

**WHAT YOU SHOULD KNOW ABOUT**

# TICKS

— AND THE —

# DISEASES

# THEY SPREAD IN

# VERMONT

**BE  
TICK  
SMART**



PROTECT · CHECK · REMOVE · WATCH

 VERMONT  
DEPARTMENT OF HEALTH

## WHAT IS A TICKBORNE DISEASE?

Tickborne diseases are illnesses that can spread to humans by the bite of infected ticks. Ticks usually feed on the blood of animals, like mice, shrews, chipmunks and deer, but they will also feed on humans. When they bite, ticks can sometimes pass on bacteria, parasites or viruses that can make people sick.

Over 99% of all tickborne diseases reported to the Vermont Department of Health are caused by the blacklegged tick.

### TICK BEHAVIOR: BLACKLEGGED TICKS

In order to feed, a blacklegged tick will wait on the tip of a blade of grass or the edge of a leaf with its front legs extended until a person brushes by. The tick will climb on and make its way to the skin where it can feed.

If not removed, a tick may feed on a person for several days. While it feeds, the tick will get larger as it fills up with blood. This is when diseases from the tick can be spread to humans. After feeding, the tick will drop off and continue through its life cycle.



## WHAT TICKBORNE DISEASES ARE IN VERMONT?

### LYME DISEASE

**Lyme disease is the most commonly reported tickborne disease in Vermont.** It is caused by bacterium called *Borrelia burgdorferi* that is spread by the bite of infected blacklegged ticks.

Symptoms of Lyme disease do not begin right away. It can take 3 to 30 days after a tick bite before someone might feel sick. Lyme disease can cause fever, headache, joint pain and swelling, muscle aches, and fatigue. One unique sign of Lyme disease is a distinctive rash that often appears and expands gradually from the site of the tick bite. It might look like a bull's eye, with a small circular rash surrounded by clear skin, surrounded by another circular rash.

Lyme disease can only be diagnosed by a health care provider. Diagnosis is based on symptoms, and blood tests can be helpful when used correctly. Lyme disease can be successfully treated with antibiotics.

# WHAT TYPES OF TICKS CAN SPREAD DISEASE?

There are over a dozen different types of ticks in Vermont, but few are known to spread diseases. The blacklegged tick is responsible for over 99% of all cases of tickborne diseases in Vermont.

## BLACKLEGGED TICK (*Ixodes scapularis*)



ADULT FEMALE



ADULT MALE



NYMPH

## AMERICAN DOG TICK (*Dermacentor variabilis*)



ADULT FEMALE



ADULT MALE



NYMPH

## LONE STAR TICK (*Amblyomma americanum*)



ADULT FEMALE



ADULT MALE



NYMPH

## WOODCHUCK TICK (*Ixodes cookei*)



ADULT FEMALE



ADULT MALE



NYMPH

Ticks enlarged to show detail



1 INCH

2 INCH



Timely diagnosis and treatment are very important to avoid further complications from this disease. Lyme disease that is not treated in a timely manner may go on to cause other serious symptoms that may involve the heart, joints, or nervous system.

## **ANAPLASMOSIS**

**Anaplasmosis is the second most commonly reported tickborne disease in Vermont.** It is caused by the bacterium called *Anaplasma phagocytophilum*. Like Lyme disease, anaplasmosis is spread to humans by the bite of infected blacklegged ticks.

Anaplasmosis can cause fever, muscle aches, headache, fatigue, nausea, and vomiting. These symptoms usually begin 5 to 21 days after a tick bite. Unlike Lyme disease, anaplasmosis rarely causes a rash.

Anaplasmosis can be a severe illness, especially in older people and those with weak immune systems. Some people diagnosed with it are hospitalized, and can have problems such as anemia, low white blood cell counts, low platelet counts, and elevated liver enzymes. Anaplasmosis can be fatal.

Anaplasmosis can only be diagnosed by a health care professional. Antibiotics can effectively treat and cure this illness.

