The Little State that Could: The New Hampshire ELC Experience

Christopher Benton, PhD, MB (ASCP) CM, and Zachary D. McCormic, MPH
NH Department of Health and Human Services
PulseNet/OutbreakNet East Coast Regional Meeting 2019
A little background

- NH has just over 1.3 million citizens
  - 10 counties
  - 13 cities, 221 towns and 25 unincorporated places
- NH is part of PulseNet, OutbreakNet Enhanced, CryptoNet and CaliciNet
- Disease investigations largely centralized
  - Two cities have their own health departments, all other investigations are done at the state level
- Centralized Public Health Lab
5 Personnel
4 separate lab rooms
Routine work consists of PFGE, WGS, Norovirus RT PCR, HCV and Norovirus Genotyping, 16s sequencing and Food Molecular testing
## Isolates Sequenced

<table>
<thead>
<tr>
<th>Isolate</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEC</td>
<td>40</td>
<td>32</td>
</tr>
<tr>
<td><em>Campylobacter</em></td>
<td>60</td>
<td>3</td>
</tr>
<tr>
<td><em>Salmonella</em></td>
<td>70</td>
<td>174</td>
</tr>
<tr>
<td><em>Shigella</em></td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td><em>Listeria</em></td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>181</td>
<td>230</td>
</tr>
</tbody>
</table>
NH WGS Challenges

- More costly than PFGE
- Data analysis and data management
- Longer turn around times
NH Epi/Investigations

- One Epidemiologist, one Enteric Nurse, one Student Interviewer
  - 7 other Public Health Nurses
  - 5 Public Health Nurses at city health departments

- Investigate all reportable enteric and waterborne conditions, lead outbreak investigations, respond to questions from the public, etc.
## Cases Investigated

<table>
<thead>
<tr>
<th>Isolate</th>
<th>2017</th>
<th>2018*</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEC</td>
<td>46</td>
<td>51</td>
</tr>
<tr>
<td><em>Campylobacter</em></td>
<td>275</td>
<td>276</td>
</tr>
<tr>
<td><em>Salmonella</em></td>
<td>140</td>
<td>167</td>
</tr>
<tr>
<td><em>Shigella</em></td>
<td>12</td>
<td>5</td>
</tr>
<tr>
<td><em>Listeria</em></td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td><em>Cryptosporidium</em></td>
<td>71</td>
<td>84</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>548</strong></td>
<td><strong>592</strong></td>
</tr>
</tbody>
</table>

* Through NOV 2018

Plus outbreak investigations
Epi/Investigations Challenges

- Limited staff for investigations
  - Have cross-trained nursing staff on Enterics
  - Standard procedures for investigations
- Pathogen-based cluster identification limited by size of WGS runs
  - Working on alternative methods to ID
- Follow-up with cases for specimens (both outbreak and routine)
  - Deliver specimen collection kits, site visits, phone ‘encouragement’
Questions?

Christopher Benton, MS, PhD, MB (ASCP) CM
Molecular Diagnostics Laboratory Supervisor
NH Department of Health and Human Services
603-271-4669
christopher.benton@dhhs.nh.gov

Zachary D. McCormic, MPH
Foodborne Disease Epidemiologist
NH Department of Health and Human Services
603-271-7397
zachary.mccormic@dhhs.nh.gov