

July 29, 2010

Dear Colleague:

Re: Tick-borne diseases in Manitoba:

- Lyme disease is a tick-borne infection caused by the spirochete *Borrelia burgdorferi* and transmitted in Manitoba by *Ixodes scapularis*, the blacklegged tick.
- Exposure to an infected tick can occur anywhere in Manitoba, but the risk is likely highest in the southeast corner of Manitoba. Other areas of possible increased risk are under investigation, including the area around the Stanley Trail near Morden.
- Early treatment based on clinical diagnosis is important to prevent late complications, including cardiac, neurologic or arthritic conditions.
- Clinical cases of Lyme disease are reportable using the attached form.
- Blacklegged ticks in Manitoba have also been found to carry *Anaplasma phagocytophilum*, the agent responsible for Human Granulocytic Anaplasmosis (HGA).
- On rare occasions, blacklegged ticks can also carry other infectious agents, such as *Babesia microti* or Powassan virus.

Epidemiology

- The southeastern corner of Manitoba has an established population of infected blacklegged ticks and has been determined to be an endemic area for exposure to Lyme disease. Blacklegged ticks, however, have been submitted to the surveillance program from all over Manitoba. Birds are believed to deposit them throughout Manitoba. Surveillance efforts have also identified a probable established blacklegged tick population around the Stanley Trail near Morden. Some other areas in southern Manitoba are currently under investigation.
- Exposure to blacklegged ticks can occur from early spring to late fall.
- In 2009, 14 per cent of the blacklegged ticks submitted through the surveillance program were positive for *Borrelia burgdorferi* and about five per cent of the ticks were positive for *Anaplasma phagocytophilum*, the bacteria that can cause HGA. Two percent of submitted ticks had both infectious agents. Testing for presence of *Babesia microti* (protozoa responsible for Babesiosis) in ticks began in 2009. However, no positive ticks were identified.
- In 2009, under the new national case definitions, Manitoba had 1 confirmed case and 4 probable cases of Lyme disease reported. Six additional reports not meeting the national surveillance definitions were also received. The surveillance definition is more stringent than clinical criteria used for initiating treatment for presumed Lyme disease. HGA and Babesiosis are currently not reportable diseases in Manitoba.

Clinical Presentation:

Lyme disease: Early symptoms

- Erythema migrans (EM) appears in 70 to 80 per cent of patients within three to 30 days after exposure to an infected tick. EM is an expanding erythematous skin lesion, usually more than five cm in diameter, non-tender and non-pruritic and occurring at the site of the tick bite. EM skin lesions can vary in appearance. Some are homogeneously erythematous, whereas others have prominent central clearing or a target appearance; rarely vesicles or pustules can be present (<5%).

- The rash of EM is specific to Lyme disease and if recognized, is sufficient for a clinical diagnosis and initiation of treatment for Lyme disease. Additional early symptoms of Lyme disease may include rash other than EM, fatigue, chills, fever, headache, muscle and joint pain, and swollen lymph nodes in untreated infection, multiple EM lesions which may be less than 5 cm may occur later, and are believed to be secondary to hematogenous spread.

For information on other symptoms of disseminated or late Lyme disease, please see the 2006 clinical practice guidelines of the Infectious Disease Society of America (<http://www.journals.uchicago.edu/doi/full/10.1086/508667> and <http://www.idsociety.org/Content.aspx?id=16499>) or consult an infectious disease physician.

HGA

Human granulocytotropic anaplasmosis (HGA), formerly known as human granulocytic ehrlichiosis (HGE), is a bacterial disease transmitted to humans by *Ixodes scapularis*. Onset of illness usually occurs within 5 to 10 days after exposure to an infected tick. Common signs and symptoms include fever, chills, headache, arthralgia, nausea and vomiting, often in association with leukopenia, thrombocytopenia and/or increased liver enzymes. Severe manifestations, such as pulmonary infiltrates, bone marrow hypoplasia, DIC and renal failure can rarely occur. Acute and convalescent serum samples are required for diagnosis.

Co-infections have been described and may be a consideration in patients who present with initial symptoms which are more severe than commonly observed with Lyme disease, especially when a high fever is present.

Other Tick-borne Infections

Most Babesiosis infections are asymptomatic. The clinical spectrum of symptomatic infection ranges from mild and self-limited to serious and prolonged. Severe infections are most common in patients who have had a splenectomy or are otherwise immunosuppressed. A gradual onset of illness may include: malaise, anorexia, and fatigue followed more acutely by fever, chills, myalgias, arthralgias, nausea and vomiting. The incubation period ranges from one week to several months. The risk of exposure in Manitoba is anticipated to be very low.

