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April 7, 2017

Dear Colleague:

Re: TICKBORNE INFECTIONS IN MANITOBA

- It is important for all Manitoba physicians to know that cases of Anaplasmosis, Babesiosis and Lyme disease occur in the province.
- Incidence rates of tick-borne diseases, most notably Anaplasmosis and Lyme disease, continue to increase in Manitoba.
- Patients may present at any stage of disease, and those with co-infections may present with more severe illness that may require multiple different therapies. Physicians need to be familiar with signs and symptoms of these tick-borne diseases.
- Consultation with an appropriate specialist is recommended for patients presenting with disseminated or late Lyme disease, and those with possible co-infections.
- Early treatment improves outcome; where *early Lyme disease* is suspected, treatment should be initiated *without waiting for laboratory confirmation*.
- The range of *Ixodes scapularis*, or blacklegged ticks (BLTs), the vector of tick-borne diseases continues to expand in Manitoba (see Figure 1).

ANAPLASMOSIS

Since Anaplasmosis became reportable in January 2015 a total of 21 cases have been reported in Manitoba, with 17 reported in 2016 alone. All but one of the cases reported in 2016 had likely exposure within the province, and more than half were co-infected with the causative agent of Lyme disease *Borrelia burgdorferi*.

A recent sero-prevalence study¹ showed that the incidence of Anaplasmosis may be higher than what is actually reported. The study also revealed that more than 80% of laboratory confirmed Anaplasmosis cases were likely exposed between May and July. This timeframe coincides with the peak in activity of BLT nymphs (a juvenile stage which are smaller than adults).

BABESIOSIS

Since January 2015 only one case of Babesiosis has been reported, with possible exposure to a known risk area in the province. However, *Babesia microti*, the causative agent, continues to be detected in BLTs and/or small mammal tissues from a number of fairly dispersed locations throughout Manitoba.

¹ Kadkhoda, K. and Gretchen, A. Retrospective study investigating the seroprevalence of *Anaplasma phagocytophilum* in Manitoba, Canada: 2011 – 2014. *Open Forum Infectious Diseases* 2016; 3 (4), 1 – 4 (doi: [10.1093/ofid/ofw199](https://doi.org/10.1093/ofid/ofw199))

Babesiosis infection can be life-threatening particularly in older individuals (> 50 years of age) and those with co-morbidities. Consultation with an appropriate specialist is strongly recommended at an early stage for suspected clinical cases.

LYME DISEASE

Patients may present at any stage of Lyme disease including the later stages which can make diagnosis challenging.

Co-infection should be considered in patients who present with initial symptoms which are more severe than commonly observed with Lyme disease, especially when:

- A high grade fever is present for more than 48 hours despite effective Lyme disease treatment,
- Thrombocytopenia, leukopenia or anemia is present despite resolved EM and flu-like symptoms.

Typically less than 1/3rd of Lyme disease patients recalled a tick bite. In addition, approximately 80% of exposure occurred between May and July, which overlaps with peak nymph activity. Typically, clinical presentation is within a month of exposure.

Emerging Tick-borne infections

Manitoba Health, Seniors and Active Living continues to work with the Public Health Agency of Canada to monitor the introduction of novel tick-borne pathogens of human health importance.

Borrelia miyamotoi disease: Though not reportable, this emerging disease is transmitted by *Ixodes scapularis*. Testing began in 2012 and low infection rates have been detected in tick specimens collected from a number of sites in southern Manitoba². Clinical presentation commonly includes a fever (may exceed 40°C), fatigue, headache, chills, myalgia, arthralgia and nausea³. Leukopenia, thrombocytopenia and elevated transaminases are also common. Laboratory diagnostics (PCR) are required to exclude Anaplasmosis infection. Based on a limited number of case reports treatment is similar to that recommended for Lyme, though a slightly prolonged course of Doxycycline⁴.

Ticks

Blacklegged ticks can be active whenever temperatures are consistently greater than 4°C. In Manitoba the risk of exposure is typically between April and November, although activity outside this period has also been recorded when conditions are appropriate.

Spatially the risk of exposure to tick-borne diseases is highest in 'Blacklegged tick risk areas' where surveillance efforts have revealed established blacklegged tick populations. The number of risk areas continues to expand and now extends across much of southern Manitoba (Figure 1). Although the exposure risk is relatively low, it should be cautioned that tick-borne diseases

² Dibernardo, A., Cote, T., Ogden, N. H. and Lindsay, L. R. The prevalence of *Borrelia miyamotoi* infection, and co-infections with other *Borrelia* spp. in *Ixodes scapularis* ticks collected in Canada. *Parasites & Vectors* **2014**, 7: 183 (www.parasitesandvectors.com/content/7/1/183)

³ Krause, P. J., Fish, D., Narasimhan, S. and Barbour, A. G. *Borrelia miyamotoi* infection in nature and humans. *Clinical Microbiology and Infection* **2015**, 21: 631-639 (DOI: <http://dx.doi.org/10.1016/j.cmi.2015.02.006>)

⁴ Telford, S. R. III, Goethart, H. K., Molloy, P. et al. *Borrelia miyamotoi* disease (BMD): Neither Lyme disease nor relapsing fever. *Clinics in Laboratory Medicine* **2015**, 35 (4): 967-882 (DOI: <http://dx.doi.org/10.1016/j.cll.2015.08.002>).

can be acquired anywhere in the province as blacklegged ticks can be transported outside of known risk areas by migrating birds and deer.

