

Norovirus Gastroenteritis Associated with a Spaghetti Dinner

April

Stearns County

On April 3, 2017, the Minnesota Department of Health (MDH) foodborne illness hotline received an email reporting that 70 people became ill after attending an event at a community center in Freeport on April 1. Additionally, the MDH St. Cloud District Office called the hotline with a report of a large number of illnesses after a community fundraiser in Freeport. The event was a spaghetti dinner and silent auction that was attended by approximately 700 people. Stearns County Environmental Health was contacted and an investigation was initiated.

A Stearns County sanitarian contacted the facility and the event organizer on April 4 to obtain information on what was served at the event, how the food was handled, and contact information for volunteer food workers.

MDH staff also contacted the organizer of the event to obtain contact information for some of the attendees. Attendees were interviewed to obtain information on food/beverage consumption and illness history. A case was defined as an event attendee who subsequently developed vomiting and/or

diarrhea (≥ 3 stools in a 24-hour period). Ill individuals reporting onset of symptoms ≥ 12 hours after another case residing in the same household were considered possible secondary cases and not included in the analysis. Stool samples from consenting individuals were submitted to the MDH Public Health Laboratory (PHL) for bacterial and viral testing.

Seventy-nine attendees were interviewed; 43 (54%) met the case definition. An additional 10 individuals reported illness but were excluded from further analyses due to mild illness ($n=5$), or because they had a household contact who was ill with gastrointestinal illness prior to their onset ($n=5$). The median incubation period for cases was 34.5 hours (range, 10.75 to 45.5 hours). The median duration of illness was 27 hours (range, 8 to 55.75 hours) for the 25 cases who had recovered by the time of interview. Thirty-six (84%) cases reported diarrhea, 35 (81%) abdominal cramps, 28 (65%) vomiting, and 11 (29%) fever. No cases were hospitalized. Ten stool specimens (nine from primary cases and one from a possible secondary case) were received at the MDH PHL; all were positive for norovirus GI.II. Two of the isolates were sequenced and had identical nucleic acid sequences (GII.P16-GII.2).

The food served at the event was prepared and served by volunteers and included spaghetti, canned tomato sauce with and without meat, salad, a selection of salad dressings, breadsticks, cheesy garlic toast, and soft-serve ice cream. Beverages were also available from a bar. Attendees were served in a line by volunteers who portioned all items except for the salad dressing, which was self-serve. Among all cases and controls, consumption of salad (26 of 43 cases vs. 8 of 25 controls; odds ratio [OR], 3.3; 95% confidence interval [CI], 1.1 to 3.2; $p = 0.04$) and salad dressing (25 of 43 cases vs. 8 of 25 controls; OR, 3.0; 95% CI, 1.0 to 8.3; $p = 0.05$) were associated with illness. Among just the attendees who ate at the event, consumption of salad (26 of 34 cases vs. 8 of 21 controls; OR, 5.3; 95% CI, 1.6 to 17.3; $p = 0.009$), and salad dressing (25 of 34 cases vs. 8 of 21 controls; OR, 4.5; 95% CI, 1.4 to 14.5; $p = 0.01$) were also associated with illness; consumption of meat sauce (33 of 34 cases vs. 16 of 20 controls; OR, 8.3; 95% CI, 0.9 to 80.0; $p = 0.06$) had an elevated OR and approached significance. In a multivariate model including meat sauce and salad, only salad (adjusted OR, 4.5; 95% CI, 1.2 to 16.2; $p = 0.02$) remained independently associated with illness.

The salad was obtained pre-cut and pre-washed in bags. The bags were emptied into a large bowl, and shredded carrots and cabbage were added. Salad was portioned into individual Styrofoam bowls and placed in a refrigerator. Glove-use was reported during salad preparation. The salad dressing was purchased in 1-gallon jugs and poured into smaller bowls with ladles for service. The salad dressing was the only item that was self-service. The meat sauce contained canned tomato sauce, and frozen pre-cooked meat that was left over from a previous event at the community center. The sauce and meat were poured into roasters, baked in an oven, and then kept hot in roasters on the serving line.

A complete list of volunteers was not available. Nineteen (46%) of 41 individuals who were specifically asked about volunteering at the event helped with food or beverage service. None reported illness before the event; eight (42%) were ill after the event with illness consistent with the illnesses reported by event attendees. No vomiting incidents were reported at the facility. As a result of this outbreak, the facility was advised to have trained staff overseeing events with volunteer food workers, or to require a special event license for events with food service. Additionally, a deep cleaning and sanitizing of all food contact and touched surfaces was recommended.

This was a foodborne outbreak of norovirus gastroenteritis associated with a spaghetti dinner. Consumption of salad was statistically associated with illness. However, only 60% of cases were exposed to the salad, indicating the possible role of another vehicle or route of transmission. The source of contamination was not identified, but the environmental health investigation was limited by the inability to interview numerous volunteer food handlers.