

# BABESIOSIS

## Case definition

The Babesiosis case definition can be found in the [NS Surveillance Guidelines](https://novascotia.ca/dhw/populationhealth/surveillanceguidelines/babesiosis-surveillance-guidelines.pdf) found here: <https://novascotia.ca/dhw/populationhealth/surveillanceguidelines/babesiosis-surveillance-guidelines.pdf>.

## Causative agent

*Babesia microti* is an intraerythrocytic protozoan parasite.

## Source

The *Ixodes scapularis*, commonly known as the blacklegged (BLT) or deer tick, and the *I. pacificus* ticks, also known as Western BLT, are the vectors that spread Babesiosis, and is the same vector that spreads Lyme disease, Anaplasmosis and Powassan virus. *I. scapularis* have been found throughout Nova Scotia. *I. pacificus* is primarily found in British Columbia. The protozoan parasite is spread most commonly via the nymph.

Deer and wild rodents are the reservoir hosts for these ticks. Adult BLT normally feed on deer while nymphs primarily feed on small rodents such as mice and squirrels.

BLT survive best in areas that provide a moist habitat, such as wooded or forested areas, urban parks, and gardens, because the trees provide shade, and leaves provide protective ground cover.

Migrating birds can also carry blacklegged ticks into other areas of Nova Scotia. Nova Scotia has a suitable climate for tick populations. Climate change contributes to the expansion of tick populations in Canada. As temperatures and humidity increase, prevalence, activity, and tick species are also expected to increase. In addition, as environments become more suitable tick habitats, tick survival increases, reservoir hosts may be more abundant and tick activity period is lengthened.

## Transmission

It is estimated from animal studies that ticks must be attached to a human for 36-48 hours before transmission of *B. microti* can occur.

## Communicability

There is no evidence of natural mammal to mammal transmission (including person-to-person and non-vector animal (pets) to human transmission). Acquisition after transfusion of blood products infected with *B. microti* has been well described, particularly in endemic regions. Transplacental transmission of *B. microti* has been described but only in a few cases. Rare reports of congenital transmission have been documented.

## Incubation

The incubation period ranges from 1–4 weeks following the bite of an infected tick and is a median of 37 days (range 11 - 176 days) in infections acquired from contaminated blood products (transfusion).

## Signs and Symptoms

The presentation of babesiosis can be nonspecific and many people remain asymptomatic. Symptoms experienced include flu-like symptoms, such as:

- Fever
- Chills
- Sweats
- Headache
- Body aches
- Loss of appetite
- Nausea
- Fatigue
- Hepatosplenomegaly
- Hemolytic anemia
- Thrombocytopenia

Risk factors for severe infection include people who:

- Do not have a spleen
- Have immunocompromising conditions
- Have serious health conditions (liver or kidney disease)
- Are elderly.

Babesiosis should be suspected in cases of fever of unknown origin with a history of participation in activities that have potential for a tick bite within Nova Scotia.

## Diagnostic testing and treatment

Diagnostic testing and treatment recommendations for Babesiosis can be found in the [Guidance for Primary Care and Emergency Medicine Providers in the Management of Lyme Disease, Human Granulocytic Anaplasmosis, Babesiosis and Powassan virus infection in Nova Scotia](#). There is no prophylaxis for preventing Babesia infection after a tick bite.

## PUBLIC HEALTH MANAGEMENT & CONTROL

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### Case management

This disease is notifiable.

1. Contact the client to obtain case details including symptom onset information, mode of transmission, such as tick exposures, travel history, areas of work and recreational activity, donation or receipt of blood products, tissues, or organs.
2. Patients with active disease should not donate blood because Babesiosis can also be transmitted through blood transfusions.
3. If Babesiosis is diagnosed during pregnancy, advise the client to consult a Healthcare Provider for assessment of the newborn.
4. Lookback and traceback investigations can be initiated by Canadian Blood Services for Babesiosis cases where transfusion-associated transmission is plausible. Refer to the [NS Surveillance Guidelines](#) for criteria.
5. Educate the client about Babesiosis using the key messages listed below.

### Education

#### Key messages

- Blacklegged ticks are found throughout Nova Scotia.
- Nova Scotians are encouraged to spend time outdoors, be active and remember to protect themselves against tick bites, which is the best way to prevent Babesiosis.
- Use personal insect repellent with ingredients proven to be effective by [Health Canada](https://www.canada.ca/en/health-canada/services/about-pesticides/insect-repellents.html#a3). <https://www.canada.ca/en/health-canada/services/about-pesticides/insect-repellents.html#a3>. Follow directions on the product label carefully.
- Cover skin when walking, working, or playing in areas where ticks are found.
- Wear enclosed shoes, tucking shirt in pants and pant legs in socks.
- Walk on well-traveled paths, avoiding high grass and vegetation.

- Check yourself, your children and pets after walking in grassy or wooded areas. When possible, take a bath or shower within two hours of coming indoors. This makes it easier to find ticks and washes away loose ones.
- Check clothing and inspect skin including in and around ears, arm pits, inside belly button, groin, around the waist, and especially in hair and scalp area.
- Remove ticks as soon as you find them. [To safely remove the tick](#), Carefully grasp the head of the tick as close to the skin as possible with clean tweezers and slowly pull the tick straight out. Try not to twist or crush the tick. Clean your hands with soap and water or alcohol-based sanitizer. Wash the area where the tick was attached to the skin with soap and water and disinfect with rubbing alcohol or hydrogen peroxide.
- To have a tick identified please visit [eTick.ca](#) for more information.
- Review common signs and symptoms of Babesiosis.
- See a health care provider if symptoms of Babesiosis develop after exposure to the blacklegged tick.
- Use simple landscaping techniques to reduce the number of blacklegged ticks around your home. Please see the DHW website for detailed information at <https://novascotia.ca/dhw/cdpc/documents/Landscape-Management-Handbook.pdf>

## Exclusion

Exclusion of cases is not applicable.

## Contact Tracing

Contact tracing is not applicable

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