



# E. COLI BACTERIA

## Escherichia Coli (E. coli)

Escherichia coli (E. coli) is a bacterium normally found in the intestinal tract of humans and animals such as cows, pigs and sheep. Some types of E. coli are harmless, and others can make people sick. It can cause diarrhea, urinary tract infections and even kidney failure.

There is a specific type of E. coli bacteria called O157:H7 that produces a harmful toxin which damages red blood cells, the kidneys and other organs. This can lead to a serious complication called Hemolytic-Uremic Syndrome (HUS), more commonly known as *Hamburger Disease*.

HUS is the most common potentially preventable cause of kidney failure in children in North America and is most common in children under the age of 5 years. Half of the people with HUS will need dialysis during the acute stages of the illness.

### What are the signs and symptoms of this type of E. coli infection?

- Diarrhea, which is often bloody and may last only a very short time
- Vomiting
- Severe stomach cramps or abdominal tenderness
- A mild fever (less than 38° C or 101° F) is sometimes present

The symptoms of an E. coli infection begin to appear 3 to 4 days after exposure to the bacteria, and they may last 5 to 7 days. The symptoms may be mild, or they can be severe and life-threatening. Very young children could be at high-risk of seizures and strokes.

- Good hydration, including intravenous fluids can decrease the risk of HUS. Because of this, it's important to go to the emergency department if you think someone has diarrhea from E. coli.

## What are the signs and symptoms of HUS?

- Paleness
- Fatigue
- Decrease in urine output
- Irritability
- Swelling

## What are the causes of this type of E. coli infection?

### 1. Contaminated Water

Untreated or surface water from a creek, stream, or irrigation may be contaminated with E. coli. Drinking this water or using it to prepare food may cause E. coli infection.

### 2. Contaminated Food

The most common foods that contain harmful E. coli are raw, undercooked, or ground beef, pork, lamb and poultry. Unwashed fruits and vegetables such as lettuce or fallen apples can become contaminated with E. coli bacteria through soil infected with manure or contaminated irrigation water.

### 3. Hand-to-mouth spread of E. coli type

E. coli can spread from person to person in families, daycares, institutions, or anywhere there is an outbreak of diarrhea due to E. coli. Proper hygiene and food preparation can stop the spread of an E. coli outbreak.

### 4. Poor Hygiene

It's very important to wash your hands thoroughly after using the toilet. If you come into contact with E. coli contaminated feces and then touch food, toys, surfaces, or other people, you may transfer the bacteria. If someone touches the contaminated surface and then touches their mouth, they could become infected.

### 5. Improper Food Preparation

E. coli can spread when raw food contaminates cooked or ready to eat food. For example, using the same plate for raw meat, then cooked meat; or wiping up drops of blood from raw meat, then wiping the table, counter or a child's hands and face with the same cloth.

## E. Coli Prevention and Safety Tips

You can help protect yourself and your family against E. coli infection by following these tips:

- If you aren't sure of a water source, always boil the water for 5 minutes before using it. This will destroy bacteria, viruses and parasites.

- Avoid unpasteurized milk, juices and ciders.
- Always wash all fruits and vegetables, including the ones you cut or peel (e.g. oranges or cucumbers).
- When buying meat, make sure the package isn't dripping juices and make sure that children don't touch the meat packaging.
- Refrigerate meat as soon as possible after purchase. Freeze all meat following your purchase unless you are going to use it within 48 hours.
- Separate, don't cross-contaminate. Store meat, poultry, and seafood at the bottom of the refrigerator to prevent juices from your meat from spilling onto other foods.
- Always thaw meat in the microwave or overnight in the fridge. Never thaw meat on the counter, in the sink, or at room temperature.
- Use a separate cutting board for raw meat, poultry and seafood. Do not use the same plate for raw and cooked meat.
- Cook ground meats, chicken, and pork thoroughly. Use a digital instant read thermometer and cook to a safe internal temperature - ground meat to 71°C (160°F), ground poultry to 74°C (165°F). The juices should run clear.
- Immediately following meat preparation, wash your hands thoroughly to avoid spreading bacteria from the meat to other foods.
- Always use hot and soapy water or a diluted bleach solution (1 tsp/5ml bleach to 3 cups/750mL water) to wash the utensils and cutting surfaces used in handling raw meat.
- Change sponges, dishcloths, towels, and aprons often.
- Keep hot food hot (at or above 60°C or 140°F) and cold food cold (at or below 4°C or 40°F).
- Always wash hands thoroughly with soap and warm water after using the toilet, changing diapers, before preparing food and after visits to farms or petting zoos.
- Using antibiotics for E. coli infections can increase the risk of HUS. They should be avoided if possible.

The Kidney Foundation would like to acknowledge and thank the members of the Kidney Foundation's National Programs & Public Policy committee for their contributions and professional expertise in the development of this resource, and especially, Dr. Allison Dart, Dr. Aviva Goldberg and Dr. Kristen Pederson, International Pediatric Dialysis Network, Winnipeg Children's Hospital, for reviewing this information and providing their input.