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Spotted Fever Rickettsiosis (Rickettsia spp.) 2010 Case Definition | CDC  
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Spotted Fever Rickettsiosis (  
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spp.)  
2010 Case Definition  
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Rickettsia  
spp.)  
2010 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)  
09-ID-16  
Clinical Description  
Spotted fever rickettsioses are a group of tickborne infections caused by some members of the genus  
Rickettsia  
. Rocky Mountain spotted fever (RMSF) is an illness caused by  
Rickettsia rickettsii  
, a bacterial pathogen transmitted to humans through contact with ticks.  
Dermacentor  
species of ticks are most commonly associated with infection, including  
Dermacentor variabilis  
(the American dog tick),  
Dermacentor andersoni  
(the Rocky Mountain wood tick), and more recently  
Rhiphicephalus sanguineus  
(the brown dog tick). Disease onset averages one week following a tick bite. Age-specific illness is highest for children and older adults. Illness is characterized by acute onset of fever, and may be accompanied by headache, malaise, myalgia, nausea/vomiting, or neurologic signs; a macular or maculopapular rash appears 4-7 days following onset in many (~80%) patients, often present on the palms and soles. RMSF may be fatal in as many as 20% of untreated cases, and severe, fulminant disease can occur. In addition to RMSF, human illness associated with other spotted fever group  
Rickettsia  
species, including infection with  
Rickettsia parkeri  
(associated with  
Amblyomma maculatum  
ticks), has also been reported. In these patients, clinical presentation appears similar to, but may be milder than, RMSF; the presence of an eschar at the site of tick attachment has been reported for some other spotted fever rickettsioses.  
Clinical Criteria  
Any reported fever and one or more of the following: rash, eschar, headache, myalgia, anemia, thrombocytopenia, or any hepatic transaminase elevation.  
Laboratory Criteria For Diagnosis  
The organism in the acute phase of illness is best detected by polymerase chain reaction (PCR) and immunohistochemical methods (IHC) in skin biopsy specimens, and occasionally by PCR in appropriate whole blood specimens taken during the first week of illness, prior to antibiotic treatment. Serology can also be employed for detection, however an antibody response may not be detectable in initial samples, and paired acute and convalescent samples are essential for confirmation.  
For the purposes of surveillance:  
Laboratory confirmed:  
Serological evidence of a fourfold change in immunoglobulin G (IgG)-specific antibody titer reactive with  
Rickettsia rickettsii  
or other spotted fever group antigen by indirect immunofluorescence assay (IFA) between paired serum specimens (one taken in the first week of illness and a second 2-4 weeks later),  
OR  
Detection of  
R. rickettsii  
or other spotted fever group DNA in a clinical specimen via amplification of a specific target by PCR assay,  
OR  
Demonstration of spotted fever group antigen in a biopsy or autopsy specimen by IHC, or  
Isolation of  
R. rickettsii  
or other spotted fever group  
Rickettsia  
from a clinical specimen in cell culture.  
Laboratory supportive:  
Has serologic evidence of elevated IgG or immunoglobulin M (IgM) antibody reactive with  
R. rickettsii  
or other spotted fever group antigen by IFA, enzyme-linked immunosorbent assay (ELISA), dot-ELISA, or latex agglutination.  
Note: Current commercially available ELISA tests are not quantitative, cannot be used to evaluate changes in antibody titer, and hence are not useful for serological confirmation. IgM tests are not strongly supported for use in serodiagnosis of acute disease, as the response may not be specific for the agent (resulting in false positives) and the IgM response may be persistent. Complement fixation (CF) tests and other older test methods are neither readily available nor commonly used. CDC uses in-house IFA IgG testing (cutoff of ≥1:64), preferring simultaneous testing of paired specimens, and does not use IgM results for routine diagnostic testing.  
Exposure  
Exposure is defined as having been in potential tick habitats within the past 14 days before onset of symptoms. Occupation should be recorded if relevant to exposure. A history of a tick bite is not required.  
Case Classification  
Suspected  
A case with laboratory evidence of past or present infection but no clinical information available (e.g., a laboratory report).  
Probable  
A clinically compatible case (meets clinical evidence criteria) that has supportive laboratory results.  
Confirmed  
A clinically compatible case (meets clinical evidence criteria) that is laboratory confirmed.  
Related Case Definition(s)  
Spotted Fever Rickettsiosis (including Rocky Mountain Spotted Fever) (SFR, including RMSF) | 2020 Case Definition  
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