Food Safety and Inspection Service
U.S. DEPARTMENT OF AGRICULTURE

Salmonella Infantis Outbreak Linked to Chicken Products

Outbreak Investigation After-Action Report, 2018-11

Highlights

- This outbreak was linked to chicken products and was an industry-wide outbreak of *Salmonella* Infantis.
- Pulsed-field gel electrophoresis (PFGE) was the primary method for identifying the outbreak strain in chicken products and ill people.
- No FSIS-regulated establishment was identified as the source of the outbreak because there was no definitive exposure and shopper purchase information available for traceback.
- The Centers for Disease Control and Prevention (CDC) issued a media alert and an investigation notice in 2018 and an investigation notice in 2019 about this outbreak.

Outbreak at a Glance

Illnesses	129
States included	32
Hospitalizations	25
Deaths	1

Response at a Glance

Investigative samples tested	0
Recall or Public Health Alert	No

Process improvements

- FSIS improved early industry notification of outbreaks and novel findings process.
- FSIS routinely posts sampling data and will continue to inform industry early during outbreak investigations.

State of residence for *Salmonella* Infantis cases

What Happened?

From May 2018 to February 2019, the Centers for Disease Control and Prevention (CDC) and the Food Safety and Inspection Service (FSIS) investigated an outbreak of 129 *Salmonella* Infantis illnesses, including one death reported from New York, associated with raw chicken products. At the time of the outbreak, cases were identified using PFGE (pattern JFXX01.1080). This strain was identified in samples taken from raw chicken pet food, raw chicken products, and live chickens. The detection of 142 chicken isolates from 76 establishments suggested that this outbreak was linked to multiple producers of chicken products spread throughout the industry.

The National Antimicrobial Resistance Monitoring System (NARMS) first identified f this multi-drug resistant (MDR) *Salmonella* Infantis strain in retail chicken during routine surveillance in 2014. Antibiotic resistance testing conducted by CDC on *Salmonella* bacteria isolated from ill people in this outbreak also showed that the outbreak strain was resistant to multiple antibiotics. Over 90% of chicken isolates were MDR. Even with detailed exposure and purchase information, there was not sufficient evidence to make the direct link needed to take regulatory action in response to this outbreak. However, the CDC issued a media alert and an investigation notice in 2018 to alert the public about the outbreak. FSIS and CDC met with the National Chicken Council (NCC) October 2019, November 2019, and December 2019 to share information about this outbreak investigation. FSIS shared information on trends in identification of the pathogen in FSIS establishments to help NCC focus their search for mitigations. The CDC issued a final investigation notice on this outbreak on February 21, 2019. FSIS closed this outbreak on February 28, 2019.

Since the closing of the outbreak, CDC PulseNet has classified this *Salmonella* Infantis strain as “persistent”. “Persistent” strains cause illnesses consistently over a long time. CDC PulseNet continues to monitor this persistent *Salmonella* Infantis strain.

FSIS NARMS also continues to (1) monitor *Salmonella* Infantis trends in isolates, (2) monitor antimicrobial resistance and (3) communicate the findings with industry and federal partners. Because whole genome sequencing (WGS) was not fully implemented at the time, it was not used to identify cases during the outbreak investigation period; however, it later helped to confirm that this widespread outbreak strain found in the chicken industry was distinct from other *Salmonella* Infantis strains found in chicken samples. Find more information on FSIS’ *Salmonella* Initiative here.

What Did We Learn from this Outbreak?

Collaboration

This outbreak showed the importance of increased and early communication with industry regarding outbreak surveillance and outbreak response.

Surveillance

This outbreak was the first time we identified a strain as "persistent," and we are exploring ways to better track and promptly alert stakeholders of persistent pathogen strains for which a specific food vehicle has not been identified or are novel in nature.

What Can You Do to Prevent or Solve the Next Outbreak?

Industry

Industry should continue to focus on decreasing *Salmonella* contamination across the poultry supply chain, including at preharvest.

Public Health Partners

Continue to work closely with local, state, and federal partners to detect and investigate outbreaks. Public health partners should email FoodborneDiseaseReports@usda.gov to notify FSIS if FSIS-regulated products may be involved in an outbreak.

Consumers

If you think you have a foodborne illness, see a health care provider for treatment. Your health care provider can test you and if the tests show you have a reportable foodborne illness, your state or local public health officials should be notified. If you suspect an FSIS-regulated meat, poultry or egg product made you sick, see the Report a Problem with Food page for information on how to notify FSIS.

Helpful Links

- CDC Media Alert, October 17, 2018
- CDC Food Safety Investigation Notice, October 17, 2018
- CDC Food Safety Investigation Notice, February 21, 2019.
- Report a Problem with Food | Food Safety and Inspection Service (usda.gov).
- Find more information about FSIS' response to foodborne outbreaks on the FSIS Outbreak Page.
- USDA Effort to Reduce *Salmonella* in Poultry