



PHYSICIANS' BULLETIN

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***E. Coli* O157:H7 Infection - A Continuing Concern**

Escherichia coli O157:H7 is a continuing concern and should be considered in the diagnosis of patients suffering from diarrhea due to foodborne illness. Although most *E. coli* strains are harmless and live in the intestines of healthy humans and animals, the O157:H7 strain produces a powerful toxin and can cause severe illness.

The seriousness of the illness was underscored in January 1993 when an outbreak, linked to a restaurant chain, occurred in this county. Three deaths, including one in a child during the outbreak, have been attributed to the bacteria locally during the last 18 months. Although many aspects of *E. coli* infections are not yet well understood, the following will be of help.

Modes of Transmission

- Ground beef - Source of most reported infections. Meat becomes contaminated during slaughter and bacteria is mixed throughout.
- Raw milk - Bacteria in fecal material on cow's udder or on equipment may get into the milk.
- Water - Swimming in or drinking sewage-contaminated water can result in infection.
- Person to person - Bacteria in diarrheal stools of infected persons can be passed from one person to another. This is especially likely among toddlers in day care who are not toilet trained. Young children typically shed the organism in

their feces for a week or two after illness. Older children rarely carry it without symptoms. Nursing homes are also a concern; about half of all reported outbreaks have occurred in such facilities. Strict adherence to infection control procedures is important for hospital and other health care workers.

Incubation Period

The incubation period is estimated to range from 2 to 10 days.

Symptoms

Reactions to infection range from asymptomatic to the sometimes fatal hemolytic-uremic syndrome (HUS). The following symptoms/complications have been observed.

- Abdominal cramps and nonbloody diarrhea - earliest clinical manifestations.
- Bloody diarrhea - an identifying characteristic of hemorrhagic colitis. Symptom usually appears in the second or third day of illness.
- HUS - The very young and the very old are at greatest risk. Complication commonly occurs 7 days (ranges from several days to weeks) after onset of hemorrhagic colitis. A small percentage of patients develop HUS.
- Thrombotic thrombocytopenic purpura - resembles HUS but is characterized by more frequent and severe neurological

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involvement. It occurs more often in adults and is associated with fever. Prodromal illness occurs less often.

- Vomiting - Usually present in about one-half of patients.
- Fever - Usually present in about one-third of patients, and not high (38 to 38.9° C). Lack of fever distinguishes illness from true shigellosis in which fever is often prominent.

Laboratory

An increasing number of laboratories in the county have the capability to culture for *E. coli* O157:H7. Since they do not routinely do so, it is important to request that the stool specimen be tested for this organism. Stools of all persons who experience sudden onset of diarrhea with blood should be tested for *E. coli* O157:H7. The etiologic agent is much more likely to be identified in stool cultures obtained within six days of onset of hemorrhagic colitis.

Treatment

Early and correct diagnosis is important. Most persons recover without antibiotics or other specific treatment in 5-10 days. The primary therapy for hemorrhagic colitis is the management of dehydration, electrolyte abnormalities, and gastrointestinal blood loss. There is no evidence that antibiotics improve the course of the disease. Antidiarrheal agents should be avoided.

HUS is a life-threatening condition usually requiring intensive care. Blood transfusions and kidney dialysis are often necessary. With intensive care, the death rate is 3%-5%.

Reporting

State regulations making *E. coli* O157:H7 reportable are pending. County Health Services requests that suspect/confirmed cases of *E. coli* O157:H7 be reported by telephone so potential

source(s) of infection can be identified and additional cases prevented.

Reporting Procedure

Weekdays, 8 a.m. to 5 p.m.: call the Epidemiology Unit at:

236-3598

Nights/weekends: call the County's communication's center at:

565-5255

The caller's name and number will be taken and a staff person will return the call as soon as possible.

Prevention

E. coli O157:H7 can be prevented by:

- Cooking all ground beef or hamburger thoroughly until it is no longer pink in the middle and the juices run clear. Undercooked hamburger in restaurants should be sent back to be cooked until it is well done.
- Avoiding cross-contamination when preparing raw beef and other foods, such as salads and garnishes.
- Consuming only pasteurized milk and milk products. Avoid raw milk.
- Drinking water that has been treated with adequate levels of chlorine or other effective disinfectants.
- Making sure infected persons, especially children, and their caregivers, wash hands carefully and frequently with soap to prevent spread. Children with diarrhea should be excluded from day care.

References

- Cohen MB, Giannella RA. Hemorrhagic colitis associated with *Escherichia coli* O157:H7. *Adv Intern Med* 1991; 37:173-195.
- Griffin PM, Tauxe RV. The Epidemiology of infections caused by *Escherichia coli* O157:H7, other enterohemorrhagic *E. coli*, and the associated hemolytic uremic syndrome. *Epidemiol Review* 1991; 13:60-98.

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