



# Durham Region Health Department FAX about...

For Health Care Professionals



## Early Diagnosis and Treatment of Lyme Disease

Lyme Disease is a preventable disease caused by the bacterium *Borrelia burgdorferi*. It is transmitted to humans through the bite of infected ticks. In Ontario, *Ixodes scapularis* (the blacklegged tick or “deer tick”) is the sole vector of *B. burgdorferi*. **Blacklegged ticks are established in Durham Region.** In 2022 there were a total of 97 confirmed/probable cases of Lyme disease identified in Durham Region.

### Clinical Guidance

The new Clinical Guidance Document on the [Management of Tick Bites and Investigation of Early Localized Lyme Disease](#) has been released. Please also see the attachment on Lyme Disease from Lakeridge Health for additional details on diagnosis, testing, and treatment.

### Testing Indications

Please visit the PHO website for Lyme Disease [testing information](#). **Serological testing of asymptomatic patients, including individuals following a tick bite, is not recommended. Serological testing is useful for individuals in the absence of a rash, presenting with non-specific symptoms where Lyme disease is suspected.**

### Recognizing Lyme Disease

#### Early Localized Infection

70-80% of infected patients will present with an Erythema migrans rash (bullseye lesion or expansile red patch) at the bite site, within 3-30 days after exposure to an infected blacklegged tick. Early systemic symptoms may include fatigue, headache, myalgia, arthralgia, and fever. Also consider “cellulitis” in an unusual location or a bruise-like rash in dark skinned patients. Diagnosis is based on likelihood of tick exposure from a risk area in conjunction with clinical signs and symptoms as serology may not yield accurate results.

Testing recommendations: Clinical diagnosis, serology may not yet be positive

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905-668-2020 or 1-800-841-2729 | [durham.ca/health](http://durham.ca/health)

If you require this information in an accessible format, contact 1-800-841-2729.



## Early Disseminated Infection

Patients may present with multiple EM-like lesions, neurological symptoms including facial nerve (Bell's) palsy, aseptic meningitis, radiculitis, mononeuritis multiplex, and CN palsy, and/or cardiac symptoms including carditis, PR prolongation, and myopericarditis.

Testing recommendations: Serology

## Late Disseminated Infection

Patients generally present with arthritis (oligoarthritis, <5 joints, knee most common, waxing and waning over weeks-months) and / or encephalopathy.

Testing recommendations: Serology

## Post-Lyme Disease Syndrome

10-20% of patients may experience ongoing fatigue, musculoskeletal pain, neurocognitive and other nonspecific subjective symptoms up to one year post treatment. Patients should be assessed for objective evidence of treatment failure/reinfection. In addition, other conditions should be ruled out. Treatment should be supportive as trials of prolonged antibiotics have demonstrated no benefit.

# Treatment Guidance

Please see the Clinical Guidance Document on the [Management of Tick Bites and Investigation of Early Localized Lyme Disease](#). Please also see the attachment on Lyme Disease from Lakeridge Health.

## Post Exposure Prophylaxis for Asymptomatic Patients

The risk of acquiring Lyme disease varies across geographical regions. For the most current list of estimated risk areas within Ontario refer to the [Ontario Lyme Disease Map](#). Blacklegged ticks are established in Durham Region. **Post exposure prophylaxis should be considered if the following 4 conditions are met:**

- The tick was attached > 24 hours
- The tick was removed within the past 72 hours
- The tick was acquired in an area with a prevalence of ticks infected with *Borrelia burgdorferi* > 20% (*\*Most of Durham Region meets this criteria*)
- Doxycycline is not contraindicated. Doxycycline is contraindicated for pregnant or lactating people and those with an allergy. There is insufficient evidence for the prophylactic use of other medications, such as amoxicillin.

### Recommended treatment for post-exposure prophylaxis:

- Adults: 1 dose of doxycycline 200 mg, by mouth
- Children < 18 years of age: 1 dose of doxycycline 200 mg dose or 4 mg/kg (up to a maximum dose of 200mg), by mouth

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# Tick Identification

Public Health Ontario Laboratory will accept ticks from health care providers for identification of tick species (i.e., *Ixodes scapularis*). They only accept ticks found on humans. The Health Department does not submit ticks for identification as Durham is an already established risk area for *Ixodes scapularis*. Tick identification is used for surveillance and not for diagnosis in an individual patient. Health care providers may also submit ticks for identification through the [eTick.ca](https://www.eTick.ca) website.

