

## Lyme disease – Local epidemiology, tick surveillance and clinical management

**Attention: Physicians, Emergency Departments, Infection Control Practitioners, Walk-In Clinics/Urgent Care Clinics, Nurse Practitioners**

**Date:** May 5, 2015

The purpose of this fax is to provide Health Care Providers (HCP) in Simcoe County and the District of Muskoka with the current epidemiology for Lyme disease (LD). The statistics provided are based on passive tick surveillance and reports of the disease. Included in this document are resources which may be useful for the HCP and patients.

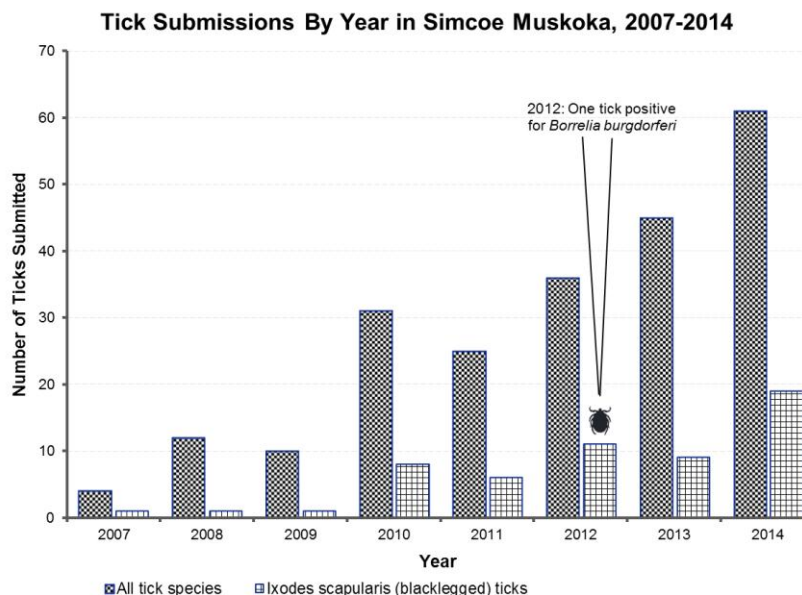
A full list of resources for LD are available through our primary care portal at [www.smdhu.org/PCPortal](http://www.smdhu.org/PCPortal) with the direct link at <http://www.simcoemuskokahealth.org/JFY/PCPortal/PCPCategories/InfectiousDiseases/LymeDisease.aspx>

### Local and Provincial Statistics

#### Tick surveillance:

Since 2007, 225 ticks have been submitted to Simcoe Muskoka District Health Unit (SMDHU) for identification. Tick submissions have increased each year with only 4 ticks submitted in 2007 to 61 in 2014 (Figure 1). **Of the ticks submitted since 2007, 56 (25%) have been identified as *Ixodes scapularis* (blacklegged) ticks, a known vector for LD.** The majority (67%) of submitters for these ticks have listed that these ticks could have been acquired in Simcoe Muskoka. Only one of these ticks has tested positive for *Borrelia burgdorferi* (in 2012), the agent responsible for LD. **Ticks may be submitted through SMDHU for identification and testing for LD if appropriate. It is important to note that tick submissions should not be relied on as a diagnostic tool.** Tick submission data is used to determine the level of community risk and potential transmission of Lyme to the human population.

Figure 1



Data Sources: Passive Tick Surveillance Spreadsheet, extracted May 2015.

**Current identified endemic areas:**

The Canadian perspective may be found at the Public Health Agency of Canada website at:  
<http://www.phac-aspc.gc.ca/id-mi/tickinfo-eng.php#sec-2.2>

**For Ontario, see the Public Health Ontario Technical Report: Update on Lyme Disease Prevention & Control:**

<http://www.publichealthontario.ca/en/eRepository/PHO%20Technical%20Report%20-%20Update%20on%20Lyme%20Disease%20Prevention%20and%20Control%20Final%20030212.pdf>

