

Health Alert:

Shiga Toxin-producing *Escherichia coli*

October 31, 2011

This document will be updated as new information becomes available. The current version can always be viewed at <http://www.health.mo.gov>

The Missouri Department of Health & Senior Services (DHSS) is now using 4 types of documents to provide important information to medical and public health professionals, and to other interested persons:

Health Alerts convey information of the highest level of importance which warrants immediate action or attention from Missouri health providers, emergency responders, public health agencies, and/or the public.

Health Advisories provide important information for a specific incident or situation, including that impacting neighboring states; may not require immediate action.

Health Guidances contain comprehensive information pertaining to a particular disease or condition, and include recommendations, guidelines, etc. endorsed by DHSS.

Health Updates provide new or updated information on an incident or situation; can also provide information to update a previously sent Health Alert, Health Advisory, or Health Guidance; unlikely to require immediate action.

Health Alert
October 31, 2011

**FROM: MARGARET T. DONNELLY
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**SUBJECT: Outbreak of Shiga Toxin-producing *E. coli* Infection in St. Louis
Metropolitan Area**

The Missouri Department of Health and Senior Services (MODHSS) together with the local public health agencies and the Centers for Disease Control and Prevention (CDC) is investigating an outbreak of Shiga toxin-producing *Escherichia coli* infection in St Louis metropolitan area. As of October 31, 2011, 35 specimens have been submitted to the State Public Health Lab. Thus far, 28 of those specimens are positive for *E. coli* O157:H7, representing 26 cases (more than one specimen was submitted for some cases). In total, there are 32 suspected, probable and confirmed cases of Shiga Toxin-producing *E. coli* (STEC) infection. Cases of infection have been detected in St Louis County, St Louis City, and St Charles, Jefferson, and Franklin counties in Missouri. Preliminary findings from case interviews indicate that food from the salad bar at a local supermarket chain could be a source. Additional investigation and testing of food items is in progress.

The MODHSS asks providers to consider *E. coli* O157:H7 infection when evaluating patients with diarrhea, particularly bloody diarrhea. Testing for *E. coli* O157:H7 should be specifically requested on stools collected from suspect cases. Laboratories should attempt to isolate *E. coli* O157:H7 on sorbitol-MacConkey (SMAC) agar in addition to standard testing for detection of Shiga-toxin producing bacteria. Suspect or confirmed cases should be reported promptly to the local health department.

Disease due to *E. coli* O157:H7

E. coli O157:H7, or STEC O157:H7, which is a Shiga toxin-producing *E. coli* is an important cause of bloody diarrhea and hemolytic uremic syndrome (HUS). Infection commonly occurs through ingestion of the bacteria, usually through contaminated food products of bovine origin such as undercooked ground beef. Outbreaks have also been associated with consumption of such foods as lettuce, alfalfa sprouts, unpasteurized juices, and fresh spinach. Any food that can be contaminated by beef, cow manure, contaminated water, or an infected food handler may be a potential source of infection. The infectious dose is low, and person-to-person transmission can be quite common. When disease develops, the fever is not usually high, or could be absent. Infection can be entirely asymptomatic or can present with a wide range of clinical features, including watery diarrhea, bloody diarrhea, HUS or thrombocytopenic purpura (TTP). The classic triad of findings in HUS is acute renal damage, microangiopathic hemolytic anemia, and thrombocytopenia. Illness typically begins 3-4 days (ranges from 1-9 days) after exposure. Patients usually develop watery diarrhea; in most patients, the diarrhea resolves without progression and the illness is mild. In those with progressive illness, bloody diarrhea usually begins on the second or third day, with stool content ranging from blood streaks to all blood. Most people get better within 5-7 days, but some patients go on to develop HUS, usually about a week after the diarrhea starts. Physicians evaluating patients presenting with gastrointestinal illness, particular bloody diarrhea, should include *E. coli* O157:H7 in their differential diagnosis.

TESTING

It is required that physician specifically request testing stool for *E. coli* O157:H7 when infection is suspected, especially for patients with bloody diarrhea or HUS. *E. coli* O157:H7 is not detected by standard methods; the recommended medium for isolation is sorbitol-MacConkey (SMAC) agar. Any isolates positive for *E. coli* O157:H7 should be forwarded to the MODHSS for further analysis. If a patient specimen tests negative for *E. coli* O157:H7 but the submitting provider has a high clinical suspicion for *E. coli* O157:H7 disease, the original stool specimens could be forwarded to the State Public Health Laboratory (SPHL) for organism isolation. Laboratories that perform a Shiga toxin detecting assay should forward the enrichment broth from the original stool specimens to the SPHL for organism isolation. Specimen broths positive for Shiga toxin should be subcultured to

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SMAC for *E. coli* O157:H7 isolation or forwarded to the SPHL. It is often difficult to isolate STEC in stool by the time a patient presents with HUS. Immunomagnetic separation (IMS) has been shown to increase recovery of STEC from HUS patients. For any patient with HUS without a culture-confirmed STEC infection, stool can be sent to a public health laboratory that performs IMS or to the CDC (through the SPHL). In addition, serum can be sent to CDC (through the SPHL) for serologic testing of common STEC serogroups.

TREATMENT

Treatment for *E. coli* O157:H7 diarrhea includes standard rehydration. Patients should be advised to not use over-the-counter antidiarrheal medications, and should not be prescribed antibiotics. Both treatments have been reported to worsen symptoms and may lead to adverse outcomes. Patients who are showing signs of anemia or kidney dysfunction should be referred for care immediately. It is not recommended to give antibiotics to patients with suspected STEC infections until complete diagnostic testing can be performed and STEC infection is ruled out. Some studies have shown that administering antibiotics in patients with STEC infections might increase their risk of developing HUS. However, clinical decision making must be tailored to each individual patient.

INFECTION CONTROL RECOMMENDATIONS

- Always wash hands after using the toilet, changing diapers, or coming in contact with fecal matter
- Persons involved in patient care, food service, or day care, and experiencing gastrointestinal illness should notify their employer and be excluded until symptoms resolve, unless the cause of illness is determined to be non-infectious. Those positive for *E. coli* O157 may not return until two successive stool samples collected 24 hours apart and obtained no sooner than 48 hours after the last dose of antibiotics (if given) have tested negative.
- Children with diarrhea in day care centers must be sent home and advised to seek medical attention. Children who have been diagnosed with *E. coli* O157 must be excluded until two successive stool samples collected 24 hours apart and obtained no sooner than 48 hours after the last dose of antibiotics (if given) have tested negative.

Laboratory consultation is available from the Missouri State Public Health Laboratory (SPHL) by calling 573/751-3334, or 800/392-0272 (24/7).]

In Missouri, report all known or suspected cases to your local public health agency, or to the Missouri Department of Health and Senior Services (DHSS) at 800/392-0272 (24/7).

FURTHER INFORMATION

Further information is available at the following websites:

MODHSS website –

<http://health.mo.gov/living/healthcondiseases/communicable/communicabledisease/cdmanual/pdf/stec.pdf>

CDC website –

<http://www.cdc.gov/ecoli>
