Use of New Jersey Poison Information and Education System (NJPIES) During Hurricane Sandy

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Hurricane Sandy

- Most destructive storm of the 2012 Atlantic hurricane season
- Widespread power outages, evacuations, gas shortages, flooding
- Led to potentially toxic exposures, unintentional misuse of medicine, and a need for information related to poisons/toxins
Background - NJPIES

NJPIES, also known as the NJ Poison Control Center, is the sole poison control center in NJ
• 24/7 emergency and information hotline
• Serves the public and health care professionals
• Averaged 64,650 cases annually during 2010-2012
• Housed at Rutgers New Jersey Medical School in Newark
• Remained open during Hurricane Sandy (backup generator and ability to switch to direct telephone lines)

Impact of Hurricane Ike on Texas Poison Center Calls (Forrester, 2009)

During the evacuation and landfall period, mean daily call volume for gasoline exposure increased from baseline (pre-evacuation).
During post-evacuation, mean daily call volume increased from baseline for both carbon monoxide and gasoline.

A Review of Disaster-Related Carbon Monoxide Poisoning: Surveillance, Epidemiology, and Opportunities for Prevention (Iqbal, Clower, Hernandez, et al., 2012)

Carbon monoxide poisoning is a leading cause of morbidity and mortality in disaster-affected areas.
Generators were the primary exposure source for 83% of fatal cases and for 54% of non-fatal cases.
Close to 63% of fatal and 53% of non-fatal cases occurred within 3 days of disaster onset.

Study Purpose

Characterize the use of NJPIES in the days immediately preceding, during, and after Hurricane Sandy to determine opportunities for targeted public health education and intervention.
Methods: Data Source

- Retrospective review of electronic NJPIES case data. This presentation will cover period from Oct. – Dec. 2012
- Each call to NJPIES is recorded electronically, and calls are grouped into individual cases (can be multiple calls per case).
- NJPIES collects over 20 variables and a running narrative per case.
- Case data is stored in the TOXICALL® System, a data collection system developed for poison control centers.

Methods: Data Collection

- Most Sandy-related cases had been coded as such by NJPIES staff either in real-time or retroactively via case narrative review
- Additional cases identified via case narrative review expanded the set of Sandy-related cases

Sandy-related time points

- Oct. 31 2012 – Apr. 30 2013: Post-evacuation
- May 1 2013 – Mar. 31 2015: Long-term effects

NJPIES 2012 Sandy-related Case Frequency by Date (n=498)
<table>
<thead>
<tr>
<th>County</th>
<th>Carbon Monoxide Rate</th>
<th>Gasoline Exposures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monmouth</td>
<td>4.1</td>
<td>Monmouth</td>
</tr>
<tr>
<td>Union</td>
<td>2.2</td>
<td>Somerset</td>
</tr>
<tr>
<td>Morris</td>
<td>1.8</td>
<td>Passaic</td>
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<tr>
<td>Burlington</td>
<td>1.6</td>
<td>Union</td>
</tr>
<tr>
<td>Bergen</td>
<td>1.4</td>
<td>Sussex</td>
</tr>
<tr>
<td>Middlesex</td>
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</tr>
<tr>
<td>Ocean</td>
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<tr>
<td>Warren</td>
<td>0.9</td>
<td>Essex</td>
</tr>
<tr>
<td>Mercer</td>
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<td>Warren</td>
</tr>
<tr>
<td>Hunterdon</td>
<td>0.8</td>
<td>Hunterdon</td>
</tr>
</tbody>
</table>

*Based on U.S. Census 2012 Population Estimates

### Challenges and Limitations

- **Geographic Analysis:**
  - Case data includes only caller location (may differ from patient location)
  - Locations with heavily utilized healthcare facilities over-represented

- **Case Narratives:**
  - Rich with data for case characterization
  - Only source of follow-up call dates
  - VERY time-intensive to review

### Conclusions

- NJPIES provided essential guidance and information to both healthcare facilities and individuals throughout New Jersey before, during, and after Hurricane Sandy
- This study identified the need for enhanced public education and intervention particularly regarding:
  - Gasoline siphoning
  - Proper use of gasoline-powered generators and cleaning equipment

### New Jersey Hurricane Sandy Study Team

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Thank You!

Questions or Comments?

Sandy-related Call

One of the first calls occurred on 10.28.2012 at 5:30 pm (before Sandy landfall).
• Attempted suicide
• Son called after father, age 85, ingested 30 pills of Amlodipine after becoming upset from notice to evacuate.
• Residence close to beach
• Patient already in enroute to HCF when son called
• Outcome: Classified by NJPIES as moderate effect (non life-threatening symptoms usually indicating treatment with no residual disability)