Suicide by Industry & Occupation, 2008-2012

Meredith Towle, MPH
WestON Conference - Golden, CO
September 2014
Disclaimers

- Findings are preliminary estimates
- Data are not controlled for other suicide risk factors
- Some analyses include all ages, some only age 16-64

- This work was supported (in part) by cooperative agreement 5U60OH009842-04. Contents do not necessarily represent official views of CDC-NIOSH.
2008-2010, United States
Age-adjusted Death Rates per 100,000 Population
All Injury, Suicide, All Races, All Ethnicities, Both Sexes, All Ages
Annualized Age-adjusted Rate for United States: 11.81

Top States (2008-10)
1. Alaska (22.3)
2. Wyoming
3. Montana
4. New Mexico
5. Nevada
6. Idaho
7. Utah
8. Colorado (16.5)
9. South Dakota
10. Arizona
11. Oregon
12. Oklahoma (15.8)

US: 11.8/100,000

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.
Suicide in Colorado

• In 2013 there were 1,004 suicide deaths in Colorado - 19% increase over 10 yrs¹
  – 186 homicides
• Estimated that suicide costs over $1 Billion annually in Colorado²
  – Suicides and suicide attempts
  – Direct & indirect costs
• Most commonly occurs among middle-aged, white males¹

¹ Colorado Violent Death Reporting System, Colorado Department of Public Health & Environment.
How the suicide rates in Colorado counties compare to the statewide average of 19 deaths per 100,000 population

Source:
http://www.craigdailypress.com/photos/2014/sep/06/75068/
Suicide by Occupation

- Significant differences in burden and means of suicide were seen by occupation (Stallones, 2013)
- Males who were in pesticide exposed occupations had higher odds of suicide (Stallones, 2006)
- Seasonality of violent suicides was most strongly seen as a spring peak and a winter trough among outdoor workers (Koskinen, 2002)
- Elevated rates of suicide in a particular occupational group may result from a complex interaction between job factors such as work stress and access to means and other risk factors such as age and presence of a mental disorder (Boxer, 1995)
Suicides by Selected Occupations, 2007–08*

- Protective service occupations: 25 (2008)

Total suicides in 2008 = 251
Total suicides in 2007 = 196

*Data for 2008 are preliminary. Data for prior years are revised and final.  
Colorado Violent Death Reporting System

- CDC National Violent Death Reporting System since 2004
  - 31 states participating (starting in 2015)
- Ongoing, state-based surveillance to monitor violent deaths to support planning and evaluation
  - Homicide, suicide, deaths of undetermined intent, legal intervention and unintentional firearm deaths
- Data collected from
  - Death certificates
  - Coroner/medical examiner reports
  - Law enforcement reports
- Detailed case information including demographics, circumstances, toxicology, weapon information, etc
Analysis Methods

• Death certificate = “Usual occupation”
• NIOSH coded I&O literals for 2008-2012
  – N= 3,900 (Approximate)
• Auto coding success rate:
  – 43.6% industry
  – 44.3% occupation
• Denominator data = U.S. Census Bureau’s 5-Year American Community Survey, 2008-2012.
Data by Occupation
Suicide deaths and rates by occupation for ages 16-64yrs, Colorado occurrences (2008-2012)

Source: Colorado Violent Death Reporting System, Colorado Department of Public Health and Environment
Transportation Occupations

- Supervisors of transportation and material moving workers
- Aircraft pilots and flight engineers
- Air traffic controllers and airfield operations specialists
- Flight attendants
- Ambulance drivers and attendants, except emergency medical technicians
- Bus drivers
- Driver/sales workers and truck drivers
- Taxi drivers and chauffeurs
- Motor vehicle operators, all other
- Locomotive engineers and operators
- Railroad brake, signal, and switch operators
- Railroad conductors and yardmasters
- Subway, streetcar, and other rail transportation workers
- Sailors and marine oilers
- Ship and boat captains and operators
- Ship engineers
- Bridge and lock tenders
- Parking lot attendants
- Automotive and watercraft service attendants
- Transportation inspectors
- Transportation attendants, except flight attendants
- Other transportation workers

Percent of Suicide Deaths by Age and Gender among Transportation Occupations, Colorado Occurrences (2008-2011)

Source: Colorado Violent Death Reporting System, Colorado Department of Public Health and Environment
### Circumstances for Suicides among Transportation Occupations, Colorado Occurrences (2008-2011)

