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Shiga Toxin-producing Escherichia coli (STEC) 2018 Case Definition | CDC  
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Shiga Toxin-producing  
Escherichia coli  
(STEC)  
2018 Case Definition  
Shiga Toxin-producing  
Escherichia coli  
(STEC)  
2018 Case Definition  
NOTE:  
A surveillance case definition is a set of uniform criteria used to define a disease for public health surveillance. Surveillance case definitions enable public health officials to classify and count cases consistently across reporting jurisdictions. Surveillance case definitions are not intended to be used by healthcare providers for making a clinical diagnosis or determining how to meet an individual patient’s health needs.  
CSTE Position Statement(s)  
17-ID-10  
Background  
Shiga toxin-producing  
Escherichia coli  
(STEC) are estimated to cause more than 265,000 illnesses each year in the United States. 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 and hospitalization in the United States is  
E. coli  
O157; however, there are over 50 other serogroups that can also cause illness. The majority of infections are not reported to public health, because many individuals do not seek health care or are not tested. In recent years, the number of clinical laboratories that use tests that detect Shiga toxin or Shiga toxin genes has increased, resulting in increased detection of both O157 and non-O157 STEC infections.  
Ongoing surveillance of STEC infections is essential to detect and control outbreaks, to determine public health priorities, to monitor trends in illness, and to assess effectiveness of public health interventions. Methods for surveillance must keep pace with changing laboratory diagnostic methods.  
Clinical Criteria  
An infection of variable severity characterized by diarrhea (often bloody) and/or abdominal cramps. Illness may be complicated by HUS (note that some clinicians still use the term thrombotic thrombocytopenic purpura [TTP] for adults with post-diarrheal HUS).  
Laboratory Criteria For Diagnosis  
Confirmatory laboratory evidence  
Isolation of  
E. coli  
O157:H7 from a clinical specimen  
OR  
Isolation of  
E. coli  
from a clinical specimen with detection of Shiga toxin or Shiga toxin genes.  
Supportive laboratory evidence  
Isolation of  
E. coli  
O157 from a clinical specimen without confirmation of H antigen, detection of Shiga toxin, or detection of Shiga toxin genes,  
OR  
Identification of an elevated antibody titer against a known Shiga toxin-producing serogroup of  
E. coli  
,  
OR  
Detection of Shiga toxin or Shiga toxin genes in a clinical specimen using a culture-independent diagnostic test (CIDT) and no known isolation of  
Shigella  
from a clinical specimen.  
OR  
Detection of  
E. coli  
O157 or STEC/ Enterohemorrhagic  
E. coli  
(EHEC) in a clinical specimen using a CIDT.  
Epidemiologic Linkage  
A clinically compatible illness in a person that is epidemiologically linked to a confirmed or probable case with laboratory evidence  
OR  
A clinically compatible illness in a person that is a member of a risk group as defined by public health authorities during an outbreak.  
Criteria to Distinguish a New Case from an Existing Case  
A new case should be created when 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. (See formula referenced in Appendix B of the 2017 CSTE Position Statement [17-ID-10] for details on time period calculation, hierarchy of dates and interpretation).  
OR  
When 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.  
Case Classification  
Suspected  
Identification of an elevated antibody titer against a known Shiga toxin-producing serogroup of E.coli in a person with no known clinical compatibility,  
OR  
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 in a person with no known clinical compatibility,  
OR  
Detection of E. coli O157 or STEC/EHEC in a clinical specimen using a CIDT in a person with no known clinical compatibility,  
OR  
A person with a diagnosis of post-diarrheal HUS/TTP (see HUS case definition).  
Probable  
A person with isolation of  
E. coli  
O157 from a clinical specimen without confirmation of H antigen, detection of Shiga toxin or detection of Shiga toxin genes,  
OR  
A clinically compatible illness in a person with identification of an elevated antibody titer against a known Shiga toxin-producing serogroup of  
E. coli  
,  
OR  
A clinically compatible illness in a person with 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,  
OR  
A clinically compatible illness in a person with detection of E. coli O157 or STEC/EHEC from a clinical specimen using a CIDT,  
OR  
A clinically compatible illness in a person that is epidemiologically linked to a confirmed or probable case with laboratory evidence,  
OR  
A clinically compatible illness in a person that is a member of a risk group as defined by public health authorities during an outbreak.  
Confirmed  
A person that meets the confirmatory laboratory criteria for diagnosis.  
Comments  
Asymptomatic infections and infections at sites other than the gastrointestinal tract in people (1) meeting the confirmatory laboratory criteria for diagnosis or (2) with isolation of  
E. coli  
O157 from a clinical specimen without confirmation of H antigen, detection of Shiga toxin, or detection of Shiga toxin genes, are considered STEC cases and should be reported.  
Although infections with Shiga toxin-producing organisms in the United States are primarily caused by STEC, in recent years an increasing number are due to infections by Shiga toxin-producing  
Shigella  
. Persons with (1) detection of Shiga toxin or Shiga toxin genes using a CIDT and (2) isolation of  
Shigella  
spp. 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. Persons with (1) detection of Shiga toxin or Shiga toxin genes using a CIDT and (2) the absence of isolation of  
Shigella  
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.  
Related Case Definition(s)  
Shiga Toxin-producing  
Escherichia coli  
(STEC) | 2014 Case Definition  
Shiga Toxin-producing  
Escherichia coli  
(STEC) | 2006 Case Definition  
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NNDSS receives and shares case data from state, local, and territorial health departments to help public health monitor, control, and prevent serious diseases.  
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