

Escherichia coli Infection, Shiga Toxin-Producing

Agent: Shiga toxin-producing *Escherichia coli* (bacteria), also known as Verocytotoxin-producing *E. coli* (VTEC), enterohemorrhagic *E. coli* (EHEC) or STEC for short.

Mode of Transmission: Ingestion of food or water contaminated with human or animal feces, or direct transmission from infected persons or animals. Fomites and contaminated environments may also play a role in transmission.

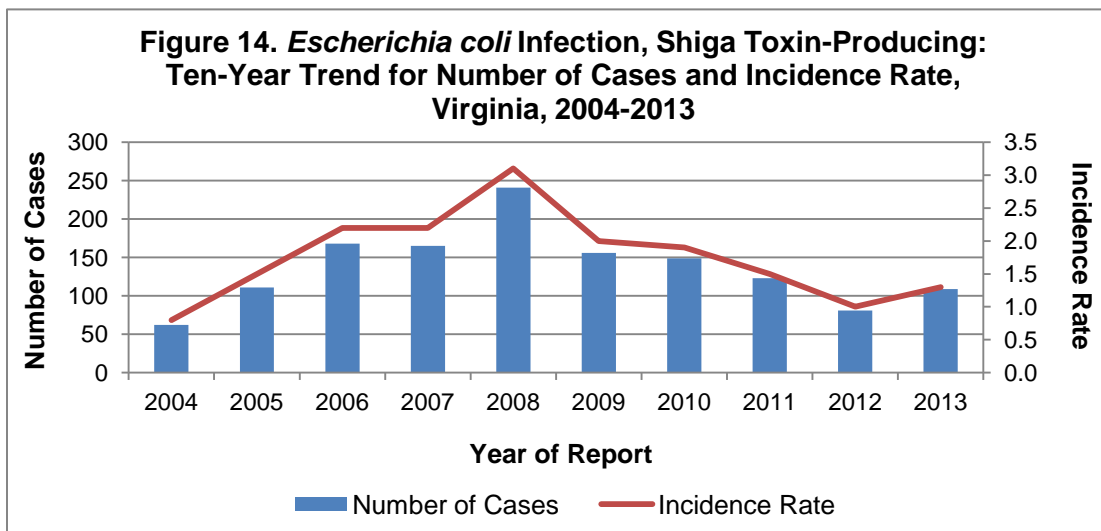
Signs/Symptoms: Diarrhea, which may be bloody or non-bloody, and severe abdominal cramps with little or no fever. In some people, including children less than five years of age and older adults, the infection can cause a complication called hemolytic uremic syndrome (HUS), in which the red blood cells are destroyed and the kidneys fail.

Prevention: Hands should be washed carefully after using the bathroom, after changing diapers or cleaning a child who has used the bathroom, after handling animals or their feces, and before preparing and eating food. All ground beef should be cooked thoroughly to an internal temperature of at least 160°. Raw milk, unpasteurized dairy products, and unpasteurized juices should not be consumed.

Other Important Information: The most virulent serotype in the Shiga toxin-producing pathotype is *E. coli* O157:H7. In the U.S., *E. coli* O157:H7 is the serotype most commonly associated with hemolytic uremic syndrome (HUS). See the section on Hemolytic Uremic Syndrome in this report for more information. Shiga toxin-producing *E. coli* infection has been a reportable condition in Virginia since 1999.

Escherichia coli Infection, Shiga Toxin-Producing: 2013 Data Summary	
Number of Cases:	109
5-Year Average Number of Cases:	150.0
% Change from 5-Year Average:	-27%
Incidence Rate per 100,000:	1.3

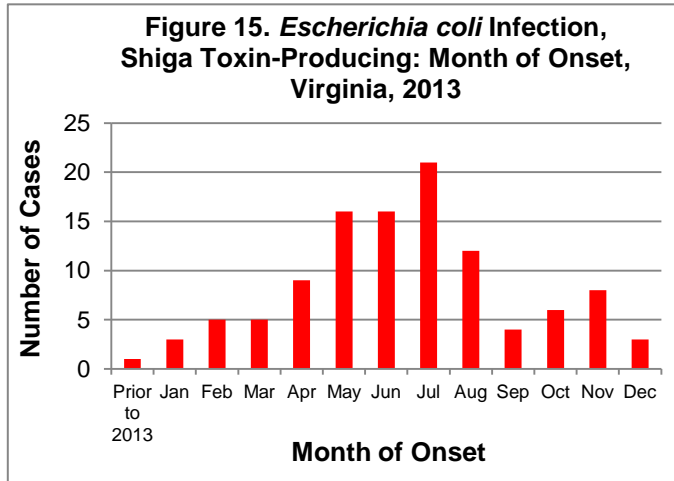
There were 109 cases of Shiga toxin-producing *Escherichia coli* (STEC) infection reported in 2013. This is a 35% increase from the 81 cases reported in 2012, but a 27% decrease from the five-year average of 150 cases per year (Figure 14).



STEC may infect any age group but the majority of cases occur in children. Children and the elderly are also more likely to develop severe illness. The highest rate of infection was seen in the less than one year age group (7.9 per 100,000), followed by the 1-9 year age group (4.2 per 100,000). Other age groups had incidence rates between 0.3 and 2.1 per 100,000. Race was reported for 71% of the cases. Among those with a reported race, the incidence rate was higher in the white population (1.1 per 100,000) than in the black and “other” populations (0.4 to 0.5 per 100,000, respectively). Females and males had a similar incidence of infection (1.3 per 100,000, each).

The northwest region experienced the highest incidence rate (3.1 per 100,000), followed by the southwest region (2.0 per 100,000). Incidence rates in the other regions were between 0.3 and 1.3 per 100,000. Incidence by locality can be seen in the map below.

While infections occurred throughout the year, reported cases peaked during the warmer months of May through August (Figure 15). Two outbreaks attributed to STEC were reported during 2012. These two outbreaks involved multi-state clusters with Virginia having one case involved in each outbreak. Both outbreaks were food-borne. Another suspected outbreak of *E. coli* infection in 2013 was related to recreational water exposure at a camp. Five cases were involved in this outbreak; however, these cases are not reflected in the Virginia count of 2013 STEC infections, as the only confirmed case resided out of state and the remaining four cases did not meet the national surveillance case definition for STEC.



Escherichia coli Infection, Shiga Toxin-Producing Incidence Rate by Locality, Virginia, 2013

