

Norovirus Gastroenteritis Associated with a Funeral Luncheon at a Church

May

Dakota County

On May 3, 2011, the Minnesota Department of Health (MDH) foodborne illness hotline received a report of gastrointestinal illness among individuals who attended a luncheon following a funeral at a church on April 30. The complainant reported that 175 people had attended the luncheon and at least 12 people had become ill with vomiting and diarrhea. MDH Environmental Health Services was contacted and an investigation was initiated.

On May 5, a MDH sanitarian met with one of the pastors at the church. While the Minnesota Department of Health does not license the church, the luncheon organizer agreed to provide a list of people who either prepared or helped serve food, and their contact information. MDH sanitarians interviewed food helpers regarding illness, foods prepared, and what foods they ate at the luncheon. The original complainant provided MDH with a partial list of luncheon attendees. Attendees were interviewed by MDH staff about food consumption and illness history. A case was defined as someone who had attended the luncheon and subsequently developed vomiting and/or diarrhea (≥ 3 loose stools in a 24-hour period). The MDH Public Health Laboratory tested stool samples collected from consenting luncheon attendees for bacterial and viral pathogens.

Illness histories and exposure information was obtained from 61 funeral luncheon attendees; 31 (50%) met the case definition. Seventeen (57%) of 30 food helpers were interviewed, and none reported illness prior to the funeral luncheon. However, seven (23%) food helpers reported illness afterward and met the case definition. The majority of food helpers also attended the funeral and ate at the luncheon. Illness onsets ranged from April 30 to May 5. The median incubation period from the luncheon was 36 hours (range, 6.5 to 106 hours). The median duration of illness for the 15 people who had recovered at the time

of the interview was 33 hours (range, 3 to 84 hours). Thirty (97%) cases reported diarrhea, 23 (74%) reported vomiting, 13 (42%) reported fever, 11 (35%) reported cramps, and 2 (6%) reported bloody stools. Three of four stool samples submitted by ill luncheon attendees tested positive for norovirus GII.

A complete list of foods served at the luncheon was not available initially; therefore, not all interviewed attendees were asked about all food items. The lunch was comprised of food items that had been purchased from a grocery store as well as items prepared by volunteers at home. The following items were served at the luncheon: sliced ham and turkey, buns, American and Swiss cheese, pickles, olives, veggie tray with dip, fresh fruit tray, 12 different salads donated by the congregation, a variety of dessert bars also donated by the congregation, and coffee and punch.

By univariate analysis, consumption of buns (28 of 31 cases vs. 17 of 25 controls; odds ratio [OR], 4.4; 95% confidence interval [CI], 0.9 to 28.5; $p = 0.048$), white cheese (19 of 29 cases vs. 8 of 23 controls; OR, 3.6; 95% CI, 1 to 13.2; $p = 0.03$), mayo (18 of 30 cases vs. 4 of 25 controls; OR, 7.9; 95% CI, 1.9 to 38.1; $p = 0.001$), pickles (9 of 20 cases vs. 3 of 20 controls; OR, 4.7; 95% CI, 0.9 to 31.3; $p = 0.04$), potato salad (14 of 30 cases vs. 5 of 24 controls; OR, 3.3; 95% CI, 0.9 to 14.2; $p = 0.05$), Caesar salad (8 of 18 cases vs. 2 of 20 controls; OR, 7.2; 95% CI, 1.1 to 78.1; $p = 0.03$), Bok choy salad (5 of 17 cases vs. 0 of 15 controls; OR, undefined; $p = 0.02$), and water (15 of 31 cases vs. 4 of 25 controls; OR, 4.9; 95% CI, 1.2 to 23.7; $p = 0.01$) were significantly associated with illness. In a multivariate analysis that included all of the significant variables from the univariate analysis, only potato salad (adjusted OR [aOR], 21.5; 95% CI, 1.5 to 303.2; $p = 0.02$) remained independently associated with illness. Caesar salad (aOR, 31.7; 95% CI, 0.7 to >999; $p = 0.08$) approached significance. Using stepwise logistic regression model selection both the Caesar salad (OR, 19.6; 95% CI, 1.6 to 235.7; $p = 0.02$) and potato salad (OR, 8; 95% CI, 1.2 to 52.4; $p = 0.03$) remained independently associated with illness. These two food items were prepared by different people.

This was a foodborne outbreak of norovirus gastroenteritis associated with a luncheon at a church following a funeral service. Caesar salad and potato salad were identified as the vehicles of transmission. While no food helpers reported illness prior to the luncheon, many food helpers were not interviewed, and contamination by one of more unidentified ill food helpers is the most plausible source of contamination.