

***Salmonella* Enteritidis Infections Associated with Kitfo**

January

Multiple counties

On February 10, 2017, the Minnesota Department of Health (MDH) Public Health Laboratory (PHL) identified two case isolates of *Salmonella* Enteritidis with the same pulsed-field gel electrophoresis (PFGE) pattern through routine surveillance. Both cases were of Ethiopian ethnicity, but a common exposure was not identified among them. One of the two cases, however, reported attending a going away party on January 29 in New Brighton, Minnesota, after which at least four other party guests reportedly became ill. An investigation of the party was initiated. Additional cases whose isolates matched the cluster by PFGE and who did not attend the party were identified by the PHL in February. The Minneapolis Health Department (MHD) was notified and an investigation was initiated on February 13.

Confirmed cases were defined as Minnesota residents who had *Salmonella* Enteritidis isolated from a clinical specimen with the PFGE pattern SE1B1 and that was closely related (<5 single nucleotide polymorphisms) by whole genome sequencing (WGS). Probable cases were defined as persons who attended the going away party on January 29 who developed diarrhea (≥3 stools in a 24-hour period) that lasted 3 or more days or was accompanied by fever.

Persons with *Salmonella* Enteritidis SE1B1 infections identified in surveillance were interviewed using a standard questionnaire about symptoms and exposures, and they were re-interviewed about specific exposures, such as consumption of raw or medium rare ground beef consumption, shopping at specific grocery stores, and attending the going away party.

Names and contact information for all party guests were collected, as were a list of foods served at the party, preparation information, and purchase location of the foods or ingredients of the foods served. Party attendees were interviewed using a party-specific questionnaire. Stool samples from consenting party attendees who reported illness were submitted to the MDH PHL for testing.

Environmental Health Specialists from the MHD conducted an investigation at the grocery store in Minneapolis where the raw beef served at the going away party was purchased. Beef invoices were obtained.

The Minnesota Department of Agriculture (MDA) conducted a limited traceback to ascertain the source of the ground beef from the grocery store served at the party.

Six cases were identified, including five confirmed and one probable. Three of the five confirmed cases and the probable case were associated with the January 29 party; the remaining two cases that did not attend the party shopped at the same store where some of the party food was purchased. All cases were of Ethiopian ethnicity.

All cases reported diarrhea and abdominal cramps, four (67%) reported fever, one (17%) reported vomiting and one (17%) reported bloody stools. The median duration of illness was 11 days (range, 5 days to 19 days). One case was hospitalized, but no cases died. Reported illness onset dates ranged from January 25 to January 30. Among those who attended the going away party on January 29, the median incubation period was 13 hours (range, 6 to 27 hours).

An additional case with an isolate of the same PFGE pattern of *Salmonella* Enteritidis and closely related by WGS who was also of Ethiopian ethnicity was excluded due to not having any known links to the party, foods eaten by the cases, or shopping locations. The case ate lamb from a live animal market.

Approximately 12 people attended the party on January 29. Foods served at the party included kitfo (raw or rare ground beef with spices), alicha wot (potato and carrot stew), key wot (beef stew), injera (Ethiopian bread), mixed fruit (pineapple, cantaloupe, honeydew melon, strawberries, and grapes), white cake, yogurt, farso (a traditional beverage brewed from various grains), soda, and bottled water. A case-control analysis of foods eaten at the party was conducted. The analysis included the 3 confirmed cases, 1 probable case and 4 controls. Eating kitfo was the only menu item statistically significantly associated with illness (4 of 4 cases vs. 0 of 4 controls; odds ratio, 81.0; 95% confidence interval, 1.3 to 5046.0; $p = 0.03$). No other menu items were significantly associated with illness. The ground beef used to make kitfo was purchased at a grocery store in Minneapolis. Other foods were purchased at other retailers. None of the foods were purchased from a live animal market.

One of the two cases who were not associated with the party also reported eating kitfo before onset of illness made with ground beef purchased from the same grocery store as the ground beef from the party. The other case who didn't attend the party shopped regularly at the same grocery store, and purchased injera bread from that store, but denied eating ground beef purchased there. Both cases denied eating meats from a live animal market.

An environmental health specialist from MHD conducted an investigation at the grocery store. The facility was a grocery store with an attached restaurant, and they were grinding beef on site and selling it out of the restaurant. The facility was not licensed to sell raw meats out of the restaurant, so orders to discontinue the practice were issued. The environmental health specialist reported that the kitchen where the raw beef was ground was very small, indicating a concern for cross-contamination.

MDA's investigation determined that the source of beef for the grocery store was Distributor A, who lacked the ability to trace back the meat sold any further. The facility denied purchasing meat from live animal markets.

This was an outbreak of *Salmonella* Enteritidis infections associated with eating kitfo made with raw or rare ground beef purchased from a grocery store in Minneapolis. The facility was grinding beef on-site at the restaurant despite not having a license to do that. One case did not eat kitfo, but did eat bread from the same retailer.