

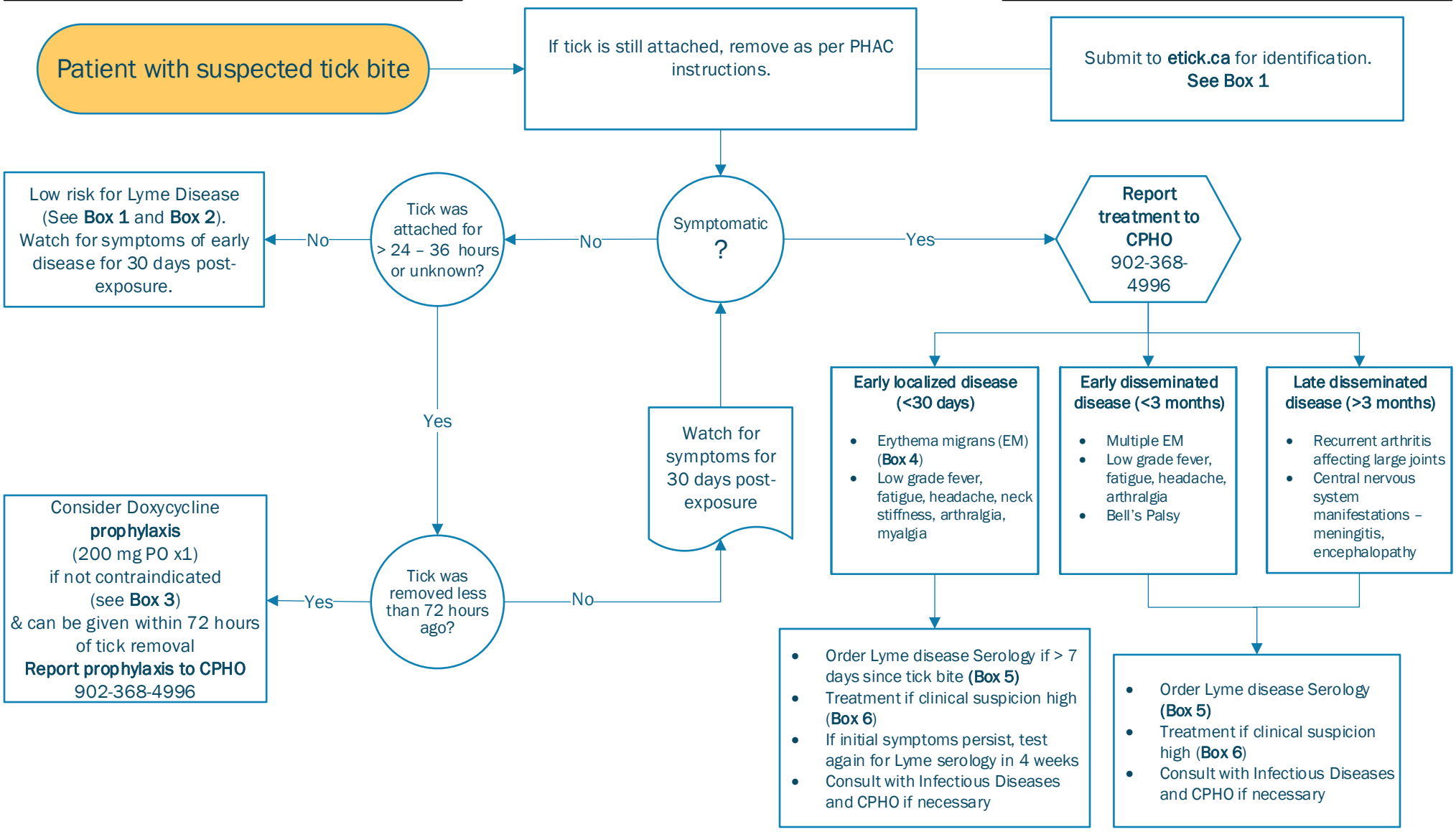


Ixodes (black-legged deer) ticks in various fed stages:
A) Nymphal Female B) Adult Female

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

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

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 post-exposure.

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

Watch for symptoms for 30 days post-exposure

Early localized disease (<30 days)

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

- 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

Early disseminated disease (<3 months)

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

- Order Lyme disease Serology (Box 5)
- Treatment if clinical suspicion high (Box 6)
- Consult with Infectious Diseases and CPHO if necessary

Late disseminated disease (>3 months)

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

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).
- Serology for cases with EM can be negative if prophylaxis or full treatment given.
- Serology sensitivity for early Lyme disease (<30 days) is 46.3%.
- Serology sensitivity improves for early disseminated disease (<3 months) to 89.7%.
- Serology sensitivity further increases in late disseminated disease (>3 months) to 99.4%.
- Lyme disease serology screening tests (ELISA) that are positive or indeterminate are sent to the National Microbiology Laboratory for western blot testing using CDC/PHAC criteria.
- 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.

Box 6. Treatment of Early Localized Lyme Disease

	Age category	Drug	Dosage	Maximum	Duration (days)
Adults	1 st line	Doxycycline	100 mg, p.o., q 12 h	N/A	14*
	2 nd line (Pregnancy)	Amoxicillin	500 mg, p.o., q 8 h	N/A	14*
	Penicillin allergic	Cefuroxime axetil	500 mg, p.o., q 12 h	N/A	14*
Children	1 st Line	Amoxicillin	50 mg/kg per day p.o., divided in 3 doses	500 mg per dose	14*
	2 nd Line (age 8+ years old)	Doxycycline	4 mg/kg per day p.o., divided into 2 doses	100 mg per dose	14*
	Penicillin allergic	Cefuroxime axetil	30 mg/kg per day p.o., divided into 2 doses	500 mg per dose	14*

* Increase to 21 days for immunocompromised individuals