tr>
<tr>
<td>Identify and support people at risk</td>
<td>• Parenting skill and family relationship programs</td>
</tr>
<tr>
<td>Lessen harms and prevent future risk</td>
<td>• Postvention</td>
</tr>
<tr>
<td></td>
<td>• Safe reporting and messaging about suicide</td>
</tr>
</tbody>
</table>


Thank You

Email Asha Ivey-Stephenson at iym9@cdc.gov for additional information

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.
Illicit Drug Use, Illicit Drug Use Disorders, and Drug Overdose Deaths in Metropolitan and Nonmetropolitan areas — United States

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

Webinar: Insights from the CDC MMWR Rural Health Series
November 15, 2017

Acknowledgments

- Christopher M. Jones, PharmD; Office of the Assistant Secretary for Planning and Evaluation, Office of the Secretary, U.S. Department of Health and Human Services
- Michael F. Ballesteros, PhD; National Center for Injury Prevention and Control, CDC
Background

Problem

- All-cause injury death rates are higher in nonmetropolitan areas than in metropolitan areas

- Drug overdoses are a leading cause of injury death in the United States resulting in approximately 52,404 deaths in 2015

Problem

- Risk for overdose is a complicated mix of factors such as:
  - type of drug used (licit versus illicit)
  - recreational versus pharmaceutical use
  - the combinations of drugs used
  - routes of administration (e.g., injection versus oral administration)
  - the amount of drugs prescribed
  - the place used (home versus community)
  - knowledge of potential adverse outcomes
  - access to overdose reversal drugs
  - access to emergency services
  - substance abuse treatment services
National Survey on Drug Use and Health (NSDUH)

- NSDUH variables included:
  - sex
  - age
  - race/ethnicity
  - residence (metropolitan/nonmetropolitan)
  - annual household income
  - self-reported drug use and drug use disorders

National Survey on Drug Use and Health (NSDUH)

- Self-reported drug use included past month use of illicit drugs (marijuana/hashish, cocaine [including crack], inhalants, hallucinogens, heroin, or nonmedical use of prescription-type drugs [opioids, sedatives, tranquilizers, stimulants])

- The presence of a past-year illicit drug use disorder was defined using criteria specified within the 4th edition of the Diagnostic and Statistical Manual of Mental Disorders, which include symptoms such as withdrawal, tolerance, use in dangerous situations, trouble with the law, and interference with major obligations at work, school, or home.
  - Respondents were asked questions about substance use disorders if they had reported use of illicit drugs in the past 12 months.
National Vital Statistics System-Mortality

- NVSS-M variables included:
  - decedent characteristics (sex, age, and race/ethnicity)
  - intent (unintentional, suicide, homicide, or undetermined)
  - location of death (medical facility, in a home, or other [including nursing homes, hospices, unknown, and other locations], and county of residence
  - deaths were categorized as metropolitan or nonmetropolitan based on the county of residence

Findings
Illicit Drug Use

- From 2003–2005 to 2012–2014, the prevalence of self-reported past-month use of illicit drugs was highest in large metropolitan areas.
- All three urban status groups experienced significant increases in the overall prevalence of past-month illicit drug use.

<table>
<thead>
<tr>
<th>Overall</th>
<th>2003-05</th>
<th>2006-08</th>
<th>2009-11</th>
<th>2012-14</th>
<th>% change 2003-05 to 2012-2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large Metropolitan</td>
<td>8.3</td>
<td>8.5</td>
<td>9.3</td>
<td>10.1</td>
<td>21.7</td>
</tr>
<tr>
<td>Small Metropolitan</td>
<td>8.2</td>
<td>7.9</td>
<td>8.7</td>
<td>9.5</td>
<td>15.9</td>
</tr>
<tr>
<td>Nonmetropolitan</td>
<td>6.0</td>
<td>5.9</td>
<td>6.6</td>
<td>6.8</td>
<td>13.3</td>
</tr>
</tbody>
</table>

Illicit drug use declines among youth, but increases among those >35 years

<table>
<thead>
<tr>
<th>Age group*</th>
<th>2003-05</th>
<th>2006-08</th>
<th>2009-11</th>
<th>2012-14</th>
<th>% change 2003-05 to 2012-2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-17 years</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large Metropolitan</td>
<td>10.4</td>
<td>9.7</td>
<td>10.4</td>
<td>9.3</td>
<td>-10.6</td>
</tr>
<tr>
<td>Small Metropolitan</td>
<td>11.2</td>
<td>9.4</td>
<td>10.3</td>
<td>9.4</td>
<td>-16.1</td>
</tr>
<tr>
<td>Nonmetropolitan</td>
<td>9.1</td>
<td>7.5</td>
<td>8.3</td>
<td>7.9</td>
<td>-13.2</td>
</tr>
<tr>
<td>&gt;35 years</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large Metropolitan</td>
<td>4.5</td>
<td>5.0</td>
<td>5.2</td>
<td>6.1</td>
<td>35.6</td>
</tr>
<tr>
<td>Small Metropolitan</td>
<td>4.3</td>
<td>4.4</td>
<td>4.9</td>
<td>6.1</td>
<td>41.9</td>
</tr>
<tr>
<td>Nonmetropolitan</td>
<td>3.3</td>
<td>3.7</td>
<td>3.9</td>
<td>4.5</td>
<td>36.4</td>
</tr>
</tbody>
</table>