## Reporting

Please continue to report any cases of Lyme Disease to the Durham Region Health Department:

- Phone: 905-668-2020 or 1-800-841-2729 ext. 7369 (press option 2)
- Confidential Fax: 905-666-1833
- After Hours Phone: 905-576-9991 or 1-800-372-1104
- Access the Notification Form for Diseases of Public Health Significance at [www.durham.ca/hcp](http://www.durham.ca/hcp) under Forms, Reporting.

May 23, 2023



## What is Lyme Disease?

Lyme disease is a bacterial infection caused by *Borrelia burgdorferi*, transmitted through the bite of an infected blacklegged tick. In 2021, **1,707 cases** were reported to Public Health Ontario.

## Prophylaxis

Give within 72 hours of removal if high-risk tick bite:

1. An identified Ixodes spp. vector species
2. It occurred in a highly endemic area AND
3. The tick was attached for  $\geq 24$  hours

**Regimen:** Doxycycline 200 mg po x 1 for adults, 4.4 mg/kg (up to a maximum dose of 200 mg) for children.

**Alternates:** no other single dose regimens have been studied.

## Co-Infection

Possible co-infections include Babesiosis, Anaplasmosis, Ehrlichiosis, Powassan virus, *Borrelia miyamotoi*, *Borrelia mayonii*.

Routine testing is not recommended.

Doxycycline would treat all except Babesia and Powassan.

Work up should be considered if persistent high fever for  $>1$  day while on Lyme treatment, or baseline lab abnormalities that are not characteristic for Lyme disease (thrombocytopenia, leukopenia, neutropenia, and/or anemia, particularly with hemolysis).

## Clinical Details

### Early Localized

Skin: erythema migrans (only 70%) - bullseye lesion or expansile red patch (consider when cellulitis in unusual location), bruise-like rash (dark skin tones)  
Systemic: fatigue, headache, myalgia, arthralgia, fever.



**Testing:** clinical diagnosis, serology may not yet be positive

**Treatment:** Doxycycline x 10 days<sup>†</sup>

*Nb short course doxycycline is considered safe for kids by AAP.*

### Early Disseminated

Skin: Multiple EM-like lesions  
Neuro: **facial nerve palsy**, aseptic meningitis, **radiculitis**, mononeuritis multiplex, CN palsy  
Cardiac: **carditis**, PR prolongation, myopericarditis



**Testing:** Serology

**Treatment:** Doxycycline 14-21d (Ceftriaxone for in-patient management carditis/CNS)<sup>†</sup>



### Late Disseminated

Arthritis (oligoarthritis,  $<5$  joints, knee most common, waxing and waning over weeks-months)  
CNS: encephalopathy

**Testing:** serology

**Treatment:** doxycycline x 28 days<sup>†</sup>

### Post-Lyme Disease Syndrome

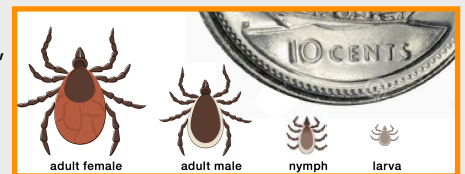
Fatigue, musculoskeletal pain, neurocognitive and other nonspecific subjective symptoms persist in 10-20% up to 1 year post treatment

**Testing:** Assess for objective evidence of treatment failure/reinfection, rule out other conditions

**Treatment:** Supportive (trials of prolonged antibiotics demonstrated no benefit)

### Tick Identification & Prevention

Avoid tick bites by using insect repellent, wearing proper clothing, removing ticks as soon as possible after bites and removing tick habitats around the home.



Ticks can be submitted to Public Health Ontario for identification or photos submitted to [www.etick.ca](http://www.etick.ca)

Ticks will not be tested for pathogens, and tick identification is used for surveillance, not for diagnosis in an individual patient.

<sup>†</sup> Alternatives to doxycycline include: amoxicillin, cefuroxime, azithromycin, clarithromycin

<sup>‡</sup> <https://www.hqontario.ca/Portals/0/documents/evidence/qs-clinical-guidance-lyme-disease-en.pdf>  
As of April 2023, PHO uses a modified two-tiered testing approach (MTTT) for detection of *B. burgdorferi* antibodies. For details see <https://www.publichealthontario.ca/en/laboratory-services/test-information-index/lyme-disease-serology>