<table>
<thead>
<tr>
<th>Circumstance</th>
<th>N</th>
<th>Percent*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current depressed mood</td>
<td>357</td>
<td>57.9</td>
</tr>
<tr>
<td>Current mental health problem</td>
<td>298</td>
<td>48.3</td>
</tr>
<tr>
<td>Ever treated for mental health problem</td>
<td>291</td>
<td>47.2</td>
</tr>
<tr>
<td>Current mental health treatment</td>
<td>251</td>
<td>40.7</td>
</tr>
<tr>
<td>Left a suicide note</td>
<td>239</td>
<td>38.7</td>
</tr>
<tr>
<td>Disclosed intent to commit suicide</td>
<td>225</td>
<td>36.5</td>
</tr>
<tr>
<td>Intimate partner problem</td>
<td>219</td>
<td>35.5</td>
</tr>
<tr>
<td>History of previous suicide attempts</td>
<td>218</td>
<td>35.3</td>
</tr>
<tr>
<td>Diagnosis of depression</td>
<td>210</td>
<td>34.0</td>
</tr>
<tr>
<td>Physical health problem</td>
<td>167</td>
<td>27.1</td>
</tr>
<tr>
<td>Problem with alcohol</td>
<td>124</td>
<td>20.1</td>
</tr>
<tr>
<td>Problem with other substance</td>
<td>119</td>
<td>19.3</td>
</tr>
<tr>
<td>Financial problem</td>
<td>85</td>
<td>13.8</td>
</tr>
<tr>
<td>Job problem</td>
<td>78</td>
<td>12.6</td>
</tr>
</tbody>
</table>

Source: Colorado Violent Death Reporting System, Colorado Department of Public Health and Environment
Data by Industry
Suicide deaths and rates by industry for ages 16-64yrs, Colorado occurrences (2008-2012)

Source: Colorado Violent Death Reporting System, Colorado Department of Public Health and Environment
Percent of Suicide Deaths by Occupation within Construction Industry, Colorado Occurrences (2008-2012)

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction and extraction occupations</td>
<td>76.8</td>
</tr>
<tr>
<td>Management occupations</td>
<td>10.8</td>
</tr>
<tr>
<td>Installation, maintenance, and repair occupations</td>
<td>3.0</td>
</tr>
<tr>
<td>Production occupations</td>
<td>1.8</td>
</tr>
<tr>
<td>Transportation occupations</td>
<td>1.5</td>
</tr>
<tr>
<td>Business and financial operations occupations</td>
<td>1.3</td>
</tr>
<tr>
<td>Architecture and engineering occupations</td>
<td>1.3</td>
</tr>
<tr>
<td>Office and administrative support occupations</td>
<td>1.0</td>
</tr>
<tr>
<td>Sales and related occupations</td>
<td>0.8</td>
</tr>
<tr>
<td>Protective service occupations</td>
<td>0.7</td>
</tr>
<tr>
<td>Material moving occupations</td>
<td>0.7</td>
</tr>
<tr>
<td>Other*</td>
<td>&lt; 0.5</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
Suicide death rates by method of suicide and Industry, Colorado Occurrences (2008-2012)

Method of Suicide

Suicide death rate per 100,000 employed population

- Construction Industry
- All Industries

Source: Colorado Violent Death Reporting System, Colorado Department of Public Health and Environment
Percent* of Suicide Deaths by Industry and Substances Presence, Colorado Occurrences (2008-2011)

<table>
<thead>
<tr>
<th>Substance Present</th>
<th>Construction Industry</th>
<th>All Industries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol</td>
<td>38.5</td>
<td>32.0</td>
</tr>
<tr>
<td>Opioid</td>
<td>10.1</td>
<td>12.9</td>
</tr>
<tr>
<td>Antidepressant</td>
<td>7.6</td>
<td>12.8</td>
</tr>
<tr>
<td>Marijuana</td>
<td>8.4</td>
<td>7.2</td>
</tr>
<tr>
<td>Amphetamine</td>
<td>4.6</td>
<td>3.3</td>
</tr>
<tr>
<td>Cocaine</td>
<td>7.2</td>
<td>3.1</td>
</tr>
</tbody>
</table>

Source: Colorado Violent Death Reporting System, Colorado Department of Public Health and Environment
What can we do?

• Targeted outreach & intervention
• Resources:
  – www.suicidepreventioncolorado.org
  – Mantherapy.org
  – Colorado’s new statewide mental health crisis hotline is open 24 hours per day, 365 days per year: 1-844-493-8255
Acknowledgements

• Alison Grace Bui, MPH
• Dara Burris, MPH
• NIOSH coding team
Questions?

meredith.towle@state.co.us
(303) 691-4938
Suicide deaths by occupation and age, Colorado occurrences (2008-2011)

Occupation Groups

Source: Colorado Violent Death Reporting System, Colorado Department of Public Health and Environment