



PREVENTION OPPORTUNITIES UNDER THE BIG SKY

Tickborne Disease in Montana: Looking for Lyme in all the Wrong Places

Tickborne diseases occur worldwide and include diseases caused by bacteria, parasites, and viruses. These diseases often cause vague symptoms that develop days to weeks following tick exposure, including fever, chills, myalgia, arthralgia, and rash.¹ Certain tickborne diseases are transmitted exclusively by ticks while others such as tularemia and Q fever are also transmitted through other mechanisms. The geographic distribution of a tickborne disease depends on the presence of ticks capable of serving as a vector for a specific organism.²

Most common tickborne diseases in Montana

During 2003 to 2012, reported tickborne diseases included those caused by bacteria (tickborne relapsing fever, Rocky Mountain spotted fever [RMSF], and Q Fever) and viruses (Colorado tick fever [CTF]). While RMSF is endemic to the continental United States, it was first identified in the Bitterroot, Snake, and Boise River valleys of Montana and Idaho.³

Because signs and symptoms of tickborne diseases vary and may be non-specific, maintaining clinical suspicion is essential to making the diagnosis. This is especially true as the majority of patients diagnosed with tickborne diseases do not recall suffering a tick bite. Obtaining a travel and outdoor exposure history can be helpful in making the diagnosis.

Table. Reported cases of tickborne disease, Montana, 2003–2012

Disease	Number of cases
Lyme disease*	49
Rocky Mountain spotted fever	27
Colorado tick fever	14
Tickborne relapsing fever	8

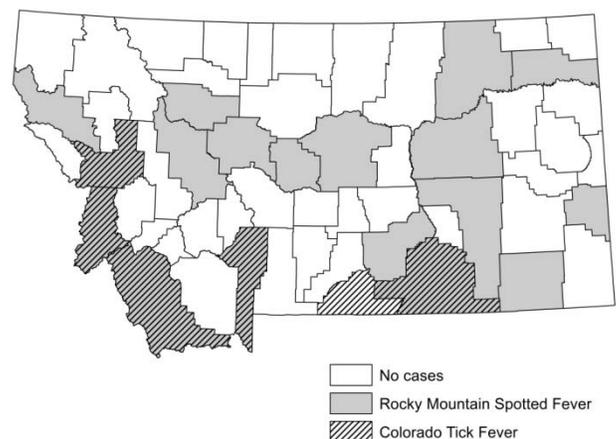
*Cases acquired infection outside of Montana

Tick paralysis is a rare disease that results in an acute, ascending, flaccid paralysis. It is believed to be caused by toxins located in the tick's saliva that

are secreted into the human host. Although tick paralysis is not a reportable condition in Montana, the three-state region Montana, Idaho and Washington has the highest incidence in the United States.⁴ Within 24 hours of removing the tick, the paralysis typically subsides.

Tickborne disease epidemiology in Montana The geographic distribution (Figure) of the most common tickborne diseases transmitted in Montana indirectly reflects the relative distribution of tick species responsible for disease transmission. When considering diagnostic tests, physicians should take into consideration both the patient's symptoms, and the geographic region of the country where the patient has traveled.

Figure. Reported cases of RMSF and CTF by county of residence, Montana, 2003-2012



Lyme disease in Montana? Not yet. All cases of confirmed Lyme disease among Montana residents have occurred in persons with a history of travel to areas endemic for Lyme disease. Tick species known to be competent vectors for *Borrelia burgdorferi*, the etiologic agent for Lyme disease, are not known to exist in Montana.

B. burgdorferi is spread through the bite of infected ticks. The blacklegged tick or deer tick (*Ixodes scapularis*) transmits the bacterium in the northeastern, mid-Atlantic, and north-central United States, and the western blacklegged tick (*Ix. pacificus*) along the Pacific coast. Neither tick species has been detected in Montana.

Lyme disease cases reported to DPHHS are evaluated using the national surveillance case definition. The case definition consists of specific clinical and exposure criteria.⁵ For a case to be considered locally-acquired, exposure must have

occurred in an area where established populations of *Ixodes* spp. tick vectors capable of transmitting *B. burgdorferi* have been identified. Additionally, there must be laboratory evidence of infection based on results from qualified laboratories.

Recognizing Tickborne illnesses Determining whether a patient is presenting with a tickborne illness requires a thorough clinical history, and laboratory diagnostic test results. Detailed information regarding signs, symptoms, diagnostic tests and treatments is available at: <http://www.cdc.gov/ticks>

Laboratory Testing The Montana Public Health Laboratory (MTPHL) offers a tickborne disease serology panel (for testing of paired sera) that includes testing for RMSF and CTF. MTPHL can coordinate with the Centers for Disease Control and Prevention should testing for additional tickborne diseases be required.

Recommendations for recognition and reporting of tickborne diseases:

- Healthcare providers should consider the diagnosis of tickborne disease in patients presenting with compatible illnesses and reporting a history of outdoor activities.
- Report suspected cases of tickborne disease to your local public health department. Information submitted helps public health authorities monitor changes in disease patterns and inform healthcare providers and the public about tickborne disease distribution.

For more information contact the Communicable Disease Epidemiology Section, 406-444-0273, and visit <http://fwp.mt.gov/recreation/safety/wildlife/ticks/> or <http://www.cdc.gov/ticks/diseases/>

References:

1. Centers for Disease Control and Prevention (CDC). <http://www.cdc.gov/ticks/symptoms.html>
2. CDC. http://www.cdc.gov/ticks/geographic_distribution.html
3. Ricketts HT. Rocky Mountain spotted fever in *Contributions to Medical Science by Howard Taylor Ricketts, 1870-1910*, Chicago Pathological Society, Chicago, IL, 1911: 333-342
4. Armed Forces Pest Management Board Technical Guide No. 26. Tick-borne Diseases: Vector Surveillance and Control November 2012. <http://www.afpmb.org/sites/default/files/pubs/techguides/tg26.pdf>
5. CDC. Lyme disease 2011 Case Definition/CSTE Position Statement 10-ID-06 <http://www.cdc.gov/NNDSS/script/casedef.aspx?CondYrID=752&DatePub=1/1/2011>

2,110 copies of this public document were published at an estimated cost of \$0.67 per copy, for a total cost of \$1,413.70, which includes \$464.20 for printing and \$949.50 for distribution.



1400 Broadway
Helena, MT 59620-2951

Richard Opper, Director, DPHHS
Steven Helgerson, MD, MPH, State Med. Officer
Jane Smilie, MPH, Administrator, PHSD