Firearm Injuries By Intent: A Comparison of Data in the Northeast U.S.

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Firearm ownership and death rates vary widely across states in the Northeast.
Firearm instructors disseminate information to new gun owners and may be valuable injury prevention partners.
At the suggestion of the Harvard Injury Center, the Northeast & Caribbean Injury Prevention Network and the New England Injury and Violence Prevention Research Collaborative initiated a project to:

* Receive firearm training from master firearm trainers
* Audit a convenience sample of firearm trainings in the Northeast to catalogue topics covered
* Initiate a partnership with the SAFE Network (Shooting and Firearms Educators) in the Northeast to share data and promote firearm safety
Sharing Firearm Injury Statistics

* To inform this partnership, NCIPN members assembled regional data on fatal and nonfatal firearm injury.

* Harvard Injury Center plans to work with NCIPN members on developing data fact sheets for use by SAFE firearm instructors and others, highlighting:
  * Suicide, homicides, assaults, and nonfatal unintentional injuries
  * Comparison of state data to the region and US

* Given the prominence of firearm suicide, the Harvard group is developing a brief suicide prevention module to disseminate to instructors.
Methodology: Data Sources

* State Death, Inpatient Hospital and Emergency Department Discharge Databases


* Nonfatal US and State-specific data sources are not directly comparable
Methodology: Case Definition

* CDC Injury Indicator Definitions for Firearm Injury Deaths, Inpatient Hospitalizations and ED Visits (ICD-10 and ICD-9-CM based)
* Calendar Years 2007-2011 aggregated counts/crude rates, except NH where 2005-2009 data are presented
* Rates based on counts less than 20 are not presented
* In-hospital (or Emergency Department) deaths were excluded from counts. ED cases with disposition “admitted” were excluded.
* Only state residents (resident deaths anywhere) (inpatient hospitalizations and ED visits in-state)
* Further analyzed by intent of firearm injury
# Methodology: Firearm Injury Intent

<table>
<thead>
<tr>
<th>Intent</th>
<th>ICD-10</th>
<th>ICD-9-CM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unintentional</td>
<td>W32-W34</td>
<td>E922.0-E922.3; E922.8; E922.9</td>
</tr>
<tr>
<td>Suicide/Self-injury</td>
<td>X72-X74</td>
<td>E955.0-E955.4</td>
</tr>
<tr>
<td>Homicide/Assault</td>
<td>X93-X95</td>
<td>E965.0-E965.4</td>
</tr>
<tr>
<td>Undetermined Intent</td>
<td>Y22-Y24</td>
<td>E985.0-E985.4</td>
</tr>
<tr>
<td>Legal Intervention</td>
<td>Y35.0</td>
<td>E970</td>
</tr>
</tbody>
</table>
Firearm Injury Death Rates (5-Year Average Annual), Northeastern States and U.S., 2007-2011*

*NH data are 2005-2009
Firearm Injury Death and Inpatient Hospital Rates (5-Year Average Annual), Northeastern States, 2007-2011*

*NH data are 2005-2009
Firearm Injury Death, Inpatient Hospital and Emergency Department Visit Rates (5-Year Average Annual), Northeastern States and US**, 2007-2011*

*NH data are 2005-2009

**US nonfatal rate shown is in yellow includes EDD and hospitalization rate
It appears that the overall injury rates in the Northeast states are driven by non-fatal firearm injuries, whereas the death rates are higher in the more rural states.
Suicide and Homicide Firearm Death Rates (5-Year Average Annual), Northeastern States, 2007-2011*

*NH data are 2005-2009
Firearm suicides are highest in ME, VT, and NH; lowest in CT, RI, NY, NJ, MA
Firearm homicides are highest in NJ, NY, and CT; lowest in MA, RI, ME, VT, and NH.

Most gun crimes are not necessarily (or likely) committed with legal firearms, nor by trained shooters.
Unintentional and Assault-related Firearm Injury Hospitalization Rates (5-Year Average Annual), Northeastern States, 2007-2011*

Other intents are not displayed due to low rates and/or suppressed data.
Rates not displayed if counts <20 (ME, NH, VT assault rates)
*NH data are 2005-2009
Unintentional and Assault-related Firearm ED Discharge Rates (5-Year Average Annual), Northeastern States, 2007-2011*

Other intents are not displayed due to low rates and/or suppressed data.
Assault Rates not displayed if counts <20 (ME, VT)
*NH data are 2005-2009
Demographics
Firearm Homicide Rates (5-Year Average Annual) by Race and Ethnicity, Northeastern States, 2007-2011*

- New York Other Non-Hispanic rate=1.1;
- All other states have Other Non-Hisp counts <20

*NH data are 2005-2009; Maine not included due to no race data available.
Rates not displayed if counts <20
Firearm Suicide Rates (5-Year Average Annual) by Race and Ethnicity, Northeastern States, 2007-2011*

- New York Other Non-Hispanic rate=0.5;
- All other states have Other Non-Hisp counts <20

*NH data are 2005-2009; Maine not included due to no race data available.
Rates not displayed if counts <20
Unintentional Firearm Injury-Related ED Discharge Rates (5-Year Average Annual) by Age Group, Northeastern States 2007-2011*

*NH data are 2005-2009
Rates not displayed if counts <20
Firearm Suicide Rates (5-Year Average Annual) by Age Group, Northeastern States 2007-2011*

*NH data are 2005-2009
Rates not displayed if counts <20
Firearm Suicide Rates (5-Year Average Annual) by Sex, Northeastern States 2007-2011*

*NH data are 2005-2009
Rates not displayed if counts <20
Firearms account for higher proportion of suicides where firearm ownership is more prevalent.

<table>
<thead>
<tr>
<th>State</th>
<th>% Households w/ Firearms</th>
<th>% Firearm Suicide rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>VT</td>
<td>44%</td>
<td>57%</td>
</tr>
<tr>
<td>ME</td>
<td>40%</td>
<td>51%</td>
</tr>
<tr>
<td>NH</td>
<td>31%</td>
<td>46%</td>
</tr>
<tr>
<td>NY</td>
<td>19%</td>
<td>30%</td>
</tr>
<tr>
<td>CT</td>
<td>18%</td>
<td>31%</td>
</tr>
<tr>
<td>RI</td>
<td>12%</td>
<td>25%</td>
</tr>
<tr>
<td>NJ</td>
<td>11%</td>
<td>27%</td>
</tr>
<tr>
<td>MA</td>
<td>11%</td>
<td>21%</td>
</tr>
</tbody>
</table>

Proportion of Suicides due to Firearms, Northeastern States, 2007-2011*

Percentage
- 20% - 29%
- 30% - 39%
- 40% - 49%
- 50%+  

* Data provided by WISQARS
**Limitations**

* Counts of resident admissions treated in bordering states not included (% of total may vary across region)
* Suppressed data values posed challenges in presenting “complete picture”
* Age-adjusted rates not presented
* Administrative databases
* Nonfatal data subject to coding variations within and between states
* No data on individual firearm ownership status of victims.
Future Directions

* Presentation and discussion of findings with full NCIPN membership at July 2015 in-person meeting
* Further analyses by individual states as needed/able
* Work with Harvard Injury Research Center to find ways to get this data to firearm safety instructors and others involved in firearm safety