State of Alaska Epidemiology Bulletin

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Clostridium Perfringens

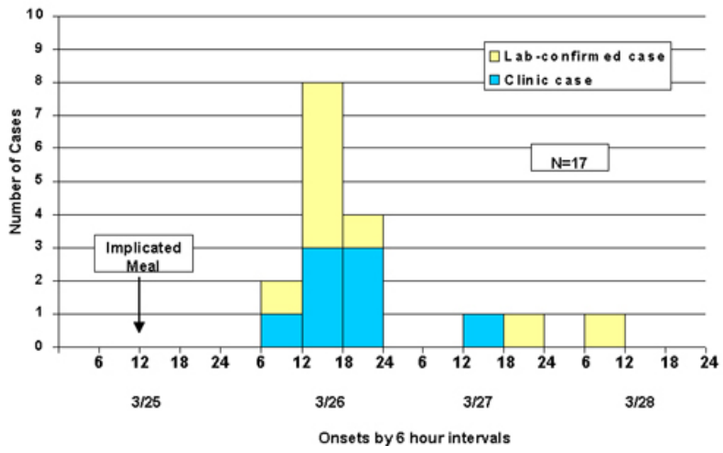
A group of Anchorage high school students and their teachers returned from an overnight retreat with an unwanted result - gastrointestinal illness caused by Clostridium perfringens. Seventeen individuals, 12 students and 5 adults, left Anchorage on March 25 by bus and traveled to Wasilla for an overnight retreat at a church camp. Meals were catered by a private caterer working out of her home. Before boarding the bus, the students ate breakfast at their individual homes. During the retreat they ate 4 meals prepared by this caterer: lunch and dinner on Monday, and breakfast and a sack lunch on Tuesday. They returned to Anchorage on Tuesday.

All 17 individuals (attack rate = 100%) became sick with symptoms of gastrointestinal illness. The most common symptoms were diarrhea (82%), weakness (82%), chills (70%), and abdominal cramps (64%). Fever was noticeably absent from this outbreak. Onset of symptoms from the first meal ranged between 22-68 hours with a mean of 34 hours (Figure 1). The most likely vehicles implicated in the outbreak were beef stew and spaghetti. Stools from twelve individuals were cultured for enteric bacteria and examined for giardia: 9 were confirmed to have Clostridium perfringens. All stools were negative for other enteric bacteria and giardia. Water samples taken from the retreat site and the caterer's home were negative for bacteria. Preliminary analysis of food samples showed a gas-producing organism in the beef stew, although, no Clostridium perfringens was isolated.

This common source outbreak of Clostridium perfringens was most likely caused by insufficient cooking and inadequate refrigeration of the beef stew or spaghetti. Although, Clostridium could not be isolated from the food samples, the samples may have been frozen prior to testing or may not have been from the implicated meals. DEC sanitarians inspected the caterer's operation and found numerous deficiencies, most noticeably, inadequate refrigeration space. The caterer's license was suspended until the service is brought up to commercial standards.

Clostridium perfringens food poisoning is characterized by moderate to severe, crampy, mid-epigastric pain and watery diarrhea which usually occurs 8-24 hours after ingestion of contaminated food, often meat not thoroughly cooked. The absence of fever differentiates Clostridium perfringens foodborne disease from shigellosis and salmonellosis, and the low frequency of vomiting and longer incubation period are in contrast to the clinical features of staphylococcal and chemical foodborne disease. Adequate cooking time which raises the core temperature of meat to at least 74°C (165°F), coupled with refrigeration of foods not immediately served, decreases the risk of Clostridium perfringens food poisoning.

Figure 1



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