A Comparison of Suicide Rates and Mechanisms in New York State Residents

Leah Hines, MPH, Michael Bauer, MS, and Kitty Gelberg, PhD, MPH
New York State Department of Health
Bureau of Occupational Health and Injury Prevention
Background

- National suicide rates have increased steadily from 1999 through 2015
- The rate of suicide is increasing rapidly among adolescents, young adults, and middle-aged adults
- From 2003 to 2015, the rate of suicide in New York State (NYS) has increased 30% from a low of 6.4 per 100,000 residents in 2004 to 8.3 in 2015
- The NYS rate is lower than the national rate in 2015 (13.8 per 100,000)
Risk Factors for Suicide

- Mental illness
- Alcohol and drug abuse
- History of trauma
- Previous suicide attempts/self-inflicted injury
- Family history of suicide
- Loss (relational, social, work, or financial)
- Local epidemics of suicide
- Easy access to lethal methods
Suicide as a Leading Cause of Death

• Second leading cause of injury deaths among all ages
• Third leading cause of death (COD) among 10-24 year olds
• Second leading COD among 25-34 year olds
• Fourth leading COD among 35-54 year olds
• Ninth leading COD among 55-64 year olds
Methods

• Suicides were identified from NYS Vital Records data from 2013-2015, using ICD-10 codes X60 – X84, Y870, and U03
• New York City (NYC) was defined as the counties of Bronx, New York (Manhattan), Kings (Brooklyn), Queens, and Richmond (Staten Island)
• Rest of State (ROS) was defined as the 57 counties outside of NYC
Suicide Rates, Overall and by Gender, 2013-2015
New York State (NYS), New York City (NYC), and Rest of State (ROS)
Suicide Rates by Race and Ethnicity, 2013-2015
NYS, NYC, and ROS

- Hispanic
- API non-Hispanic
- AIAN non-Hispanic
- Black Non-Hispanic
- White Non-Hispanic

Rate per 100,000 Residents

- ROS
- NYC
- NYS
Suicide Rates by Age Group, 2013-2015
NYS, NYC, and ROS

Rate per 100,000 Residents

- 65+
- 45-64
- 25-44
- 20-24
- 15-19
- 10-14
- 5-9

ROS  NYC  NYS
Mechanisms by Region
Mechanisms by Region, 2013-2015
NYS, NYC, and ROS

- **Firearm**
- **Suffocation**
- **Poisoning/Overdose**
- **Fall**
- **Cut/Pierce**
- **Drowning**
- **Other/Unspecified**

**Percent**

- **NYS**
- **NYC**
- **ROS**
## Relative Risk (RR) of Mechanism by Region, 2013-2015
Comparing ROS to NYC

<table>
<thead>
<tr>
<th>Mechanism</th>
<th>RR</th>
<th>95% Confidence Interval (CI)</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firearm</td>
<td>3.36*</td>
<td>2.89 – 3.93</td>
<td>0.76-0.89</td>
</tr>
<tr>
<td>Suffocation</td>
<td>0.82*</td>
<td>1.07-1.40</td>
<td>0.48-0.96</td>
</tr>
<tr>
<td>Poisoning</td>
<td>1.22*</td>
<td>0.14-0.18</td>
<td>0.40-0.86</td>
</tr>
<tr>
<td>Fall</td>
<td>0.14*</td>
<td>0.40-0.86</td>
<td></td>
</tr>
<tr>
<td>Cut/Pierce</td>
<td>0.68*</td>
<td>0.40-0.86</td>
<td></td>
</tr>
<tr>
<td>Drowning</td>
<td>0.58*</td>
<td>0.40-0.86</td>
<td></td>
</tr>
</tbody>
</table>

*p<0.05*
Mechanisms by Region, Males, 2013-2015
NYS, NYC, and ROS

Percent

- Firearm
- Suffocation
- Poisoning/Overdose
- Fall
- Cut/Pierce
- Drowning
- Other/Unspecified

NYS, NYC, and ROS
Mechanisms by Region, Females, 2013-2015
NYS, NYC, and ROS
## Relative Risk (RR) of Mechanism by Gender, 2013-2015
Comparing Males to Females

<table>
<thead>
<tr>
<th></th>
<th>Firearm</th>
<th>Suffocation</th>
<th>Poisoning</th>
<th>Fall</th>
<th>Cut/Pierce</th>
<th>Drowning</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ROS Males : ROS Females</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RR</td>
<td>3.68*</td>
<td>0.97</td>
<td>0.31*</td>
<td>0.64*</td>
<td>1.41</td>
<td>0.68</td>
</tr>
<tr>
<td>95% CI</td>
<td>3.01-4.48</td>
<td>0.87-1.08</td>
<td>0.27-0.36</td>
<td>0.42-0.97</td>
<td>0.79-2.49</td>
<td>0.39-0.1.19</td>
</tr>
<tr>
<td><strong>NYC Males : NYC Females</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RR</td>
<td>7.30*</td>
<td>1.02</td>
<td>0.50*</td>
<td>0.77*</td>
<td>2.11*</td>
<td>1.21</td>
</tr>
<tr>
<td>95% CI</td>
<td>3.76-14.19</td>
<td>0.90-1.16</td>
<td>0.40-0.63</td>
<td>0.62-0.94</td>
<td>1.04-4.29</td>
<td>0.63-2.33</td>
</tr>
</tbody>
</table>

