

## Lyme Disease and West Nile Virus Update 2019

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

**Date:** June 3, 2019

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In 2018, 14 cases (confirmed and probable) of Lyme disease and one confirmed case of West Nile Virus were reported in the Simcoe Muskoka District Health Unit (SMDHU) catchment area. Eight of the 14 Lyme disease cases were determined to be locally-acquired. This is a significant increase for *locally-acquired* Lyme disease from the previous year, but is similar to what occurred provincially. It is unclear whether this is due to increased laboratory testing or an increase of persons infected. Public Health Ontario has updated its annual [2019 PHO Lyme disease risk areas map<sup>4</sup>](#) (Appendix A) which should be referenced when assessing for tick exposures.

Based on active environmental surveillance of blacklegged ticks in 2017 and 2018, the following local locations are now designated as Lyme risk areas:

- Northwest Simcoe County (impacting Town of Midland, Town of Penetanguishene, Township of Tiny, Township of Tay and Beausoleil First Nation);
- Township of Springwater (eastern part of the township);
- Southeast Bradford West Gwillimbury (including the adjoining areas of York Region);
- South Central Simcoe (impacting the southern portions of the Town of New Tecumseth and Township of Adjala-Tosorontio);
- The Township of Oro-Medonte;
- City of Orillia; and
- North City of Barrie

There are many places throughout Ontario and the United States that could pose a risk for Lyme disease. The Ontario risk areas are determined by standard provincial active tick surveillance methods. **The exact prevalence of *Borrelia burgdorferi* carriage in blacklegged ticks in the local risk areas indicated above is not known, but is estimated to be well below 20% at this time.** The rate will likely increase in the next few years.

Please note: active surveillance does not occur in most of Simcoe Muskoka, and blacklegged ticks have been found throughout Simcoe Muskoka, even in non-risk areas through passive surveillance where health professionals and residents have submitted ticks for identification and testing.

### Lyme Disease

In 2018, Health Quality Ontario produced a very useful two page document including a clinical management algorithm titled "[Management of Tick Bites and Investigation of Early Localized Lyme Disease](#)" available at: <http://www.hqontario.ca/Portals/0/documents/evidence/qs-clinical-guidance-lyme-disease-en.pdf>

The following are also helpful resources regarding Lyme disease:

- [Public Health Ontario Lyme Disease Website<sup>6</sup>](#)
- [Infectious Disease Society of America \(IDSA\) Lyme Disease Guidelines, 2006<sup>1</sup>](#)
- [National Institute for Health and Care Excellence \(NICE\) Lyme Disease Guideline, 2018<sup>2</sup>](#)



- [Clinical Aspects of Lyme Disease in the Canada Communicable Disease Report \(CCDR\) May 28, 2014<sup>3</sup>](#)

Please be advised of the following information regarding tick submissions processes:

### Tick Submission Process

SMDHU encourages health care providers to submit ticks for identification and testing once they have been removed from a patient. Public Health Ontario provides a [surveillance form \(Appendix B\)](#) that is to be filled out and submitted along with the tick. **The identification and bacterial testing of ticks is generally deemed to not be helpful for the clinical management of Lyme disease given that results come later than when clinical decisions need to be made.** However tick submission does help to provide surveillance data to inform local risk assessment by clinicians, and to inform risk communication to Simcoe Muskoka residents. It can take a minimum of 10 to 15 business days for tick identification through Public Health Ontario. If a blacklegged tick is identified, it is sent to the National Microbiology Laboratory, where it may take a minimum of six to eight weeks to determine whether the tick is carrying the bacteria that can cause Lyme disease.

### Prevention

Ticks that carry Lyme disease live in woodland areas, tall grasses and bushes. Key prevention measures for Lyme disease include the following: use insect repellent containing DEET or Icaridin on clothes and exposed skin, wear light-colored clothing (makes ticks easier to see) and long-sleeved shirts tucked into long pants and tuck pants into socks. When hiking and walking, stay on the center of trails, check clothes and body for ticks (especially groin, naval, armpits, scalp and behind knees and ears) and shower as soon as possible after being outdoors to more easily find and wash off ticks. Further information for the public is available at: <http://www.simcoemuskokahealth.org/Topics/InfectiousDiseases/DiseaseInformation/FactSheetsIL/lymedisease.aspx>

### West Nile Virus (WNV) Illnesses

The period of greatest risk for human WNV acquisition is from mid-July to the end of August. To better determine the risk of WNV within Simcoe Muskoka and provincially, adult mosquito trapping programs work to identify the presence of WNV within the adult mosquito population. As of May 15, 2019, there have been no confirmed or probable WNV human cases in Ontario for 2019. It is important to note that although 80% of infected cases are asymptomatic; health care providers are encouraged to remain vigilant for clients presenting with signs and symptoms consistent with WNV.

