

Norovirus Gastroenteritis Associated with a Restaurant

January

Washington County

On January 29, 2020, the Minnesota Department of Health (MDH) foodborne and waterborne illness online reporting system received three complaints of illness from three separate households who had dined at a restaurant in Woodbury on January 25 or 26. A fourth complaint was received on January 29 via email from a party who ate at the restaurant on January 24. An investigation was immediately initiated.

Environmental Health staff from Washington County Public Health and Environment (WCPHE) visited the facility on January 29 to evaluate food preparation and handling procedures, gather additional patron contact information, and interview food workers.

MDH staff interviewed restaurant patrons. A case was defined as a laboratory-confirmed case of norovirus who ate at the restaurant prior to becoming ill or a restaurant patron who developed vomiting or diarrhea (≥ 3 stools in a 24-hour period) after eating at the restaurant. Stool specimen collection kits were sent to cases for testing at the MDH Public Health Laboratory (PHL).

Fifty-five patrons were interviewed, and 19 (34%) met the case definition. Illness was identified among complainants (4 cases) and patrons identified through credit card receipts (15 cases). Of the original complaints, 2 did not have enough information to include in statistical analysis; they were not able to be reached and were excluded from further analysis. Six additional patrons were also excluded from analysis. One patron had mild illness that did not meet the case definition, two reported an onset date before their meal date, and three reported illness onset dates after previously ill household members and were likely secondary cases. Thirty non-ill patrons were interviewed.

All 19 cases reported diarrhea, 16 (89%) reported cramps, 12 (63%) reported vomiting, and 9 (47%) reported a fever. No cases reported bloody diarrhea. The median incubation period was 30.5 hours, and of the 7 cases that had recovered at the time of interview, the median duration of illness was 14.5 hours. One stool sample was returned and was positive for norovirus.

In the univariate analysis, individual food and drink items statistically associated with illness included the dragon maki sushi rolls (6 of 19 cases vs. 0 of 29 controls; odds-ratio [OR] undefined; 95% confidence interval [CI], undefined; $p = 0.002$), shrimp tempura (11 of 19 cases vs. 5 of 30 controls; OR, 6.9; 95% CI, 1.8 to 25.8; $p = 0.005$), snow mountain maki sushi rolls (8 of 19 cases vs. 3 of 29 controls; OR, 6.3; 95% CI, 1.4 to 28.3; $p = 0.02$), and squid tempura (4 of 19 cases vs. 0 of 30 controls; OR, undefined; 95% CI, undefined; $p = 0.02$).

Multivariate analysis using logistic regression was attempted; no foods were significantly associated with illness. Since every case who reported dragon maki sushi rolls also reported consuming shrimp tempura and the tempura accounted for more cases, an additional analysis was conducted without dragon maki sushi rolls. In this model, eating shrimp tempura (adjusted OR, 8.6; 95% CI 2.1 to 34.6; $p = 0.03$) remained independently associated with illness.

All 20 employees were interviewed; none reported illness. During the environmental health assessment, employees did report a vomiting incident by a patron in late December that was cleaned up by an employee. Staff also reported a fecal accident by a patron occurred on January 24 in the patron bathroom at the restaurant. The incident was also cleaned up by an employee. WCPHE sanitarians ordered additional sanitizing

of the restroom with 1000 ppm bleach. Employee screening was also put into place to ensure that no employees would work while ill.

Assessment of the shrimp tempura food preparation process revealed that bare-hand contact could happen with the tempura. The shrimp were taken out of the fryer, plated, and brought out to patrons by one person. That person was unlikely to wear gloves since they were also serving patrons. An appropriate tool was not available to plate the shrimp. It was possible that a person could touch the shrimp to get them on the plate. This was addressed with the addition of tongs to the serving process.

This was a foodborne outbreak of norovirus gastroenteritis associated with a restaurant in Woodbury. Shrimp tempura explained the greatest number of cases and was statistically associated with illness in a multivariate analysis. However, it only explained 11 out of the 19 illnesses. It is possible that bare hand contact by an ill food worker could have been the source of the outbreak, however no employees reported illness. It is also possible that the fecal accident in the patron restroom played a role in the outbreak.