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The purpose of this two-page surveillance update is to promote the control and prevention of **communicable disease (CD)** by providing clinically relevant information and resources to healthcare professionals in DuPage County.



Under the Microscope Enteric *E. coli*

For questions or to report suspect or known cases of enteric *E. coli* infection, please call the DuPage County Health Department at (630) 682-7400, ext. 7553.

Escherichia coli, or *E. coli*, are a large and diverse group of bacteria. Although most strains of *E. coli* are harmless, others can cause illness. Some kinds of *E. coli* can cause diarrhea, while others cause urinary tract infections, pneumonia, and other illnesses.¹ Enteric *E. coli* infections include ***E. coli* O157:H7** and other Shiga toxin-producing *E. coli* (**STEC**), enterotoxigenic *E. coli* (**ETEC**), enteropathogenic *E. coli* (**EPEC**) and enteroinvasive *E. coli* (**EIEC**), and must be reported to the local health department by telephone or facsimile as soon as possible, **within 24 hours**.²

Foodborne disease reporting is not only important for disease prevention and control, but for more accurate assessments of the burden of foodborne illness and identification of foodborne disease outbreaks in the community. This may lead to early identification and removal of contaminated products from the commercial market and education about proper food handling and preparation practices in restaurants and homes.³

The symptoms of STEC infections vary for each person but often include severe stomach cramps, diarrhea (often bloody), and vomiting. If there is fever, it usually is not very high (less than 101°F). Most people improve clinically within 5-7 days. Some infections are very mild, but others are severe or even life-threatening.⁴

STEC infections are usually diagnosed through **lab testing of stool specimens**. Identifying the specific strain of STEC involved is very important for public health purposes, such as investigating outbreaks. Most labs can determine if an STEC is present and can identify *E. coli* O157. To determine the O group of non-O157 STEC, strains must be sent to a State Public Health laboratory.⁴ CDC assists state and local public health authorities with epidemiologic investigations and the design of interventions to prevent and control food-related outbreaks. CDC also coordinates a national network of public health laboratories, called PulseNet, which performs "**molecular fingerprinting**" of bacteria (by pulsed-field gel electrophoresis or PFGE) to support epidemiologic investigations.³

E. coli O157:H7 is an emerging cause of foodborne illness. In some persons, particularly children younger than 5 years of age and the elderly, the infection can lead to destruction of red blood cells (hemolytic anemia) and acute kidney failure (also known as uremia). This complication, **hemolytic uremic syndrome (HUS)**, can lead to stroke, seizures, hospitalization, and death. About 2 percent to 7 percent of infections lead to HUS. In the United States, *E. coli* O157:H7 infection is the primary cause of HUS, which is the principal cause of acute kidney failure in children.⁵

ETEC infections are the most common cause of travelers' diarrhea and have caused several foodborne outbreaks in the United States. There are an estimated 79,420 cases of ETEC in the United States each year. EPEC and EIEC primarily infect children in the developing world.⁶

Enteric *E. coli* infections may be prevented by the following actions:

1. WASH YOUR HANDS thoroughly after using the bathroom or changing diapers and before preparing or eating food. WASH YOUR HANDS after contact with animals or their environments (at farms, petting zoos, fairs, even your own backyard).
2. COOK meats thoroughly. Ground beef and meat that has been needle-tenderized should be cooked to a temperature of at least 160°F/70°C. It's best to use a thermometer, as color is not a very reliable indicator of "doneness."
3. AVOID raw milk, unpasteurized dairy products, and unpasteurized juices (like fresh apple cider).
4. AVOID swallowing water when swimming or playing in lakes, ponds, streams, swimming pools, and backyard "kiddie" pools.
5. PREVENT cross contamination in food preparation areas by thoroughly washing hands, counters, cutting boards, and utensils after they touch raw meat.⁴

References:

1. www.cdc.gov/ecoli/
2. www.ilga.gov/commission/jcar/admincode/077/077006900C04000R.html
3. www.cdc.gov/mmwr/PDF/rr/rr5304.pdf
4. www.cdc.gov/nczved/dfbmd/disease_listing/stec_gi.html
5. www.idph.state.il.us/public/hb/hbecoli.htm
6. www.cdc.gov/ncidod/dbmd/diseaseinfo/diarrecoli_t.htm



