

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

April

Wabasha County

On April 24, 2012, the Minnesota Department of Health (MDH) identified a case of *Salmonella* Enteritidis infection with MDH pulsed-field gel electrophoresis pattern designation SE1B1 who, during a routine surveillance interview, reported onset of illness 5 days after eating eggs Benedict with hollandaise sauce, a poached egg, and biscuits at a restaurant in Lake City on April 8. Due to this suspect exposure, other recent SE1B1 cases who had been interviewed were called back and asked specifically about the restaurant and several other restaurants. During the call-back interview, a case with illness onset on April 9 recalled eating crab cake Benedict with hollandaise sauce, lamb, and an egg frittata at the restaurant April 8. This case had initially reported two other restaurants during routine interview on April 24. Wabasha County Public Health Environmental Health (EH) and the Minnesota Department of Agriculture (MDA) were notified, and an investigation was initiated.

Subsequently, during a call-back interview, a case who had been interviewed on April 19 (and reported no restaurant exposures) remembered eating at the restaurant on April 8 with a family member from a different household who had also tested positive for *Salmonella*.

Wabasha County EH specialists visited the restaurant on April 25 to evaluate food preparation and handling procedures, gather information on egg-containing items and egg sources, obtain a complete menu for April 8, and interview food workers. Food workers who reported diarrhea since April 1 were excluded from work pending a stool test for *Salmonella*. *Salmonella*-positive food workers were excluded from work until two stool samples collected at least 24 hours apart tested negative for *Salmonella*.

Reservations and credit card receipts from April 8 were obtained from the restaurant. MDH staff interviewed restaurant patrons about food/beverage consumption at the restaurant and illness history. MDA staff visited the restaurant's egg supplier on May 3 to conduct a site inspection. A case was defined as a restaurant patron who subsequently either had *Salmonella* Enteritidis SE1B1 isolated from a clinical specimen or developed diarrhea ( $\geq 3$  loose stools in 24 hours) that either lasted  $\geq 3$  days or was accompanied by fever. Stool samples were submitted to the MDH Public Health Laboratory (PHL) for *Salmonella* testing.

A total of 26 patrons were interviewed; four met the case definition. All four had tested positive for *S. Enteritidis* SE1B1 and were identified through routine disease surveillance. No additional cases were identified through credit card and reservation list calling. The median incubation period for cases was 4 days (range, 30 hours to 12 days). The case with 12 day incubation was a family member and meal companion of another case, but the cases did not live in the same household and claimed that they had no other meals in common; therefore, both were classified as primary cases. The one case who had recovered at the time of interview had illness duration of 7 days. All four cases reported diarrhea and abdominal cramps, two (50%) reported vomiting, two (50%) reported bloody stools, and one (33%) reported a 105° F fever. All four cases visited a healthcare provider, but none were hospitalized. The median age of cases was 52 years (range, 20 to 58 years), and two (50%) were female. Multiple locus variable-number tandem repeat analysis (MLVA) was used to further differentiate isolates with this common PFGE pattern; all four case isolates had MLVA pattern MSE146.

In a univariate analysis, consuming crab cake Benedict (4 of 4 cases vs. 5 of 22 controls;  $p = 0.008$ ), and consuming egg frittata (3 of 3 cases vs. 1 of 21 controls;  $p = 0.002$ ) were significantly associated with illness.

On April 8, the restaurant offered a special Easter brunch menu in addition to their regular lunch and dinner menu. A crab cake Benedict dish that was part of the Easter menu included a poached egg and hollandaise sauce. Hollandaise sauce was used only for the crab cake Benedict dish and was prepared in a single batch on April 8 using nine egg yolks with butter in a double-boiler. After preparation, the sauce was held at room temperature for the remainder of the day (10:30 a.m. to 2:00 p.m.) as it was used to fill orders. An egg frittata was also part of the Easter menu; ingredients were mixed, baked in the oven (doneness was measured by time), and stored in the walk-in cooler on April 7, and then slices were reheated in the microwave and oven-finished on April 8. Eggs were used in some other Easter and regular dishes, including poached eggs served with several menu items.

All 15 employees were interviewed; one employee reported diarrhea since April 1 and was sent home during the April 25 inspection. The employee had eaten crab cake Benedict with hollandaise, steak and eggs, and potato hash at the restaurant on April 8, and had experienced diarrhea, abdominal cramps, chills, and aches from April 11 through April 15. Other employees had also eaten at the restaurant on April 8 and were not ill. A stool sample from the ill employee tested positive for *S. Enteritidis* SE1B1 (MLVA pattern MSE146) at the MDH PHL, and the employee was excluded from work until two stool samples tested negative for *Salmonella*. The employee shed *Salmonella* in stool for 70 days.

The restaurant's only egg supplier was located in Mantorville, Minnesota. A receipt indicated that the restaurant received 12 dozen X-large eggs from supplier on April 11 and on April 25; the restaurant also received a delivery of eggs on April 8. The supplier provided wholesale eggs to the restaurant and a bakery next door. All other egg sales were direct to consumers. The supplier maintained a flock of 150-250 hens and was registered with MDA's egg program. Hens had outdoor access during nice weather. No formal pest control was used. Hen suppliers included an Iowa supplier, private sources, "rescue" hens, and home-raised hens. Nesting boxes were used in the pens, but the farm did report having a little trouble with hens laying eggs on the floor. Roll-out boxes were placed under the nesting boxes so eggs rolled into a covered area after they were laid. Hens were fed home-grown corn mixed with soy protein from a local elevator. Eggs were graded and packed and placed in a walk-in cooler before delivery. Plastic egg flats were sanitized once a week.

Wabasha EH specialists directed the restaurant to develop an employee illness policy, and instructed the chef to monitor if foods were done by temperature. EH specialists discussed with the restaurant the need for a consumer advisory on the menu, and the use of pasteurized eggs.

This was a foodborne outbreak of *Salmonella* Enteritidis associated with egg dishes, including hollandaise sauce, served at a restaurant; the dishes were made using locally produced shell eggs from a small farm.