



SUCCESSFUL COLLABORATION PROTECTS RHODE ISLAND RESIDENTS FROM FOODBORNE ILLNESSES



Rhode Island may be a small state but it delivers big on food safety. Several programs within the Rhode Island Department of Health (RIDOH) collaborate as part of a Rapid Response Team (RRT), a multi-disciplinary team created to minimize the time between notification of a human or animal food contamination event and implementation of effective control measures.¹ Outlined below are several investigations that highlight how interagency cooperation through the RRT assisted in the identification of foodborne illness clusters and the removal of contaminated product from the marketplace.

E. coli O26, Flour, May 2019

On February 20, 2019, CAIDE epidemiologists identified a cluster of six *E. coli* O26 isolates from three states via the PulseNet database. The isolates were indistinguishable by whole genome sequencing (WGS). Epidemiologists established a case definition for this cluster and expanded the search for additional cases in PulseNet. A total of 21 persons infected with the outbreak strain of *E. coli* O26 were reported from nine states: California (1), Connecticut (1), Massachusetts (2), Missouri (1), New Jersey (1), New York (7), Ohio (5), Pennsylvania (2), and Rhode Island (1). Case patients reported dates of illness onset from December 11, 2018 to May 21, 2019. Three ill persons were hospitalized, and no deaths were reported. Of 13 people who were interviewed, six (46%) reported eating, licking, or tasting raw, homemade dough or batter. Three people with detailed information reported eating raw dough or batter made with Company A all-purpose flour.

On May 21, SHL identified *E. coli* O26 from an unopened bag of Company A flour that was a genetic match to the clinical isolates. Epidemiologic and laboratory evidence, supported by product distribution records,

The Rhode Island RRT core members include:

- Center for Food Protection (CFP)
- Center for Acute Infectious Disease Epidemiology (CAIDE)
- State Health Laboratory (SHL)

ASSOCIATION OF PUBLIC HEALTH LABORATORIES

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indicated that flour was the likely source of this outbreak. Because of these findings, on May 23, Company A recalled all 5lb. bags of all-purpose flour for *E. coli* O26 contamination.

The resolution power of WGS was useful during this outbreak investigation. In total, 22 isolates were sequenced (21 clinical and one food isolate) by core genome multilocus sequencing type (cgMLST), and all isolates were related between zero and one alleles. Using the older technology of pulsed-field gel electrophoresis (PFGE), the PFGE pattern combination associated with this investigation corresponded to a previous investigation ultimately related to ground beef. Although matching by PFGE pattern, the flour outbreak differed from the ground beef outbreak by 7-10 alleles. The improved specificity of cgMLST and other whole genome sequencing methods allows public health professionals to more easily distinguish related isolates.

***Listeria*, Frozen Peppers, June 2019**

On June 10, CFP inspectors collected samples of assorted frozen vegetables and fruits that the SHL tested for *Listeria* as part of a foodborne disease surveillance sampling program. On June 17, 2019, the SHL notified CFP of a positive *Listeria monocytogenes* finding in a bag of Company B brand frozen grilled red peppers, purchased from Supermarket A. Supermarket A was contacted that day and all items from that lot were removed from sale. Company B and the US Food and Drug Administration (FDA) were also contacted on June 17 and notified of the positive finding, and CFP collected three additional samples of the frozen grilled peppers for testing. On June 19, Company B recalled the contaminated lot of frozen pepper. On June 25, the SHL reported that one of the samples collected on June 17 was positive for *L. monocytogenes*, however the lot for this sample was already included in the recall. Additionally, FDA provided CFP with a list of locations where the product was distributed in Rhode Island. CFP sent inspectors to several establishments to conduct audit checks. On July 3, 2019, the SHL determined through WGS that both positive samples were zero alleles apart and that these samples were not linked to any illnesses.

***Salmonella*, Pig Ears, August 2019**

On July 30, FDA and the US Centers for Disease Control and Prevention (CDC) notified the RI RRT that a Connecticut resident with *Salmonella* London was linked to a multistate outbreak. This individual reported purchasing pig ear pet treats from Company C located in Johnston, RI. On July 31, CFP sent inspectors to this retail location and collected four pig ear samples, along with traceback documentation. On August 15, SHL determined that two of the pig ear samples were positive for *Salmonella*, each with a different serotype: *Salmonella* Infantis and *Salmonella* Newport. The *Salmonella* Infantis was found to be genetically related to the multistate outbreak via WGS. On August 16, RIDOH issued a consumer advisory about the pig ears in conjunction with Company C. On August 22, FDA notified CFP that Company C intended to destroy the product currently on hold and would no longer carry pig ear treats in their stores.

Histamine, Tuna, September 2019

On September 16, a healthcare provider alerted CAIDE about a scombroid case in an individual who consumed tuna steak at Restaurant A. Scombrototoxin occurs because of histamine accumulation due to spoilage, and is mainly associated with eating tuna, mahi-mahi, marlin and bluefish.²

On September 16, CFP placed an embargo on the tuna steak and collected the tuna for testing on the following day. On September 18, the SHL notified CFP that two of the samples had histamine levels in amounts greater than 500ppm—the FDA considers it to be a “Danger to Health” when histamine levels are equal to or greater than 500 ppm.³ CFP obtained further traceback information and notified FDA of findings to initiate a recall. On September 19, the FDA notified CFP that the product was traced back to an importer in Florida who had received the product from a Vietnamese firm, and that cases in Vermont had been linked to this importer as well.

On September 27, CFP received an illness complaint from two individuals who had eaten at Restaurant A. These individuals experienced flushing, dizziness, headache, rash/hives, and itching less than one hour after consuming tuna at this establishment. CFP inspectors visited the establishment, embargoed tuna, and collected a frozen tuna sample. CFP also determined from Restaurant A’s supplier that other restaurants in RI had received the product. Given this information, CFP inspectors collected additional frozen tuna samples from these restaurants on October 30.

On October 1, the SHL determined that four of the tuna samples contained >3,000ppm histamine. On the same day, RIDOH issued a notice to retail food establishments regarding the contaminated tuna from Vietnam. In total, 50 cases across 11

states including Vermont and Rhode Island were associated with the Vietnamese firm. In October, the Florida importer voluntarily recalled implicated tuna products, and in November, the Vietnamese firm was added to the import alert list.

Rhode Island's public health agencies work collaboratively when there is evidence of foodborne illness or food contamination. The information provided from each agency strengthens the link between contaminated product and ill persons, leading to successful traceback investigations and the removal of harmful products from the food supply.

References

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