## **BABESIOSIS**

**Babesiosis is a disease caused by a microscopic parasite called *Babesia microti*.** It is spread by the bite of infected blacklegged ticks. Babesiosis is not as common in Vermont as Lyme disease or anaplasmosis, but it can be a serious, and sometimes fatal, disease.

Symptoms include fever, chills, sweats, headache, body aches, loss of appetite, or fatigue. Anyone can get infected, but some groups of people are at risk for severe illness including those with weak immune systems or other health problems, older adults, or people without a spleen.

Babesiosis can be diagnosed by a health care provider based on symptoms and blood tests. It can be treated effectively, but requires different medicines than those used to treat Lyme disease and anaplasmosis.

## **BORRELIA MIYAMOTOI DISEASE**

***Borrelia miyamotoi* is a bacterium recently recognized to cause tickborne disease in Vermont.**



This disease is transmitted to humans by blacklegged ticks. It can cause fever, chills, muscle aches, fatigue, joint pain, and headaches. *Borrelia miyamotoi* disease can be diagnosed using blood tests, and can be successfully treated with antibiotics.

### **POWASSAN VIRUS DISEASE**

**Reported cases of Powassan virus disease are rare in Vermont.** It is primarily spread by the blacklegged tick, but can also be transmitted by the woodchuck tick and squirrel tick, although they rarely bite humans. It may be passed to humans quickly during a tick bite, potentially in as little as 15 minutes, and symptoms may begin within a month. Reported cases of Powassan virus disease are rare in Vermont.

Symptoms include fever, headache, weakness, vomiting, confusion, seizures, and memory loss. Powassan virus infections can be serious and often require hospitalization. Diagnosis is through laboratory testing, and there is no specific treatment for Powassan virus disease.

## **OTHER TICKBORNE DISEASES**

### **EHRlichiosis**

**Ehrlichiosis is caused by the bacterium called *Ehrlichia chaffeensis* that is spread through the bite of infected lone star ticks. These ticks are not yet established in Vermont, so cases are likely travel-related.**

The symptoms of ehrlichiosis often include fever, chills, headache, muscle pain, nausea, vomiting, diarrhea, malaise, confusion, eye redness, and a rash. The rash is more commonly seen in children than adults.

Diagnosis is often done based on symptoms, with a laboratory test used later to confirm the diagnosis. Ehrlichiosis can be serious and sometimes fatal, but it can be treated successfully with antibiotics.

Since 2013, **over half** of blacklegged ticks collected in Vermont tested positive for one or more tickborne disease.

## SPOTTED FEVER RICKETTSIOSES

There are a few reports each year of Vermonters diagnosed with spotted fever group rickettsioses, a group of tickborne diseases caused by similar types of bacteria.

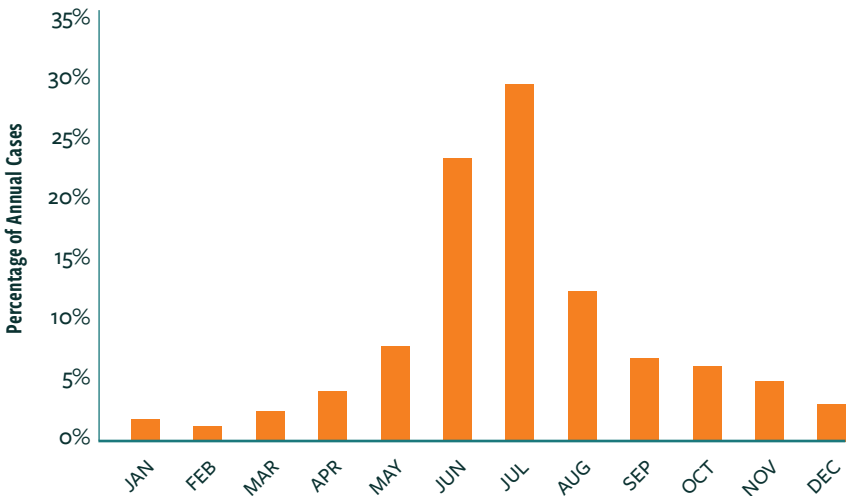
Cases of spotted fever rickettsioses in Vermonters, such as Rocky Mountain spotted fever, are also likely acquired while traveling outside of Vermont. Spotted fevers can cause illnesses that range from mild to life-threatening. Symptoms include fever, headache, rash, and a dark scab at the site of the tick bite. Blood tests are helpful in diagnosing spotted fevers, and antibiotics can effectively treat these diseases.