*p<0.05
Mechanism by Race and Ethnicity, 2013-2015

ROS

NYC

Percent

Firearm Suffocation Poisoning/Overdose Fall Cut/Pierce Drowning Other/Unspecified

White non-Hispanic Black non-Hispanic API non-Hispanic Hispanic
**RR of Mechanism by Race and Ethnicity, 2013-2015**
Comparing White non-Hispanics to all other groups

<table>
<thead>
<tr>
<th></th>
<th>Firearm</th>
<th>Suffocation</th>
<th>Poisoning</th>
<th>Fall</th>
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<th>Drowning</th>
</tr>
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<tbody>
<tr>
<td><strong>ROS White non-Hispanic</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RR</td>
<td>2.18*</td>
<td>0.65*</td>
<td>1.41*</td>
<td>0.69</td>
<td>0.99</td>
<td>0.45*</td>
</tr>
<tr>
<td>95% CI</td>
<td>1.74-2.73</td>
<td>0.58-0.73</td>
<td>1.09-1.82</td>
<td>0.40-1.19</td>
<td>0.50-1.97</td>
<td>0.24-0.82</td>
</tr>
<tr>
<td><strong>NYC White non-Hispanic</strong></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RR</td>
<td>0.98</td>
<td>0.89</td>
<td>1.85*</td>
<td>1.13</td>
<td>0.94</td>
<td>0.70</td>
</tr>
<tr>
<td>95% CI</td>
<td>0.73-1.32</td>
<td>0.79-1.00</td>
<td>1.43-2.38</td>
<td>0.92-1.39</td>
<td>0.55-1.60</td>
<td>0.39-1.25</td>
</tr>
</tbody>
</table>

*p<0.05*
Mechanism by Age Group, 2013-2015
NYS
Mechanism by Age Group, 2013-2015

**ROS**

- Firearm
- Suffocation
- Poisoning/Overdose
- Fall
- Cut/Pierce
- Drowning
- Other/Unspecified

**NYC**

- Firearm
- Suffocation
- Poisoning/Overdose
- Fall
- Cut/Pierce
- Drowning
- Other/Unspecified

Legend:
- 10-14
- 15-19
- 20-24
- 25-44
- 45-64
- 65+
### RR of Mechanism by Age Group, 2013-2015
Comparing ages 45-64 to all other groups

<table>
<thead>
<tr>
<th></th>
<th>Firearm</th>
<th>Suffocation</th>
<th>Poisoning</th>
<th>Fall</th>
<th>Cut/Pierce</th>
<th>Drowning</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ROS 45-64 Years of Age</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>RR</td>
<td>0.99</td>
<td>0.77*</td>
<td>1.61*</td>
<td>0.77</td>
<td>2.00*</td>
<td>0.38*</td>
</tr>
<tr>
<td>95% CI</td>
<td>0.90-1.09</td>
<td>0.70-0.85</td>
<td>1.40-1.84</td>
<td>0.51-1.16</td>
<td>1.28-3.14</td>
<td>0.21-0.71</td>
</tr>
<tr>
<td><strong>NYC 45-64 Years of Age</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RR</td>
<td>0.95</td>
<td>0.93</td>
<td>1.55*</td>
<td>0.87</td>
<td>1.31</td>
<td>0.58</td>
</tr>
<tr>
<td>95% CI</td>
<td>0.70-1.30</td>
<td>0.82-1.05</td>
<td>1.23-1.95</td>
<td>0.70-1.08</td>
<td>0.76-2.24</td>
<td>0.29-1.13</td>
</tr>
</tbody>
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* *p<0.05
Conclusions

• Increase in suicides underscores need for further research
• Restricting access to mechanisms is important in prevention
• Regional and demographic differences should be considered in prevention/outreach development
Prevention Agenda 2013-2018

- Developed by the New York State Public Health and Health Planning Council (PHHPC)
- Five priority areas

New York Violent Death Reporting System (NYVDRS)

- Incident-based reporting
- Multiple data sources
- 2015 data available to researchers in the fall

NVDRS@health.ny.gov

DOH Contact Information

Leah.Hines@health.ny.gov

- Injury data requests and program information
  injury@health.ny.gov
  https://www.health.ny.gov/prevention/injury_prevention/