



Bulletin No. 15

September 25, 1987

Foodborne Illness Strikes Community Health Aides

In June, a group of Community Health Aides (CHAs) developed gastrointestinal illness while attending a retreat at an Alaskan resort. CHAs began arriving at the resort on June 8; 37 individuals participated in the conference. Illness among attendees began in the early hours of June 10 when they experienced diarrhea with abdominal pain. Nausea and chills were also prominent symptoms, but only 3 individuals (10%) reported vomiting. Of the 37 individuals, 29 (78%) reported illness. An additional case not associated with the conference was found in an individual who ate dinner at the resort on June 9.

The suspect meal was a banquet served on June 9 consisting of Chicken Cordon Bleu with hollandaise sauce, rice pilaf, green peas, and a green salad with a choice of four salad dressings. Individuals served themselves from a buffet line which was set up approximately 15 minutes before the banquet.

For the 30 cases, the average incubation period was approximately 10 hours with a duration of 15.8 hours (range 4 to 13 hours). No single food could account for all 30 cases.

The food implicated as likely the source of illness was hollandaise sauce (Fisher's Exact $p = 0.002$) which was improperly prepared and stored and was heavily contaminated with bacteria. The hollandaise sauce was several days old at the time it was used for this meal. It had been stored in a 3-gallon stainless steel container which was intermittently brought out of the refrigerator, heated in a double boiler to an unknown temperature, and served. At no time was it brought to boiling. The possibility of multiple contamination of foods could not be ruled out; none of the prepared chicken or rice was available for testing.

Although heavy bacterial growth was found on direct plating of the hollandaise sauce, salmonella, shigella, *Bacillus cereus*, or *Clostridium perfringens* were not found. One isolate was identified as *E. coli*. Unfortunately, quantities of hollandaise sauce were not enough to conduct quantitative bacterial analysis. Further evidence incriminating the hollandaise sauce was that 3 of the cases ate a different type of chicken with the same hollandaise sauce, and case number 30 ate halibut with hollandaise sauce the same evening as the banquet and no other foods from the suspect meal. Employees who ate spring chicken with gravy instead of hollandaise sauce that evening reported no illness.

Stool samples on 10 individuals from the conference were negative for salmonella, shigella, clostridium, bacillus, and enteroviruses. Stool samples on all 13 employees were also negative for salmonella and shigella. Although water was associated with illness among those who drank it with their meal (Fisher's Exact $p = 0.009$), only 13 of the ill individuals reported drinking water with their meal. Twenty-four ill individuals drank water at some time during their stay prior to illness, but analysis of water consumption by dose failed to incriminate the water. Water samples were negative for coliforms; no recent break in the line or change in water pressure was noted.

Based on the incubation time, duration of illness, symptoms, and foods involved, *Bacillus cereus* is the likely cause of this outbreak. Two distinct clinical forms of food poisoning due to *Bacillus cereus* occur. One syndrome, associated primarily with vomiting, is associated with contaminated fried rice and has a short incubation period. The other syndrome causes primarily watery diarrhea with little vomiting (as seen in this outbreak) and has a longer incubation period. The onset and duration of symptoms of these cases closely fits the second type of syndrome caused by *Bacillus cereus*. *B. cereus* has been associated with hollandaise sauce and grows in it quite well if correct temperatures are not maintained. Hollandaise sauce should be made fresh and used within 3 hours of preparation.

(Reported by Mary Siroky, Department of Environmental Conservation, Fairbanks)

Several deficiencies in food preparation at the resort were found including lack of adequate temperature control, failure to use thermometers, inadequate heating of food to the desired temperature of 160°F, cutting boards with numerous cracks and crevices, and no paper towels for handwashing. Foods being improperly stored or being kept at incorrect temperatures on the day of our visit were thrown out. The manager was instructed to immediately correct the temperature and storage deficiencies; the facility was reinspected 3 days later. On reinspection the resort had corrected the major deficiencies. No further illness was reported with food service at this establishment.