American Red Cross Mortality Tracking
Deaths Associated with Hurricane Sandy

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“Regretfully, we were not prepared for Sandy”

Hodnett’s home in Long Island

CDC Public Health Matters Blog – by Gaetina Hodnett, Sandy survivor

http://blogs.cdc.gov/publichealthmatters/2013/02/memories-of-superstorm-sandy/
Hurricane Sandy

- “Perfect Storm”

- By Day 2 (October 31, 2012)
  - 7-8 million customers without power
  - 20,000 persons in shelters
  - Numerous fatalities
Monmouth Race Track Shelter, NJ
ARC Mortality Tracking

- Red Cross volunteer tracking of disaster-related deaths
- **Purpose:** Provide services to family members
  - Crisis counseling
  - Assistance with disaster-related expenses
  - Locate emergency housing
  - Identifying recovery resources
  - Address disaster-related health needs

Sources of Information

- Funeral home directors
- FEMA
- Hospitals
- News reports
- Additional information
  - Medical examiner/coroner
  - Physician
  - Fire department/police
  - Family of decedent

Red Cross Volunteers, NJ
Objective

- Describe deaths related to Hurricane Sandy
- Describe drowning deaths related to Hurricane Sandy
Disaster-Related Mortality

- **Directly-related death**
  - Caused by environmental force of disaster (e.g., wind, flood), or by the direct consequences of these forces (e.g., structural collapse)

- **Indirectly-related death**
  - Occurring in a situation in which disaster led to unsafe condition (e.g., hazardous road) or caused a loss or disruption of usual services that contributed to the death (e.g., loss of electrical services)
Epi-Curve

FIGURE 1. Number of reported deaths related to Hurricane Sandy (direct, indirect, and unknown/possibly), by date — Connecticut, Maryland, New Jersey, New York, Pennsylvania, and West Virginia, October 28–November 30, 2012*

* Excludes deaths with an unknown date of death (n = 12).
Sandy-Related Deaths Demographics

All Deaths (n=117)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, median (yrs)</td>
<td>65</td>
<td>-</td>
</tr>
<tr>
<td>Age, range (yrs)</td>
<td>1-94</td>
<td>-</td>
</tr>
<tr>
<td>Sex, Male</td>
<td>71</td>
<td>60.7</td>
</tr>
<tr>
<td>Race, White</td>
<td>63</td>
<td>53.8</td>
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</tbody>
</table>
## Sandy-Related Deaths Location

<table>
<thead>
<tr>
<th>State (location of death)</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York</td>
<td>53</td>
<td>45.3</td>
</tr>
<tr>
<td>New Jersey</td>
<td>34</td>
<td>29.1</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>12</td>
<td>10.3</td>
</tr>
<tr>
<td>West Virginia</td>
<td>6</td>
<td>5.1</td>
</tr>
<tr>
<td>Connecticut</td>
<td>4</td>
<td>3.4</td>
</tr>
<tr>
<td>Maryland</td>
<td>1</td>
<td>0.9</td>
</tr>
<tr>
<td>Unknown</td>
<td>7</td>
<td>6.0</td>
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</table>
### Mechanism of Death

<table>
<thead>
<tr>
<th>Type</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directly related</td>
<td>67</td>
<td>57.3</td>
</tr>
<tr>
<td>Drowning</td>
<td>40</td>
<td>34.2</td>
</tr>
<tr>
<td>Indirectly related</td>
<td>38</td>
<td>32.5</td>
</tr>
<tr>
<td>Poisoning</td>
<td>10</td>
<td>8.5</td>
</tr>
<tr>
<td>Unknown/Possibly related</td>
<td>12</td>
<td>10.3</td>
</tr>
</tbody>
</table>
## Drowning Deaths

<table>
<thead>
<tr>
<th></th>
<th>Drowning (n=40)</th>
<th>All (n=117)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>No.</strong></td>
<td><strong>%</strong></td>
<td><strong>No.</strong></td>
</tr>
<tr>
<td>Age, median</td>
<td>62</td>
<td>65</td>
</tr>
<tr>
<td>Sex, male</td>
<td>26</td>
<td>71</td>
</tr>
<tr>
<td>Race, White</td>
<td>22</td>
<td>63</td>
</tr>
<tr>
<td>State, New York</td>
<td>32</td>
<td>53</td>
</tr>
</tbody>
</table>
Location of New York Drowning Deaths
Drowning Deaths

- “went to basement to turn off gas and door closed to room unable to open, trapped and drowned in storm surge”
- “didn't want to leave home because he didn't believe the storm would be too bad”
- “deceased stayed in home with father to protect families belongings. Father and son found together in basement of the family's ...both had drowned”
Limitations

- Incomplete tally of Sandy-related deaths
  - Only activated in areas with a Red Cross Disaster Relief Operation
  - Media sources identified 131 fatalities (vs 117)

- Death certificates not complete at time of analysis
Findings

- Hurricane-related drowning deaths leading cause of death

- Designation of evacuation zones

- Evaluation of evacuation warnings/procedures is warranted

- Vulnerable populations – older adults, coastal residents
  - Interventions
Acknowledgements

American Red Cross
CDC Health Studies Branch

For more information please contact Centers for Disease Control and Prevention

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Telephone: 1-800-CDC-INFO (232-4636)/TTY: 1-888-232-6348
E-mail: cdcinfo@cdc.gov  Web:  http://www.cdc.gov

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.