

Spotted Fever Rickettsioses

Disease Category: Vector-borne

Timeframe to follow-up: Within one working day of notification

See the link to the Disease Investigation Process document

Signs and Symptoms	- Individuals may have a dark scab (eschar) at the site of a tick bite (not the case for RMSF). - Most common symptoms include fever, headache, rash, and muscle aches.
Incubation	Usually, 3 to 12 days.
Case Classification	Clinical criteria: Fever as reported by the patient or a healthcare provider, AND one or more of the following: rash, eschar, headache, myalgia, anemia, thrombocytopenia, or any hepatic transaminase elevation. Confirmed: A clinically compatible case (meets clinical criteria) that is laboratory confirmed. Probable: A clinically compatible case (meets clinical criteria) that has presumptive laboratory evidence.
Differential Diagnosis	Other tick-borne diseases (Ehrlichiosis, Lyme disease), other viral infections (Measles, Rubella), Dengue, and Typhoid.
Treatment	Doxycycline is the treatment of choice for all patients. It is most effective when initiated within the first 5 days of symptoms and should never be delayed pending laboratory tests.
Duration	Symptoms usually persist for 5 days before worsening without treatment. With treatment, symptoms may start to subside within 1-2 days.
Exposure	Typically spread to people from the bite of an infected tick.
Laboratory Testing	Local Health Authority can arrange testing if an outbreak is suspected: CDC sample collection instructions: https://www.cdc.gov/other-spotted-fever/hcp/diagnosis-testing/index.html
Control of Contacts	Disease does not have person-to-person contact and does not require any control measures of contacts.
Key areas of focus during investigation	Clusters in a household or shared recreational setting should be investigated through an environmental assessment. Travel-related clusters should be investigated to identify a common exposure source.
Public Health Actions	Reports of Spotted Fever Rickettsioses cases must be made to the Local Health Authority during the regular business hours of the health authority on the first working day following the identification of the case. Local Health Authority to notify Office of State Epidemiology (dpbhepi@health.nv.gov) or call 775-684-5911/775-400-0333 (after hours) if outbreak suspected. For individual confirmed or probable cases: - Confirm diagnosis, if possible - Identify potential exposures

	• Prepare a case report and submit it to the Chief Medical Officer (through OSE) within 7 days after completing the case investigation • Identify potential outbreaks from common sources • Provide education about how to prevent transmission To the best of the local health authority's ability, each step of the investigation should be completed within one working day or in alignment with NAC 441A.
<u>Key Partner Agencies</u>	Nevada Office of State Epidemiology, Local Health Authority, State Public Health Lab

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SPOTTED FEVER RICKETTSIOSES

I. DISEASE REPORTING

A. Legal Reporting Requirements

A report to the health authority may be made by telephone, telecopy (in the form prescribed by the health authority), or any form of electronic communication identified by the health authority, following the specified format and procedure. (1)

1. *Health Care Providers and Health Care Facilities*

Health providers and facilities must notify the health authority where provider is located within the first working day after identifying the case. (1) (2) (3)

2. *Laboratories*

Laboratories must notify the health authority within the first working day after identifying the case. (1) If the lab is located outside of Nevada, notify the Nevada Chief Medical Officer through the Office of State Epidemiology (OSE) within the same timeframe. (1) (4)

3. *Local Health Authority (LHA)*

LHA's must notify the Office of State Epidemiology (OSE) within 7 days after completing the case investigation. (5)

II. THE DISEASE AND ITS EPIDEMIOLOGY

A. Background

Spotted Fever Rickettsioses (SFR) are a group of bacterial diseases caused by the *Rickettsia* bacteria. The most serious and most common SFR is Rocky Mountain Spotted Fever (RMSF), characterized by fever, headache, and distinct rash. These infections are widely distributed across the United States (U.S.), with significant rise in cases observed in the southwestern U.S. Risk factors include frequent outdoor activity in wooded or grassy areas and close contact with dogs, which can carry infected ticks. Without prompt treatment, SFR can be severe or fatal, but mortality for RMSF has dropped to 0.5% with the use of modern antibiotics (6) (7).

B. Etiologic Agent

The primary etiologic agent for the most severe form of the disease is *Rickettsia rickettsii*, a small, Gram-negative, obligate intracellular bacterium. Other species include *R. parkeri*, *R. akashi*, and *R. philipii*. These bacteria specifically target the endothelial cells lining blood vessels, leading to systemic vasculitis (8).

C. Description of Illness

Symptoms typically begin 3-12 days after a tick bite with a sudden onset of high fever, severe headache, and malaise. A characteristic maculopapular rash usually appears 2-4 days after the fever starts, beginning on the wrists and ankles before spreading to the trunk. If untreated, the illness progresses rapidly to a late stage involving altered mental status, respiratory distress, and multi-organ failure (9).

D. Disease Burden in Nevada

Spotted Fever Rickettsiosis is considered endemic in parts of Nevada, though reported cases occur at a lower frequency compared to the southeastern or mid- states (7). The disease typically follows a seasonal trend with most cases occurring during the warmer months when tick activity is highest (10).

