

What is *Escherichia coli* O157:H7?

Escherichia coli (*E. coli*) are bacteria that live in the intestines of healthy animals and humans. Most types of *E. coli* are harmless. *E. coli* O157:H7, however produces a powerful toxin that can result in severe illness or death. The combination of letters and numbers in the name relate to specific markers found on its surface which differentiate it from other types of *E. coli*.

The first reported outbreak caused by *E. coli* O157:H7 occurred in 1982 in the United States. The outbreak was linked to contaminated hamburgers and the illness earned the nickname “hamburger disease”. Illness from *E. coli* O157:H7 infection can occur from consuming undercooked ground beef, fermented meats, unpasteurized milk, juice or cider, contaminated vegetables, fruit or unchlorinated water. In May 2000, *E. coli* O157:H7 in the drinking water of Walkerton, Ontario killed seven people and sickened 2,300.

What are the symptoms of an *E. coli* O157:H7 infection?

Symptoms of illness typically begin about 2-10 days after the initial infection. The first signs of infection are severe and sudden abdominal cramps and eventually diarrhea which lasts for about one day. Bloody diarrhea may follow and can last from 2 - 5 days. Other symptoms include nausea, vomiting and, rarely, a mild fever. An *E. coli* infection is diagnosed by finding *E. coli* O157:H7 in a stool culture, which must be taken within the first 48 hours after the bloody diarrhea begins.

Other than replacing fluids, there is no special treatment for an *E. coli* infection and most people recover without antibiotics within 5-10 days. In the elderly, as well as children under the age of five, *E. coli* O157:H7 infections can cause a serious complication called Hemolytic Uremic Syndrome (HUS). Individuals with HUS suffer from a low red blood cell count (hemolytic anemia), a low platelet count (thrombocytopenia) and kidney damage (renal failure). There are some long-term consequences of HUS and it may result in death.

How is *E. coli* O157:H7 spread?

The *E. coli* O157:H7 bacterium lives in the intestines of healthy cattle, chickens, pigs, sheep and some wild deer. It can be spread in numerous ways. Preventative measures on farms or at farm-based events as well as during meat processing are essential. During slaughter the surface of meat can become contaminated with *E. coli* O157:H7 bacteria which can be spread through the meat when it is ground. *E. coli* O157:H7 on vegetables and fruit may come from soil, from contaminated water in contact with the produce or from individuals who have handled the produce. A person can also become infected with *E. coli* by swimming in or drinking sewage-contaminated water or cleaning up after a flood.

E. coli O157:H7 can be spread through person to person contact, by way of infected hand to mouth contact. People who have *E. coli* O157:H7 bacteria in their stool because they are infected can pass on the infection to other individuals if hygiene or handwashing habits are inadequate.

Environmental contamination with *E. coli* O157:H7 may be a public health problem as outbreaks have often been linked to contamination of areas in contact with animals. In 2001, a cluster of *E. coli* O157:H7 infections occurred following a county fair. It was speculated that the infection originated from a cow that contaminated the sawdust floor with feces. It is thought that the *E. coli* O157:H7 and sawdust then became airborne and contaminated multiple surfaces including food and drink. In this outbreak, 23 patients reported diarrhea and of these patients, 6 were hospitalized and 2 developed HUS.

How can the risk of an *E. coli* infection be reduced?

To reduce the risk of an *E. coli* infection:

- Cook ground beef thoroughly to an internal temperature of 71°C (160°F) and use a meat thermometer to ensure this temperature is reached. The colour of the meat is not a reliable indicator.
- Drink only pasteurized apple cider and milk.
- Wash all fruits and vegetables before eating.
- Wash hands thoroughly after using the washroom, handling diapers, pets, or livestock and before preparing or eating food.
- Clean and sanitize counter tops, cutting boards and utensils after contact with raw meats and poultry. Use 5 mL (1tsp) unscented chlorine bleach in 750 mL (3 cups) water to sanitize.
- Drink water that meets Canada's drinking water standards.
- Do not drink water from open streams and lakes.
- If ill with diarrhea, do not prepare or handle food that others will be eating.

Information Sources:

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For more information on E.coli or other food safety topics, please call the Food Safety Network toll-free at 1-866-50-FSNET or visit our website at www.foodsafetynetwork.ca

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July 15, 2004