**Endemic areas in Ontario have been identified as:**

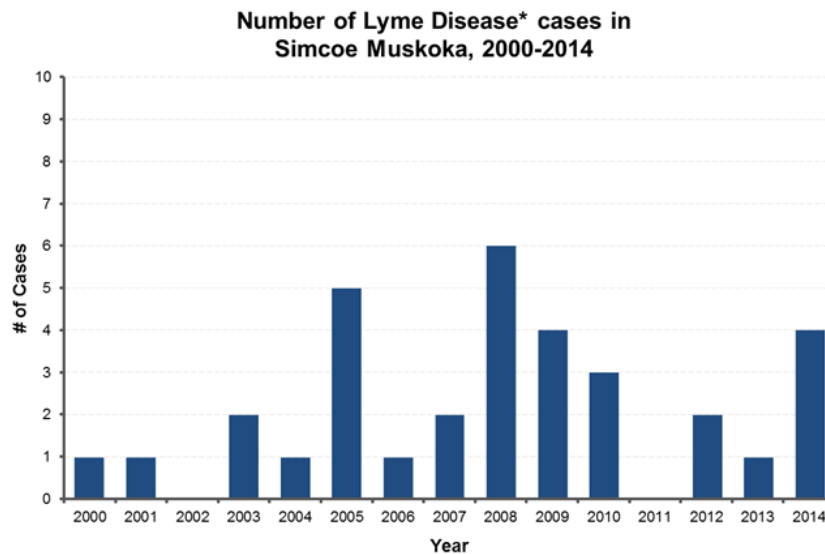
- Western Ontario close to Lake of the Woods
- Pointe-Pelee National Park
- Rondeau Provincial Park
- Turkey Point Provincial Park
- Long Point peninsula including Long Point Provincial Park and the National Wildlife area
- Wainfleet bog near Welland on the Niagara peninsula.
- Prince Edward Point and parts of the Thousand Islands National Park
- Risk areas are locations around Kingston and the Saint Lawrence valley that extend north east towards Ottawa
- Rainy River

**Reported Human Cases**

**The number of LD cases (Figure 2) in Simcoe Muskoka has varied between zero and six cases each year since 2000.** In 2014, four confirmed cases of LD were reported, all with potential exposure sites outside of Simcoe Muskoka. LD cases in Simcoe Muskoka have been reported across all ages, with an age range from 3 to 70 years old. The majority of Simcoe Muskoka cases have been male (64%).

The incidence rate of LD for Simcoe Muskoka for 2014 is 0.74 cases per 100,000 population. In recent years, Ontario's incidence rate appears to be increasing.

**Figure 2: Local LD cases**



Data Source: Integrated Public Health Information System (iPHIS), extracted April 2014

\* Confirmed Cases

### Signs & Symptoms:

Early symptoms of LD usually occur within one to two weeks after a tick bite. However, symptoms can occur within three days or as late as one month after the initial bite. Signs and symptoms include: fever, headache, muscle and joint pains, fatigue and a skin rash, typically one that looks like a red “bull's eye” (*erythema migrans*). **Not all patients with LD will develop the “bull's eye” rash.** If left untreated, symptoms may persist for months to years and may include: multiple skin rashes, heart palpitations, arthritis and arthritic symptoms, extreme fatigue and general weakness, central and peripheral nervous system disorders, and recurring neurological problems.

### Diagnostics:

Serology testing can be ordered from the Public Health Ontario Laboratories to aid in diagnosing LD, but where appropriate, **treatment may be initiated where there is high clinical suspicion based on signs and symptoms**, combined with the epidemiology of LD vectors where the bite took place.

For blood specimen collection for serology, please refer to

[http://www.publichealthontario.ca/en/ServicesAndTools/LaboratoryServices/Pages/Lyme\\_Disease\\_Serology.aspx](http://www.publichealthontario.ca/en/ServicesAndTools/LaboratoryServices/Pages/Lyme_Disease_Serology.aspx)

For further information on the tests, see Labstract: Lyme Disease IgG/IgM at:

[http://www.publichealthontario.ca/en/eRepository/LAB\\_SD\\_088\\_LymeDisease\\_IgGIgM\\_C6peptide\\_assay\\_BorreliaBurgdorferi.pdf](http://www.publichealthontario.ca/en/eRepository/LAB_SD_088_LymeDisease_IgGIgM_C6peptide_assay_BorreliaBurgdorferi.pdf)

### Role of Antibiotics from Public Health Agency of Canada:

<http://www.phac-aspc.gc.ca/id-mi/tickinfo-eng.php#sec-1.8>

### Treatment:

As stated earlier, LD is mainly diagnosed through clinical symptoms and signs along with a history of appropriate exposure to ticks, which happens most frequently via residence in/travel to established areas endemic for LD. A clinical diagnosis of LD can be made regardless of the outcomes of diagnostic testing. Currently Canadian specialty bodies such as the Association of Medical Microbiology and Infectious Disease Canada and the Canadian Pediatrics Society recommend use of the IDSA's clinical practice guidelines that cover assessment, prophylaxis indications, treatment, and prevention of LD, which can be accessed via:

<http://www.journals.uchicago.edu/doi/abs/10.1086/508667>

If needed, consult an infectious disease specialist for individual patient treatment decisions.