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Bloody Diarrhea: Is *E. coli* 0157:H7 the Cause?

Between April 27 and June 2, 1992, six Fairbanks residents with acute onset of bloody diarrhea had stool cultures positive for *Escherichia coli* 0157:H7 at Fairbanks Memorial Hospital. Patients ranged from 2 to 64 years of age (mean, 31 years), five were male, and four were Alaska Native. Three patients received outpatient treatment and three were hospitalized (for 2, 3, and 12 days).

Treatment consisted of intravenous (IV) fluid replacement plus oral trimethoprim-sulfamethoxazole for two patients, IV fluids alone for two patients, IV fluids plus IV ciprofloxacin for one patient, and furazolidone (for concurrent giardiasis) for one patient. All individuals recovered. An epidemiologic investigation did not identify any connection between the six patients or any likely source(s) of the infections.

Enterohemorrhagic *E. coli* (EHEC) was first recognized as a cause of bloody diarrhea during outbreaks in Oregon and Michigan in 1982. During the past 10 years, *E. coli* 0157:H7, the predominant EHEC serotype, has emerged as an important bacterial cause of acute bloody diarrhea in the United States. Infection can lead to hemolytic uremic syndrome or thrombotic thrombocytopenic purpura. Although consumption of unpasteurized milk and undercooked (or uncooked) ground beef have been identified as risk factors for infection, only a small proportion of people with sporadic infection report having one of these risk factors.

In order to better understand the epidemiology of *E. coli* 0157:H7 in Alaska, we surveyed a sample of medical laboratories to learn more about their stool culture practices. Twelve laboratories were informally contacted and asked which, if any, stool samples submitted for culture were inoculated onto sorbitol-MacConkey agar (the medium required to isolate *E. coli* 0157:H7), the approximate number of patients tested, and how often *E. coli* 0157:H7 was isolated during the first 6 months of 1992. Results indicated (Table 1) that four laboratories used sorbitol-MacConkey agar - two tested bloody stool (Providence Hospital and Humana Hospital), one tested by special request or if bloody stool was submitted for culture (Elmendorf Air Force Base Hospital), and one routinely tested all stool specimens submitted for culture (Fairbanks Memorial Hospital). All but one of the eight *E. coli* 0157:H7 isolates were from Fairbanks Memorial Hospital (Table 1).

Comments and Recommendations:

1. The incidence of *E. coli* 0157:H7 infection varies considerably in different regions of the United States and Canada. Although the Pacific Northwest (including Washington and Vancouver, British Columbia) has a relatively high incidence, the importance and distribution of this pathogen in Alaska have not been determined.
2. Physicians should consider requesting that stool cultures from patients with acute onset of bloody diarrhea and abdominal cramps be tested for *E. coli* 0157:H7. Because few patients with *E. coli* 0157:H7 infection have non-bloody diarrhea, this strategy is likely to have a higher yield than routinely culturing all patients with acute diarrhea. In addition, stool cultures for *E. coli* 0157:H7 and other enteric pathogens should be ordered for any patient with hemolytic uremic syndrome.
3. The role of antimicrobials in treatment of *E. coli* 0157:H7 infection is uncertain. It is not clear if patients either recover more quickly or are at a lower risk of developing hemolytic uremic syndrome if antimicrobial medications are prescribed.
4. Two State Public Health Laboratories can isolate, identify, and type *E. coli* 0157:H7. Specimens can be sent to the Juneau (586-3586) or Anchorage (274-1602) laboratory.
5. Outbreaks of diarrhea caused by *E. coli* 0157:H7 have occurred in several other states. Physicians and other health care providers should notify the Section of Epidemiology (561-4406) if a disease outbreak is suspected.

Table 1. *Escherichia coli* 0157:H7 testing practices in selected medical laboratories, Alaska, 1992

Facility	Screening procedure*	Number tested [†]	<i>E. coli</i> 0157:H7
1. Alaska Native Medical Center, Anchorage	d	0	0
2. Bartlett Memorial Hospital, Juneau	d	0	0
3. Central Peninsula Hospital, Soldotna	d	0	0
4. Elmendorf Air Force Base Hospital, Anchorage	c	2	0
5. Fairbanks Medical Clinic	d	0	0
6. Fairbanks Memorial Hospital	a	240	7
7. Humana Hospital, Anchorage	b	5	0
8. Ketchikan General Hospital	d	0	0
9. Kodiak Island Hospital	d	0	0
10. Providence Hospital, Anchorage	b	15	1
11. SE Alaska Regional Health Corp. Hospital, Sitka	d	0	0
12. Yukon-Kuskokwim Delta Regional Hospital, Bethel	d	0	0

* Screening procedure refers to current laboratory practice for inoculation of stool specimens on sorbitol-MacConkey agar:

- a - all stool specimens sent for culture are inoculated on sorbitol-MacConkey
- b - bloody stools (gross blood or RBC's observed on microscopic exam) are inoculated on sorbitol-MacConkey
- c - available by special request of physician or if bloody stool is submitted for culture
- d - not available in-house, can be sent-out upon request

[†] Approximate number of patients tested for *E. coli* 0157:H7 during January-June 1992

. Number of patients with *E. coli* 0157:H7 isolated during January-June 1992.