

Shiga toxin-producing *Escherichia coli* (STEC)

2016 North Carolina Case Definition

Background

Shiga-toxin producing *Escherichia coli* (STEC) can cause illness that ranges from mild diarrhea to bloody diarrhea, and life-threatening hemolytic uremic syndrome (HUS). STEC are categorized into serogroups by their somatic O antigen. The STEC serogroup most commonly identified and associated with severe illness in the United States is *E. coli* O157; however, there are over 50 other serogroups that can cause illness.

Clinical Description

An infection of variable severity characterized by diarrhea (often bloody) and abdominal cramps. Illness may be complicated by Hemolytic Uremic Syndrome (HUS). (Note, some clinicians still use the term thrombotic thrombocytopenic purpura [TTP] for adults with post-diarrheal HUS.); asymptomatic infections also may occur, and the organism may rarely cause extraintestinal infections.

Laboratory Criteria for Diagnosis

Laboratory confirmed

- Isolation of STEC (i.e. culture) from a clinical specimen. *Escherichia coli* O157 isolates that produce the H7 antigen may be assumed to be Shiga toxin-producing. For all other *E. coli* isolates, Shiga toxin production (i.e. EIA) or the presence of Shiga toxin genes (i.e. PCR) must be determined to be considered STEC.
- Both asymptomatic infections and infections at sites other than the gastrointestinal tract, if laboratory confirmed, are considered confirmed cases that should be reported.

Supportive laboratory results

- A case with isolation of *E. coli* O157 (i.e. culture) from a clinical specimen, without confirmation of H antigen or Shiga toxin production
- Identification of an elevated antibody titer (i.e. serology) to a known STEC serotype from a clinically compatible case
- Identification of Shiga toxin (i.e. EIA) or the presence of Shiga toxin genes (i.e. PCR) in a specimen from a clinically compatible case without the isolation of STEC

Epidemiologic Linkage

A clinically compatible case that is epidemiologically linked to a confirmed or probable case.

Case Classification

Suspected

- A case of postdiarrheal HUS (see HUS case definition) OR
- Identification of Shiga toxin (i.e. EIA) or the presence of Shiga toxin genes (i.e. PCR) in a specimen from a clinically compatible case without the isolation of STEC

Probable

- A case with isolation of *E. coli* O157 (i.e. culture) from a clinical specimen, without confirmation of H antigen or Shiga toxin production. OR
- A clinically compatible case who is a contact of an STEC case or is a member of a defined risk group during an outbreak. OR
- Identification of an elevated antibody titer (i.e. serology) to a known STEC serotype from a clinically compatible case

Confirmed

- A case that meets the confirmed laboratory criteria for diagnosis. When available, O and H antigen serotype characterization should be reported.

Comment(s)

Laboratory-confirmed isolates are also reported via the Laboratory-based Enteric Disease Surveillance (LEDS), formerly known as the Public Health Laboratory Information System (PHLIS), which is managed by the Enteric Diseases Epidemiology Branch and the Biostatistics and Information Management Office, Division of Foodborne, Waterborne and Environmental Diseases, National Center for Emerging Zoonotic Infectious Diseases, CDC.

CSTE recommends that all states and territories collect the disease-specific data elements listed in this position statement for all STEC cases.