

**Outbreak of Norovirus Associated with Tasso's Restaurant --
Kansas and Missouri, March 2008:
Preliminary Report**



Background

On March 21, 2008, the Johnson County Health Department (JCHD), Disease Containment Division was notified by an infection control nurse at a local hospital (Hospital A) of a possible outbreak of gastrointestinal illness among Hospital A employees. Hospital A employees reported eating foods catered by the Tasso's Restaurant located at 8411 Wornall, Kansas City, MO 64114 on March 18. The catered meal consisted of chicken kabobs, Greek lasagna, green beans, carrots, pita bread, rice, salad, baklava, and drinks (soda and water). Nine of the Hospital A employees subsequently experienced gastrointestinal symptoms, including diarrhea, vomiting, abdominal cramps and nausea. In response to this notification, the JCHD and the Office of Surveillance and Epidemiology at the Kansas Department of Health and Environment (KDHE) initiated an investigation to determine the cause of illness and associated risk factors.

During the course of the investigation, the public health officials discovered that Tasso's Restaurant had catered meals for eight other groups in both Kansas and Missouri on March 18. Preliminary information revealed that persons from some of these groups also reported illness.

The outbreak investigation was expanded to include the other eight groups who consumed food that was prepared at Tasso's Restaurant on March 18. In addition to JCHD and KDHE, the investigation was conducted through the collaborative efforts of the following agencies: the Food Protection Program at the Kansas City, MO, Health Department; the Community Health Protection Division at the Clay County Public Health Center in Missouri; and the Communicable Disease Program at the Shawnee County Health Agency in Kansas.

Key Findings

A foodborne illness questionnaire was developed to capture information on demographics, illness history before and after the catered meals, food consumption history, and history of other meals shared by staff members. This questionnaire was provided to each member of eight of the nine groups; the ninth group could not be contacted because the phone number listed on the restaurant order ticket was incorrect.

Based on information listed on the ordering tickets and information provided by persons who placed the catering orders, 137 persons participated in the meals served at the eight locations. Of these, a total of 53 (39%) persons completed the questionnaire. The median age of the 53 respondents was 48 years (range: 23-62); 47 (89%) were female. Thirty-two (60%) respondents reported at least one gastrointestinal symptom (stomach ache, nausea, diarrhea, or vomiting). Of these, the following symptoms were reported: stomach ache (94%), nausea (91%), diarrhea (75%) and vomiting (63%). The median incubation period was 37 hours (range: 7.5-58.5).

Among all the food items catered from Tasso's Restaurant, the odds of becoming ill was six times higher for people who ate salad compared to those who did not eat salad (odd ratio [OR] = 6.4, 95% confidence interval [CI] = 0.6 - 67.4), followed by chicken (OR = 1.8, 95% CI = 0.4 - 8.3), then carrots (OR = 1.8, 95% CI = 0.5 - 6.3) and soda (OR = 1.7, 95% CI = 0.5 - 6.0). None of these associations were statistically significant.

Five stool specimens were collected from five persons for testing at the Kansas Department of Health and Environment Laboratories (KDHEL). All five tested positive for norovirus, genotype II.

Employees at Tasso's Restaurant were asked to complete an employee survey designed to capture information on illness history, food consumption history and hours worked during a 7-day time period. All ten employees responded; none reported having any gastrointestinal symptoms. Unfortunately, no stool specimens were collected for testing. An inspection of Tasso's restaurant conducted on March 27, 2008 revealed no critical violations.

Conclusion and Recommendations

This foodborne illness outbreak was caused by norovirus, a leading cause of gastroenteritis in humans. Noroviruses may be transmitted via the fecal-oral route through food that has been contaminated by the hands of an ill food handler. Noroviruses are highly contagious and as few as 10 viral particles may be sufficient to cause infection. The Centers for Disease Control and Prevention (CDC) estimate that at least 50% of all foodborne outbreaks of gastroenteritis are attributed to noroviruses.

Simple measures, including correct handling of cold foods, strict hand washing after using the bathroom and before handling food items, and excluding employees with gastrointestinal illness from food handling may substantially reduce foodborne transmission of noroviruses.

Acknowledgments

The staff at the Office of Surveillance and Epidemiology at KDHE thanks the co-investigators from the different public health agencies in Kansas and Missouri who assisted with this outbreak investigation.

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