

Shiga Toxin Producing *E. coli* (STEC)

STEC Quick Fact: STEC infections are commonly associated with ground beef, but illnesses and outbreaks in recent years have occurred after eating fresh produce items.

OVERVIEW

Shiga Toxin Producing *E. coli* (STEC) refers to a certain kind of *E. coli* bacteria that produces a toxin that often results in disease.

- It is often characterized by bloody diarrhea, severe abdominal cramping, vomiting and sometimes fever.
- The most common serogroup is O157. However, there are other serogroups including O26, O45, O103 and O111.

SURVEILLANCE

- All Georgia physicians, laboratories and other health care providers are required by law to report both lab-confirmed and clinical diagnoses of cases of STEC.
- Cultures should be sent to the Georgia Public Health Laboratory for confirmation, serogroup determination, and DNA fingerprinting.

TOP SEROGROUPS IN GEORGIA, 2008

Serogroup	#	%
1 O157	44	68
2 O26	7	11
3 O103	6	9
4 O111	3	5
5 O145	2	3
6 O45	2	3

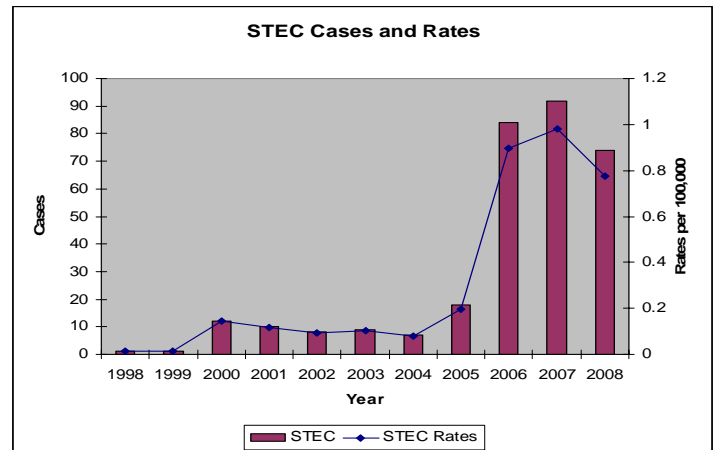
- Active Surveillance for Shiga Toxin Producing *E. coli* is conducted through FoodNet. For more information, please visit:

- <http://health.state.ga.us/eip/>
- <http://www.cdc.gov/foodnet/>

INCIDENCE

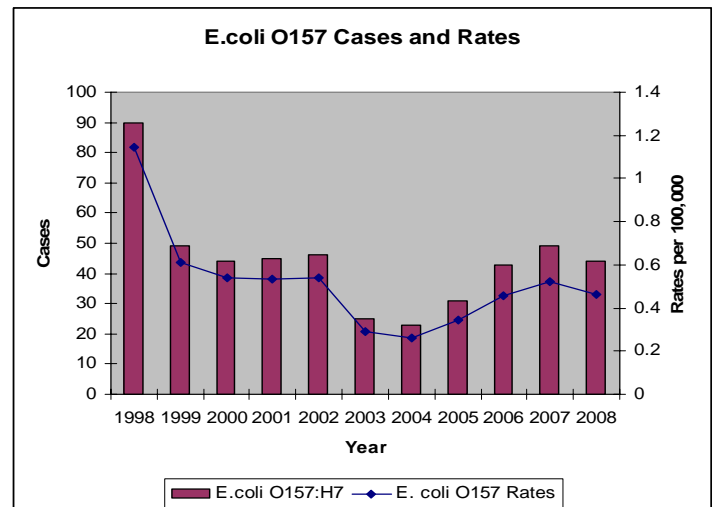
In 2008, 74 cases of STEC were reported, for a rate of 0.78/100,000 persons (Figure 1). Of those 74 cases, 44 were *E. coli* O157 for a rate of 0.46/100,000 persons. Although the incidence of *E. coli* O157 has remained relatively stable over time, the incidence of STEC cases overall has been increasing. This may be due to the increase in the number of labs with shiga-toxin testing capabilities.

