

## Staphylococcal Food Poisoning — Guam

At 10:15 p. m. on Friday, 10 January 2003, the Guam Epidemiologist was notified by the Guam Memorial Hospital Authority Emergency Department (GMHA-ED) that several persons were being treated for apparent food poisoning. Nine affected persons treated that evening were interviewed; although they had purchased and eaten their lunches at a number of different locations they had all consumed chicken *kélaguen*<sup>1</sup> prepared by a single vendor. Patients began feeling ill from 1.5 to 5 hours after eating (average incubation period of 3.8 hours). Symptoms included nausea (9), abdominal cramps (9), vomiting (9) and diarrhea (6). Patient temperatures were normal or slightly sub-normal. A total of 16 patients were treated for diarrhoea or gastroenteritis on that day (see chart).

The next morning the establishment that prepared the implicated food was visited by a public health team. The food preparation area was located in an annex to a private residence and had been damaged by a recent typhoon (Pongsona, 8 December 2002). Although the establishment was registered and licensed by the health department, due to a shortage of personnel it had not been inspected in over a year. Two of eight current employees of the establishment had currently valid food handler certificates. Flies were noted in abundance; there were no screens on several windows and there was damage to doors, walls and roof that allowed entry of insects. The establishment was closed.

Preparation of the *kélaguen* typically began at about 6:00 a.m. The product was transported to sales sites unrefrigerated, together with hot lunches in a large plastic container. The patient with the shortest reported incubation period (1.5 hours) purchased her *kélaguen* at 5:00 p.m., suggesting that the *kélaguen* she ate may have been held at ambient temperatures for as long as 10 hours before sale (allowing for 2 hours preparation time).

The hospital laboratory reported that patient stool samples contained "normal flora". Samples of leftover chicken *kélaguen* provided by patients and a sample collected at the establishment where it was prepared were positive for *Staphylococcus aureus*. No cuts or sores were observed on the hands of the food handler that had prepared the chicken *kélaguen* but a nasal swab was positive for *S. aureus* (it should be noted that plastic gloves were available in the food preparation area and the food handler in question claimed that they were used when handling food ingredients and mixing). The machine used to dice the cooked chicken was also positive for *S. aureus*. No pathogens were isolated from swabs of stainless steel table tops, plastic mixing tubs or sink drains.

The *S. aureus* isolates associated with this outbreak were compared by two methods; the Guam Public Health Laboratory tested each isolate for antibiotic sensitivity and the US Food and Drug Administration Pacific Regional Laboratory Northwest tested the isolates by pulsed-field gel electrophoresis (PFGE). Antibiotic sensitivity tests showed all isolates to be sensitive to cephalothin, clindamycin, oxacillin, tetracycline, trimethoprim/sulfamethoxazole and vancomycin. All isolates were resistant to ampicillin, amoxicillin and penicillin. However, isolates from the three leftover *kélaguen* specimens provided by patients and from the vendor's dicing machine specimen were resistant to erythromycin, while isolates from the food handler nasal swab and vendor-supplied *kélaguen* specimen were sensitive to erythromycin. The results of PFGE tests were similar, with isolates from the three food specimens submitted by patients and from the dicing machine swab being indistinguishable from each other, while the food handler nasal swab and vendor-supplied food isolate were different from each other and from the patient-supplied food isolates.

In the investigation of future similar outbreaks it would be advisable to pick several colonies from each positive culture plate, as there may be more than one biotype present, particularly on environmental or equipment surfaces (the same

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<sup>1</sup> *Kélaguen* is a locally popular ethnic dish prepared by mixing finely chopped cooked meat with chopped onion, grated coconut, salt, lemon juice and hot peppers.

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would apply to the investigation of any outbreak in which relatively common organisms such as *S. aureus* or *E. coli* are suspected of being the causative agent).

Although existing Guam public health regulations require that regulated food establishments hold "potentially hazardous" food at an internal temperature of 45°F or below or at an internal temperature of 140°F or above during display and service, it has become the practice of many retail stores to display sandwiches, sushi, *kélaguen*, etc., for sale on checkout counters without refrigeration. This practice greatly increases the risk of food poisoning incidents by permitting the incubation of any bacteria that may be present as a result of inadvertent contamination of the product. Unfortunately, lack of inspection personnel due to severe budgetary restrictions has prevented more strict enforcement of this and other health-related regulations on Guam in recent years.

### **Reported by:**

James P. Last, MD  
Emergency Department  
Guam Memorial Hospital Authority;

Chet E. Holloway and Robert Contreras  
Division of Environmental Health  
Guam Department of Public Health and Social Services

Carolina M. Hammann, BS  
Public Health Laboratory  
Guam Department of Public Health and Social Services

Robert L. Haddock, DVM, MPH,  
Office of Epidemiology and Research  
Guam Department of Public Health and Social Services

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**SYNDROMIC SURVEILLANCE FOR DIARRHOEA AND GASTROENTERITIS,  
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