POST EXPOSURE PROPHYLAXIS FOR LYME DISEASE

a. In the Ottawa area and neighboring regions, Lyme disease can be transmitted by *Ixodes scapularis* ticks (blacklegged tick/deer tick) that are infected with *Borrelia burgdorferi*. Dog and groundhog ticks do NOT carry and transmit Lyme disease. For assistance with tick identification, [http://www.tickcounter.org/tick_identification](http://www.tickcounter.org/tick_identification) or [https://www.etick.ca/](https://www.etick.ca/)

b. Ottawa Public Health does not accept tick submission from area residents. If warranted, ticks recovered from a human host may be submitted by health care provider for identification to the Public Health Ontario Laboratory (PHOL). See [http://www.publichealthontario.ca/en/eRepository/Tick_testing_submi ssion_FAQ.pdf](http://www.publichealthontario.ca/en/eRepository/Tick_testing_submission_FAQ.pdf)

c. Ottawa and neighboring regions are considered “at risk” areas for Lyme disease. In a recent surveillance study, almost 30% of ticks tested were infected with *B. burgdorferi*. For assistance with tick identification, [http://www.tickcounter.org/tick_identification](http://www.tickcounter.org/tick_identification) or [https://www.etick.ca/](https://www.etick.ca/)

- In Ontario: See risk map page 3
- In Quebec: North and western areas of Estrie, Monteregine, south-west regions of Mauricie and Centre-du-Quebec, south-west Outaouais regions (i.e.: Luskville, Pontiac). See risk map page 4
- In Canada: See risk map page 4

d. Signs of early localized Lyme disease: Generally presents within 7-14 days of tick bite, (range 3-32 days). Most patients (60-80%) present with a classic erythema migrans (EM) rash which consists of a single erythematous, expanding, > 5 cm rash +/- central clearing at the site of the tick bite. Rash can have many appearances (see Ref 8). This may be associated with arthralgia, myalgia, headaches and fever. A rash that does not expand and/or resolves within 24-48 h is highly unlikely to be EM. If a person develops evidence of early Lyme disease, they should consult a physician and receive appropriate antibiotic treatment (not prophylaxis) – See page 2.
C. Ottawa and neighboring regions are considered “at risk” areas for Lyme disease. In a surveillance study, almost 30% of ticks tested were infected with *B. burgdorferi*. Recreational trails, conservation areas/forests and the provincial park within the city of Ottawa had significantly higher tick densities than municipal parks. (See Ref 2)

For other “at risk” areas:
- **In Ontario**: See risk map page 3
- **In Quebec**: North and western areas of Estrie, Montérégie, south-west regions of Mauricie and Centre-du-Quebec, south-west Outaouais regions (ie: Luskville, Pontiac). See risk map page 4
- **In Canada**: See risk map page 4

* Verify with pharmacy first.

**Doxycycline** - Pontiac). See risk map page 4

**West Outaouais regions** (ie: Luskville, Mauricie and Centre Estrie, Monteregie, south-west regions of Estrie, Montérégie, south-west regions of Mauricie and Centre-du-Quebec, south-west Outaouais regions (ie: Luskville, Pontiac). See risk map page 4

**Municipal parks.** (See Ref 2)

**Had significantly higher tick densities than provincial park within the city of Ottawa**

**Conservation areas/forests and the burgdorferi**

**30% disease.**

**Considered “at risk” areas for Lyme disease**

**Antibiotic**

**Formulation covered by OHIP+**: Doxycycline 100 mg tablets (can be quartered) and suspension (limited availability – verify with pharmacy first prior to ordering). Reference: 1 & 4

**Adverse effect**: photosensitivity – recommend sun protection and sunscreen. For short term use (<21 days), visible teeth staining or enamel hypoplasia is unlikely to occur.

**Online information and reporting form:**


**Patent Education**

Counsel patients on possible persistent symptoms after adequate treatment of Lyme disease. Some patients may have prolonged, persistent non-specific symptoms such as fatigue, pain or headaches, in the convalescent period which gradually resolves and responds to symptomatic treatment.

**Possible Late Lyme Disease**

**Joint:** Chronic, intermittent arthritis

**Neuro:** peripheral neuropathy, encephalomyelitis

*Can occur months after tick bite.*

**Consider ID consultation for further patient specific guidance**

**In general, serology is done in cases of disseminated or late Lyme disease or if tick was acquired in a non “at risk” area.**

Serologic testing is not sensitive in the first 2-4 weeks after infection and therefore **not useful** in the diagnosis of Early Lyme Disease.

If tick bite was acquired in Europe – **MUST** specify on requisition to test for **European Lyme**.

Serology follows national and international recommendations involving 2-tier serologic algorithm. Done at Public Health Ontario Laboratory.