Figure 1. STEC Cases and Rate*



*includes O157, non-O157 serogroups, and STEC positive cultures from which no bacteria was recovered

Figure 2. *E. coli* O157 Cases and Rate



DEMOGRAPHICS

- In 2008, of the reported cases with known race and ethnicity, 68% of cases were White, 13% of cases were Black, 10% of cases were Hispanic and 9% of cases were other race/ethnicities.
- Consistent with the described epidemiology of STEC, in Georgia, higher rates of disease appear in young children, followed by young adults (Figure 4).

Figure 3.

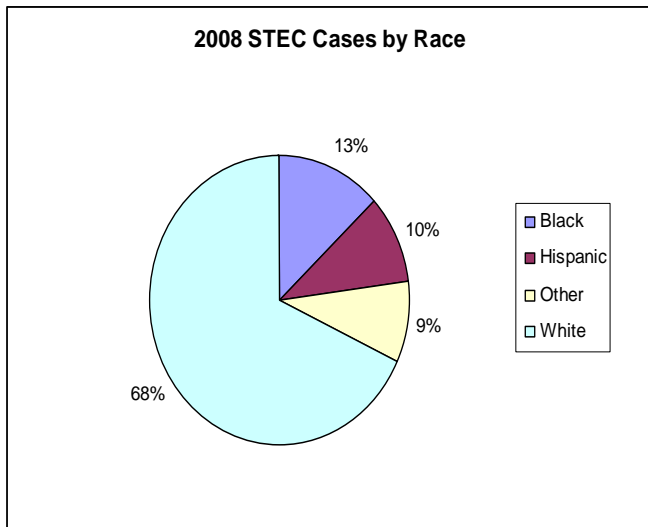
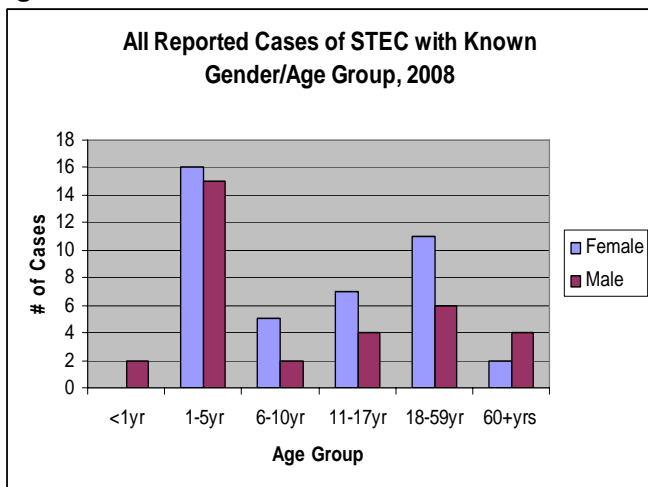


Figure 4.



IMPACT OF STEC

Hospitalizations & Deaths

Of the total 74 cases of STEC in 2008, 32% of individuals were hospitalized, while an additional 14% of individuals were seen in the Emergency Room; 1 STEC patient died.

Outbreaks

In 2008, one outbreak associated with ground beef served at a restaurant resulted in 8 cases of *E. coli* O157 and 4 cases of hemolytic uremic syndrome (HUS).

PREVENTION & RESEARCH

Food Preparation Tips

1. Always treat raw poultry, beef and pork as if they are contaminated and handle accordingly:
 - Wrap fresh meats in plastic bags at the market to prevent juices from dripping on other foods.
 - Refrigerate foods promptly; minimize holding time at room temperature.
 - Cutting boards and counters used for meat preparation should be washed immediately after use to prevent cross contamination with other foods.
 - Avoid eating raw or undercooked meats (internal cooking temperature for ground beef should be 160 degrees F).
2. Avoid consuming raw (unpasteurized) milk.
3. Thoroughly wash raw produce items before eating.

For more information, visit: www.foodsafety.gov

Hand Washing

1. Encourage careful hand washing before and after food preparation.
2. Always wash hands thoroughly after handling animals (pets, zoo, etc.) or feces of any kind.

FoodNet Projects

- Monitoring trends in STEC Epidemiology over time
- Surveying laboratories and clinicians about STEC diagnostics
- STEC interview studies in cooperation with the Centers for Disease Control and Prevention to evaluate risk factors for the development of HUS and to better characterize non-O157 STEC infections

For more information:

<http://health.state.ga.us/epi/foodborne>