ELC
A High-Burden State Perspective

PulseNet/OutbreakNet Midwest/Central Regional Meeting 2019

Eric Brandt, BS and Scott Nowicki, MPH
About Us

- Ohio is the 7th most populous state (11.7 million)
- 88 counties – 113 local city, county, and combined health jurisdictions
- 46th in public health funding per person¹
- Decentralized investigations (home-rule)
  - One central state PH laboratory
  - Isolate/specimen submission voluntary
    - Annual request letter & shipping assistance

¹americashealthrankings.org
About Us - Laboratory

• ELC ~10% of overall lab budget
  • >50% of microbiology staff (7.8 FTE’s fund 13 staff)

• ELC Projects
  - PulseNet – 1998
  - CaliciNet – 2009
  - FoodCORE – 2010
  - NoroSTAT – 2012
  - WGS Listeria Pilot – 2015
  - CryptoNet – 2017
  - ...and 10 others

• 12 scientists and managers involved in ELC writing;
  8 levels of agency review

Ohio Department of Health
## Isolate Numbers PFGE (WGS)

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Salmonella</strong></td>
<td>1412 (82)</td>
<td>1537 (512)</td>
<td>1335 (1295)</td>
<td>1338 (1331)</td>
</tr>
<tr>
<td><strong>STEC</strong></td>
<td>257 (139)</td>
<td>249 (181)</td>
<td>246 (245)</td>
<td>311 (307)</td>
</tr>
<tr>
<td><strong>Shigella</strong></td>
<td>19 (4)</td>
<td>106 (9)</td>
<td>121 (20)</td>
<td>111 (32)</td>
</tr>
<tr>
<td><strong>Campylobacter</strong></td>
<td>7 (0)</td>
<td>10 (6)</td>
<td>98 (94)</td>
<td>96 (88)</td>
</tr>
<tr>
<td><strong>Listeria</strong></td>
<td>44 (37)</td>
<td>38 (38)</td>
<td>21 (21)</td>
<td>0 (20)</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>1739</td>
<td>1940</td>
<td>1821</td>
<td>1876</td>
</tr>
<tr>
<td><strong>% WGS</strong></td>
<td>15</td>
<td>38</td>
<td>92</td>
<td>95</td>
</tr>
</tbody>
</table>

- 2017-2018 Increased Salmonella WGS to 99%
- Increased Campy and Shigella surveillance
Lab Challenges

• Turn around times for WGS
  • Mol. serotype and MALDI ID currently 1 day
• New equipment
  • Sequence and analyze new organisms
• Bioinformatics (especially non-PulseNet organisms)
• Reagent/Supply costs & purchasing
About Us - Epidemiology

- ELC funding supports a portion of 6 full-time epidemiologists’ salaries
- Same ELC projects as the lab with special focus on NoroSTAT and FoodCORE for Epi Staff
- FoodCORE Team of 5 student interviewers
- Coordinate ELC grant application with ODH Lab and ODH Food Safety Program
### Reported Cases of Select Foodborne/Enteric Illnesses

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<tr>
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<th>2016</th>
<th>2017</th>
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</thead>
<tbody>
<tr>
<td>Salmonella</td>
<td>1,373</td>
<td>1,528</td>
<td>1,394</td>
</tr>
<tr>
<td>STEC</td>
<td>265</td>
<td>263</td>
<td>280</td>
</tr>
<tr>
<td>Shigella</td>
<td>748</td>
<td>1,076</td>
<td>634</td>
</tr>
<tr>
<td>Campylobacter</td>
<td>1,786</td>
<td>1,962</td>
<td>2,085</td>
</tr>
<tr>
<td>Listeria</td>
<td>25</td>
<td>36</td>
<td>28</td>
</tr>
</tbody>
</table>
Epidemiology Achievements

- FoodCORE Team conducts interviews for 85% of LHDs; cases with complete exposure data increased from less than 50% to an average of 80%
- NoroSTAT/NORS: 95% of all enteric outbreaks entered with complete preliminary data within a week of report to ODH
- Weekly multi-agency partners call with ODH and ODAg (Epi, Food Safety, and Lab)
- Shipping account and supplies to LHD for specimens
Epidemiology Challenges

• Increase clusters/outbreaks identified using new molecular testing (WGS) at ODH Lab
• Education of LHD staff on new technology
• Additional case load if add routine interviews of Campylobacter and Shigella to FoodCORE
• Specimen collection and submission
• WGS Data analysis/Bioinformatics
Questions?

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