

### **Suspected Bacterial Intoxications Associated with a Jail**

September

Ramsey County

On Saturday, September 9, 2017, the Minnesota Department of Health (MDH) on-call epidemiologist received a report from a jail regarding diarrhea and stomach cramps among approximately 25% of the 400 inmates. Illnesses among most inmates had started around 2:00 a.m. and some had recovered by that afternoon. The jail had also contacted Ramsey County Environmental Health, who asked the facility to put several interventions into place over the weekend, including not serving any leftover food that had been served on Saturday. The MDH Foodborne Diseases Unit was notified by the on-call epidemiologist, and an investigation was initiated with Ramsey County Environmental Health.

Environmental health specialists from Ramsey County visited the jail's kitchen on Monday, September 11 to evaluate food preparation and handling procedures. Environmental health specialists also interviewed food workers regarding illness history and job duties. An MDH epidemiologist visited the facility on September 11 to drop off stool kits and collect food trays for testing.

Symptom information and other illness details for ill inmates were collected by the jail medical staff and provided to MDH. A case was defined as an inmate listed on the illness log from September 8 to 11

Stool sample collection kits were delivered to the jail and consenting food workers; kits returned to MDH were submitted to the MDH Public Health Laboratory (PHL) for bacterial, viral, and toxin testing. Testing of leftover food for bacterial intoxication agents was also performed at the MDH PHL.

Information provided by jail staff during the initial outbreak report and subsequent media interviews indicated that approximately 100 inmates became ill in this outbreak. MDH staff did not interview inmates. The illness log provided by the facility medical staff on September 12 listed 79 unique individuals who met the case definition. Among these, 76 (96%) were reported to have diarrhea, 30 (38%) vomiting, 16 (20%) stomach cramps, 13 (17%) nausea, and 4 (5%) bloody stools. Two of the individuals on the log did not report either diarrhea or vomiting (they reported "pain" and "upset stomach"). Illnesses were reported in pods 1A, 1B, 3A, 3B, 3C, 3D, 4B, 5A, 5B and several other areas.

The incubation period could not be calculated because illness onset dates and times were not provided by the facility (dates listed on the illness log indicated the date the inmate was assessed by the medical staff, and ranged from September 8 [n=3] through September 11). However, the preliminary outbreak report indicated most inmates had become ill at approximately 2:00 a.m. on September 9. The duration of illness was unknown; however, reports from the jail staff (including the preliminary outbreak report and reassessment dates listed on the illness log) indicated that illnesses lasted 12 hours to 2 days. The facility nurse reported that most inmates had recovered by September 11. Four stool sample collection kits were delivered to the jail; no kits were returned to MDH.

Food served to inmates is prepared by a contract catering company (Summit Food Service) and its staff at an on-site kitchen. Inmates are not involved in food preparation. In addition to the jail inmates, food from the kitchen is also provided to a detox program, as well as staff at the facility. However, these food items are typically different from foods prepared for inmate consumption. No staff or detox program participants reported illness during the outbreak.

On September 9, food items served for lunch at the jail included BBQ turkey, au gratin potatoes, seasoned carrots, bun, and pudding. Lunch was served in inmate pods from 10:42 a.m. to 11:05 a.m. Food items served for supper included tamale pie, fluffy rice, peas, cornbread, margarine, and canned peaches. Supper was served from 4:43 p.m. to 5:18 p.m. In general, food is prepared and plated on trays in the kitchen and then delivered to inmate cells.

The jail routinely stores trays containing samples of items that were served at each lunch and supper meal in their refrigerator or freezer. Trays from September 9 lunch and September 9 supper were collected and tested at the MDH PHL. Food items from each tray were prioritized for testing based on risk for bacterial intoxication. *Staphylococcus aureus*, *Bacillus cereus*, and *Clostridium perfringens* bacteria were not found on culture plates of the BBQ turkey and au gratin potatoes from the lunch tray. *C. perfringens* bacteria were recovered from enrichment broths of the tamale pie and fluffy rice

from the supper tray (these two items were on top of each other on the tray but were tested separately). All four food items tested negative for *S. aureus* toxin and *B. cereus* diarrheal toxin. Because *C. perfringens* bacteria were only recovered from enrichment broth (and not a direct culture plate), enumeration could not be performed. Bacterial colonies from the tamale pie and fluffy rice were tested for *C. perfringens* enterotoxin A production; two of three colonies from the tamale pie were positive, and one colony from the fluffy rice was positive.

Typically, the detox program is on a different menu and receives different food items from the kitchen. However, on September 8, the detox program participants (about 25 meals) received the same menu for supper (including tamale pie). However, the prepared food was re-heated differently when served at the detox program vs. the jail.

The tamale pie was prepared on September 7 from a cooked mixture of ground chicken, beans, canned tomatoes, and spices. The cooked mixture had a recorded temperature of 184° F and was placed into six 2-inch pans with covers; the pans were stacked three-high on a cart in the cooler, which likely prevented proper cooling. The temperature was not checked again that day. On September 8, the mixture was removed from the cooler about 2:00 p.m.; one pan was re-heated and served at the detox program, and the other five pans were re-heated and served at the jail. The five pans served at the jail were re-heated in a steamer for about 40 minutes, then placed in a hot box, then a steam well, and then plated onto trays. Trays were carted to inmate pods. For the detox program, the one pan was put into a Blodgett oven for about 2 hours and then carted to the detox area in bulk, where it was served onto each plate by Summit staff at about 4:30 p.m.

The fluffy rice was cooked in a steamer and was placed in a hot box at about 3:00 p.m. prior to serving. Tamale pie was plated on top of fluffy rice on the food trays; it is likely that testing results for the tamale pie and fluffy rice reflected comingling of these items.

All 17 food workers were interviewed by Ramsey County. One food worker reported onset of diarrhea on September 4 at 11:00 p.m. with recovery on September 6 at 6:00 a.m. This employee worked in the kitchen on September 6, 7, and 8 as a prep cook. The employee submitted a stool sample collected on September 17 that tested negative for norovirus. The sample tested positive for *Clostridium perfringens* enterotoxin A; however, *C. perfringens* bacteria were not found on stool culture.

Several interventions were implemented during the outbreak. Food workers were screened for illness as they arrived for each work shift. The facility was instructed to maintain temperature logs and to ensure that food was heated and re-heated to >165° F. Environmental health staff reviewed food preparation procedures, including temperature logs and heating/cooling procedures with the kitchen staff. The kitchen and rest of the facility were instructed to clean and sanitize with a cleaner effective against norovirus, and maintain proper hand hygiene and glove use.

This was a foodborne outbreak among inmates at Ramsey County Jail. The suspected outbreak etiology was a bacterial intoxication, most likely caused by *C. perfringens*. However, the reported percentage of ill people that had vomiting was not consistent with *C. perfringens* intoxication. Therefore, a partial role for another etiology (e.g., norovirus) could not be completely ruled out due to lack of stool samples for testing and lack of detailed information regarding inmate illnesses. Though a vehicle was not statistically implicated, food testing results and cooling/reheating issues indicated that tamale pie was the most likely vehicle for the outbreak.