Results from a Pilot Surveillance System of Harmful Algal Bloom-associated Illnesses in New York State, 2015

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Background

- Harmful algal blooms (HABs) – an excessive aquatic growth of cyanobacteria or marine algae that may produce toxins
- Can cause variety of symptoms – dermal, gastrointestinal, neurological, or respiratory
- Causes concerns about recreational activities and drinking water supplies
- Incidence of HAB-associated illnesses = ?
  - New York State (NYS) has historically received <10 illness reports per year, with many years experiencing no reports

Methods

New York State Department of Health (DOH) pilot surveillance included:
- Voluntary participation of local health departments (LHDs) across the state
  - 15 total participating counties, others participating throughout summer
- Enhanced One Health surveillance
  - Human and animal illnesses reported by LHDs, other agencies, physicians, veterinarians
  - DOH actively collected illness reports through hospital data & poison control center data
- Each report was investigated and classified per CDC’s case definition
- Frequencies of key variables were calculated (i.e. demographics, symptoms, environmental information, etc.) using SAS 9.3

Results

Characteristics of HAB-associated human and animal illnesses reported in 2015.

<table>
<thead>
<tr>
<th></th>
<th>Human N=27</th>
<th>Animal N=2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>16 (59)</td>
<td>1 (50)</td>
</tr>
<tr>
<td>Male</td>
<td>21 (71)</td>
<td>1 (50)</td>
</tr>
<tr>
<td>Mean age (yrs)</td>
<td>26</td>
<td>n/a</td>
</tr>
<tr>
<td>Exposure type*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recreational</td>
<td>27 (100)</td>
<td>2 (100)</td>
</tr>
<tr>
<td>Treated drinking water</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Untreated drinking water</td>
<td>0 (0)</td>
<td>2 (100)</td>
</tr>
<tr>
<td>Primary health complaint*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Respiratory irritation (i.e. sore throat, cough)</td>
<td>14 (52)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Dermal reaction (i.e. rash, eye irritation)</td>
<td>13 (48)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>12 (44)</td>
<td>2 (100)</td>
</tr>
<tr>
<td>Fatigue</td>
<td>10 (37)</td>
<td>2 (100)</td>
</tr>
<tr>
<td>Nausea</td>
<td>7 (26)</td>
<td>n/a</td>
</tr>
<tr>
<td>Headache</td>
<td>6 (22)</td>
<td>n/a</td>
</tr>
<tr>
<td>Vomiting</td>
<td>4 (15)</td>
<td>2 (100)</td>
</tr>
<tr>
<td>Other**</td>
<td>10 (37)</td>
<td>1 (50)</td>
</tr>
</tbody>
</table>

*Categories not mutually exclusive
**Other complaints include:
- Human – chills (3), dark urine (3), fever (2), neurological (2)
- Animal – nausea (1)
Discussion

- Surveillance in 2015 resulted in more human illnesses than previously reported
- All reported illnesses associated with recreational water exposure
- Limitations
  - Surveillance conducted in only subset of NYS
  - Underreporting
- Strengths
  - Enhanced surveillance
  - Physician & veterinarian outreach
- Additional surveillance will help to describe the incidence of HAB-associated illnesses

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- CDC Waterborne Disease Prevention Branch
- Our Local Health Departments and District Offices

Questions?

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