



## ROCKY MOUNTAIN SPOTTED FEVER FACT SHEET

(North American tick typhus, New World spotted fever, Tick-borne typhus fever, Sao Paulo fever)  
(updated May 2011)

**Agent:** *Rickettsia rickettsii*.

**Brief Description:** Rocky Mountain spotted fever (RMSF) is a tick-borne disease characterized by sudden onset of moderate to high fever that ordinarily persists for 2 to 3 weeks in untreated cases. Fever is accompanied by significant malaise, deep muscle pain, severe headache, chills, and conjunctival injection. A maculopapular rash usually appears first on palms and soles and then spreads rapidly to much of the body.

**Reservoir:** Infection in nature is maintained by transovarian and transstadial passage in ticks. The organism can be transmitted to various rodents and other animals, which assists in maintaining the disease cycle.

**Mode of Transmission:** Ordinarily by the bite of an infected tick. At least 4 to 6 hours of attachment and feeding on blood by the tick are required before the rickettsiae become reactivated and infectious for people. Contamination of breaks in the skin or mucous membrane with tick feces or crushed tissues, which may occur when removing ticks from pets, may also lead to infection. In Georgia, the most common vector is the American dog tick (*Dermacentor variabilis*).

**Incubation Period:** From 3 to 14 days.

**Clinical Description:** A tick-borne febrile illness most commonly characterized by acute onset and usually accompanied by myalgia, headache, and petechial rash (on the palms and soles in two thirds of cases). However, the classic diagnostic triad of fever, rash, and history of tick exposure is present in only a very small proportion of patients during the first three days of illness, when patients are likely to first seek medical care. Additionally, only 88% of patients eventually develop a rash, so absence of rash should not rule out the diagnosis of RMSF.

### Diagnostic Testing:

1. **Specimen:** Serum/blood, 5-10 cc. Acute and convalescent specimens should be collected 21 days apart.
2. **Outfits:** Other serology outfit, order #0504

3. **Form:** 3432.

4. **Lab Test Performed:** Indirect immunofluorescence assay (IFA) for IgG antibodies. 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.

5. **Lab Performing Test:** Immunology Laboratory, Georgia Public Health Laboratory (GPHL), in Decatur.

**Period of Communicability:** Not directly transmitted from person-to-person. The tick remains infective for life, commonly as long as 18 months.

**Treatment:** Doxycycline is the drug of choice for treating RMSF, including young children. Treatment should continue for 7 to 10 days, or at least 3 days after fever subsides. Empiric therapy is indicated for any patient suspected of having RMSF, but prophylactic treatment after a tick bite before symptoms develop is not recommended. Treatment should never be delayed while awaiting development of a rash or laboratory results; delay in treatment has been associated with severe and fatal cases.

**Case Classification Chart:**

<b>Rocky Mountain spotted fever (<i>Rickettsia rickettsii</i>)</b>		
<b>Clinical Criteria:</b> Any reported fever PLUS one or more of the following: rash, headache, myalgia, anemia, thrombocytopenia, or any hepatic transaminase elevation.		
<b>Confirmed</b>	<b>Probable</b>	<b>Suspect</b>
<p>A <b>confirmed</b> case meets the clinical criteria and the following laboratory criteria:</p> <ul style="list-style-type: none"> <li>▪ Serological evidence of a fourfold change in immunoglobulin G (IgG)-specific antibody titer reactive with <i>Rickettsia rickettsii</i> antigen by IFA between paired serum specimens (one taken in the first week of illness and a second 2-4 weeks later), <b>or</b></li> <li>▪ Detection of <i>R. rickettsii</i> DNA in a clinical specimen by PCR assay, <b>or</b></li> <li>▪ Demonstration of spotted fever group antigen in a skin lesion (biopsy) or organ tissue (autopsy) specimen by IHC, <b>or</b></li> <li>▪ Isolation of <i>R. rickettsii</i> from a clinical specimen in cell culture.</li> </ul>	<p>A <b>probable</b> case meets the clinical criteria and has serologic evidence of elevated IgG or IgM antibody reactive with <i>R. rickettsii</i> antigen by IFA, ELISA, dot-ELISA, or latex agglutination.</p>	<p>A <b>suspect</b> case has laboratory evidence of past or present infection but no clinical information available (e.g. a laboratory report).</p>

**Reporting:** Report all cases **WITHIN 7 DAYS** to the local health department, District Health Office, or the Epidemiology Section electronically through the State Electronic Notifiable Disease Surveillance System (SENDSS) at <http://sendss.state.ga.us>, or complete and mail CDC Form 55.1 (revised Jan. 2008), *Tick-Borne Rickettsial Disease Case Report* <http://www.health.state.ga.us/pdfs/epi/vbd/trdrform.pdf> for each reported case.

### Reported Cases of Rocky Mountain Spotted Fever in Georgia, 1993-2007

Year	Number of Cases
1993	37
1994	62
1995	59
1996	66
1997	11
1998	4
1999	14
2000	19
2001	9
2002	20
2003	65
2004	78
2005	86
2006	53
2007	60

### References:

1. Chin J, ed. Rocky Mountain Spotted Fever. In: Control of Communicable Diseases Manual. 17<sup>th</sup> ed. Washington, DC: American Public Health Association, 2000: pp. 430-432.
2. Centers for Disease Control and Prevention. Rocky Mountain Spotted Fever 2008 Case Definition. [http://www.cdc.gov/osels/ph\\_surveillance/nndss/casedef/rocky2008.htm](http://www.cdc.gov/osels/ph_surveillance/nndss/casedef/rocky2008.htm).
3. Helmick CG, Bernard KW, D'Angelo LJ. Rocky Mountain spotted fever: clinical, laboratory, and epidemiological features of 262 cases. The Journal of Infectious Diseases 1984; 150:480-488.
4. O'Reilly M, Paddock C, Elchos B, et al. Physician knowledge of the diagnosis and management of Rocky Mountain spotted fever. Annals New York Academy of Sciences 2003; 990:295-301.