Assessment and Prescribing Algorithm for Pharmacists: 
Antibiotic Prophylaxis to Prevent Lyme Disease following a Tick Bite

Assessing the patient

Is the patient symptomatic following a tick bite?
- Erythema migrans rash (“bull’s-eye” rash – refer to references for detailed description)
- Fever, chills, headache, stiff neck, fatigue, decreased appetite, muscle and joint aches, joint swelling, swollen lymph nodes.

YES
Refer to a physician or nurse practitioner.

NO

Is the patient at high risk for developing Lyme disease? (i.e. must meet ALL 4 of the following criteria)
1. Tick has been removed within the past 72 hours. (If the tick is still attached, advise the patient to safely remove.)
2. Tick bite occurred in a higher risk area where blacklegged ticks have been identified.
   - Refer to the most recent Ontario Lyme Disease Map for estimated risk areas.
   - Refer to Ontario Health Clinical Guidance Document for examples of higher risk areas with a prevalence of ticks infected with Borrelia burgdorferi > 20% (Box 5).
3. Tick was likely attached for 24 hours or more
4. Doxycycline is not contraindicated (e.g. allergy, pregnancy).

YES
Prescribing antibiotic prophylaxis:
- Adults: doxycycline 200 mg by mouth x 1 dose
- Children: doxycycline 4 mg/kg (maximum dose of 200 mg) by mouth x 1 dose (no age restriction)

NO
If all 4 criteria are not met:
- Do not prescribe antibiotic prophylaxis.
- Educate patient to monitor for symptoms for 30 days and see a physician or nurse practitioner if symptoms develop.

Documentation & Follow-up:
- Complete documentation & notify physician or nurse practitioner.
- Educate all patients to monitor for signs and symptoms for 30 days and see a physician or nurse practitioner if they develop symptoms.
- For surveillance purposes only, patients have the option to submit photos of ticks to www.etick.ca for identification.

Prescribing Considerations:
- Doxycycline should be used for post-exposure prophylaxis in adults and children of all ages. Previously, doxycycline was not recommended for children < 8 years of age however this guidance has changed as dental staining is uncommon with short courses.
- If doxycycline is contraindicated (e.g. allergy, pregnancy), there are no alternatives. Do not prescribe other antibiotics for post-exposure prophylaxis. Educate patient to monitor for symptoms for 30 days and see a physician or nurse practitioner if symptoms develop.

References:
5. Centers for Disease Control and Prevention (CDC), National Center for Emerging and Zoonotic Infectious Diseases (NCEZID), Division of Vector-Borne Diseases (DVBD). Tick removal [Internet]. Atlanta, GA: CDC; 2022 [reviewed 2022 Mar 13; cited 2023 Mar 3]. Available from: https://www.cdc.gov/ticks/removing_a_tick.html
7. Centers for Disease Control and Prevention (CDC), National Center for Emerging and Zoonotic Infectious Diseases (NCEZID), Division of Vector-Borne Diseases (DVBD). Lyme disease prophylaxis after tick bite [Internet]. Atlanta, GA: CDC; 2022 [reviewed 2022 Aug 5; cited 2023 Mar 3]. Available from: https://www.cdc.gov/ticks/tickborneinfectiousdiseases/tick-bite-prophylaxis.html