See the [Nevada Office of State Epidemiology Communicable Disease Dashboard](#) for Nevada specific data on Spotted Fever Rickettsioses (Monitoring Zoonotic Diseases section).

E. Reservoirs

Domestic dogs and small mammals such as rodents and rabbits serve as the primary reservoirs. The American dog tick, Brown dog tick, and Rocky Mountain wood tick also act as a reservoir themselves if the female tick passes the bacteria to their eggs (11).

F. Modes of Transmission

Transmission primarily occurs through the bite of an infected tick. The tick must remain attached for 4-6 hours to transmit the bacteria. Transmission can also occur through contact with tick fluids, although less common (8).

G. Incubation Period

Incubation period ranges from 3 to 12 days after exposure (9).

H. Period of Communicability

No person-to-person transmission.

I. Testing

The gold standard for diagnosis remains detection of SFGR nucleic acid in a clinical specimen via amplification of a Rickettsia genus- or species-specific target by PCR assay or indirect immunofluorescence antibody (IFA) assays between paired serum specimens (one taken in the first two weeks after illness onset and a second taken two to ten weeks after acute specimen collection (12).

J. Treatment

Doxycycline is the treatment of choice for all patients and is most effective when initiated within the first 5 days of symptoms. Antibiotic treatment should never be delayed pending laboratory tests. A typical treatment course continues for at least 3 days after fever subsides and there is evidence of improvement (8).

Provide most current treatment guidelines from [Red Book](#) to the healthcare provider or refer case to physician for proper treatment for Spotted Fever Rickettsioses.

III. EPIDEMIOLOGIC CASE INVESTIGATION

The public health authority should begin investigating the case of Spotted Fever Rickettsioses, step by step, within one working day of notification or in alignment with [NAC 441A](#).

A. Step 1: Review relevant information about the disease.

1. *Review scientific information in [Control of Communicable Diseases Manual](#), most recent edition.*
2. *Review Spotted Fever Rickettsioses most recent case definition (2020, CDC): <https://ndc.services.cdc.gov/case-definitions/spotted-fever-rickettsiosis-2020/>*

B. Step 2: Begin investigating the case.

1. *Contact Reporting Source and/or Reported Case*

Upon receiving an initial case report, review lab test results and available clinical details and epidemiologic factors. Please make three attempts to contact the case (text and phone calls) on separate days, at different times of the day (morning, afternoon, late afternoon). Document all attempts to contact a reporting source and/or reported case, preferably in the “Encounters” tab of EpiTrax. Please use case report forms (CRF) to gather accurate information about the case. Focus on the key data elements listed above. Filling out an electronic version of the CRF in EpiTrax (called a Confidential Morbidity Report (CMR) in EpiTrax) is preferred. If used, the completed PDF version should be attached to the CMR in EpiTrax. The CRF should be completed within 7 days of completing the investigation of the case. (5)

C. Step 3: Identify potential sources of infection

The investigation focuses on exposures in the 14 days before symptom onset. Ask for a thorough history regarding tick bites or travel to tick-endemic areas (i.e., wooded areas, tall-grass). Document contact with domestic dogs that may carry infected ticks (13).

D. Step 4: Initiate control measures for case and/or for contacts (see Section IV – Section VI below).

E. Step 5: Provide Education and Prevention messaging to the case and/or contacts (see Section IX below).

IV. CONTROL OF CASE

1. *Management/Exclusions for Specific Groups or Settings*

	Symptomatic	Asymptomatic
Sensitive Occupation*	N/A	N/A
Childcare/School Attendee	N/A	N/A
Case in a Medical Facility	Standard precautions apply.	N/A
General Population	No exclusions or isolation required. Individuals may return to normal activities once fever-free for 24 hours.	N/A

* provide footnote about NAC for sensitive occupation

2. *Exclusion Notifications*

Disease does not require any control measures of cases. Please provide education and prevention measures.

V. CONTROL OF CONTACTS (IF APPLICABLE)

Spotted Fever Rickettsioses does not have person-to-person contact and does not require any control measures of contacts. Please provide education and prevention measures.

VI. CONTROL OF CARRIERS (IF APPLICABLE)

A carrier state has not been documented for Spotted Fever Rickettsioses and thus no carrier-specific control measures are needed.

VII. MANAGEMENT OF SPECIAL SITUATIONS/OUTBREAK CONTROL

Coordinate with senior epidemiology staff to determine if an outbreak is occurring. If so, notify DPBH Environmental Health, local health authorities, or infection control, as appropriate.

Cluster in a Household or Shared Recreational Setting

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- Conduct environmental assessments to identify tick-infested areas.
- Coordinate with DPBH Environmental Health or local animal control if the cluster involves domestic pets carrying ticks.
- Distribute targeted education on tick removal and environmental mitigation.

Travel-Related Clusters

- Identify a common exposure point (i.e., specific trail or campsite).
- Coordinate with relevant agencies to post advisory signage if a high concentration of ticks are suspected.

