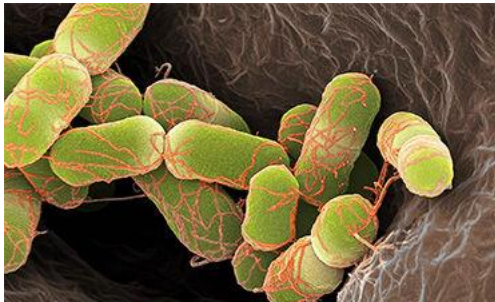


CCU DISEASE HUNTERS

TOXIC E COLI

The following information was taken from the [CDC website](#):

Overview



E. coli are germs called bacteria. They are found in many places, including in the environment, foods, water, and the intestines of people and animals.

Most *E. coli* are harmless and are part of a healthy intestinal tract. *E. coli* help us digest food, produce vitamins, and protect us from harmful germs.

But some *E. coli* can make people sick with diarrhea, urinary tract infections, pneumonia, sepsis, and other illnesses. This website focuses on the [kinds of *E. coli*](#) that cause diarrhea.

People can get infected after swallowing *E. coli*.

This can happen through contaminated food or water or contact with animals, environments, or other people.

Some people are more likely to get infected.

Groups of people who are at [increased risk](#) for *E. coli* infection include:

- Children younger than 5
- Adults 65 and older
- People with weakened immune systems
- International travelers

E. coli infection can be serious.

Infection with Shiga toxin-producing *E. coli* (STEC) can lead to a serious health condition called [hemolytic uremic syndrome](#) (HUS). HUS can lead to kidney failure, permanent health problems, and even death.



E. coli infection can be prevented.

The good news is that you can [take steps](#) to help keep yourself and your family safe.

E. coli that cause diarrhea

E. coli are a large group of bacteria (germs).

Most *E. coli* are harmless and are part of a healthy intestinal tract. These *E. coli* help digest food, produce vitamins, and protect us from harmful germs.

But some *E. coli* can make people sick, including six kinds that cause diarrhea. They are

- **STEC: Shiga toxin-producing *E. coli* (Our test)**
- ETEC: Enterotoxigenic *E. coli*
- EPEC: Enteropathogenic *E. coli*
- EIEC: Enteroinvasive *E. coli*
- EAEC: Enteraggative *E. coli*
- DAEC: Diffusely adherent *E. coli*

Ways people get infected

People can get infected with these *E. coli* in several ways. These ways include

- Eating contaminated food or drinking contaminated water
- Contact with animals, their poop, or their environment
- Contact with the poop of an infected person

Not all *E. coli* are alike

All six kinds of *E. coli* can cause diarrhea. Some kinds can cause bloody diarrhea, watery diarrhea, or both.

Some of these *E. coli* can cause other symptoms, including stomach cramps, vomiting, and fever.

Other things that vary for these *E. coli* include

- Groups of people most affected
- Major sources of infection
- Where infection is more likely to happen



At a glance

This table describes the six kinds of *E. coli* that cause diarrhea.

Kind of infection	Common symptoms	Groups most affected	Major sources	Where infection is more likely
STEC	<ul style="list-style-type: none">• Bloody diarrhea• Severe stomach cramps• Vomiting	<ul style="list-style-type: none">• Children younger than 5 years• Adults 65 years and older	<ul style="list-style-type: none">• Contaminated food (especially leafy greens and ground beef)• Unsafe water• Animals (especially cattle), their poop, or their environment• Poop of an infected person	<ul style="list-style-type: none">• High-income countries

CCU Disease Hunter Screen information

Undergraduate students at Coastal Carolina University working with Dr Paul E. Richardson have developed a genomic based test to detect the bacteria *E coli* using primer specific for one gene in *E coli*; *Shiga toxin*. Primers were identified from literature that were specific for *E coli*. In the lab the students refined the method using polymerase chain reaction to amplify small genetic sequences to identify the bacteria based on specific size DNA fragments. Water samples were collected, and DNA was isolated from the samples and screened for *E coli*. If a band of the expected size was present, that was called a positive result.

Please Note: This test only detects the presence of the disease in water. At this time, we are studying the factors that are responsible for its presence and what level of bacteria is needed to cause disease. This is a research project and not a clinical test. **This test CANNOT determine if there is a threat to the community**, it only determines the presence of the disease in a community. More work must be done before we can make those statements.

If you have any questions, please contact: **Dr Paul E. Richardson** prichar@coastal.edu
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