Additional images of typical and atypical rashes are available on Health Canada’s website under “Clinical Manifestations,” please see “Erythema migrans rash.”

Note: People with darker skin tones may present with a bruse-like rash.

Box 2. Prevalence of Symptoms in Patients Presenting With Possible Early Localized Lyme Disease*

- Erythema migrans rash (typical or atypical) – 76%
- Headache 42%
- Fever/chills 39%
- Fatigue 54%
- Myalgia 44%

*As a disease of public health significance, Lyme disease is reportable in Ontario under the Health Protection and Promotion Act, R.S.O. 1990, c. H.7.

Box 4. Areas of Risk for Lyme Disease

- The risk of acquiring Lyme disease varies across geographical regions. Please click to see the risks in Ontario, Canada, and the United States.
- In Europe, the areas of highest risk are in Central and Mediterranean region found in Southern Scandinavia and up to the northern Mediterranean region.
- Areas of highest risk are in Central and Eastern Europe, but ticked have also been found in Southern Scandinavia and up to the northern Mediterranean region.

Box 5. Post-Exposure Prophylaxis

The risk of developing Lyme disease following a tick bite by an infected tick is between 1% and 3%. In Ontario, the prevalence of infected ticks varies by geographic region.

- In many instances, adopt the “tick what you see is what you eat” approach and treat patients if they develop symptoms compatible with Lyme disease.
- Counsel patients to watch for the development of early signs and symptoms for 30 days, and advise patients that other tick-borne infections may result in signs or symptoms too.

Based on the best available evidence, post-exposure prophylaxis can be considered if these four criteria are met:

1. The tick was attached > 24 hours
2. The tick was removed within the past 72 hours
3. The tick was acquired in an area with a prevalence of Borrelia burgdorferi > 20% (e.g. Rouge National Urban Park and Morningstar Park in the Greater Toronto Area, Brighton, Kingston and surrounding areas, Thousand Islands, Brockville, Perth-Smiths Falls and surrounding areas, Ottawa and surrounding areas, Rondeau Provincial Park, Hilton Beach, and Pointe Pelee National Park in Grand Bend).

Box 6. Laboratory Testing

- Laboratory testing is generally not indicated for asymptomatic patients.
- Serological testing may not yield positive results during early localized Lyme disease, so management should not be based on serological testing results during this phase.
- Antibiotic treatment in early disease may reduce seroconversion; testing should not be used to monitor treatment outcome.
- Following exposure to Borrelia burgdorferi, immunoglobulin M (IgM) antibodies are detected within 2–4 weeks, and IgG antibodies within 4–6 weeks.
- As of April 1, 2023, Public Health Ontario uses a modified two-tiered testing (MTTT) algorithm to maximize sensitivity and specificity (see Box 7).
- For serological testing, please complete the requisition fully and submit it, along with samples, to a public health laboratory for testing.
- If European Lyme disease is suspected based on the patient’s travel history, please order serology testing specific to European Lyme disease.

Box 7. Sensitivity of Serological (Modified Two-Tier) Testing in Patients With Lyme Disease

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dosage for Adults</th>
<th>Dosage for Children</th>
</tr>
</thead>
<tbody>
<tr>
<td>D Oxycycline</td>
<td>100 mg twice a day for 10–21 days</td>
<td>For children &lt; 18 years of age: 4 mg/kg, orally divided into 2 doses (maximum 200 mg/day) for 10–21 days</td>
</tr>
<tr>
<td>Aminocycline</td>
<td>500 mg three times a day for 14–21 days</td>
<td>For children &lt; 18 years of age: 50 mg/kg/day orally, divided into 3 equal doses per day, maximum of 500 mg per dose for 14–21 days</td>
</tr>
<tr>
<td>Cefuroxime</td>
<td>500 mg twice a day for 14–21 days</td>
<td>For children &gt; 8 years of age: 30 mg/kg/day divided in 2 doses (maximum 500 mg/ dose) for 14–21 days</td>
</tr>
<tr>
<td>Ameprazole</td>
<td>500 mg/day for 7–17 days</td>
<td>For children &lt; 18 years of age: 10 mg/kg/day, orally, once daily for 7–17 days</td>
</tr>
<tr>
<td>Clarithromycin</td>
<td>Related contraindicated in pregnant women</td>
<td>For children &gt; 8 years of age: 7.5 mg/kg twice a day (maximum 500 mg/day) for 14–21 days</td>
</tr>
</tbody>
</table>

Doxycycline is considered to be the preferred antibiotic treatment option by some guidelines for early Lyme disease (erythema migrans) in both children and adults based on its ability to treat potential extracutaneous manifestations of infection (particularly neurological involvement) and potential confection or infection with Anaplasma phagocytophilum (anaplasmosis) or Ehrlichia multilocularis.

Recent guidelines recommend a 10-day treatment duration with doxycycline in children of all ages and adults. A 2019 guideline recommends a 21-day treatment duration with doxycycline in children over 5 years of age and adults based on concerns with low cure rates and a lack of clear evidence for shorter courses. In addition, a longer course may be reassuring for people being treated for early Lyme disease who continue to have symptoms and the evidence suggests that adverse event rates were not increased for longer courses.

Patients treated with macrolides should be closely monitored to ensure resolution of clinical symptoms as macrolides are less effective.