

# ANAPLASMOSIS (Human Granulocytic Anaplasmosis)

## Case definition

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

## Causative agent

*Anaplasma phagocytophilum* is a gram negative, obligate bacterium of neutrophils.

## Source

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

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

- Animal studies have found tick-borne the typical transmission of *A. phagocytophilum* usually occurs only after the infected larvae, nymph or adult BLT has been attached for at least 24 hours. However, transmission was documented in a small number of infected BLT nymphs which were attached less than 24 hours. There is a risk of being bitten by an infected BLT throughout Nova Scotia. When travelling outside Nova Scotia, the risk of Anaplasmosis increases in areas that are known to have established populations of BLT. Co-

infection with Lyme disease, Babesiosis or Powassan virus may occur.

- No other tick species found in Nova Scotia can transmit Anaplasmosis.
- Direct transmission of Anaplasmosis to humans from non-vector animals (pets) has not been documented.
- Direct handling (without proper use of personal protective equipment) with infected reservoirs (deer, small mammal) is also a risk of Anaplasmosis transmission.

## Communicability

Although rare, Anaplasmosis transplacental transmission as well as transmission via blood transfusion and organ transplant have been documented.

## Incubation

The incubation period ranges from 5 - 21 days.

## Signs and symptoms

The most common initial signs and symptoms include fever along with one of the following:

- Headache
- Myalgia
- Thrombocytopenia
- Leukopenia
- Elevated hepatic transaminases

Less common signs and symptoms may include the following:

- Nausea
- Cough
- Anemia
- Stiff Neck
- Increased serum creatinine levels

Most cases of Anaplasmosis are self-limited; however, there are some groups who are at higher risk for serious illness such as elderly and immunocompromised individuals.

## Diagnostic testing and treatment

Diagnostic testing and treatment recommendations for Anaplasmosis 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](#).

Prophylaxis is not available to prevent Anaplasmosis.

## **PUBLIC HEALTH MANAGEMENT & CONTROL**

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### **Case management**

This disease is notifiable. No Public Health follow-up is required for individual case management. Per Medical Officer of Health discretion, follow-up may be required in unusual circumstances.

If contacted, Public Health should educate the client and/or family about Anaplasmosis and prevention measures, providing access to fact sheets, brochures, and websites, as indicated.

### **Education**

#### **Key messages**

- Patients with active disease should not donate blood because Anaplasmosis can also be transmitted through blood transfusions.
- Lookback and traceback investigations can be initiated by Canadian Blood Services for blood recipients or donors who are suspected to have Anaplasmosis.
- If Anaplasmosis is diagnosed during pregnancy, consult a Healthcare Provider for assessment of the newborn.
- BLT are found throughout Nova Scotia, and therefore the entire province is considered an at-risk area for Anaplasmosis.
- 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 Anaplasmosis.
  - 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> and 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 a 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 Anaplasmosis.
  - See a health care provider if symptoms develop after being bitten by a blacklegged tick.
- Use simple landscaping techniques to reduce the number of blacklegged ticks around your home. Please see 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.

## REFERENCES

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