


Shiga Toxin-Producing *Escherichia coli* (STEC) Infection

Merlin disease code: 00800 *Escherichia coli*, Shiga Toxin-Producing (STEC) Infection

[Paper case report form](#)

-  Isolates for all cases must be sent to the Bureau of Public Health Laboratories in Jacksonville; all Shiga toxin, Shiga toxin gene, *E. coli* O157 gene, enterohemorrhagic *E. coli* (EHEC), or STEC-positive specimens must also be sent
- Merlin extended data required

Background

STEC infections have variable severity characterized by diarrhea (often bloody) and abdominal cramps. Illness may be complicated by hemolytic uremic syndrome (HUS). Some clinicians still use the term thrombotic thrombocytopenic purpura (TTP) for adults with post-diarrheal HUS.

Clinical criteria for case classification

Presumptive:

Either abdominal cramps or diarrhea.

Supportive:

Diagnosis of post-diarrheal HUS (TTP).

Laboratory criteria for case classification

Confirmatory:

Either of the following:

- Isolation of *E. coli* O157:H7 from a clinical specimen
- **Or** both of the following:
 - Detection of Shiga toxin or Shiga toxin genes in a clinical specimen using a culture-independent diagnostic test (CIDT)
 - **And** isolation of *E. coli* from a clinical specimen.

Presumptive:

Both of the following:

- Isolation of *E. coli* O157 from a clinical specimen without confirmation of H antigen
- **And** no known detection of Shiga toxin or Shiga toxin genes in a clinical specimen using a CIDT.

Supportive:

One or more of the following:

- Identification of an elevated antibody titer against a known Shiga toxin-producing serogroup of *E. coli*,
- **Or** detection of *E. coli* O157 or STEC/enterohemorrhagic *E. coli* (EHEC) in a clinical specimen using a CIDT,
- **Or** both of the following:
 - Detection of Shiga toxin or Shiga toxin genes in a clinical specimen using a CIDT
 - **And** no known isolation of *Shigella* from a clinical specimen.

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Epidemiological criteria for case classification

Either of the following:

- A person who is epidemiologically linked to a confirmed STEC infection case
- **Or** a person who is epidemiologically linked to a probable STEC infection case with laboratory criteria.

Case classification

Confirmed:

A person with confirmatory laboratory criteria.

Probable:

One or more of the following:

- A person with presumptive laboratory criteria,
- **Or** a person with presumptive clinical criteria and supportive laboratory criteria,
- **Or** a person with presumptive clinical criteria and epidemiological criteria.

Suspect:

Either of the following:

- A person with supportive laboratory criteria
- **Or** a person with supportive clinical criteria.

Criteria to distinguish a new case from previous reports

A new case should be created when either:

- A positive laboratory result is received more than 180 days after the most recent positive laboratory result associated with a previously reported case in the same individual
- **Or** two or more different serogroups/serotypes are identified in one or more specimens from the same individual (each serogroup/serotype should be reported as a separate case).

Comments

Asymptomatic infections and infections at sites other than the gastrointestinal tract in people with confirmatory laboratory criteria or presumptive laboratory criteria are considered STEC cases and should be reported.

Although infections with Shiga toxin-producing organisms in the U.S. are primarily caused by STEC, in recent years an increasing number of infections are due to Shiga toxin-producing *Shigella*. People with Shiga toxin or Shiga toxin genes detected using a CIDT and *Shigella* isolated from a clinical specimen should not be reported as an STEC case.

Due to the variable sensitivities and specificities of CIDT methods and the potential for degradation of Shiga toxin in a specimen during transit, discordant results may occur between clinical and public health laboratories. People with Shiga toxin or Shiga toxin genes detected using a CIDT who do not have *Shigella* isolated from a clinical specimen should be classified as a suspect or probable case, regardless of whether detection of Shiga toxin or Shiga toxin genes is confirmed by a public health laboratory.

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People with STEC infections who develop HUS should be reported as STEC (Merlin disease code: 00800) and HUS (Merlin disease code: 42000). A laboratory result that reports only “*E. coli*” does not indicate STEC.

STEC laboratory results can be difficult to interpret. For paper laboratory results, please create a Merlin lab result and attach a scanned copy of the paper laboratory result.