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Tennessee Department of Health
Foodborne Illness in Tennessee

- FoodNet site since 2000
  - Active surveillance for *Campylobacter*, *Cryptosporidium*, *Cyclospora*, *Listeria*, *Salmonella*, *Shigella*, STEC, *Vibrio*, *Yersinia*

- 1,915 culture-confirmed cases in 2010

- 26 foodborne outbreaks in 2010
  - 16 restaurant-associated
Complaint Surveillance

• Prior to 2012, no centralized system
  • Complaints managed by counties

• Advantages
  • Detects outbreaks faster
  • Detects outbreaks of non-reportable pathogens
  • Helps identify problem restaurants
  • Allows public engagement

• Disadvantages
  • No laboratory information
  • Voluntary reporting
Tennessee Foodborne Illness Complaint Surveillance System

- Established January 2012
- Joint program between environmental health and foodborne epidemiology groups
- Consumers lodge complaint with local health department or state office via telephone
  - Dedicated hotline established March 2012
- Restaurant inspection performed for every complaint
- Weekly epidemiology review
System Overview

- Local health department
- Restaurant inspection
- Central Office environmental health staff
- Database
- Epidemiology review
- Hotline
Complaint Form

- Demographics
- Illness details
  - Onset, duration
  - Symptoms
- Suspect meal details
  - Location
  - Dining companions
- 72 hour food history
Epidemiology Review

- Instituted January 2013
- Weekly
- Complaints submitted in previous 30 days
- Compared to identified clusters
Surveillance Evaluation: The First Year

- 193 complaints, 357 illnesses
- 40 (42%) counties reporting
- 25 (13%) received via hotline
- 3.5 days on average from illness onset to complaint receipt
Foodborne Illness Complaints, 2012

Number of Complaints

Month Received

January  February  March  April  May  June  July  August  September  October  November  December

10  15  20  25
Rate of Foodborne Illness Complaints by County, 2012

Rate per 100,000 population

Tennessee County
## Symptoms Reported

<table>
<thead>
<tr>
<th></th>
<th>All Complaints (n = 193)</th>
<th>Single Illness (n = 107)</th>
<th>Group Illness (n = 86)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>168</td>
<td>84</td>
<td>89</td>
</tr>
<tr>
<td>Vomiting</td>
<td>143</td>
<td>74</td>
<td>86</td>
</tr>
<tr>
<td>Fever</td>
<td>44</td>
<td>23</td>
<td>29</td>
</tr>
<tr>
<td>Abdominal cramps</td>
<td>38</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Nausea</td>
<td>35</td>
<td>18</td>
<td>18</td>
</tr>
</tbody>
</table>
Data Quality

• Missing information
  • 154 (80%) missing complete 72-hour food history

• 40 (42%) counties reporting (78% of population)
  • 46% of complaints from 3 counties (26% of population, 32% of restaurants)
Outbreak at Large Event

- *Salmonella* Newport outbreak at a community festival
- Case finding
- Recruitment for analytic study
Restaurant-Associated Outbreak

- Complaint from 20-person dining party
  - 18 reported illness

- Investigation
  - Total of 126 diners over single weekend
    - 85 illnesses
    - 5 ill employees

- Norovirus
Complaint Clusters

• Cluster #1
  • 4 groups dined at same restaurant
  • 3 days between complaints

• Cluster #2
  • 2 groups dined at same restaurant
  • 30 days between complaints

• Neither identified prior to epidemiology review protocol
Conclusions

• Allows for timely detection of outbreaks
• Can supplement ongoing outbreak investigations
• Awareness among local health departments and public difficult to measure
• Difficult to identify clusters
Recommendations

• Revise complaint form ✓
• Weekly epidemiology review protocol ✓
• Outreach to counties “not participating” ✓
• Increase public awareness
• Incorporate other sources of complaint data
  • Department of Agriculture
Thank You

- Heather Henderson
- Mike Salyers
- Lori Lemaster
- Hugh Atkins
- Rand Carpenter