

**ROUTINE 24-Hour  
Disease Reporting Line  
1.800.632.5927**

**EMERGENCY 24-Hour  
Reporting Line  
1.800.632.8000**

An electronic version of the Idaho Reportable Diseases Rules may be found at <http://adminrules.idaho.gov/rules/current/16/0210.pdf>.

Current and past issues are archived online at [www.idb.dhw.idaho.gov](http://www.idb.dhw.idaho.gov).

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legged tick, *Ixodes scapularis* (eastern U.S.), or *I. pacificus* (western U.S.) after an average of 36 hours of attachment. The disease is complex. Acute manifestations occur approximately 3- 30 days after infection including arthralgias and the pathognomonic erythema migrans (EM) rash seen in 70-80% of infected people. Chronic neurologic, rheumatologic, or cardiac complications can occur. Confirmation of LD requires a two-tiered testing method; a screening enzyme immunoassay followed by a confirmatory western blot. CDC maintains a list of laboratory tests to be avoided, including IgM or IgG tests without a previous ELISA/EIA/IFA. The full list is at: <https://www.cdc.gov/lyme/diagnosis-testing/labtest/otherlab/index.html>

During 2008 through 2017, 115 cases were reported in Idaho (average 8 cases/year), trending upward over time. Of these, 53% of patients were male, the mean age was 42 years (range 4-77 years), and none died. Eighty three percent (83%, 96/115) of reports listed a reporting laboratory, and of those, 19% (18/96) were from a laboratory

using tests considered unreliable by CDC. Healthcare providers are encouraged to use the two-tiered testing method referred to above. Lyme disease reported in Idaho is perplexing without a travel history, given that the vector tick, *I. pacificus* has not been found in the state. Travel histories were noted in 84% (97/115) of case reports. Of those, 80% (78/97) noted an out-of-state exposure; 79% (62/78) of those with out-of-state travel reported exposures in the Midwest or eastern United States, with Wisconsin topping the list at 14% (11/78). In-state exposures were suggested by 12% (12/97) of cases where information was available, raising questions about local risk for infection, proper use of two-tiered testing, or the potential for incomplete travel histories. Federally-funded efforts to further characterize endemic tick populations through tick “drags” were made during 2014 through 2016 and will occur again in 2019. Initial survey efforts focused on the Idaho-Oregon border and will expand to include areas along the Idaho-Utah border because of their proximity to known

*I. pacificus* ranges. To date, *I. pacificus* has not been identified in Idaho through these efforts (Figure 2, see previous page).

#### Resources for Providers

Proper testing and reporting of cases should increase our understanding of the geographic distribution and overall burden of locally-acquired and imported tick-borne disease in Idaho. In 2018, the CDC published the latest guidance document “Tickborne Diseases of the United States, a Reference Manual for Healthcare Providers. 5th edition, 2018” located at <https://www.cdc.gov/ticks/tickbornediseases/index.html> which provides the latest information on pathogen-specific diagnosis and treatment.

#### References

- <sup>1</sup>CDC Vital Signs, May, 2018: Illnesses on the rise from mosquito, tick, and flea bites. <https://www.cdc.gov/vitalsigns/vector-borne/index.html>
- <sup>2</sup>CDC Trends in Tickborne Diseases 2016 HHS Webinar. <https://www.cdc.gov/ticks/diseases/trends.html>
- <sup>3</sup>IDAPA 16.02.10 Idaho Reportable Diseases <https://adminrules.idaho.gov/rules/current/16/160210.pdf>
- <sup>4</sup>CDC Lyme Disease <https://www.cdc.gov/lyme/index.html>

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# Disease Bulletin

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■ Tickborne Disease: Idaho Reporting Trends

■ Do you want to be able to treat patients with opioid use disorder but don't know where to get free training? Look no further!

## Tickborne Disease: Idaho Reporting Trends

According to the Centers for Disease Control and Prevention (CDC), nationwide reports of tickborne disease doubled during 2004 through 2016, and were 77% of all vector-borne disease reports. Lyme disease (LD) increased during this period and accounted for 82% of all tickborne disease reports<sup>1</sup>. Spotted fever rickettsioses, babesiosis, and the combined incidence of anaplasmosis and ehrlichiosis cases also increased in some regions<sup>1</sup>. Geographic expansion of tick populations through changes in the landscape promoting tick survival, bird- and mammal-assisted relocation of ticks, and a lack of effective tick control practices are some of the contributors to this nationwide increase<sup>2</sup>.

