

Health Advisory: Health Care Providers - Think *E. Coli* O157 Among Patients with Bloody Diarrhea

Minnesota Department of Health Thu May 10 09:00 CDT 2018

Action Steps:

Local and tribal health departments: Please forward to hospitals, clinics, emergency departments, urgent care centers, and convenience clinics in your jurisdiction.

Hospitals and clinics: Please distribute to all health care providers in these facilities.

Health care providers:

- Always consider Shiga toxin-producing *E. coli* (including *E. coli* O157) infection in patients presenting with bloody diarrhea, including adults
- Do not treat Shiga toxin-producing *E. coli* (including *E. coli* O157) gastroenteritis with antibiotics
- Patients with Shiga toxin-producing *E. coli* (including *E. coli* O157) infection may be subject to exclusion if they attend/work in food service, child care, or healthcare – please call MDH at 651-201-5414

Background

Ten recently identified cases of *E. coli* O157 infection in Minnesota are linked to a national outbreak associated with romaine lettuce. Individuals should not eat, buy, or sell romaine lettuce unless they can confirm it is not from the Yuma growing region.

Most of the Minnesota cases are in adults. Two of these adults developed hemolytic uremic syndrome (HUS), a serious complication of Shiga toxin-producing *E. coli* (STEC) infection. HUS is defined by microangiopathic hemolytic anemia, thrombocytopenia, and acute renal failure.

Approximately 135 cases of *E. coli* O157 are reported each year in Minnesota; about 6.6% develop HUS. The risk of HUS is highest in children, but older adults are also at increased risk of HUS. HUS typically develops around 7 days (up to 2-3 weeks) after onset of diarrhea.

Antimicrobials have not been shown to be beneficial in treating *E. coli* O157 gastroenteritis, and treatment with some classes of antimicrobials increase the risk of HUS development. In addition, parenteral rehydration is recommended for children possibly infected with *E. coli* O157, at the time of presentation of bloody diarrhea and in advance of culture results.

Different culture-independent diagnostic tests (CIDT) are available to aid in the rapid diagnosis of *E. coli* O157 infection. These tests include multiplex PCR gastroenteritis syndrome panels as well as antigen tests that detect Shiga toxin (Stx). Some tests can distinguish between Stx1 and Stx2. The strain associated with this outbreak produces Stx2. In addition to CIDTs, culture of stool for *E. coli* O157 is needed to determine if a patient is part of this outbreak. Therefore, the fastest diagnostic approach to fully evaluate if illness may be linked to this outbreak is to perform a CIDT and culture for *E. coli* O157 simultaneously.

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PATIENTS WITH BLOODY DIARRHEA

Clinical Presentation

Gastroenteritis due to *E. coli* O157 typically begins as watery diarrhea with prominent abdominal cramping; diarrhea frequently turns bloody after 1-2 days. Fever is usually absent or low-grade. The typical incubation period for *E. coli* O157 is 2-5 days (range, 1-8 days).

Additional Information

1. [MDH Outbreak press release:](http://www.health.state.mn.us/news/pressrel/2018/ecoli050818.html)
<http://www.health.state.mn.us/news/pressrel/2018/ecoli050818.html>
2. Smith et al. 2012. Antibiotic treatment of *Escherichia coli* O157 infection and the risk of hemolytic uremic syndrome, Minnesota. *Pediatr Infect Dis J.* 31(1):37-41.
<https://www.ncbi.nlm.nih.gov/pubmed/21892124>
3. Freedman et al. 2016. Shiga Toxin-Producing *Escherichia coli* Infection, Antibiotics, and Risk of Developing Hemolytic Uremic Syndrome: A Meta-analysis. *Clin Infect Dis.* 62(10): 1251-1258. <https://www.ncbi.nlm.nih.gov/pubmed/26917812>
4. Hickey et al. 2011. Early volume expansion during diarrhea and relative nephroprotection during subsequent hemolytic uremic syndrome. *Arch Pediatr Adolesc Med.* 165(10):884-9. <https://www.ncbi.nlm.nih.gov/pubmed/21784993>

A copy of this HAN is available at: <http://www.health.state.mn.us/han/>

The content of this message is intended for public health and health care personnel and response partners who have a need to know the information to perform their duties.