Salmonella Enteritidis Infections Associated with a Restaurant

January Ramsey County

On January 26, 2012, Minnesota Department of Health (MDH) Public Health Laboratory (PHL) notified MDH epidemiology staff of a *Salmonella* Enteritidis isolate with pulsed-field gel electrophoresis (PFGE) pattern SE1B173; this was the same pattern observed in a fall 2011 outbreak associated with organic eggs from a farm in Owatonna, Minnesota. Routine interview of the case revealed that he had attended a private event at a restaurant in St. Paul, Minnesota on January 12. The case reported knowing of at least two individuals who also had become ill with similar symptoms following the event. The Minnesota Department of Agriculture (MDA) and sanitarians from the City of St. Paul were notified on January 27, and an investigation was initiated.

All *Salmonella* cases reported to MDH are interviewed about exposures and food consumption as part of foodborne disease surveillance in Minnesota. An epidemiologist reviewed the information gathered during the interviews of *S.* Enteritidis cases to identify other potential cases associated with eating at the restaurant. A list of individuals who attended private events at the restaurant was requested from event organizers. MDH staff interviewed guests from private events held at the restaurant.

Confirmed cases were defined as persons who reported eating at the restaurant since January 1 and who subsequently had *S.* Enteritidis SE1B173 isolated from a clinical specimen. Probable cases were defined as persons who reported eating at the restaurant since January 1 and became ill with diarrhea (≥3 loose stools in a 24-hour period) lasting 3 or more days.

A case-control study was conducted to evaluate particular food items that may have been associated with illness served at the January 12 private event.

On January 27, City of St. Paul sanitarians conducted an inspection of the restaurant and began interviewing employees. Stool samples were required from all food workers who reported recent illness.

On February 3, a routine surveillance interview of a second *S.* Enteritidis SE1B173 case revealed that he had attended a separate private event held at the restaurant on January 21.

Illness histories and exposure information were obtained from 71 restaurant patrons, including 26 from the January 12 event and 45 from the January 21 event. Four confirmed and three probable cases were identified, including six (three confirmed) from the January 12 event and one (confirmed) from the January 21 event. Six additional patrons reported illness that did not meet the case definition and were excluded from further analysis.

All seven cases were adult males. All cases reported diarrhea and cramps, three (60%) of five reported fever, one (17%) of six reported bloody stools, and none reported vomiting. The median incubation period was 3 days (range, 2 to 4 days). The median duration of illness was 7 days (range, 4 to 8 days) for the six cases who had recovered at the time of interview.

Illness histories and job duty information were obtained from 31 employees. Two employees reported recent symptoms of gastrointestinal illness, with onset dates of January 14 and 20. Neither of the employees who reported illness worked on January 12, nor did any of the food preparation for the January 12 event. Both employees reporting recent illness tested negative for *Salmonella*.

Food for the January 12 event was served buffet style, with multiple food items displayed on the same platters. Multiple food items from the January 12 event were significantly associated with illness, including brie cheese (5 of 6 cases vs. 3 of 17 controls; odds ratio [OR], 23.3; 95% confidence interval [CI], 2 to 279; $p = 0.005$), pickled garlic (4 of 6 cases vs. 3 of 17 controls; OR, 9.3; 95% CI, 1.1 to 76.7; $p = 0.03$), oyster mushroom mousse (4 of 5 cases vs. 0 of 15 controls; OR, undefined; $p < 0.001$), wild boar liver pate (6 of 6 cases vs. 5 of 19 controls; OR, undefined; $p = 0.002$), mangalitsa lardo (3 of 5 cases vs. 1 of 16 controls; OR, 22.5; 95% CI, 1.5 to 335; $p = 0.009$), and vanilla chiffon cake (6 of 6 cases vs. 10 of 19 controls; OR, undefined; $p = 0.04$).

The January 21 event was a plated meal in which guests had a limited choice of options for each of the courses. No food items were statistically associated with illness.

The restaurant used unpasteurized shell eggs in a variety of food items at the restaurant, including aioli, béarnaise sauce, and desserts. However, the chef stated that the only foods containing raw eggs served at the two events were a vanilla chiffon cake served on January 12 in which eggs were used in the Swiss merengue, and tiramisu served on January 21 where eggs were used in the mascarpone; no temperatures were taken to ensure that the desserts were fully cooked. Eggs were purchased from an organic farm in Owatonna, Minnesota.

On February 2, staff from MDA, MDH, and the United States Food and Drug Administration met with owners of the Owatonna farm to review records. Following the 2011 outbreak, the Owatonna farm was depopulated and cleaned. Egg production at the Owatonna farm had not resumed prior to the January 12 meal date at the restaurant. However, eggs produced at multiple other farms that had been subject to the fall 2011 recall did not undergo depopulation and cleaning and were continuing to be sold under the Owatonna farm's brand name.

On February 8, MDA inspectors visited a farm that sells eggs under the Owatonna farm's brand name that was determined the farm most likely to have supplied the eggs to the restaurant to perform environmental sampling. The team collected 15 samples: 3 controls, 8 drag swabs, and 4 surface swabs of the egg belt; all samples were negative for *Salmonella*.

This was an outbreak of *Salmonella* Enteritidis infections associated with a restaurant. Consumption of desserts containing undercooked egg was associated with illness. The same unique outbreak strain that was isolated from cases was found on a farm owned by the egg supplier in an outbreak 3 months prior. While *Salmonella* was not isolated on the February 8 farm visit, it is possible that the hens may have been experiencing intermittent shedding or that the contaminated eggs originated from one of the other farms selling eggs under the farm's brand name. MDA is continuing to work with the farmer to identify the source of the *Salmonella*. As a result of the outbreak, the restaurant discontinued the use of unpasteurized shell eggs in uncooked foods.