

## TICK-BORNE DISEASE QUICK REFERENCE GUIDE FOR HEALTH CARE PROVIDERS

Disease	Incubation Period	Presentation	Laboratory Investigation	Initial Treatment
Anaplasmosis	5 to 21 days	<ul style="list-style-type: none"> <li>Acute onset of fever, chills, headache, arthralgia, nausea and vomiting often in association with leukopenia, thrombocytopenia and/or elevated liver enzymes.</li> <li>Severe manifestations are rare, though more common in older patients (&gt; 60 years of age) and those with co-morbidities.</li> </ul>	<ul style="list-style-type: none"> <li>Serological evidence of a 4-fold change in specific IgG antibody titre in paired serum samples (2 - 4 weeks apart), <b>OR</b></li> <li>Detection of DNA in a clinical specimen by specific PCR.</li> </ul>	<ul style="list-style-type: none"> <li>Doxycycline 100mg PO BID for 2 weeks, unless contraindicated.</li> </ul>
Babesiosis	1 to 6 weeks ( <i>may be up to 6 months following transfusion with infected blood products</i> )	<ul style="list-style-type: none"> <li>Can be life threatening, particularly in older adults (&gt; 50 years of age) and those with co-morbidities.</li> <li>Gradual onset of malaise and fatigue accompanied by intermittent fever. Additional symptoms may include: chills, drenching sweats, anorexia, headache, myalgia, nausea, non-productive cough, arthralgia and generalized weakness.</li> <li>Severe manifestations can include: acute respiratory distress syndrome, disseminated intravascular coagulation, hemodynamic instability, congestive heart failure, renal failure, hepatic compromise, myocardial infarction, severe hemolysis, splenic rupture and death.</li> </ul>	<ul style="list-style-type: none"> <li>Detection of parasites in blood smear by microscopy, <b>OR</b></li> <li>Detection of DNA in whole blood specimen by specific PCR.</li> <li>Serological evidence is supportive if specific IgG antibody titre of <math>\geq 1:256</math>.                             <ul style="list-style-type: none"> <li>4-fold rise in specific IgG antibody titre between acute and convalescent sera confirms recent infection.</li> <li>Titres <math>\geq 1:1024</math> suggest recent or active infections, those <math>\leq 1:64</math> suggest previous infection.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Mild to moderate disease: combination therapy with azithromycin and atovaquone <b>OR</b> clindamycin and quinine for 7 - 10 days.</li> <li>Severe disease: combination therapy with clindamycin and quinine. Duration depends on clinical course.</li> <li>Consultation with infectious diseases is strongly recommended for suspected clinical cases.</li> </ul>
<b>Symptoms, incubation period, laboratory diagnostics and treatments vary depending on the stage</b>				
Lyme disease (LD)	<b>Post-exposure prophylaxis</b> – within 72 hours of tick removal	Asymptomatic adults/children when the following criteria are met: <ol style="list-style-type: none"> <li>1) Tick reliably identified as an adult or nymph blacklegged tick (<i>Ixodes scapularis</i>), and</li> <li>2) Tick was attached for <math>\geq 36</math> hours or tick is engorged, and</li> <li>3) Tick acquired from a high risk area* (anywhere in southern Manitoba (south of the 53<sup>rd</sup> parallel) with suitable habitat), and</li> <li>4) Doxycycline is not contraindicated.</li> </ol>	<ul style="list-style-type: none"> <li>Diagnostic testing of asymptomatic patients following a tick bite is not recommended.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; 12 years: Doxycycline 200 mg PO x 1;</li> <li>8 - 12 years: Doxycycline 4 mg/kg (maximum 200 mg) PO x 1;</li> <li>Unless contraindicated.</li> </ul>
	<b>Early localized LD</b> – 3 to 30 days	<ul style="list-style-type: none"> <li>Erythema migrans (EM) or non-specific flu-like symptoms (i.e. fatigue, fever, headache, mildly stiff neck, arthralgia or myalgia and lymphadenopathy).</li> </ul>	<ul style="list-style-type: none"> <li>Acute &amp; convalescent sera are recommended (3 - 4 weeks apart).</li> <li>Serological tests may be negative within first 6 weeks of infection.</li> <li>Individuals treated early in the infection may not seroconvert and never meet Western Blot positivity criteria.</li> </ul>	<ul style="list-style-type: none"> <li>Doxycycline 100mg PO BID for 2 - 3 weeks, unless contraindicated.</li> </ul>
	<b>Early disseminated LD</b> – days to months	<ul style="list-style-type: none"> <li>Multiple EM, CNS (lymphocytic meningitis, and rarely, encephalomyelitis) &amp; PNS (radiculopathy, cranial neuropathy, and mononeuropathy multiplex) or cardiac (intermittent atrioventricular heart block, myoepicarditis) symptoms.</li> </ul>	<ul style="list-style-type: none"> <li>A single sera sample is sufficient.</li> </ul>	<ul style="list-style-type: none"> <li>Same as early localized LD oral regimen, <b>OR</b></li> <li>Ceftriaxone 2g IV for 2 - 3 weeks for those with neuro or cardiac symptoms.</li> </ul>
	<b>Late LD</b> – months to years	<ul style="list-style-type: none"> <li>Intermittent recurring arthritis (usually monoarticular) or neurological symptoms.</li> </ul>		<ul style="list-style-type: none"> <li>Doxycycline 100mg PO BID for 4 weeks, <b>OR</b></li> <li>Ceftriaxone 2g IV for 2 - 4 weeks.</li> </ul>

- **Treatment should be initiated based on clinical suspicion of disease.** Depending on symptoms and timing of diagnosis, some cases may require a longer or repeat course of treatment. Where above treatments are contraindicated consult the communicable disease management protocols available at [www.gov.mb.ca/health/publichealth/cdc/tickborne/index.html](http://www.gov.mb.ca/health/publichealth/cdc/tickborne/index.html) for additional options.
- **Co-infection should be considered if there is a more severe clinical presentation, if symptoms persist or there is a poor response to recommended therapies.** Consultation with ID is recommended.
- High risk areas in Canada, outside of Manitoba, can be found at: <https://phrsgeomatics.maps.arcgis.com/apps/dashboards/95179b3e96fa4214a408e3611b0dce6b>
- Additional resources include:
  - <https://www.cps.ca/en/documents/position/lyme-disease-children>
  - <https://www.idsociety.org/practice-guideline/lyme-disease/>