## SEASONAL TRENDS

Ticks might be looking for a meal any time the temperature is above freezing, so people can get a tickborne disease during any month of the year in Vermont. However, the risk rises and falls throughout the seasons as a tick goes through its life cycle.

**In Vermont, the risk is highest in the spring and early summer when ticks in the nymph stage are active and looking for a blood meal.** The risk decreases after July, but remains elevated until the colder winter months.

Seasonal Trend of Tickborne Diseases Reported in Vermont





# HOW CAN I PREVENT TICKBORNE DISEASES?

The best way to prevent tickborne diseases is to prevent tick bites.

1

## PROTECT

- Avoid wooded and brushy areas with high grass and leaf litter. Stay in the middle of trails where the path is clear.
- Wear long pants and long-sleeved shirts to minimize skin exposure to ticks.
- Wear light-colored clothing so you can easily spot ticks.
- Use effective tick repellents on your skin and clothing.
- Talk to your veterinarian about tick prevention products for pets.

## WHICH REPELLENTS SHOULD I USE?

Use repellents that are registered by the Environmental Protection Agency (EPA). They have been evaluated for safety and effectiveness. Follow the instructions on the label. Ingredients that are effective against ticks include:

- DEET
- Picaridin
- Oil of lemon eucalyptus (OLE) (do not use on children under 3)
- IR3535
- Para-methane-diol (PMD) (do not use on children under 3)
- Catnip oil
- Oil of citronella
- 2-undecanone

Do not use any insect repellent on babies younger than 2 months.

To find the tick repellent that is right for you,  
use the search tool at the EPA's website:  
**[epa.gov/insect-repellents/find-repellent-right-you](https://epa.gov/insect-repellents/find-repellent-right-you)**







## FOR USE ONLY ON CLOTHING

**Permethrin** kills and repels ticks and can be used on clothing, shoes, socks, and camping gear, but should never be applied to skin. Clothing treated with 0.5% permethrin repels and kills ticks even after washing. Permethrin can be applied to existing clothing or pre-treated clothing can be purchased.

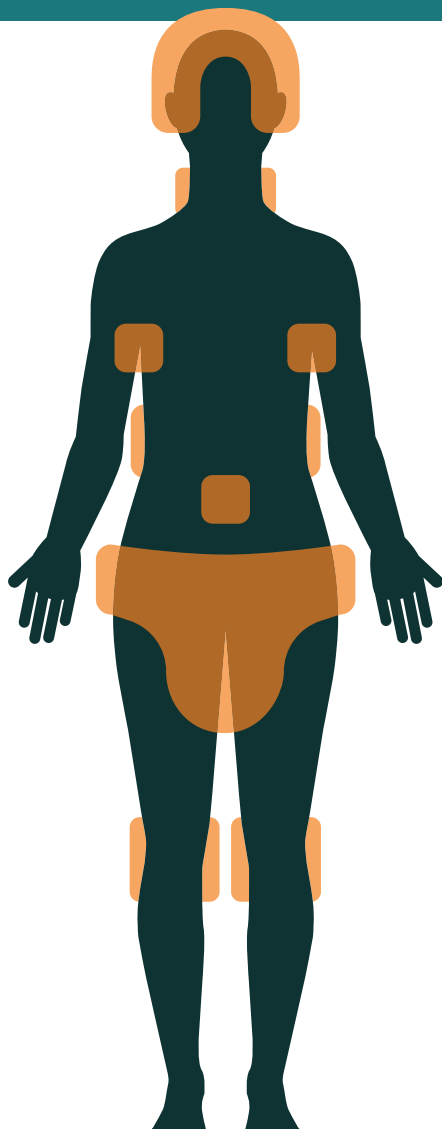
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### CHECK

