

Health Advisory:

Shiga Toxin-producing *E. coli* O104 (STEC O104:H4) Infections in U.S. Travelers Returning from Germany

June 3, 2011

This document will be updated as new information becomes available. The current version can always be viewed at <http://www.dhss.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 Advisory
June 3, 2011

**FROM: MARGARET T. DONNELLY
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SUBJECT: Shiga Toxin-producing *E. coli* O104 (STEC O104:H4) Infections in U.S. Travelers Returning from Germany

A large outbreak of Shiga toxin-producing *Escherichia coli* O104:H4 (STEC O104:H4) infections is currently ongoing in Germany. Associated with these infections are a significant number of cases of hemolytic-uremic syndrome (HUS) requiring hospitalization, and in some instances intensive care, and deaths have occurred.

On June 3, the Centers for Disease Control and Prevention (CDC) issued a Health Advisory on this situation for health care providers. This Health Advisory is reproduced below, along with additional information for providers in Missouri. To date, three cases of HUS in the United States have been reported in persons who recently traveled to Hamburg, Germany. In Missouri, no cases in recent travelers to Germany have been reported.

Notice to Health Care Providers — Shiga Toxin-producing *E. coli* O104 (STEC O104:H4) Infections in U.S. Travelers Returning from Germany

**CDC Health Advisory
June 3, 2011**

CDC is monitoring a large outbreak of Shiga toxin-producing *Escherichia coli* O104:H4 (STEC O104:H4) infections ongoing in Germany. The responsible strain shares virulence characteristics with enteroaggregative *E. coli* (EAEC). As of May 31, 2011, the Robert Koch Institute (RKI) reported 470 patients with hemolytic uremic syndrome, or HUS (a severe condition associated with STEC infection that can lead to kidney failure), and nine deaths. The strain of STEC that is causing this illness, STEC O104:H4 is very rare. The illness that it causes is similar to that caused by *E. coli* O157:H7 or STEC O157:H7, which is also a Shiga toxin-producing *E. coli*.

CDC is not aware of any cases of STEC O104:H4 infection ever being previously reported in the United States. However, as of May 31, 2011, three cases of HUS in the United States have been reported in persons who recently traveled to Hamburg, Germany. CDC is working with state health departments to learn more about these suspected cases and obtain bacterial isolates for further characterization.

CDC has recommended that any person who has recently traveled to Germany and has signs or symptoms of STEC infection, or HUS, should seek medical care and let the medical provider know about the outbreak of STEC infections in Germany and the importance of being tested for STEC infection.

Symptoms of STEC infection include severe stomach cramps, diarrhea (which is often bloody) and vomiting. If there is fever, it usually is not very high. Most people get better within 5–7 days, but some patients go on to develop HUS, usually about a week after the diarrhea starts. The classic triad of findings in HUS is acute renal damage, microangiopathic hemolytic anemia (evidence of schistocytes and helmet cells on peripheral blood smear), and thrombocytopenia.

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. There may be indications for antibiotics in patients with severe intestinal inflammation if perforation is of concern. Of note, isolates of STEC O104:H4 from patients in Germany have demonstrated resistance to multiple antibiotics.

Guidelines to ensure as complete as possible detection and characterization of STEC infections include the following:

- All stools submitted for testing from patients with acute community-acquired diarrhea should be cultured for STEC O157:H7. These stools should be simultaneously assayed for non-O157 STEC with a test that detects the Shiga toxins or the genes encoding these toxins.
- Clinical laboratories should report and send *E. coli* O157:H7 isolates and Shiga toxin-positive samples to state or local public health laboratories as soon as possible for additional characterization.
- Specimens or enrichment broths in which Shiga toxin or STEC are detected, but from which O157:H7 STEC isolates are not recovered, should be forwarded as soon as possible to a state or local public health laboratory so that non-O157:H7 STEC can be isolated.
- 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 a state public health laboratory). In addition, serum can be sent to CDC (through a state public health laboratory) for serologic testing of common STEC serogroups.

The benefits of adhering to the recommended testing strategy include early diagnosis, improved patient outcome, and detection of all STEC serotypes.

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

All patients with Shiga toxin-positive diarrheal illness or HUS should be reported to [public health officials], regardless of a travel history to Germany. [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).]

Questions should be directed to DHSS' Bureau of Communicable Disease Control and Prevention at 573/751-6113 or 800/392-0272 (24/7).

For more information:

Robert Koch Institute

http://www.rki.de/EN/Home/homepage_node.html

EHEC O104:H4 (Robert Koch Institute)

http://www.rki.de/cIn_109/nn_217400/EN/Home/EHEC_O104_H4,templateId=raw,property=publicationFile.pdf/EHEC_O104_H4.pdf

Investigation Announcement: Outbreak of Shiga toxin-producing *E. coli* O104 (STEC O104:H4) Infections Associated with Travel to Germany (CDC)

<http://www.cdc.gov/ecoli/2011/ecolio104/>

Updated information for travelers to Germany is available on CDC's Travelers Web site at:

<http://wwwnc.cdc.gov/travel/>