What is Escherichia coli O157:H7? E. coli O157:H7 is one of hundreds of strains of the bacterium Escherichia coli. Although most strains are harmless, this strain produces a powerful toxin that can cause severe illness. E. coli O157:H7 has been found in the intestines of healthy cattle, deer, goats, and sheep.

How is E. coli O157:H7 spread? The organism can be found on most cattle farms, and it is commonly found in petting zoos and can live in the intestines of healthy cattle, deer, goats, and sheep.

Meat can become contaminated during slaughter, and organisms can be accidentally mixed into meat when it is ground. Bacteria present on the cow's udders or on equipment may get into raw milk. In a petting zoo, E.coli O157:H7 can contaminate the ground, railings, feed bins, and fur of the animals.

Eating meat (especially ground beef) that has not been cooked sufficiently to kill the bacteria can cause infection. Contaminated meat looks and smells normal. The number of organisms required to cause disease is very small.

Other known sources of infection include:

- sprouts
- lettuce
- spinach
- salami
- unpasteurized milk and juice
- and by swimming in or drinking sewage-contaminated water.

Bacteria in loose stool of infected persons can be passed from one person to another if hygiene or hand washing habits are inadequate. This is particularly likely among toddlers who are not toilet trained. Family members and playmates of these children are at high risk of becoming infected.

Young children typically shed the organism in their feces for a week or two after their illness resolves. Older children and adults rarely carry the organism without symptoms.

What illness does E. coli O157:H7 cause? People generally become ill from E. coli O157:H7 two to eight days (average of three to four) after being exposed to the bacteria.

Escherichia coli O157:H7 infection often causes severe bloody diarrhea and abdominal cramps. Sometimes the infection causes non-bloody diarrhea or no symptoms. Usually little or no fever is present, and the illness resolves in 5 to 10 days.
In some persons, particularly children under 5 years of age and the elderly, the infection can also cause a complication called hemolytic uremic syndrome (HUS), in which the red blood cells are destroyed and the kidneys fail. About 8% of persons whose diarrheal illness is severe enough that they seek medical care develop this complication.

In the United States, HUS is the principal cause of acute kidney failure in children, and most cases of HUS are caused by E. coli O157:H7.

**How is E. coli O157:H7 infection diagnosed?** Infection with E. coli O157:H7 is diagnosed by detecting the bacterium in the stool.

**How is the illness treated?** Most people recover without antibiotics or other specific treatment within 5 to 10 days. Antibiotics should not be used to treat this infection. There is no evidence that antibiotics improve the course of disease, and it is thought that treatment with some antibiotics could lead to kidney complications. Antidiarrheal agents, such as loperamide (Imodium®), should also be avoided.

**What can you do to prevent E. coli O157:H7 infection?**

- Cook all ground beef and hamburger thoroughly. The only way to know if it’s cooked thoroughly is to use a cooking thermometer.
- Ground beef should be cooked until a thermometer inserted into several parts of the patty, including the thickest part, reads at least 160º F.
- If you are served an undercooked hamburger or other ground beef product in a restaurant, send it back for further cooking. You may want to ask for a new bun and a clean plate, too.
- Avoid spreading harmful bacteria in your kitchen. Keep raw meat separate from ready-to-eat foods. Wash hands, counters, and utensils with hot soapy water after they touch raw meat. Never place cooked hamburgers or ground beef on the unwashed plate that held raw patties. Wash meat thermometers in between tests of patties that require further cooking.
- Drink only pasteurized milk, juice, or cider. Commercial juice with an extended shelf-life that is sold at room temperature (e.g. juice in cardboard boxes, vacuum sealed juice in glass containers) has been pasteurized, although this is generally not indicated on the label. Juice concentrates are also heated sufficiently to kill pathogens. Wash fruits and vegetables under running water, especially those that will not be cooked. Be aware that bacteria are sticky, so even thorough washing may not remove all contamination. Remove the outer leaves of leafy vegetables.
- Drink municipal water that has been treated with chlorine or another effective disinfectant.
- Avoid swallowing lake or pool water while swimming.
• Make sure that persons with diarrhea, especially children, wash their hands carefully with soap after bowel movements to reduce the risk of spreading infection, and that persons wash hands after changing soiled diapers. Anyone with a diarrheal illness should avoid swimming in public pools or lakes, sharing baths with others, and preparing food for others.