

***Salmonella* Enteritidis Infections Associated with a Restaurant**

February

Hennepin County

On March 17, 2017, the Minnesota Department of Health (MDH) Public Health Laboratory (PHL) identified a cluster of two *Salmonella* Enteritidis isolates that were closely related by whole genome sequencing (WGS). Upon review of other recent *Salmonella* isolates received at MDH, three additional case isolates from the same region of the state that were indistinguishable by pulsed-field gel

electrophoresis (PFGE; Minnesota designation SE77B52) from the WGS cluster isolates were identified. On March 20, it was discovered that three of the cases had eaten at a restaurant in Osseo during their incubation period. Hennepin County Human Services and Public Health Department (HCPH) Epidemiology and Environmental Health (EH) were notified and an investigation was initiated.

A confirmed case was defined as a person from whom *Salmonella* Enteritidis with the outbreak PFGE pattern and closely related by WGS was isolated. A probable case was defined as a person who experienced diarrhea (≥ 3 stools in a 24-hour period) that was of at least 3 days duration or accompanied by fever after eating at the restaurant. Confirmed cases were interviewed with a routine surveillance questionnaire and then re-interviewed with a questionnaire specific to the restaurant. Meal companions of cases and patrons identified through credit card receipts were interviewed with the restaurant-specific questionnaire only.

Sanitarians from HCPH-EH visited the facility on March 20 to interview food workers, check the employee illness log, evaluate food preparation and handling, collect invoices for product served during case meal dates, and obtain credit card receipts. Food workers reporting illness were excluded from food service until two stool samples collected at least 24 hours apart tested negative for *Salmonella*. MDH epidemiologists swabbed environmental surfaces in the facility's kitchen.

Stool samples from consenting patrons and food workers, and environmental swabs were submitted to the MDH PHL for *Salmonella* culture.

A total of 44 restaurant patrons were interviewed; six cases were identified, including five cases that were identified through routine surveillance. An additional four patrons reported mild illness that did not meet the case definition and were excluded from analyses. The median incubation time for cases was 101.5 hours (range, 63.5 to 174 hours). The median duration of illness was 8 days (range, 3 to 9 days) for the five cases who had recovered by the time of interview. All six cases reported diarrhea, three (50%) fever, two (33%) abdominal cramps, one (17%) vomiting, and one (17%) bloody stools. Two cases were seen at an emergency department and were subsequently hospitalized for 3 and 4 days, respectively. Three additional cases sought medical attention in an outpatient setting. A stool sample from the probable case was collected 24 days after illness onset and tested at the MDH PHL; it was negative for *Salmonella*.

The meal dates reported by cases were February 12, 13, 22, 23 (n=2), and 26. Cases consumed a variety of items from the breakfast, lunch, and dinner menus including chili, soup, sandwiches, burgers, fries, pizza, salads, bloody Marys, and an omelet. Due to the small number of cases for each individual implicated meal date and large range of dates, a meaningful statistical analysis could not be performed.

All 32 employees were interviewed; 5 (16%) reported recent gastrointestinal illness. Two employees reported vomiting and diarrhea, two reported single episodes of diarrhea, one cramps only, and one fever only. All employees submitted two stool specimens to the MDH PHL; six (19%) employees were positive for *S. Enteritidis*. Four of the six *Salmonella*-positive employees were asymptomatic. Illness onset dates for the two *Salmonella*-positive employees that were ill were February 27 and March 2.

Isolates from all five laboratory-confirmed patron cases and the six food worker cases were indistinguishable by PFGE and were closely related (within 0-2 single nucleotide polymorphisms) by WGS.

During the environmental health assessment, HCPH-EH sanitarians noted improper storage of food in the walk-in cooler (shell eggs stored over ready-to-eat foods), deficiencies in thermometer use, and employee illnesses that were not recorded in the illness log. The facility was par-cooking chicken breasts prior to service to shorten cooking time. The par-cooked chicken breasts were not being temped correctly and were being stored as a ready-to-eat product. No handwashing issues were noted and glove-use was observed. All 10 environmental swabs were negative for *Salmonella*.

This was a confirmed foodborne outbreak of *S. Enteritidis* infections associated with a restaurant in Osseo. The vehicle of transmission and source of contamination were not identified. Documented transmission occurred over 2 weeks. Multiple *Salmonella*-positive food workers, and possible opportunities for cross-contamination were identified. It is plausible that *Salmonella* was introduced into the facility and then was propagated through infected food workers and/or environmental contamination.