



*Copies of any bulletin may be ordered by calling the Section of Epidemiology at (907) 269-8000
or by writing to us at PO Box 240249, Anchorage, Alaska 99524-0249*

Bulletin No. 24
November 21, 1980

EPIDEMIC SHIGELLOSIS - ALAKANUK AND EMMONAK

On Tuesday, September 16, 1980, the Alaska Native Health Service Hospital in Bethel reported two confirmed cases of *Shigella* which had occurred in the previous ten days, each from the neighboring villages of Alakanuk and Emmonak in the Lower Yukon Delta. A USPHS Sanitarian had visited Alakanuk the previous week to inspect the water system, and had discovered illness in nine families. Illness was reported to be occurring in Emmonak as well.

An epidemiologic investigation was initiated with a field visit to Alakanuk on September 18, by a USPHS Sanitarian, a State Public Health Nurse, and a Medical Epidemiologist. Each home with illness was visited and information was obtained about all household members. Sixty-six persons who had acute febrile diarrheal illness in the previous five weeks were identified. The epidemic appeared to have begun on August 18, when five persons in two households of close friends became ill. No likely source for these initial cases was uncovered. There had been no common gathering of community members associated with the cases. The central water supply, although not chlorinated and positive for coliforms, was not epidemiologically associated with illness. Most households individually collected rainwater for consumption. Adequate honey bucket disposal facilities were generally unavailable, and facilities for hand washing were limited. The epidemic curve suggested person-to-person spread (see figure).

The team then visited Emmonak and found a total of six persons ill in three households, all epidemiologically linked to the outbreak in Alakanuk. While the epidemic was well established in Alakanuk at the time of the investigation, it appeared to be in an earlier phase in Emmonak, where the first known case occurred on September 11. Initial control measures included discussions with the village councils, school classes, and a Bingo gathering on hand washing and safe water handling practices and purification techniques for the home. Recommendations were made to treat all persons with diarrhea illness with Ampicillin, to which the initial isolates were sensitive, until the epidemic was controlled. Questionnaires and transport media for stool cultures were left behind with Village Health Aides and active surveillance was continued.

During a second visit to the villages two weeks later, new cases of diarrheal illness were found to have continued to occur in Alakanuk (at a rate of four per day), and 15 new cases of diarrheal illness had occurred in Emmonak. Antibiotic prophylaxis was recommended to all household contacts of new cases. Trimethoprim-sulfamethoxazole (Septra or Bactrim), supplied to both villages with a seven day dosage schedule based on age, was selected to ensure maximum compliance because of the twice-a-day dosage schedule.

Continued surveillance revealed an apparent shift in the epidemiology of the outbreak after the initiation of antibiotic prophylaxis. Rather than many cases occurring in relatively few households, fewer cases were occurring from more households. Because many of those ill were school age children, during the week of October 20, antibiotic prophylaxis was begun for all school children and staff in Emmonak. Sporadic cases of illness continued in Alakanuk, so the same program of prophylaxis in the school was initiated in Alakanuk during the week of October 27. Since that time only six cases of diarrheal illness in Emmonak and six cases of illness in Alakanuk have been reported.

It is impossible to know for sure what effect, if any, antibiotic prophylaxis had in controlling the epidemic. There have been fewer cases of illness in Emmonak where intervention earlier in the course of the outbreak was possible. Of 167 cases to date 40 have been in Emmonak (attack rate, 7%), compared to 127 in Alakanuk (attack rate 26%). Because the two villages are similar in size and share a common culture and geography, one might speculate that the natural course of the epidemic in Emmonak would have been similar to that in Alakanuk had there been no intervention. However, since our information was gathered while active control measures were being instituted in both villages, we may only speculate but not offer proof, that the control measures were effective in controlling the epidemic.

Outbreaks of Shigellosis have occurred sporadically in rural Alaska since at least the 1940's. It is hoped that the lessons learned from this outbreak, the largest known to have occurred in Alaska, can be applied more rapidly and with more obvious beneficial effect in future similar situations. The Section of Communicable Disease Control is always interested to hear about new cases of Shigella as soon as they occur. If intervention can be both rapid and effective, large outbreaks such as these can be prevented. We encourage you to report immediately all cases of Shigellosis to the Section of Communicable Disease Control through the Rapid Telephonic Reporting System. (ZENITH 1700) or by calling 272-7534.

(Reported by Wilma Manual, State PHN; Tony Mercatante, USPHS Sanitarian, Paula Ayunerak, Theresa Edmonds, Norma Shorty, Martha Agathluk, Ursula Kozevenokoff, Village Health Aides; John Wetherby, M.D., Steve Dunn, M.D., USPHS Bethel Hospital.)

EPIDEMIC CURVES ALAKANUK AND EMMONAK

**Number of Cases of Shigella By date of onset
two-day periods**