VIII. PREVENTION

The investigator should reference the most recent disease-specific public educational materials from the CDC. The [Nevada OSE website](#) also provides information about Spotted Fever Rickettsioses, as does the [One Health Nevada](#) website.

- Know where to expect ticks.
- Use insect repellent while hiking, camping, hunting, or being outside.
- Before coming inside, check your body, clothes, pets, and gear for ticks.
- Use gloves when touching an animal when hunting or trapping.
- Treat your clothes, gear, and outdoor equipment with insect repellent.
- Wear long pants, long sleeves, and long socks when outside.

IX. REFERENCES

1. REPORTING OF COMMUNICABLE DISEASES - 441A.225. NAC CHAPTER 441A - INFECTIOUS DISEASES; TOXIC AGENTS. [Online] November 2021. [Cited: July 23, 2025.] <https://www.leg.state.nv.us/nac/nac-441a.html#NAC441ASec225>.
2. REPORTING OF COMMUNICABLE DISEASES - 441A.230. NAC CHAPTER 441A - INFECTIOUS DISEASES; TOXIC AGENTS. [Online] November 2021. [Cited: January 19, 2024.] <https://www.leg.state.nv.us/nac/nac-441a.html#NAC441ASec230>.
3. REPORTING OF COMMUNICABLE DISEASES - 441A.240. NAC CHAPTER 441A - INFECTIOUS DISEASES; TOXIC AGENTS. [Online] November 2021. [Cited: July 23, 2025.] <https://www.leg.state.nv.us/nac/nac-441a.html#NAC441ASec240>.
4. REPORTING OF COMMUNICABLE DISEASES - 441A.235. NAC CHAPTER 441A - INFECTIOUS DISEASES; TOXIC AGENTS. [Online] November 2021. [Cited: July 23, 2025.] <https://www.leg.state.nv.us/nac/nac-441a.html#NAC441ASec235>.
5. DUTIES AND POWERS RELATING TO THE PRESENCE OF COMMUNICABLE DISEASES. NAC CHAPTER 441A - INFECTIOUS DISEASES; TOXIC AGENTS. [Online] November 2021. [Cited: July 23, 2025.] <https://www.leg.state.nv.us/nac/nac-441a.html#NAC441ASec290>.

6. Centers for Disease Control and Prevention. Other Spotted Fever Rickettsioses. Centers for Disease Control and Prevention. [Online] May 14, 2024. [Cited: May 04, 2026.] <https://www.cdc.gov/other-spotted-fever/about/index.html>.
7. Centers for Disease Control and Prevention. Data and Statistics on Spotted Fever Rickettsiosis. Centers for Disease Control and Prevention. [Online] May 15, 2024. [Cited: May 04, 2026.] <https://www.cdc.gov/rocky-mountain-spotted-fever/data-research/facts-stats/index.html>.
8. McClain, Micah T. Other spotted fever group rickettsial infections. UpToDate. [Online] January 02, 2026. [Cited: May 04, 2026.] https://www.uptodate.com/contents/other-spotted-fever-group-rickettsial-infections?search=Spotted%20Fever%20Rickettsioses&source=search_result&selectedTitle=1~150&usage_type=default&display_rank=1.
9. Centers for Disease Control and Prevention. Rocky Mountain Spotted Fever (RMSF). Centers for Disease Control and Prevention. [Online] May 15, 2024. [Cited: May 04, 2026.] <https://www.cdc.gov/rocky-mountain-spotted-fever/hcp/signs-symptoms/index.html>.
10. Centers for Disease Control and Prevention. Clinical Overview of Transmission and Epidemiology. Centers for Disease Control and Prevention. [Online] May 15, 2024. [Cited: May 04, 2026.] <https://www.cdc.gov/rocky-mountain-spotted-fever/hcp/clinical-overview/index.html>.
11. The Rickettsioses: A Practical Update. Blanton, Lucas S. 1, s.l. : Infectious Disease Clinics of North America, 2020, Vol. 33. <https://doi.org/10.1016/j.idc.2018.10.010>.
12. Centers for Disease Control and Prevention. Spotted Fever Rickettsiosis (including Rocky Mountain Spotted Fever) (SFR, including RMSF). Case Data Implementation Resources. [Online] April 16, 2021. [Cited: May 04, 2026.] <https://ndc.services.cdc.gov/case-definitions/spotted-fever-rickettsiosis-2020/>.
13. Centers for Disease Control and Prevention. Contact Information and Case Reporting. Centers for Disease Control and Prevention. [Online] March 15, 2024. [Cited: May 04, 2026.] <https://www.cdc.gov/other-spotted-fever/php/case-reporting/index.html>.

X. ACKNOWLEDGEMENTS

This document was developed based on the content and format of the disease investigation guidelines of several state and local health jurisdictions:

- Oregon Health Authority Investigative Guidelines
- Washington State Department of Health Reporting and Surveillance Guidelines
- Washoe County Health District Epidemiology and Communicable Disease Program Investigation of Communicable Disease Manual

The Nevada Office of State Epidemiology would like to acknowledge the work of these great partners.

XI. UPDATE LOG



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7/8/26

Chief Medical Officer Approval Date