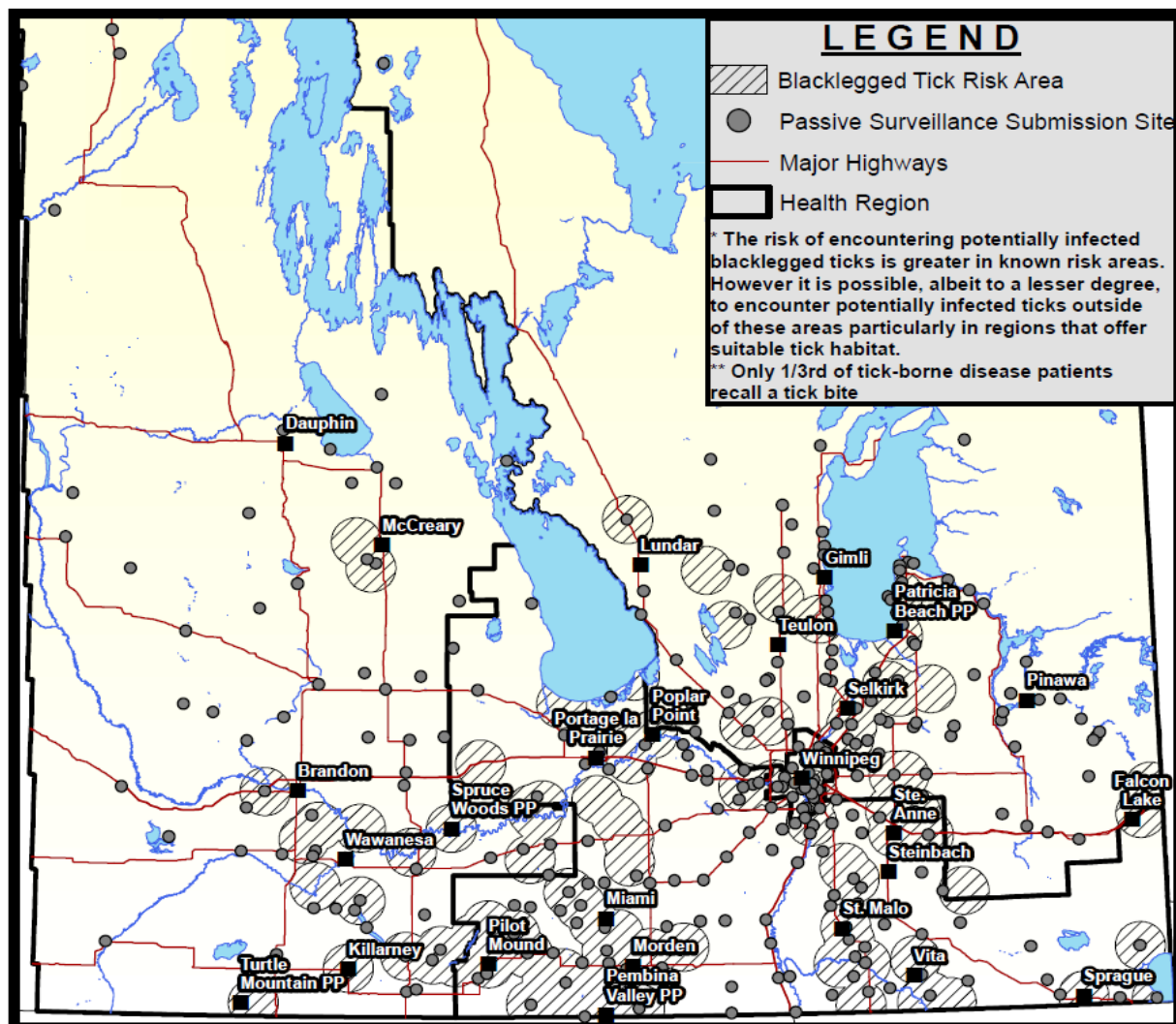


Figure 1 - Distribution of known Blacklegged Tick Risk Areas 2016 and sites where blacklegged ticks were submitted as part of the passive surveillance program.

For more information visit www.gov.mb.ca/health/publichealth/cdc/tickborne/index.html

Thank you for your anticipated cooperation.

Sincerely,

“Original signed by”

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