#### Tickborne Disease in Idaho

In Idaho, certain tickborne diseases are explicitly reportable to public health,

including Rocky Mountain spotted fever (RMSF), tickborne relapsing fever (TBRF), tularemia, and LD. Other tickborne diseases, like Colorado tick fever, are only reported to public health as a case of “extraordinary occurrence of illness”<sup>3</sup>. The total number of RMSF, TBRF, tularemia, and LD reports in Idaho were small (n=225) during a similar period to the one examined in the CDC report (2003-2017), averaging 15 tickborne disease reports per year. LD accounted for 66.5% of Idaho tickborne disease reports. Changes in testing or surveillance practices, increasing population of vectors or emergence of new vectors, changes in host behavior including healthcare-seeking behavior, or changes in total human population all may affect tickborne disease trends. Because the Idaho population increased by 23% during

#### BUREAU OF COMMUNICABLE DISEASE PREVENTION

Contributing Staff

**CHRISTINE G. HAHN, MD**  
State Epidemiologist

**KATHRYN TURNER, PhD, MPH**  
Bureau Chief

**LESLIE TENGELSEN, PhD, DVM**  
State Public Health Veterinarian

**JARED BARTSCHI, MHE**  
Epidemiologist

**KRIS CARTER, DVM, MPVM**  
Career Epidemiology Field Officer

**SCOTT HUTTON, MPH**  
Epidemiologist

the 15 years analyzed, rates, rather than case-counts, were used to assess Idaho tickborne disease reporting trends. An upward trend in LD rates was observed (see Figure 1, next page). Tularemia reports showed a smaller rate increase and no clear trend in reporting

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## Do you want to be able to treat patients with opioid use disorder but don't know where to get free training? Look no further!

Prescribing medication-assisted treatment (MAT) to help people reduce or quit their use of heroin or other opiates, such as pain relievers, is carefully regulated. Qualified physicians, nurse practitioners and physician assistants are required to acquire a MAT DATA waiver and maintain certifications to legally dispense or prescribe opioid dependency medications. This training may cost providers \$200 and is often taken on-line since in-person trainings are rare. Because Idaho desperately needs more providers to offer this important treatment in their practice, ECHO Idaho is pleased to host a free MAT DATA waiver training Monday, December 10, 2018 from 8am–noon MT for physicians, nurse practitioners, and physician assistants. The training, led by Dr. Magni Hamso and Dr. Todd Palmer of Boise, will be offered in two parts: an initial live 4-hour seminar December 10th you join using video conferencing, followed by online modules

you complete on your own. Both portions of the training are free and approved for 8 credits of CME. Physicians who complete the training will qualify for the waiver to prescribe and dispense buprenorphine. Nurse practitioners and physician's assistants will also qualify for the waiver after an additional 16 hours of training.

Participants can join with Zoom video conferencing from anywhere in the state but must be able to join using a webcam. More information and RSVP at [www.uidaho.edu/echo](http://www.uidaho.edu/echo). Questions and technical assistance: [echoidaho@uidaho.edu](mailto:echoidaho@uidaho.edu) or ask to speak with Lachelle Smith at 208-364-4698.

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rates for either RMSF or TBRF (Figure 1) emerged. Note, for both RMSF and TBRF, an increase in reported cases occurred in 2006, corresponding to the epidemic West Nile virus year (n=996 cases) in Idaho; this may have been a result of increased laboratory testing of Idahoans with rash illnesses that year. Although routine tick vector surveillance is not conducted in Idaho, anecdotal reports of dense tick populations every spring are of public health concern, given the severity of some locally-acquired tickborne infections.