### West Nile Virus Clinical Presentation:

- There are three clinical manifestations of WNV; asymptomatic, non-neurological and neurological. The majority of WNV cases are asymptomatic.
- About 20% of infected persons develop the usually less severe symptom complex known as WNV non-neurological syndrome. This presents with a mild flu-like illness with fever, headache and body aches, occasionally with a skin rash and swollen lymph nodes or other non-specific symptoms that last several days. Other symptoms may include nausea, vomiting, eye pain or photophobia. WNV neurological symptoms can present as encephalitis, acute flaccid paralysis or with a clinical presentation similar to Parkinson's disease. Less than 1% of infected people will develop neurological symptoms.

### West Nile Virus Laboratory Testing:

- Serologic testing of clotted or serum blood is the preferred method of testing for WNV. Specimens for West Nile Virus (WNV) IgG and IgM serology are performed using ELISA.
  - On the requisition please include mosquito bite history, symptoms, onset date, relevant travel history and history of Japanese virus vaccination or yellow fever vaccination.
- Specimens may also undergo plaque reduction neutralization testing (PRNT) which is highly specific for WNV. Indeterminate results for any of the WNV assays may be due to the presence of low-level antibodies or non-specific reactions.



For more information on vector borne diseases of interest in Simcoe Muskoka please visit the Health Professionals Portal at [www.smdhu.org/HPPortal](http://www.smdhu.org/HPPortal)

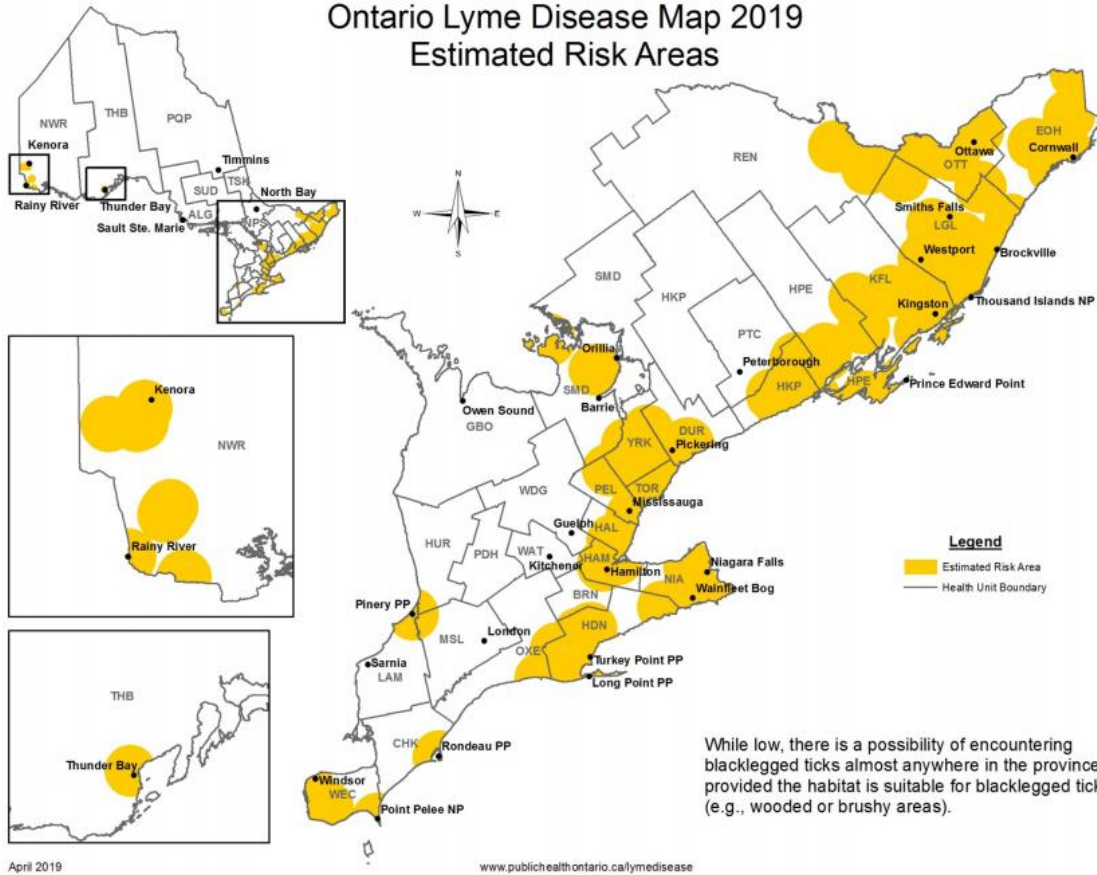
Note: SMDHU has launched its new interactive Diseases of Public Health Significance (formerly Reportable Diseases) Toolkit which provides easier access to disease specific testing, treatment recommendations and patient and clinician resources. Available at: <http://www.smdhu.org/reportablediseaselist>

