

# Shiga toxin producing *E. coli* Fact Sheet



Maine Center for Disease  
Control and Prevention

An Office of the  
Department of Health and Human Services

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## What are Shiga toxin producing *Escherichia coli* (STEC)?

*E. coli* are bacteria that normally live in the intestines of people and animals. There are hundreds of different strains of *E. coli* and most strains do not make people sick. Some strains of *E. coli* - including *E. coli* O157:H7 - produce a powerful toxin (chemical) called "Shiga toxin" that can make people sick.

## What are the symptoms of STEC infections?

The most common symptoms include severe diarrhea and stomach cramps. Sometimes the diarrhea is bloody. Some people may vomit or have a fever, but this is less common. Some people don't look or feel sick at all. Symptoms usually begin 1-10 days after swallowing the bacteria (average of 3-4 days). Most people get better within 5-7 days.

In some people, particularly children under 5 years of age, women, and the elderly, the infection can cause a complication called hemolytic uremic syndrome (HUS). Clues that a person is developing HUS include decreased frequency of urination, feeling very tired, and losing pink color in cheeks and inside the lower eyelids. Persons with HUS should be hospitalized because their kidneys may stop working and they may develop other serious problems. Most persons with HUS recover within a few weeks, but some suffer permanent damage or die.

## How is STEC spread?

Infections start when you swallow STEC—in other words, when you get tiny (usually invisible) amounts of human or animal feces in your mouth.

Consumption of contaminated food, unpasteurized (raw) milk, water that has not been disinfected, or contact with cattle or the feces of infected people can result in illness. Sometimes the contact is obvious (e.g. working with cows at a dairy or changing diapers), but sometimes it is not (like eating an undercooked hamburger or a contaminated piece of lettuce).

People have gotten infected by swallowing lake water while swimming, touching the environment in petting zoos and other animal exhibits, and by eating food prepared by ill people who did not wash their hands well after using the toilet.

## Where does STEC come from?

STEC live in the intestines of healthy animals, including cattle, goats, sheep, deer, and elk. The major source for human illnesses is cattle. STEC that causes human illness generally does not make animals sick. Other kinds of animals, including pigs and birds, sometimes pick up STEC from the environment and may spread it.

## How do you know for sure if you have an STEC infection?

The laboratory will test a sample of your stool to see if shiga toxin is present. Anyone who suddenly has diarrhea with blood in it should get their stool tested for STEC.

## How is the illness treated?

Antibiotics should not be used. The use of antibiotics may increase the risk of HUS. Drink plenty of liquids to replace the fluids being lost. Do not try to stop the diarrhea by taking antidiarrheal medications like Imodium®; it can make the illness worse.

People who develop HUS need to be treated in the hospital where they may receive blood transfusions and kidney dialysis.

## What are the long-term consequences of infection?

People who only have diarrhea usually recover completely. A small number of people who develop HUS have long term complications such as blindness, paralysis, persistent kidney failure, and the effects of having part of their bowel removed. Many people with HUS have mild kidney problems many years later.

## How can STEC infections be prevented?

- Cook meats thoroughly. Use a meat thermometer, as color is not a very reliable

indicator of “doneness.” If no thermometer is available, do not eat ground beef patties that are still pink in the middle.

- Ground beef, pork, veal or lamb at least 165°F
  - Ground turkey or chicken at least 160°F
  - Roasts and Steaks 145°F
  - Poultry at least 165°F
  - Pork and ham 145°F
  - Fish 145°F
- Keep raw meat separate from ready-to-eat foods like salads and vegetables you want to eat raw. Do not put cooked hamburgers or ground beef on the same plate that held raw patties. Wash the meat thermometer in between tests of patties that require further cooking.
  - Wash hands, counters, and utensils with hot soapy water after they touch raw meat.
  - Avoid raw milk, unpasteurized dairy products, and unpasteurized juices (like fresh apple cider).
  - Wash fruits and vegetables under running water, especially those that will not be cooked.
    - Remove the outer leaves of leafy vegetables.
    - Children under 5 years of age, people with weak immune systems, and the elderly should avoid eating fresh sprouts.
  - Avoid swallowing water when swimming or playing in lakes, ponds, streams, swimming pools, and backyard “kiddie” pools.
  - People with diarrhea should
    - Avoid sharing baths with others
    - Avoid preparing food for others
    - Not swim in public swimming pools, lakes, waterparks or other bodies of water until 2 weeks after diarrhea ends
  - Wash hands thoroughly
    - After using the bathroom or changing diapers and
    - Before preparing or eating food
    - After contact with animals or their environments (at farms, petting zoos, fairs, even your own backyard)

### **Are there any restrictions for people with STEC infection?**

Yes. The Maine CDC will determine which restrictions apply in a specific situation. An infected food handler, child care worker or health care worker may be required to stay out of work until they have two negative stool cultures taken at least 24 hours after diarrhea has stopped and 48 hours after last dose of antibiotics, if used. Contact Maine CDC at 1-800-821-5821 for specific information.

### **STEC in Maine**

The Maine CDC immediately investigates all reported cases of STEC infections to identify sources of public health concern and to prevent further spread of the disease.

### **Where can I get more information?**

For more information contact your healthcare provider or local health center. You can also contact the Maine Center for Disease Control and Prevention by calling 1-800-821-5821 or visiting the [www.maine.gov/idepi](http://www.maine.gov/idepi). The federal Centers for Disease Control and Prevention website - <http://www.cdc.gov/ecoli> – is another excellent source of health information.