

## **Escherichia coli Infection, Shiga Toxin-Producing**

**Agent:** Shiga toxin-producing *Escherichia coli* (bacteria).

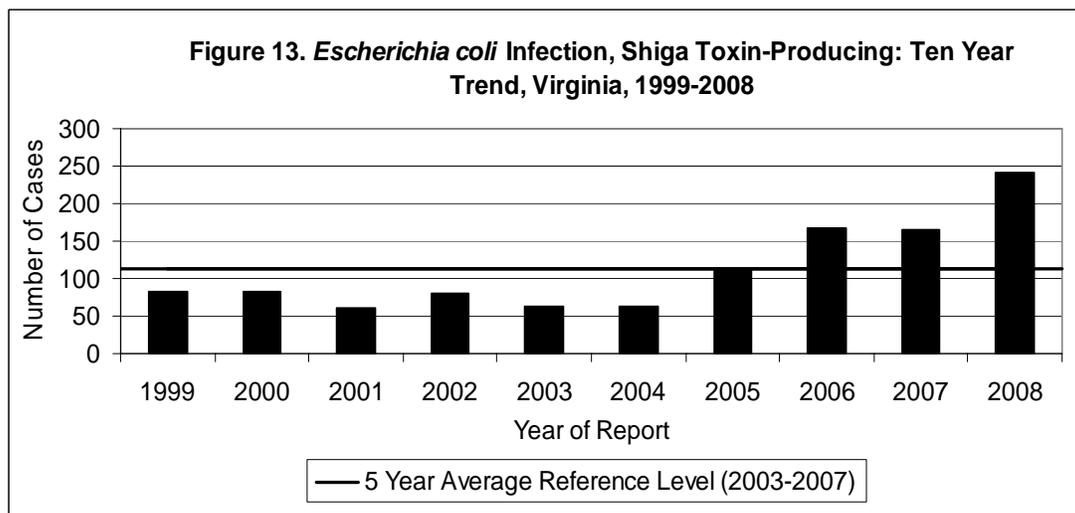
**Mode of Transmission:** From food or water contaminated with human or animal feces, or person-to-person from infected symptomatic people or from carriers. Fomites and contaminated environment may also play a role in transmission.

**Signs/Symptoms:** Non-bloody to completely-bloody diarrhea 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:** Careful hand hygiene after each toilet visit 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 section on Hemolytic Uremic Syndrome for more information.

Shiga toxin-producing *E. coli* infection has been a reportable condition in Virginia since 1999. During 2008, 241 cases were reported in Virginia. This is a 46% increase from 2007, and a greater than 100% increase from the five year average of 113.8 cases per year (Figure 13). The increase in cases in 2008 is in part attributed to a large outbreak that occurred during the summer months.



The highest rate of infection was seen in the less than one year age group (15.4 per 100,000), followed by the 10-19 year age group (7.5 per 100,000) and the 1-9 year age group (7.1 per 100,000). The other age groups had incidence rates between 0.9 and 1.9 per 100,000. Forty-eight percent of cases did not have a reported race. Among those with race information, the rate for the white population was higher (1.8 per 100,000) than rates

for the black and “other” populations (1.2 and 0.6 per 100,000, respectively). Females and males had similar incidence (2.9 and 3.3 per 100,000, respectively). The northern and northwest regions reported the highest incidence rates (5.2 and 4.9 per 100,000), while rates in the other regions ranged from 1.6 to 1.8 per 100,000, with the lowest rate observed in the central region. Cases occurred throughout the year, but peaked in the warmer months, between May and August (Figure 14). The large number of cases reported in July was associated with an outbreak that occurred at a summer camp. The outbreak was attributed to undercooked ground beef. Of the 59 camp attendees reporting signs or symptoms of illness, 34 had laboratory confirmation of *E. coli* O157:H7 infection.