* Ages 18-34 not shown; available in MMWR
Illicit Drug Use Disorders*

- All three geographic groups experienced statistically significant declines in overall prevalence of past-year illicit drug use disorders during 2003-05 and 2012-14.
  - For residents of large metropolitan areas, prevalence declined 12.6%
  - For residents of small metropolitan areas, prevalence declined 20.7%
  - For residents of nonmetropolitan areas, prevalence declined 12.8%

*Among persons reporting illicit drug use in the past year
Drug Overdose Deaths

- There were nearly 6x as many drug overdose deaths in metropolitan (45,059) than in nonmetropolitan areas (7,345) in 2015

- Age-adjusted drug overdose death rates:
  - were higher for metropolitan areas than in nonmetropolitan areas in 1999 (6.4 versus 4.0, respectively)
  - converged in 2004 (9.4 both areas)
  - have been higher in nonmetropolitan areas since 2006

<table>
<thead>
<tr>
<th></th>
<th>1999</th>
<th>2007</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metropolitan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home</td>
<td>6,839</td>
<td>15,973</td>
<td>23,275</td>
</tr>
<tr>
<td>(45.2)</td>
<td>(52.2)</td>
<td>(51.7)</td>
<td></td>
</tr>
<tr>
<td>Medical facility</td>
<td>5,148</td>
<td>8,668</td>
<td>12,006</td>
</tr>
<tr>
<td>(34.0)</td>
<td>(28.3)</td>
<td>(26.6)</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>3,133</td>
<td>5,963</td>
<td>9,778</td>
</tr>
<tr>
<td>(20.7)</td>
<td>(19.5)</td>
<td>(21.7)</td>
<td></td>
</tr>
<tr>
<td>Nonmetropolitan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home</td>
<td>748</td>
<td>2,904</td>
<td>3,931</td>
</tr>
<tr>
<td>(43.3)</td>
<td>(53.7)</td>
<td>(53.5)</td>
<td></td>
</tr>
<tr>
<td>Medical facility</td>
<td>691</td>
<td>1,613</td>
<td>2,058</td>
</tr>
<tr>
<td>(40.0)</td>
<td>(29.8)</td>
<td>(28.0)</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>290</td>
<td>889</td>
<td>1,356</td>
</tr>
<tr>
<td>(16.8)</td>
<td>(16.4)</td>
<td>(18.5)</td>
<td></td>
</tr>
</tbody>
</table>
Conclusions

Drug use and subsequent overdoses continue to be a critical and complicated public health challenge.

- Variations and trends in drug overdose death rates differed by urban status.
- Trends among subgroups indicate that certain groups are more profoundly affected by the epidemic than others.
- The decline in illicit drug use by youth and the lower prevalence of illicit drug use disorders are encouraging signs.
- The rising death rate of drug overdoses in rural areas along with persistent limited access to substance abuse treatment services in rural areas is cause for concern.

Prevention

- Understanding the differences between metropolitan and nonmetropolitan areas in drug use, drug use disorders, and overdose deaths can help public health professionals to identify, monitor, and prioritize responses.

- Consideration of where persons live and where they die from overdose could enhance specific overdose prevention interventions, such as training on naloxone administration or rescue breathing.

- Educating prescribers on CDC’s Guideline for Prescribing Opioids for Chronic Pain and facilitating better access to medication-assisted treatment could benefit communities with high opioid use disorder rates.
CDC’s Rx Awareness Campaign: [www.cdc.gov/rxawareness](http://www.cdc.gov/rxawareness)

CDC Guideline for Prescribing Opioids for Chronic Pain resource page: [www.cdc.gov/drugoverdose/prescribing/resources.html](http://www.cdc.gov/drugoverdose/prescribing/resources.html)

CDC rural health website: [www.cdc.gov/ruralhealth](http://www.cdc.gov/ruralhealth)

Substance Abuse and Mental Health Service Administration’s Opioid Overdose Toolkit: [store.samhsa.gov/shin/content/SMA14-4742/Overdose_Toolkit.pdf](http://store.samhsa.gov/shin/content/SMA14-4742/Overdose_Toolkit.pdf)

Bureau of Justice Assistance Law Enforcement Naloxone Toolkit website: [www.bjatraining.org/tools/naloxone/Naloxone-Background](http://www.bjatraining.org/tools/naloxone/Naloxone-Background)

U.S. Department of Health and Human Services resource of tools and information: [www.hhs.gov/opioids](http://www.hhs.gov/opioids)

Rural Health Information Hub’s toolkit: [www.ruralhealthinfo.org/community-health/substance-abuse](http://www.ruralhealthinfo.org/community-health/substance-abuse)
Thank You!

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Questions?

ruralhealthinfo.org
Thank you!

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- Please complete webinar survey
- Recording and transcript will be available on RHIIhub website