2014 Multi-State Outbreak of *Salmonella* Newport Linked to Cucumbers

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Objectives

- Describe the background/history of *Salmonella* Newport Pattern 61 on the Delmarva Peninsula
- Discuss the traceback and on-farm investigation
- Discuss the conclusions, lessons learned and next steps
History of *Salmonella* Newport 61

- 2002: 510 confirmed and probable cases in 26 states associated with red, round tomatoes from VA
- 2005: 72 confirmed cases in 16 states associated with tomatoes from eastern shore of VA; irrigation pond water tested positive for Newport 61
- 2006: 115 confirmed cases in 19 states associated with eating raw tomatoes
- 2007: 65 confirmed cases – sub-cluster identified at Mexican restaurant in DC associated with salsa
- Different farms and packinghouses in the Delmarva region implicated in these outbreaks
Delmarva Peninsula

Prevention and Health Promotion Administration
[October 1, 2015]
Maryland’s *Salmonella* Newport Cluster

- August 5, 2014: DHMH Laboratories Administration alerted OIDEOR to 4 cases of *Salmonella* Newport pattern JJPX01.0061
- Supplemental tomato-focused questionnaire administered
- Cases: 64 total – 55 confirmed, 10 probable
- Onset: July 11 – September 17, 2014
- Ages: 2-88 years, median 42
- Female: 76%, Hospitalization rate: 31%
Maryland Department of Health and Mental Hygiene
Office of Food Protection
Salmonella Newport (1408MJJP-1)
Cucumbers
Revised: 9/9/2014
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Traceback Results

- Convergence of product found from Farm A
- Traceback links cucumbers from Farm A as a potential suspect commodity
- Coordination with MDA and FDA on traceback results and farm investigation
Cucumbers in Maryland

- Vegetable production - relatively small size farms (100 to 400 acres)
- Multiple vegetable crops produced on same farm
- Cucumber harvest in Maryland
  - Starts late June to early July
  - Ends 30 to 45 days after start
On Farm Investigation

- Use modified Farm Questionnaire to collect data
- Collect Environmental Swabs in packing house
- Collect other environmental sample with guidance from CFSAN (Soil, Water, Sediment, Poultry manure)
Investigation Team

Team Makeup
2 MDHMH Sanitarians
1 MDA Program Manager, Food Quality Assurance (Lead)
1 Investigator from the FDA BLT-DO

SMEs
FDA CFSAN, ORS and PSS
FDA CORE

Coordination
BLT-DO Emergency Response Coordinator

Additional Guidance
CalFERT
Farm Visit- 10-6-2014

Photo 14- Wood Catch Area for rejection chute.
Farm Visit- 10-6-2014

Photo 23- White roller in sorter. Sample 6
**Farm Visit- 10-6-2014**

Photo 34- Ceiling photo directly above final packing area.
Farm Visit- 10-6-2014

Photo 45- Brushed (for dirt removal). Sample 18 taken from brushes
Farm Investigation
Observations

- Packing line inadequately clean
- Evidence of bird droppings
- Use of manure as a soil amendment
- Produce totes inadequately clean
- Pathogen is ubiquitous in the environment
Farm Investigation
Conclusions

- Samples obtained from farm negative for *Salmonella*
- MDA/ University of MD working with farm to improve Good Agricultural Practices (GAP)
- FDA/Delmarva States continue to investigate/research possible causes of recurring outbreaks
Recommendations for Prevention

- GAP Education/Training
- Improvements and Implementation of Sanitary Standard Operating Procedure
- Increase Product/Environmental Surveillance
- Monitoring/Exclusion of pest from the Packing House
- Delmarva Multi-Agency/Multi-Disciplinary Task Force
Lessons Learned

- Advanced molecular subtyping techniques can be used to further distinguish *Salmonella* isolates of the same PFGE pattern.
- Maryland’s short growing season presents challenges when investigating possible outbreaks associated with produce.
- Multi-agency cooperation at the local, state, and federal level is key for the coordination of responding to large, multi-state produce outbreaks.
Future Considerations

- Preventing *Salmonella* contamination of produce at the farm level
- Improving proficiency of traceback investigations
- Obtaining better exposure information from cases
- Current Delmarva Task Force Efforts