A closer look at selected tickborne diseases for the 10-year period (2008-2017) are presented below:

Rocky Mountain Spotted Fever (RMSF)

Rickettsia rickettsia is the causative agent of RMSF, the most severe tick-borne illness in the United States. RMSF is a rapidly

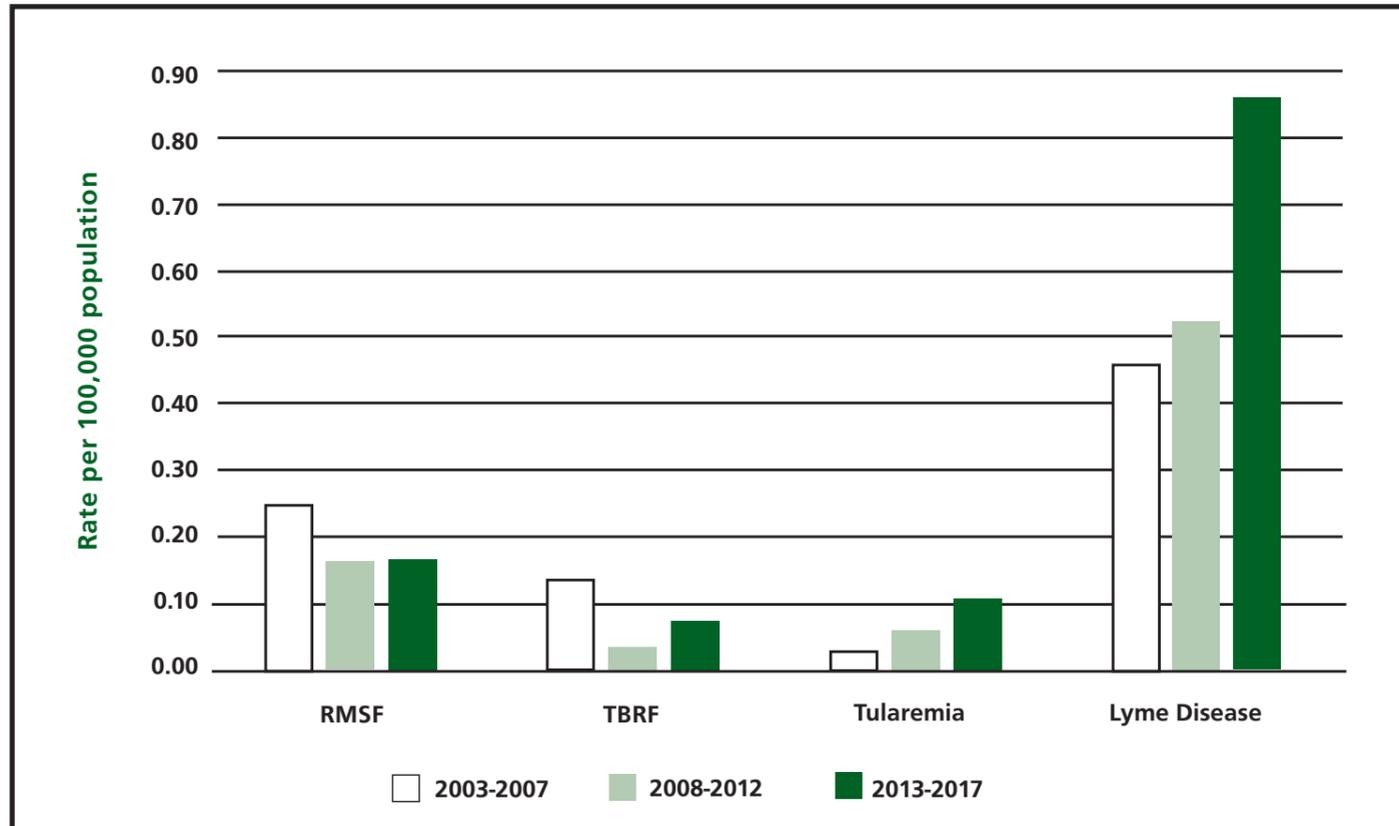
progressive disease and without early administration of doxycycline can be fatal within days. RMSF generally begins with a sudden onset of fever and headache 3–12 days after a tick bite. Within the first 1 to 4 days of illness, nausea, vomiting, abdominal pain (which may mimic appendicitis), and myalgia can occur. Approximately 90% of patients develop a rash illness, maculopapular early in disease, and, in severe cases a petechial rash will develop by day 5 or 6. RMSF was previously called “black measles” because of the extent of petechiation noted in some patients. On day 5 or later after illness, cerebral and pulmonary edema, acute respiratory distress syndrome, necrosis (often requiring amputations), multiorgan failure, and death can occur. Early recognition and antibiotic treatment has reduced the case fatality rate from 25% in the 1940s to <0.5% today. On August 8, 2018, CDC released an RMSF

Clinical Toolkit for Providers <https://www.cdc.gov/rmsf/resources/toolkit.html>.

