

Health Alert

Cluster of Shiga-toxin *E. coli* in Philadelphia

September 5, 2019

Since August 30th, the Philadelphia Department of Public Health has received fourteen reports of Shiga-toxin producing *Escherichia coli* among persons ages 7 – 90 years. All affected persons presented with signs of acute gastroenteritis with bloody and non-bloody diarrhea. Case investigation is ongoing but thus far has identified a few shared restaurant exposures. Ongoing case identification is essential to better identify exposure risks, ensure appropriate clinical management and implement prevention strategies.

Shiga toxin-producing *Escherichia coli* (STEC)

STEC is one of five types of diarrhea-producing *E. coli* strains and causes diarrhea with hemorrhagic colitis due to production of Shiga toxin. STEC O157:H7 is the serotype most frequently associated with outbreaks and significant illness but other serotypes can also cause disease. Symptoms usually begin with non-bloody diarrhea that can progress to bloody diarrhea after 2-3 days when hemorrhagic colitis develops. Severe abdominal pain and fever may also be present. An important complication of STEC enteritis is hemolytic-uremic syndrome (HUS), defined by the presence of hemolytic anemia, low platelets and acute renal dysfunction. HUS develops 7-14 days after diarrhea onset and can result in renal failure, neurologic symptoms (seizures and coma), and death. Approximately 6% of persons with STEC O157 will develop HUS (compared to ~1% with other STEC serotypes). HUS risk is highest in children ages 1-4 years.

Exposure to STEC most frequently occurs through contact with food or water contaminated by human or animal stool or through contact with an infected person or fomites. STEC is shed in the stool of cattle and other ruminant animals. Thus, outbreaks have been associated with undercooked beef, unpasteurized milk and juice, raw leafy vegetables as well as petting zoos. Person to person transmission can also happen in households and childcare facilities because the infectious dose is small.

STEC Diagnosis, Management and Prevention

Providers should suspect STEC in patients presenting with signs of acute gastroenteritis with or without bloody diarrhea, or symptoms compatible with HUS. Stool specimens collected for routine bacterial culture should also be tested for Shiga-toxin AND cultured for *E. coli* O157. There are multiple commercially available PCR and enzyme immunologic assays (EIA) available to identify STEC through detection of shiga toxin. Not all STEC infections will be due to *E. coli* O157. All Shiga toxin positive stool samples and *E. coli* O157 isolates should be sent to the PA Department of Health Bureau of Laboratories for further testing. Patients with HUS may test negative for HUS but this does **NOT** rule out STEC as a cause. Providers should also:

- Refrain from using antibiotics for patients with suspected STEC. Antibiotics may increase the risk of HUS.
- Report all cases of suspected and confirmed STEC to the health department immediately. To report, call (215) 685-6742 during business hours or (215) 686-4514 (after hours, ask for Division of Disease Control on-call staff).
- Advise patients with suspected or confirmed STEC who work in child care, food preparation or healthcare settings that they should not return to work or school until symptoms have resolved and they have had 2 negative stool cultures.
- Emphasize the importance of good hand hygiene, thoroughly cooking meat and avoidance of unpasteurized dairy and juice products.

Resources: CDC *E. coli* Information for Healthcare Providers: <https://www.cdc.gov/ecoli/clinicians.html>

SUMMARY POINTS

- There is a cluster of Shiga-toxin *E. coli* in Philadelphia.
- The cluster may be related to shared exposures at restaurants.
- Providers should test for Shiga toxin and *E. coli* O157 in all patients with acute community-onset gastroenteritis.
- Notify PDPH [business hours: (215) 685-6742, after hours: (215) 686-4514 of any patient with confirmed or suspected STEC].