

***Clostridium perfringens* Intoxications Associated with a Restaurant**

May

Washington County

On May 10, 2010, the Minnesota Department of Health (MDH) foodborne illness hotline received a complaint of gastrointestinal illness among several individuals from separate households who had eaten a buffet meal at a restaurant in Woodbury, Minnesota on May 9 (Mother's Day). Washington County Public Health and Environment (WCPHE) was notified, and an outbreak investigation was initiated. Three additional complaints about the May 9 buffet from separate households were received by WCPHE on May 10.

A reservation list of restaurant patrons from May 9 (representing over 650 guests) was obtained from the restaurant by WCPHE. Staff from WCPHE interviewed patrons to obtain information on buffet food and beverage consumption, and illness history. A case was defined as a person who developed vomiting and/or diarrhea (≥ 3 loose stools in a 24-hour period) following a meal at the restaurant. Stool specimens were obtained from consenting patrons and submitted to the MDH Public Health Laboratory (PHL) for bacterial and viral testing.

WCPHE conducted an inspection of the restaurant focusing on employee hygiene, employee work schedule and illness logs, food-handling practices, and equipment sanitation. An employee list with contact information, work schedules, and duties was obtained from the restaurant. WCPHE staff interviewed employees who worked on May 8 and 9, using a standard questionnaire about recent illness history (including household members) and job duties.

Illness histories and exposure information were obtained from 36 patrons who dined at the restaurant on May 9. Twenty-three (64%) patrons met the case definition. Twenty-two (96%) cases reported diarrhea, four (17%) reported vomiting, and one (4%) reported fever. The median incubation period was 9.5 hours (range, 2.5 to 24 hours). The median duration of illness was 33 hours (range, 3.5 to 59 hours). The median age of cases was 39 years (range, 3 to 69 years). Four cases submitted stool samples for testing; samples tested positive for *Clostridium perfringens* enterotoxin A. All four samples were culture-positive for *C. perfringens* with indistinguishable pulsed-field gel electrophoresis (PFGE) patterns. The stool samples were negative for all other bacterial and viral enteric pathogens.

In the univariate analysis, consumption of prime rib (18 of 23 cases vs. 4 of 13 controls; odds ratio, 8.1; 95% confidence interval, 1.7 to 37.8; $p = 0.005$) was significantly associated with illness. None of the other buffet food items, beverages or ice were statistically associated with illness.

Illness history and food worker duties were obtained from 64 (84%) of the 76 individuals employed by the restaurant. Fifty-two of the 76 employees had worked on May 9. Of these food workers 86% (45 of 52) were interviewed.

One ill food worker was identified through the investigative process and sent home. The ill food worker had a similar illness history as the patrons. A stool specimen was obtained from the consenting employee and submitted to MDH PHL for bacterial and viral testing. The sample tested positive for *C. perfringens* enterotoxin A and was culture-positive for *C. perfringens* with a PFGE pattern that matched *C. perfringens* isolates from cases. The employee's sample also tested positive for norovirus.

The ill food worker, a line cook, had worked on May 9 and May 11. The food worker developed vomiting and diarrhea on May 11. Purportedly the line cook was not ill prior to May 11 and did not consume food items prepared at the restaurant on May 9.

During the employee interviews, investigators discussed and emphasized that restaurant employees cannot work while ill with vomiting and/or diarrhea and that proper handwashing must be followed. Management began checking each employee as upon arrival each shift to check for any symptoms of illness and discuss employee health policies. Management was directed to exclude any sick employee and report to WCPHE. A strict no bare-hand contact policy was put into place at the establishment.

Based on the May 10 environmental health investigation and a review of food preparation practices with the restaurant's head chef and general manager, the following preparation and cooking practices were identified. Prime rib was found in that oven (double shaam) at 109° F. Prime rib had been cooking overnight. The restaurant was ordered to discard prime rib, turkey and any other item cooked in the Alto Shaam. During the preparation of the buffet prime ribs for cooking, a plug of meat was removed from the core of each prime rib, and the hole was filled with an uncooked garlic and spice mixture. The prime rib final cook temperatures were not being monitored and food temperature logs were not being utilized. The restaurant was provided with Minnesota Food Code requirements for cooking prime rib. If prime rib is to be cooked to lower temperatures (as allowed in Minnesota Food Code) the meat must be left whole; inserts are not allowed. The restaurant immediately changed the cooking process for the prime rib. The restaurant was ordered to use a food thermometer to monitor food temperatures while cooking, cooling, and reheating. Food temperature logs were put into place.

A drawer cooler under the cook line was found at 50° F. Walleye, pasta, and brisket were discarded. A repair person was immediately contacted regarding the cooler. Orders were provided to begin cleaning and sanitizing all surfaces in the kitchen (e.g., all equipment, handles, handwashing stations). Orders were provided to dump the ice and clean and sanitize all bar equipment. Any food items remaining from the May 9 buffet were discarded.

This was a foodborne outbreak of *Clostridium perfringens* intoxications associated with consumption of prime rib at a Mother's Day buffet held at a restaurant in Woodbury, Minnesota on May 9. The outbreak resulted from inadequate cooking and hot holding temperatures of prime rib, which created a favorable environment for *C. perfringens* proliferation and survival.