Norovirus Outbreak at Several Restaurant Locations Supplied by a Central Commissary: Detection through Molecular Subtyping

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Background

October 2011

• Callers to the Minnesota Department of Health (MDH) foodborne illness hotline were asked to submit stools for norovirus testing

August 2012

• MDH Public Health Laboratory (PHL) began real-time testing and sequencing for norovirus as part of NoroSTAT
Outbreak Detection

April 22, 2015

- 3 GI.3A stools with identical Region C sequences
- Specimens submitted by hotline callers with sporadic illness
- Genotype never seen before in Minnesota
<table>
<thead>
<tr>
<th>Daily</th>
<th>Restaurant</th>
<th>Address</th>
<th>City</th>
<th>Meal Date</th>
<th>Last 12 months Count</th>
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<td>Rogers</td>
<td>Rogers</td>
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<td>Rogers</td>
<td>Rogers</td>
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</table>
Methods

• Environmental health assessments and food worker interviews at four Chain A locations and central commissary kitchen

• Chain A corporate provided information on foods prepared at the commissary kitchen
  – Corporate contacted additional stores; instructed to clean/sanitize and monitor employee illness
Methods (cont.)

• Credit card receipts used to contact patrons for interview

• Case definition: vomiting and/or diarrhea ($\geq$3 stools in 24 hours) after eating food from Chain A
Results

• 50 Chain A patrons interviewed
  – 7 (14%) cases
    • 6 from complaints
    • 1 from credit card interviews
• Median incubation: 37 hours (range, 24 to 42 hours)
• Median duration: 17 hours (range, 7 to 31 hours)
• No single food item significantly associated with illness
  – 6 of 7 cases consumed a deli salad
Norovirus Gastroenteritis Associated with Chain A by Illness Onset Date

Number of Cases

March
23 24 25 26 27 28 29 30

April
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

2015
Onset Date

Patron case
Food worker
Laboratory-confirmed
Food Worker Illness

• 12 ill food workers
  – Onsets Mar 25 - Apr 14

• At central commissary kitchen, a prep cook worked while ill with vomiting on April 5
Food Worker Illness

- 11 ill food workers
  - Onsets Mar 25 - Apr 14
- At central commissary kitchen, a prep cook worked while ill with vomiting on April 5
  - Two other prep cooks had onset of vomiting on April 10 and April 12
Norovirus Gastroenteritis Associated with Chain A by Illness Onset Date

Number of Cases

- Patron case
- Food worker
- Laboratory-confirmed

2015 Onset Date

March

23 24 25 26 27 28 29 30

April

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Conclusions

• Outbreak at multiple retail delis served by a central commissary kitchen
  – Ill workers at central kitchen and retail locations likely sources of outbreak

• Centralized public hotline essential for identifying outbreaks across multiple local jurisdictions of a single chain
  – Need for awareness of upstream connections between reported retail locations
Conclusions (cont.)

• Highlights the power of real-time norovirus molecular subtyping

• Outbreak detected through routine screening not intended for outbreak detection

• Strong Lab-Epi relationship important
Acknowledgements

MDH PHL

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- City of Minneapolis
- Hennepin County
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- Ramsey County

Epidemiology
- Hennepin County

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Thank you!

Questions?

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