### References

1. The Clinical Assessment, Treatment, and Prevention of Lyme Disease, Human Granulocytic Anaplasmosis, and Babesiosis: Clinical Practice Guidelines by the Infectious Diseases Society of America, 2006 available at <https://academic.oup.com/cid/article-lookup/doi/10.1086/508667>
2. Clinical aspects of Lyme Disease in the Canada Communicable Disease Report (CCDR) May 28, 2014 available at [http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/14vol40/dr-rm40-11/assets/pdf/14vol40\\_11-eng.pdf](http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/14vol40/dr-rm40-11/assets/pdf/14vol40_11-eng.pdf)
3. National Institute for Health and Care Excellence (NICE) Lyme Disease guideline April 2018, United Kingdom available at <https://www.nice.org.uk/guidance/ng95>
4. Ontario Lyme Disease Map 2019 Estimated Risk Areas (Public Health Ontario) available at <https://www.publichealthontario.ca/-/media/documents/lyme-disease-risk-area-map-2019.pdf?la=en>
5. Nadelman RB, Nowakowski J, Fish D, et al., for the Tick Bite Study Group. Prophylaxis with single-dose doxycycline for the prevention of Lyme disease after an Ixodes scapularis tick bite. N Engl J Med. 2001 Jul 12;345:79-84. Available at <http://www.nejm.org/doi/pdf/10.1056/NEJM200107123450201>
6. Public Health Ontario Lyme Disease website <https://www.publichealthontario.ca/en/BrowseByTopic/InfectiousDiseases/Pages/IDLandingPages/Lyme-Disease.aspx>

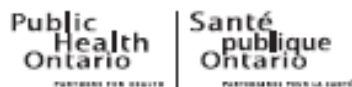


### Ontario Lyme Disease Map 2019 Estimated Risk Areas



Available at: <https://www.publichealthontario.ca/-/media/documents/lyme-disease-risk-area-map-2019.pdf?la=en>





For laboratory use only	
Date received yyyy / mm / dd	PHOL No.

## Surveillance Form for Tick Identification

**NOTE:** Tick testing will be used for surveillance activities. As per Infectious Disease Society of America (IDSA) guidelines, tick testing should not be used for diagnosis and management of Lyme disease.

**ALL Sections of this form must be completed**

<p><b>Submitter</b></p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p style="text-align: right;">Courier code</p> <p>Provide Return Address:</p> <p style="text-align: center;">Name Address City &amp; Province Postal Code</p> </div> <p>Clinician Initial / Surname and OHIP / CPGO Number _____</p> <p>Tel: _____ Fax: _____</p>	<p><b>Client Information</b></p> <table border="1" style="width: 100%;"> <tr> <td>Date of Birth: yyyy / mm / dd</td> <td>Sex: <input type="checkbox"/> Male <input type="checkbox"/> Female</td> </tr> <tr> <td>Last Name: (per health card)</td> <td>First Name: (per health card)</td> </tr> <tr> <td colspan="2">Phone number: (AREA CODE) ###-####</td> </tr> <tr> <td colspan="2">Address: _____</td> </tr> <tr> <td>City: _____</td> <td>Postal code: _____</td> </tr> <tr> <td colspan="2">Submitter lab no. (if applicable): _____</td> </tr> <tr> <td colspan="2">Public Health Unit Investigation No.: _____</td> </tr> </table>	Date of Birth: yyyy / mm / dd	Sex: <input type="checkbox"/> Male <input type="checkbox"/> Female	Last Name: (per health card)	First Name: (per health card)	Phone number: (AREA CODE) ###-####		Address: _____		City: _____	Postal code: _____	Submitter lab no. (if applicable): _____		Public Health Unit Investigation No.: _____	
Date of Birth: yyyy / mm / dd	Sex: <input type="checkbox"/> Male <input type="checkbox"/> Female														
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City: _____	Postal code: _____														
Submitter lab no. (if applicable): _____															
Public Health Unit Investigation No.: _____															

### Tick Information

\*The information in fields a) and b) is mandatory and is essential to the tick surveillance program. Failure to provide this information may result in delays and/or rejection of the tick for testing.

a) \*Where was the tick most likely acquired (Be as specific as possible, e.g., town, park, province, or city):  
 Province \_\_\_\_\_ Town \_\_\_\_\_ Other: \_\_\_\_\_

b) Did you travel in the previous two weeks? (Check one)\*:  
 Yes       No travel       Unknown

If yes, which localities were visited? (Be as specific as possible, e.g., town, park, province, or city):  
 Please indicate all travel locations:

c) When was the tick collected or removed?: yyyy / mm / dd \_\_\_\_\_

d) Was the tick attached (feeding)  
 Yes       No       Unsure

e) How long was the tick attached (feeding) \_\_\_\_\_ (state hours or days)

**PHO does not perform tick testing on ticks removed from non-human sources (e.g., dogs).**

The personal health information is collected under the authority of the Personal Health Information Protection Act, 2004, s.36 (1)(c)(iii) for the purposes specified in the Ontario Agency for Health Protection and Promotion Act, 2007, s.1 and will be used for surveillance and other public health purposes. If you have questions about the collection of this personal health information please contact the PHOL Manager of Customer Service at 416-235-6556 or toll free 1-877-604-4567.

