

# Symptoms of Different Tick-borne diseases in Vermont

All information sourced from the CDC and the Vermont Department of Health



For Lab, Diagnosis and Treatment information refer to TICKBORNE DISEASES OF THE UNITED STATES A Reference Manual for Health Care Providers Fourth Edition, 2017 <https://www.cdc.gov/lyme/resources/tickbornediseases.pdf> or visit the Vermont Department of Health website at <http://www.healthvermont.gov/disease-control/tickborne-diseases>

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## Anaplasmosis

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Anaplasmosis is the second most commonly reported tick-borne disease in Vermont.

Confirmation of the diagnosis is based on laboratory testing, but antibiotic therapy should not be delayed in a patient with a suggestive clinical presentation.

People with anaplasmosis may also develop anemia, low white blood cell counts, low platelet counts, and elevated liver enzymes.

Anaplasmosis can be a serious illness. Thirty-six percent of cases in Vermont are hospitalized for their illness. If not treated correctly, anaplasmosis can be fatal.

Incubation Period: 1–2 weeks; Signs and Symptoms:

- ▶ Fever, shaking, chills
- ▶ Severe headache
- ▶ Malaise
- ▶ Myalgia
- ▶ Gastrointestinal symptoms (nausea, vomiting, diarrhea, anorexia)
- ▶ Cough
- ▶ Rash (rare cases - only 10% of Vermonters with anaplasmosis report having a rash)
- ▶ Confusion

*NOTE: Consider the possibility of coinfection with Babesia microti and/or Borrelia burgdorferi.*

*NOTE: Antibody titers are frequently negative in the first 7–10 days of illness, thus serologic tests may be falsely negative during this time*

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## Babesia

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Babesiosis is the third most commonly reported tick-borne disease in Vermont.

Incubation Period: 1–9+ weeks; Signs and Symptoms:

- ▶ Fever, chills, sweats
- ▶ Malaise, fatigue
- ▶ Myalgia, arthralgia, headache
- ▶ Gastrointestinal symptoms, such as anorexia and nausea (less common: abdominal pain, vomiting)
- ▶ Dark urine
- ▶ Less common: cough, sore throat, emotional lability, depression, photophobia, conjunctival injection
- ▶ Mild splenomegaly, mild hepatomegaly, or jaundice may occur in some patients

*NOTE: Babesiosis is caused by parasites that infect red blood cells. Most U.S. cases are caused by Babesia microti, which is transmitted by Ixodes scapularis ticks, primarily in the Northeast and upper Midwest.*

*NOTE: Babesia parasites also can be transmitted via transfusion, anywhere, at any time of the year.*

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## Ehrlichiosis

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Fewer than 30 cases of ehrlichiosis have been reported to the Health Department; more than half of those cases were in Bennington and Rutland county residents. Almost 25% of reported cases were hospitalized for their illness.

Incubation Period: 1–2 weeks; Signs and Symptoms:

- ▶ Fever
- ▶ Headache
- ▶ Chills
- ▶ Malaise
- ▶ Muscle pain
- ▶ Gastrointestinal symptoms (nausea, vomiting, diarrhea, anorexia)
- ▶ Confusion
- ▶ Conjunctival injection
- ▶ Rash (more commonly reported among children)

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## Powassan Virus

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The last reported case of Powassan virus infection in a Vermont resident occurred in 1999, but infected ticks were recently found in Vermont. According to the Vermont Department of Health, "This disease can be difficult to diagnose and is likely underreported."

Incubation Period: 1–4 weeks; Signs and Symptoms:

- ▶ Fever
- ▶ Headache
- ▶ Vomiting
- ▶ Generalized weakness
- ▶ Seizures
- ▶ Usually progresses to meningoencephalitis. May include meningeal signs, altered mental status, aphasia, paresis, movement disorders, or cranial nerve palsies

*NOTE: Even after recovering from a Powassan virus infection, many people may have permanent neurological symptoms. In a smaller number of cases, Powassan virus can also be fatal*

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## Borrelia miyamotoi

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*Borrelia miyamotoi* is actually more closely related to the bacteria that causes tick-borne relapsing fever.

Incubation Period: 1-9+ weeks; Signs and Symptoms:

- ▶ Fever
- ▶ Chills
- ▶ Muscle aches
- ▶ Fatigue
- ▶ Joint pain
- ▶ Headaches.
- ▶ Relapsing fever

*NOTE: Patients with a Borrelia miyamotoi infection often do not have a rash.*

*NOTE: Tests used to diagnose an infection with Borrelia burgdorferi, the bacteria that causes Lyme disease, cannot be used to diagnose a Borrelia miyamotoi infection.*

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## Lyme Disease

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Lyme disease is the most commonly reported tickborne disease in Vermont and in 2016, Vermont had the second highest rate of reported Lyme disease cases in the U.S.

Incubation Period: 3-30 Days; Signs and Symptoms:

### Localized Stage:

- ▶ Erythema migrans rash (not present in all cases)
- ▶ Flu-like symptoms - malaise, headache, fever, myalgia, arthralgia
- ▶ Lymphadenopathy

### Disseminated Stage:

- ▶ Multiple secondary annular rashes (not present in all cases)
- ▶ Flu-like symptoms
- ▶ Lymphadenopathy
- ▶ Rheumatologic Manifestations
  - ▶ Transient, migratory arthritis and effusion in one or multiple joints
  - ▶ Migratory pain in tendons, bursae, muscle, and bones
- ▶ Cardiac Manifestations
  - ▶ Conduction abnormalities, e.g. atrioventricular node block
  - ▶ Myocarditis, pericarditis
- ▶ Neurologic Manifestations -
  - ▶ Bell's palsy or other cranial neuropathy -
  - ▶ Meningitis -
  - ▶ Motor and sensory radiculoneuropathy, mononeuritis multiplex
  - ▶ Subtle cognitive difficulties
  - ▶ Encephalitis, encephalomyelitis, subtle encephalopathy, pseudotumor cerebri (all rare)
- ▶ Additional Manifestations
  - ▶ Conjunctivitis, keratitis, uveitis
  - ▶ Mild hepatitis
  - ▶ Splenomegaly

*NOTE: During the localized (early) stage of illness, Lyme disease may be diagnosed clinically in patients who present with an EM rash. Serologic tests may be insensitive at this stage.*

*NOTE: According to the Vermont Department of Health statistics, the incidence of EM rashes in confirmed cases of Lyme disease is decreasing.*