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**Table:**

<table>
<thead>
<tr>
<th>Antibiotic</th>
<th>Dosage</th>
<th>Max dose</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amoxicillin</td>
<td>50 mg/kg/d PO div TID</td>
<td>500 mg PO TID</td>
<td>14 days</td>
</tr>
<tr>
<td>Doxycycline*</td>
<td>4.4 mg/kg/d PO div BID</td>
<td>100 mg PO BID</td>
<td>10 days</td>
</tr>
</tbody>
</table>

*Adverse effect: photosensitivity – recommend sun protection and sunscreen. For short term use (<21 days), visible teeth staining or enamel hypoplasia is unlikely to occur.

**Formulation covered by OHIP+:** Doxycycline 100 mg tablets (can be quartered) and suspension (limited availability – verify with pharmacy first prior to ordering). Reference: 1 & 4

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**Treating Early Lyme Disease**

**Suspected early localized Lyme disease**

Generally presents within 7-14 days of tick bite, (range 3-32 days). Most patients (60-80%) present with a classic erythema migrans (EM) rash which consists of a single erythematous, expanding, > 5 cm rash +/- central clearing at the site of the tick bite. Rash can have many appearances (see Ref 8). This may be associated with arthralgia, myalgia, headaches and fever. A rash that does not expand and/or resolves within 24-48 h is highly unlikely to be EM. A tick saliva hypersensitivity reaction is most likely in cases of rashes < 5 cm appearing within 72 hours of the tick bite (Not Lyme Disease and no treatment required)

**Time from tick detachment or potential contact with ticks through outdoor activities in “at risk areas”**

- **> 32 days**
- **> 3 – 32 days**
- **Start empiric therapy**: Treatment of EM results in rapid resolution of skin lesions within several days and almost always prevents development of later stages of Lyme disease

**Do not send serology in early Lyme disease**

**Possible Early Disseminated Lyme Disease**

**Skin:** Multiple EM lesions

**Neuro:** Cranial nerve palsies (especially CN7), meningitis, meningoo-radiculoneuropitis

**Cardiac:** AV block, myopericarditis

**Joints:** Arthritis (often mono/pauciarticular – large joints)

**Possible Late Lyme Disease**

**Joint:** Chronic, intermittent arthritis

**Neuro:** peripheral neuropathy, encephalomyelitis

*Can occur months after tick bite.*

**Consider ID consultation for further patient specific guidance**
While low, there is a possibility of encountering blacklegged ticks almost anywhere in the province, provided the habitat is suitable for blacklegged ticks (e.g., wooded or brushy areas).

Lyme disease risk areas

Outaouais including Gatineau Park

At this time, most of Gatineau Park is an area where a “risk is present” for Lyme Disease but not significant enough to warrant post-exposure prophylaxis. Risk is considered significant in the area of Bristol/Pontiac (orange area). Please consult an interactive map from the Institut national de Santé Publique Quebec (INPSQ) for more specific and up to date details on risk areas: https://www.inspq.qc.ca/zoonoses/maladie-de-lyme. (Accessed May 15th 2019)

Canada

This figure contains 5 insets which display locations where the risk from tick bites and Lyme disease is known to occur, and where risk of tick bites and Lyme disease is possible. Hatched areas are locations where ticks and Lyme disease risk are known and are called "risk areas". From: https://www.canada.ca/en/public-health/services/diseases/lyme-disease/risk-lyme-disease.html#a3
Facts about Lyme disease in Ottawa

- The vector and bacteria of Lyme disease is present in Ottawa. Recent data specific to Ottawa area suggests up to 30% infectivity rate of local Ixodes scapularis ticks. (Ref 2)
- Over the years, the prevalence of B. burgdorferi in blacklegged (deer) ticks has increased and is currently at a level that warrants post-exposure prophylaxis in certain cases that meet criteria.
- The overall risk of acquiring Lyme disease following an I scapularis tick bite in a high-risk area is low and estimated to be around 2.2%. [95% CI 1.2-3.9%] (Ref 3)
- If a single dose of doxycycline is given as prophylaxis, the overall risk of progression to Lyme Disease is decreased to 0.2% [95% CI, 0-1] (Ref 3)
- Transmission < 24 hours of tick attachment is highly unlikely. Based on animal models, there is almost invariably a delay of at least 36 hours between the time of tick attachment and transmission of B. burgdorferi.
- Due to reassuring safety data, doxycycline can be given for short term use (< 21 days) in children of any age. (Ref 4)
- Treatment of early Lyme disease with appropriate antimicrobials is easy and effective.
- Prevention is key. Practice regular tick checks following outdoor activity. Wear appropriate light colored clothing (to detect ticks more easily) and long sleeves/protective clothing, pants tucked into socks. Use insect/tick repellent (DEET or icaridin). Remove attached tick promptly.

References and additional information:


Ottawa Lyme Algorithm July 2019