

Prince Edward Island Lyme Disease Algorithm for Clinicians



Example of an Erythema migrans (EM) rash. Often develops a central clearing (bull's eye shape).

Patient with suspected tick bite

■No-

If tick is still attached, remove as per PHAC instructions.*

Symptomatic

Submit to etick.ca for identification.

See Box 1

Low risk for Lyme Disease (See Box 1 and Box 2). Watch for symptoms of early disease for 30 days postexposure.

Consider Doxycycline

prophylaxis

(200 mg PO x1)

if not contraindicated

(see Box 3)

& can be given within 72 hours

of tick removal

Report prophylaxis to CPHO

902-368-4996

Yes

Watch for symptoms for 30 days postexposure

No-

Tick was

attached for

24 - 36 hours

or unknown?

Tick was removed less

than 72 hours

ago?

Early localized disease (<30 days)

Yes-

- Erythema migrans (EM) (Box 4)
- Low grade fever, fatigue, headache, neck stiffness, arthralgia, myalgia

Early disseminated disease (<3 months)

Report

treatment to

CPHO

902-368-

4996

- Multiple EM
- Low grade fever, fatigue, headache, arthralgia
- Bell's Palsy

Late disseminated disease (>3 months)

- Recurrent arthritis affecting large joints
- Central nervous system manifestations – meningitis, encephalopathy

 Order Lyme disease Serology if > 7 days since tick bite (Box 5)

- Treatment if clinical suspicion high (Box 6)
- If initial symptoms persist, test again for Lyme serology in 4 weeks
 - Consult with Infectious Diseases and CPHO if necessary
- Order Lyme disease Serology (Box 5)
- Treatment if clinical suspicion high (Box 6)
- Consult with Infectious Diseases and CPHO if necessary

* If no known tick bite but Lyme disease is in the differential, follow algorithm from the "Symptomatic" circle

-Yes

Box 1. Lyme Disease Risk

- Most people who are bitten by a tick do not get Lyme disease
- Ticks must carry the Lyme bacteria and be attached for >24 to 36 hours for transmission to occur.
- In PEI, only the black-legged tick can carry Lyme disease.
- Although PEI is not considered an endemic/high risk area for Lyme disease, ticks carrying Lyme-causing bacteria may be present.
- Higher risk areas for Lyme include northeastern US and Wisconsin, southern Ontario, southern N.B., and most of Nova Scotia.

Box 2. Other Tick-Borne Diseases

Contact Infectious Disease consultant if febrile after 7 days and history of tick bite, as this could be a few different tick transmitted illnesses.

Other Tick Associated Diseases include:

Black legged / Deer Ticks: Tick Borne Fever (*Borrelia miyamotoi*), Anaplasmosis, Powassan Virus infection, Babesiosis, and Tularemia

Dog Tick or Lone Star Tick: Ehrlichiosis, Rocky Mountain Spotted Fever

Box 3. Post exposure prophylaxis

For Lyme disease after a black-legged tick bite:

Adults: Doxycycline 200mg PO x 1 dose

Children ≥8 years: Doxycycline 4 mg/kg, up to maximum dose of 200mg

Doxycycline is contraindicated in pregnancy and for children <8 years No further testing/treatment required following post-exposure prophylaxis.

Box 4. Erythema migrans

- Single or multiple *erythema migrans* (EM) rash is present in most but not all cases (60-85% of cases).
- EM begins as red macule/papule at site of tick bite.
 Rapidly enlarges to diameter ≥ 5 cm. Often develops central clearing (bull's eye shape).

Box 5. Lyme Disease Serology

- Serology is not helpful if done within 7 days of a tick bite unless patient has had previous Lyme disease (very rare).
- Lyme disease serology is performed by Modified Two Tier Testing (MTTT) algorithm using 2 enzyme immunoassays (EIAs) at QEII HSC Microbiology Laboratory.
- It has a specificity at 99.6%.
- It is more sensitive for detecting early infection (formal evaluation showed that the MTTT approach
 detected 28% more cases of early infection)
- Contact with Infectious Disease Consultant for assistance in interpreting lab results from private and/or labs in the USA. Over 40% of healthy (non-infected) individuals will react falsely to private lab criteria.

European or Asian Lyme disease requires specialized testing. *Please add travel history or contact the Infectious Disease Consultant*.

Age Category	Line	Drug	Dosage	Frequency	Maximum	Duratio
Category						n
Adults	1 st	Doxycycline	100 mg orally	Twice/day	N/A	21*
	2 nd	Cefuroxime axetil	500 mg orally	Twice/day	N/A	21*
		Amoxicillin	500 mg orally	Three times/day	N/A	21*
Children (< 18 yrs)	1 st	Doxycycline	4 mg/kg orally	Daily, 2 divided doses	100 mg per dose	21*
(23).0)	2 nd	Amoxicillin	50 mg/kg orally	Daily, 3 divided doses	500 mg per dose	21*
		Cefuroxime axetil	30 mg/kg orally	Daily, 2 divided doses	500 mg per dose	21*

^{*}https://cep.health/media/uploaded/CEP_EarlyLymeDisease_Provider_2020.pdf