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Campers Consume Contaminated Chili

At approximately 2:00 a.m. on June 28, eight children were brought to the Central Peninsula Hospital (Soldotna) emergency room with vomiting. The children were attending a camp on the Kenai Peninsula. Investigation by the Section of Epidemiology found that many of the campers and staff experienced sudden onset of vomiting following the evening meal on June 27.

All 54 campers and 12 staff were interviewed about illness and food consumption by the Section of Epidemiology. Vomitus from five individuals and stool specimens from 33 individuals were submitted to the Public Health Laboratory, Anchorage for analysis.

Thirty-two individuals met the following case definition: vomiting and/or at least two of the following symptoms after consumption of the evening meal on June 27: nausea, abdominal cramps, fever, headache, diarrhea (Table 1).

Table 1. Symptoms of 32 cases of gastroenteritis, Kenai Peninsula; June, 1991

Symptom	Number with Symptom	Percent
Nausea	32	100
Vomiting	26	81
Abdominal cramps	17	53
Headache	16	50
Fever	7	22
Diarrhea	7	22

The median incubation period (from dinner on June 27) was four hours. For three cases, time of onset was unknown.

All 32 cases had consumed chili for dinner on June 27. Of the remaining 32 individuals for whom food histories were available, 25 had consumed chili and 7 had not. Analysis of food-specific attack rates strongly suggested that the chili served on the evening of June 27 was the vehicle for this outbreak (OR=undefined; Mantel-Haenszel p-value 0.005).

No other food items served for dinner on June 27 or lunch on June 27 were implicated.

The chili served at dinner on June 27 contained sauce leftover from spaghetti served the previous evening. The spaghetti sauce had been prepared by the camp cook on June 26. No leftover food was available.

All stool specimens were negative for *Salmonella*, *Shigella*, *Campylobacter*, and *Yersinia*. Two of the three vomitus samples were positive for *Staphylococcus aureus*.

Inspection of the camp kitchen by DEC revealed multiple deficiencies including: food stored at improper temperatures, inadequate dishwashing facilities and water chlorination, and children allowed to prepare food from common dishes. The camp cook had uncovered cuts and sores on both hands and was not wearing gloves while handling food.

Staphylococcal food poisoning is caused by ingestion of staphylococcal enterotoxin in food. The illness is characterized by the abrupt onset of severe cramps, nausea and vomiting, diarrhea and, occasionally, low-grade fever. The interval between consumption of food contaminated with *S. aureus* enterotoxin and onset of symptoms is from 15-30 minutes to 7 hours, usually 2-4 hours.

When food contaminated with enterotoxigenic *S. aureus* remains at room temperature, staphylococci can multiply in the food and elaborate toxin. Although it is possible for foods (especially of animal origin) to be intrinsically contaminated, most often contamination is caused by a foodhandler with a skin infection, usually of the hands. Foods involved are particularly those which come into contact with foodhandlers' hands, either without subsequent cooking or with inadequate cooking or refrigeration, such as pastries, custards, salads and salad dressings, sandwiches, sliced meats and meat products.

Staphylococcal foodborne outbreaks can be prevented by restricting persons with boils, abscesses, or other purulent lesions of the hands, face, or nose from handling food. A person with minor cuts or sores on the hands can continue to work but should wear disposable gloves. Foodhandlers should not use band-aids (alone) to cover sores on their hands since band-aids are not impervious to bacteria and their use renders handwashing ineffective. In addition, attention to proper holding temperatures (i.e., keep hot food hot [$>140^{\circ}\text{F}/60^{\circ}\text{C}$] and cold food cold [$<50^{\circ}\text{F}/10^{\circ}\text{C}$]) is important since this will inhibit growth of staphylococci. All foodborne outbreaks should be promptly reported to the Section of Epidemiology.

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