

## Environment

---

### LYME DISEASE

#### What is it?

Lyme disease is an illness caused by the bacterium, *Borrelia burgdorferi*, which can be spread through the bite of certain types of ticks. Lyme disease in humans can have serious symptoms but can be effectively treated. Cases of Lyme disease have been reported throughout much of North America. Lyme disease is not a nationally reportable disease in Canada.

#### How do people get Lyme disease?

The bacterium that causes Lyme disease is normally carried in mice, squirrels, birds and other small animals. This bacterium is transmitted to ticks when they feed on these infected animals and then to humans through the bites of the infected ticks. Ticks cannot fly - they hang onto small bushes or tall grasses and are usually found close to the ground. In British Columbia, the western blacklegged tick transmits Lyme disease while in other parts of Canada, the disease is spread by the blacklegged tick, sometimes called the deer tick. Lyme disease is not transmitted directly from person-to-person by means such as touching or kissing. Although dogs and cats can contract Lyme disease, there is no evidence that they can transmit the infection directly to humans. Pets can, however, carry infected ticks into your home or yard. Lyme disease cannot be contracted from eating deer meat.

#### What are ticks?

Though closely related to insects, ticks are actually a type of mite. Ticks vary in size and colour; blacklegged ticks are very small. Before feeding, adult females are approximately 3-5 mm in length and red and dark brown in colour; following a blood-meal, females can be as large as a grape. Ticks are usually picked up when brushing against vegetation and once on bare skin they attach to the host by their mouth.

While it is possible to be bitten by an infected tick anywhere in Canada, there are established populations of the tick that transmits Lyme disease in certain parts of Canada. The western blacklegged ticks are widely distributed in British Columbia, populations are largest in the lower mainland, on Vancouver Island and in the Fraser Valley. Established populations of blacklegged ticks, on the other hand, have been found in southern and eastern Ontario, southeastern Manitoba and parts of Nova Scotia.

#### What are the symptoms of Lyme disease?

Tick bites are usually painless and most people do not know they have been bitten. The symptoms of Lyme disease are often described in three stages, although not all patients have symptoms of each stage.

The first sign of infection is usually a circular rash on the skin. This rash occurs in about 70-80% of infected persons and begins at the site of the tick bite after a delay of three days to one month. Patients often also experience symptoms such as: fatigue, chills, fever, headache, muscle or joint pain and swollen lymph nodes.

If the infection goes untreated, the second stage of the disease can last up to several months with possible symptoms including: central and peripheral nervous system disorders, multiple skin rashes, arthritis and arthritic symptoms, heart palpitations and extreme fatigue and general weakness.

If the infection continues to go untreated, the third stage of the disease can last months to years with possible symptoms including, chronic arthritis and neurological symptoms.

Fatalities from Lyme disease are rare. However, undiagnosed Lyme disease may develop into chronic disease that may be difficult to treat.

## **How is Lyme disease diagnosed?**

Blood tests may be administered in conjunction with clinical diagnosis to demonstrate the presence of antibodies to the bacteria.

It should be stressed that the results of blood tests cannot be interpreted in the absence of appropriate clinical information (i.e., symptoms of infection). The Public Health Agency of Canada recommends the two-tiered approach for blood testing (i.e., screening blood samples with one test and continued testing only on samples that test positive for Lyme disease) and cautions against the use of invalidated tests or interpretation of results without appropriate guidelines. Blood tests may be negative in patients with early Lyme disease or in patients who have had antibiotic treatment. However, the accuracy of blood tests becomes more reliable as the infection progresses.

## **What is the treatment for Lyme disease?**

Although Lyme disease can have serious symptoms, several antibiotics are available to treat the illness. Lyme disease is more effectively treated if diagnosed early in the course of illness. Most cases of Lyme disease can be cured with a 2-4 weeks of treatment with doxycycline, amoxicillin, or ceftriaxone. Persons with certain neurological or cardiac forms of illness may require intravenous treatment with penicillin or ceftriaxone. Patients diagnosed in the later stages of the disease can have persistent or recurrent symptoms requiring a longer course of antibiotic treatment. Treatment failure has been reported, requiring patients be retreated; the risk of treatment failure is greater in patients with long-term Lyme infection.

## **What if I am Pregnant?**

If contracted during pregnancy, adverse effects on the fetus, including stillbirth, can occur. Who is most at risk?

Many occupations may be at risk, including forestry, farming, veterinarians, construction, landscaping, ground keepers, park or wildlife management, and anyone who either works outside or has contact with animals that may carry the ticks.

Similarly, any person who spends a lot time outdoors (hunting, hiking, camping, birding, etc.), especially in grassy or wooded areas may also be at risk.

## **What precautions should you take to avoid Lyme disease?**

Ticks hang onto small bushes or tall grasses. They wait for an animal or person to pass and when the animals or person make contact, the ticks attach themselves to the skin.

Wear protective clothing to limit the access of ticks to your skin. This clothing should include enclosed shoes, long-sleeved shirts that fit tightly around the wrist and are tucked into pants, and long-legged pants tucked into socks or boots. Light coloured clothing helps to be able to spot ticks.

Insect repellents containing DEET can effectively repel ticks. Repellents can be applied to clothing as well as exposed skin. (follow label directions.)

Check for ticks on clothing and skin after being in tick-infested areas. A daily total-body inspection and prompt removal of attached ticks ( within 18 to 24 hours) can reduce the risk of infection. Check children and pets also.

Carefully remove attached ticks using tweezers. Grasp the tick's head and mouth parts as close to the skin as possible and pull slowly until the tick is removed. Do not twist or rotate the tick and try not to damage the tick (i.e., squash or crush it) during removal. After removing ticks, wash the site of attachment with soap and water or disinfect it with alcohol or household antiseptic. Note the day of the tick bite and try to save the tick in an empty pill vial or zip-lock bag. Contact a doctor immediately if you develop symptoms of Lyme disease. If you have saved the tick, take it to the doctor's office.

## **Up to date information**

### **Visit the following internet sites:**

Public Health Agency of Canada: [www.phac-aspc.gc.ca](http://www.phac-aspc.gc.ca)

Canadian Centre for Occupational Health and Safety (CCOHS): [www.ccohs.ca](http://www.ccohs.ca)

Canadian Lyme Disease Foundation: [www.canlyme.com](http://www.canlyme.com)

lh:cope343  
December 2013