Encephalitis is reportable to Manitoba Health but, no reports of encephalitis due to Powassan virus have been made.

Laboratory Investigation and Treatment for Lyme disease:

- For acute Lyme disease, both acute and convalescent serum samples (four weeks post diagnosis) are recommended. Serologic tests for Lyme disease may be negative early in the infection, and some individuals who are treated early for Lyme disease may not seroconvert.
- For the diagnosis of late manifestations of Lyme disease, one serum sample is sufficient.
 - The serum specimens (serum or serum separator tube), should be sent to Cadham Provincial Laboratory (CPL). The volume should be five to ten cc for adults and two to three cc for children.
- Serologic testing involves a two-tier approach to measure antibodies: 1) ELISA (enzyme-linked immunosorbent assay); if positive, then 2) A Western Blot test is performed to confirm a positive test for Lyme disease.
- Travel history should be noted on the requisition. For example, travel to Europe or Asia requires a different test kit.

Treatment Recommendations for Lyme disease:

Early treatment is important to prevent development of late complications. Treatment should be initiated based on clinical suspicion of disease. Late stage disease requires lengthier treatment. Consultation with an infectious disease specialist is recommended.

Erythema Migrans*

Adults:

- Doxycycline¹ 100mg PO BID for two to three weeks OR

- Amoxicillin 500mg PO TID for two to three weeks OR
- Cefuroxime axetil 500mg PO BID for two to three weeks can be used for patients with penicillin allergies or who are unable to take tetracyclines

Children

- Amoxicillin 50mg/kg/day in three divided doses (max. 500mg/dose) for two to three weeks
 - * For more information see IDSA guidelines <http://www.journals.uchicago.edu/doi/full/10.1096/508667>
 - † Contra-indicated in pregnant or lactating women or children < eight years old.

Reporting of Lyme disease:

- Suspected cases of Lyme disease are to be reported using the Lyme disease clinical case report form (www.gov.mb.ca/health/lyme) and submitted by fax to the Environmental Infectious Disease Unit at (204) 948-2190 (secure fax line).
- All cases with positive serology or other positive laboratory tests (such as PCR, biopsy or culture results) are reportable to Public Health.
- Public health practitioners may contact physicians/clinicians for further information on reported cases.

Tick Surveillance:

- Suspected blacklegged ticks should be sent to Dr. T. Galloway (Department of Entomology, University of Manitoba, R3T 2N2) for identification and testing. Further information can be found on the Manitoba Health website at www.gov.mb.ca/health/lyme.

Further Information:

- Patient information, surveillance information, the clinical report form and management protocol for Lyme disease can be found on the Manitoba Health website at www.gov.mb.ca/health/lyme.
- For further information on clinical care, contact an infectious disease physician.

Thank you for your anticipated cooperation.

Sincerely,



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Manitoba
spirited energy

Manitoba Health
Lyme Disease Clinical Report Form

Patient's name: _____
(Last Name) (First Name)

PHIN: □□□ □□□ □□□

Date of Birth: _____ (yyyy/mm/dd) Age: _____

Male Female

Address: _____

Phone: home: _____ work: _____

Postal Code: _____

Physician: _____
Phone number: _____
Address: _____

Early Clinical Cases

Onset of symptoms: _____ (yyyy/mm/dd) Date of assessment: _____ (yyyy/mm/dd)

History of Erythema Migrans? (expanding lesion(s) 2-30 days after tick bite, 5cms in diameter) Yes No

Did you (physician) observe Erythema Migrans? Yes No

Other symptoms (fever, headache, etc) list: _____

Antibiotic treatment: Yes No If yes, specify: _____

Tick Exposure History

Did patient/physician remove an attached tick within 30 days of symptom onset? Yes No

(Ticks can be sent for testing c/o T. Galloway, Dept. of Entomology, University of Manitoba, Winnipeg, MB R3T 2N2. Please send in a sealed container with a moist cotton ball).

Travel history 30 days prior to onset of symptoms: (include specific location and dates of travel both within and outside Manitoba):

Laboratory Investigation

Specimen type: Serology CSF Tissue Other : _____

Test ordered: _____

Date specimen taken: _____ (yyyy/mm/dd)

Please inform patients that a Public Health Nurse may contact them.

Further information and provincial Lyme disease protocol can be accessed on the Manitoba government website: <http://www.gov.mb.ca/health/lyme/>

Completed forms should be faxed to (204)948-2190 (secure fax line)