- Check skin, clothing, gear, pets and children for ticks after spending time outdoors. Remember, ticks may be as small as a poppy seed.
- Shower within a few hours of being outside.
- Put your clothes in the dryer on high heat for 10 minutes to kill any ticks.

### PAY SPECIAL ATTENTION TO:

- ✓ Scalp & neck
- ✓ Ears
- ✓ Back
- ✓ Underarms
- ✓ Belly button
- ✓ Waist & hips
- ✓ Pelvic area & between legs
- ✓ Behind knees

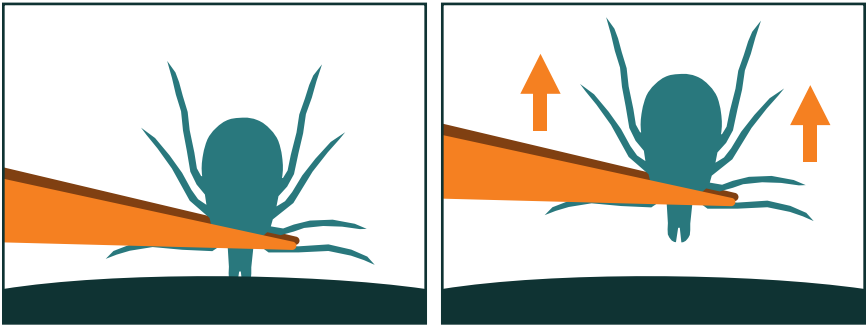


**3****REMOVE**

Remove the tick as soon as you discover it. Prompt removal can reduce your risk of tickborne disease.

**TO SAFELY REMOVE TICKS:**

- Use fine-tipped tweezers and firmly grasp the tick close to the skin.
- With a steady motion, pull straight up until the tick is removed. Do not twist the tick. Try not to squeeze the body of the tick.
- Do not be alarmed if the tick's mouthparts stay in the skin. Once the mouthparts are removed from the rest of the tick, it can no longer spread disease.
- Dispose of a live tick by putting it in alcohol, placing it in a sealed bag or container, wrapping it tightly in tape, or flushing it down the toilet. Never crush a tick with your fingers.
- After removing the tick, wash your hands with soap and water. Clean the tick bite with soap and water, or use rubbing alcohol.



With a steady motion, pull straight up until the tick is removed.

**4****WATCH**

Monitor your health for 30 days after a tick bite for symptoms such as fever, rash, headache, muscle aches, and fatigue. If you get sick, contact your health care provider. Be sure to tell them about your tick bite.





**DO NOT** USE PETROLEUM JELLY, A HOT MATCH, NAIL POLISH, OR OTHER PRODUCTS TO REMOVE A TICK. THESE DO NOT WORK.

## SHOULD I GET THE TICK TESTED?

The Health Department and the CDC do not recommend that you test ticks that have been removed from your skin.

- **It might delay treatment.** Tick testing can take several weeks, and results may not be available to make a health care decision.
- **You may have had more tick bites than you realized.** If you found one tick and it tests negative, you could still have been bitten by another tick. Your negative tick test could give you a false sense of security.
- **You may not have been infected.** Even if a tick tests positive, it may not have been attached long enough to spread the infection, and you may not get sick.
- **Tests done on ticks are not always perfect.** All laboratory tests have the possibility of false positive or false negative results.

For more information  
about ticks and tickborne  
diseases, visit our website

**HEALTHVERMONT.GOV**

# BE TICK SMART



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