

## Lyme Disease

May 2017 – revised

### Definition

Lyme disease is an illness caused by the bacteria *Borrelia burgdorferi* (*B. burgdorferi*). In the last five years, an average of 20 people per year, infected with Lyme disease, were reported to Toronto Public Health. Almost all of these people acquired the disease outside the City of Toronto.

### Signs and Symptoms

Signs and symptoms usually occur one to two weeks after a tick bite, but can begin as early as 3 days to as long as 4 weeks after a bite.

Lyme Disease has three stages in which ill persons may experience any of the following symptoms:

#### Early localized disease

- “Bull’s eye” rash at the site of a recent tick bite
- Fever
- Malaise (general feeling of discomfort)
- Headache
- Joint & muscle pain
- Neck stiffness
- Fatigue

#### Early disseminated disease

- Multiple “bulls eye” rashes (about 15% of people)
- Nerve weakness
- Inflammation of the lining of the brain and spinal cord
- Eye irritation
- Joint & muscle pain
- Headache
- Fatigue
- Carditis (heart block)

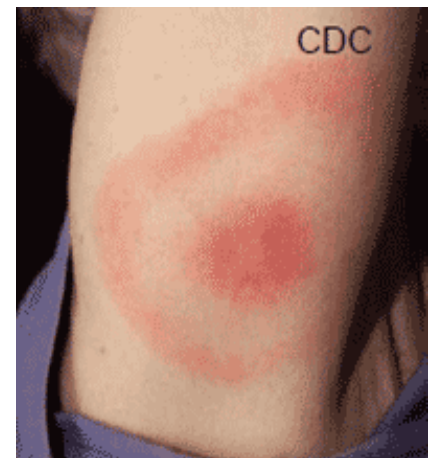
#### Late disease

May develop in people with early infection that was undetected or not adequately treated.

May involve the following:

- Heart
- Nervous system
- Joints including recurrent arthritis
- Behavior changes, sleep disturbance and headaches
- Fatigue

Contact your doctor promptly if you develop symptoms of Lyme disease



## Causes

To get Lyme disease, a person must be bitten by a blacklegged tick (or deer tick) *Ixodes scapularis* that is infected with the *B. burgdorferi* bacteria.

## Diagnosis

A healthcare provider will perform a clinical assessment and take a detailed history of possible tick exposure.



## Tests

Blood work can also be done to test for Lyme disease but should not be the sole factor in determining if someone has the disease.

## Risk Factors

Blacklegged ticks have recently been found in Toronto suggesting that these ticks are becoming established here. The risk of acquiring Lyme disease in Toronto is believed to be low. Ticks are found in wooded or bushy areas with lots of leaves on the ground or where there are tall grasses. Lawns, mowed grass, sports fields or paved areas are not where blacklegged ticks are usually found.

Ticks cannot fly or jump. Instead, they wait for a host (person, animal or bird), resting on the tips of grasses and shrubs. If a person brushes the spot where a tick is waiting, it quickly climbs aboard. It then finds a suitable place to bite. Ticks can attach to any part of the human body but are often found in hard to see areas such as armpits, groin and scalp.

The greatest risk of Lyme disease in Canada occurs where blacklegged ticks are found to carry the Lyme disease-causing agent. For more specific Lyme disease risk locations, see below:

- Toronto Public Health tick surveillance  
<http://www1.toronto.ca/wps/portal/contentonly?vgnextoid=bef2cb0ecee61510VgnVCM10000071d60f89RCRD&vgnnextchannel=6b4b1353c70bd410VgnVCM10000071d60f89RCRD>
- Public Health Ontario tick surveillance  
[http://www.publichealthontario.ca/en/eRepository/Lyme\\_disease\\_risk\\_areas\\_map.pdf](http://www.publichealthontario.ca/en/eRepository/Lyme_disease_risk_areas_map.pdf)
- Public Health Agency of Canada tick surveillance  
<http://origin.phac-aspc.gc.ca/id-mi/tickinfo-eng.php#sec-2>

However, as tick populations are expanding, it is possible that Lyme disease can be picked up outside these areas. In addition ticks can travel or migrate on the bodies of animals such as birds, and therefore can be present in an area for a year in very low numbers then go away. This happens over a broad area of Ontario including Toronto.

