

# *Borrelia miyamotoi*

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## What is *Borrelia miyamotoi*?

*Borrelia miyamotoi* is a bacterium (germ) that can be spread by tiny, infected deer (black-legged) ticks. These bacteria have only recently been discovered as a cause of some human illness.

## Where do cases of *Borrelia miyamotoi* infection occur?

*Borrelia miyamotoi* was identified in deer ticks in New England in 2001, and has also been found in these ticks in the upper Midwest and in similar ticks in California, Europe and Russia.

## How are the bacteria spread?

Like Lyme disease, *Borrelia miyamotoi* is spread by the bite of an infected deer tick. Deer ticks in Massachusetts can also carry the germs that cause babesiosis, human granulocytic anaplasmosis (previously known as human granulocytic ehrlichiosis) and Powassan virus. Deer ticks are capable of spreading more than one type of germ in a single bite.

## When can I get *Borrelia miyamotoi*?

Young ticks (nymphs) are most active during the warm weather months between May and July. Adult ticks are most active during the fall and spring but will also be out searching for a host any time that winter temperatures are above freezing.

## Is this disease common?

It is not yet known how common this disease is in Massachusetts. Results from a recent study suggest that this is an infrequent cause of illness occurring during the late spring and summer peak tick season.

## What are the symptoms of infection with *Borrelia miyamotoi*?

Human infections with *B. miyamotoi* were first described in 2011 in Russia. Most of the patients had fever, headache, and muscle aches. Symptoms similar to those of Lyme disease, such as the erythema migrans rash (bull's-eye rash), arthritis or facial palsy were uncommon. Information from cases in the United States is similar, and all reported patients recovered.

## Is there treatment for disease caused by *Borrelia miyamotoi*?

Infection with *Borrelia miyamotoi* can be treated with two weeks of antibiotics.

## Did you know?

You don't have to be a hiker on Cape Cod to worry about ticks. In Massachusetts, you can be bitten in your own back yard. There are lots of things you can do around your own backyard to make it less inviting for ticks! Visit the MDPH Tickborne Disease Website at <http://www.mass.gov/dph/tick> for suggestions.



## What can I do to lower my chances of getting any disease from ticks?

**Prevention begins with you!** Take steps to reduce your chances of being bitten by any tick. Ticks are most active during warm weather, generally late spring through fall. However, ticks can be out any time that temperatures are above freezing. Ticks cling to vegetation and are most numerous in brushy, wooded or grassy habitats. They are not found on open, sandy beaches, but may be found in grassy dune areas. When you are outside in an area likely to have ticks (e.g. brushy, wooded or grassy places), follow these simple steps to protect yourself and your loved ones:

- Use a repellent with **DEET** (the chemical N-N-diethyl-meta-toluamide) or **permethrin**. Repellents containing DEET should not be used on children less than 2 months of age and should be used in concentrations no higher than 30% on older children. Permethrin products are intended for use on items such as clothing, shoes, bed nets and camping gear and should not be applied to skin. More information on choosing a repellent and how to use repellents safely is included on the MDPH Public Health Fact Sheet on Tick Repellents at <http://www.mass.gov/eohhs/docs/dph/cdc/factsheets/tick-repellents.pdf>
- Wear long, light-colored pants tucked into socks or boots, and a long-sleeved shirt. This may be tough to do when the weather is hot, but it will help keep ticks away from your skin and help you spot a tick on your clothing faster.
- Stay on trails when walking or hiking, avoiding the edge habitat where ticks are likely to be.
- Showering immediately after potential tick exposure may help remove unattached ticks.
- Talk to your veterinarian about tick control options (tick collars, repellents) for your pets.

**After spending time in an area likely to have ticks, check yourself, your children and pets for ticks.** Young ticks, called nymphs, are the size of a poppy seed. Adult deer ticks are the size of a sesame seed. Both nymph and adult deer ticks can spread diseases ticks carry; however, nymphs are often of more concern. They are aggressive feeders and so tiny that it can be difficult to see them on the body, unless you are looking carefully. When doing a tick check, remember that ticks like places that are warm and moist. Always check the back of the knees, armpits, groin, scalp, back of the neck and behind the ears. If you find a tick attached to your body, remove it as soon as possible using a fine-point tweezers. Do not squeeze or twist the tick's body, but grasp it close to your skin and pull straight out with steady pressure.

**Know the symptoms of tick-borne disease.** If you have been someplace likely to have ticks and you develop symptoms of any disease carried by ticks, see your health care provider right away.

## Where can I get more information?

- **For questions about your own health**, contact your doctor, nurse, or clinic
- **For questions about diseases spread by ticks**, contact the MDPH at (617) 983-6800 or toll free at (888) 658-2850 or online at [www.mass.gov/dph/tick](http://www.mass.gov/dph/tick). You may also contact your local Board of Health (listed in the telephone directory under "Government").
- **Health effects of pesticides**, MDPH, Bureau of Environmental Health at 617-624-5757.



**Massachusetts Department of Public Health Tick-borne Disease Website**



<http://www.mass.gov/dph/tick>