During 2008 through 2017, 28 cases were reported in Idaho (average 2 cases/year). Among these cases, 61% of patients were male, the mean age of all cases was 45.6 years, (range 4-69 years), 36% required hospitalization, and among those for whom outcome data were available (26/28), everyone survived. Cases were reported in all areas of the state. Risk factors for infection were not noted for 61% of cases; for those with risk factors, tick bite(s) and some form of outdoor recreational or occupational (e.g., sheep shearing) activity that increased the likelihood for a tick exposure were frequently noted. Approximately 79% of Idaho cases were reported during the months of May through September, reflecting the seasonality of tick populations. The hard ticks that carry R. rickettsia, including the Rocky Mountain

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Figure 1. 5–year annual average rates, per 100,000 population, for selected tickborne diseases—Idaho, 2003–2017



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Wood Tick (*Dermacentor andersoni*) and the Brown Dog Tick (*Rhipicephalus sanguineus*), are common in Idaho.

Tickborne Relapsing Fever (TBRF)

At least 8 species of *Borrelia* cause tickborne relapsing fever (TBRF). The two main *Borrelia* species involved in the United States are *B. hermsii* (in the mountain West) and *B. turicatae* (in southwestern United States). As the name implies, patients experience recurring febrile episodes, which start an average of 7 days after infection, last approximately 3 days with a crisis phase followed by one afebrile week, and repeat 3 or more times if untreated. In the United States, most cases occur in western states, after the bite of an *Ornithodoros* spp. soft tick. These ticks prefer feeding on small rodents; humans are incidental hosts. Unlike hard ticks, soft ticks feed quickly and drop off, often remaining unnoticed by the host.

During 2008 through 2017, 8 cases were

reported in Idaho (approximately 1 case every other year); among these cases, 62.5% of patients were male, the mean age was 35.5 years (range 2-84 years), 87.5% were hospitalized, and none died. Cases were typically reported between May and July. A stay in a rustic cabin prior to illness onset was noted in 50% of case reports and 50% of cases reported exposures from locations in the Idaho panhandle region, an area where *Ornithodoros* ticks thrive.

Tularemia

*Francisella tularensis* is the causative agent of tularemia, a zoonotic disease which has varied clinical manifestations: ulceroglandular (the most common), oculoglandular, oropharyngeal, pneumonic, intestinal, and typhoidal. The incubation period is typically 3-7 days. Commonly known as “rabbit fever” because of its association with exposure to infected rabbits, tularemia is actually more commonly transmitted to humans by insect vectors. *F. tularensis* is highly infectious when

grown in culture; laboratory exposures can occur, especially if tularemia is not suspected.

During 2008 through 2017, 14 cases of tularemia were reported in Idaho (an average 1 case per year) with a general upward trend in reporting over time. Among the 14 cases, 78.5% of patients were male, the mean age was 42 years (range 4–86 years), 50% were hospitalized, and none died. Tick or horsefly bites were explicitly reported by 43% of cases. Cases were reported from across the state, typically in spring and summer months.

Lyme Disease

*Borrelia burgdorferi* is the causative agent of LD, the most common vector-borne bacterial disease in the United States<sup>4</sup>. According to the CDC, 95% of cases are reported from Northeast and North Central states. *B. burgdorferi* is transmitted to humans by the bite of an infected nymph or adult black-

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Figure 2. General distribution of the Western Blacklegged Tick (*Ixodes pacificus*), a vector of Lyme disease in the western United States, based on historical collection reports from CDC. Located at [https://www.cdc.gov/ticks/geographic\\_distribution.html](https://www.cdc.gov/ticks/geographic_distribution.html)