## Treatment

There are effective antibiotics available for treatment if your doctor diagnoses Lyme disease.

## Prevention

If the tick was attached for 24 hours or more, your doctor may prescribe an antibiotic to prevent Lyme disease. The antibiotic must be taken within 72 hours from the time that the tick was removed.

There is no vaccine available in Canada to prevent Lyme disease.

## How to avoid tick bites

- Long pants and long sleeves are recommended. Light coloured clothing may make ticks easier to spot
- Apply insect repellent containing DEET (<http://www1.toronto.ca/wps/portal/contentonly?vnextoid=20e5116b8c6c2510VgnVCM10000071d60f89RCRD>) (or icaridin) and follow the manufacturer's instructions
- After spending time outdoors in wooded or bushy areas, shower to remove ticks before they become attached. Check your full body and head for attached ticks.
- If you find a tick on your body, remove it as soon as possible (<http://www1.toronto.ca/wps/portal/contentonly?vnextoid=82304289cc0bd410VgnVCM10000071d60f89RCRD&vnextchannel=6b4b1353c70bd410VgnVCM10000071d60f89RCRD>)
- Remember to also check your children and pets for ticks

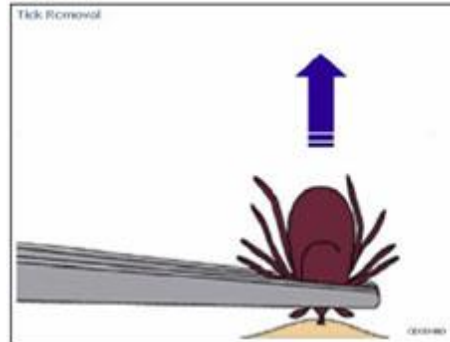
## On your property

- Mow the lawn regularly; remove leaf litter, brush and weeds from the edge of the lawn
- Keep tree branches and shrubs trimmed to let in more sunlight
- Move children's swing sets and sandboxes away from the woodland's edge and consider placing them on a woodchip or mulch foundation
- Ticks feed on rodents, deer and birds. Discourage rodents by sealing stonewalls and small openings around the yard. Use plantings that do not attract deer or exclude deer by fencing. Keep bird feeders away from the house.

### Self-care (tick removal and submission)

If you find a tick on yourself, remove it with fine-tipped tweezers. Do not squeeze or try to burn it off. Grab the tick as close to your skin as possible. Pull the tick away from your skin gently but firmly. Place the tick in a jar or bottle and take it to your health care provider or one of the following Toronto Public Health Offices for identification and further testing.

- 44 Victoria Street, 18th Floor  
Phone number: 416-392-7685
- 175 Memorial Park Avenue  
Phone number: 416-392-0936
- 1530 Markham Road, 5th Floor  
Phone number: 416-338-7431
- 5100 Yonge Street, 2nd Floor  
Phone number: 416-338-8410
- 399 The West Mall, 4th Floor  
Phone number: 416-338-1507



Ticks that are sent to Toronto Public Health can be tested to determine that the tick is the blacklegged tick and can be further tested to see if the tick carries the *B. burgdoferi* bacteria.

**Please note:** Tick submissions from Rouge Park, Morningside Park and Algonquin Island will no longer be forwarded to the public health lab for identification since blacklegged ticks are known to be established in these areas.

### Public Health Role

Toronto Public Health works to prevent and reduce the spread of Lyme disease in humans through surveillance of ticks and human cases, as well as by providing recommendations for the management of human cases.

### Transmission/Spread

Transmission can occur when a tick has been attached to a person for at least 24 hours.

### More information

For more information about Lyme disease visit our website at <http://www.toronto.ca/health> or call Toronto Public Health at 416-338-7600, TTY 416-392-0658.