

## What is anaplasmosis?

Anaplasmosis is a disease caused by infection of the bacterium, *Anaplasma phagocytophilum*. In the eastern United States, the disease is spread by the bite of an infected black-legged tick, *Ixodes scapularis*, commonly known as the deer tick. This is the same tick that can transmit Lyme disease. Anaplasmosis is also known as human granulocytic anaplasmosis (HGA) and can be similar to another tick-borne disease, ehrlichiosis. However, these are distinct diseases that are transmitted by different ticks.

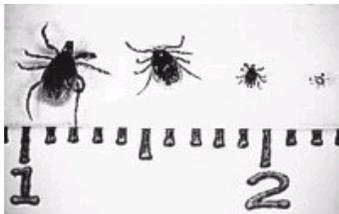
## Where does anaplasmosis occur?

Transmission of anaplasmosis is possible wherever deer ticks are found. The first two human cases of locally-acquired anaplasmosis were reported in Vermont in 2010. Over the past few years, additional cases have been reported, mostly from people who live in the southern part of the state.

## How is anaplasmosis spread?

*Anaplasma phagocytophilum* enters the body when an infected tick attaches to the skin to take a blood meal. The longer a tick stays attached, the greater the chance for disease transmission. Therefore, prompt removal of ticks can prevent infection.

Not all types of ticks carry the bacteria responsible for anaplasmosis. In the eastern United States, the deer tick is responsible for transmitting the disease. Deer ticks also transmit Lyme disease and can spread more than one type of bacteria during a single bite. These ticks are common in Vermont, however not all of them are infected with disease-causing bacteria. Anaplasmosis can occur whenever deer ticks are active, but most infections occur in spring and summer, with cases peaking during June and July.



A history of a known tick bite will help your medical provider to know if a tick-borne disease is the cause of an illness. However, people are not always aware that they have been bitten by a tick. Deer ticks are tiny and often go unnoticed. For example, nymphal deer ticks are quite small, usually about 2mm in size (see photo).

From left to right: adult female, adult male, nymph, larvae. **Not to scale.** (scale: cm)

## Who is at risk for getting anaplasmosis?

Individuals at greatest risk are those who spend time outside in areas that have a lot of deer ticks infected with *Anaplasma phagocytophilum*. Deer ticks prefer wooded, brushy and grassy areas, including gardens. In the Northeast, most illness occurs during the spring and summer when the nymphal ticks are most active and people spend a lot of time outside. While anyone can develop anaplasmosis, the disease tends to be most common in individuals who are older or have compromised immune systems.

## What are the symptoms of anaplasmosis?

Symptoms of anaplasmosis can be similar to those of the flu and may include headache, fever, chills, muscle aches and fatigue. Less commonly, people may experience abdominal pain, nausea, vomiting, diarrhea, joint aches and a rash. Signs of illness typically appear 5 to 21 days following a tick bite and tend to last about 1 to 2 weeks. Most people experience mild illness and recover fully without persistent complications. People with weakened immune systems and those with underlying medical conditions may experience severe symptoms.

## What is the treatment for anaplasmosis?

Anaplasmosis is treated with antibiotics. Although some people recover without treatment, early treatment is recommended to prevent serious complications.

## How do you prevent anaplasmosis?

The best way to prevent anaplasmosis is to prevent tick bites.

While outdoors:

- Wear long pants and long-sleeved shirts to minimize skin exposure to ticks.
- Tuck your pants into your socks to form a barrier against tick attachment.
- Wear light-colored clothing to help see ticks on your clothing.
- Check for ticks, looking particularly for what may look like nothing more than a new freckle or speck of dirt, and remove ticks promptly.
- Use an effective tick repellent on your skin or on your clothing. There are several repellents that are effective against ticks. For an up-to-date list of EPA registered products, see <http://cfpub.epa.gov/oppref/insect/>. Repellents should not be used on infants under 2 months of age. Read the label carefully and use according to the recommendations.
- Use permethrin on clothing you wear outside. Permethrin is an insect repellent that is very effective in preventing tick bites.

After you come inside:

- Check your or your child's body for ticks, and remove them promptly. Pay special attention to the head, armpits, and groin area.
- Examine clothing and gear for ticks. Placing your clothes in a hot dryer for 60 minutes will kill any ticks that may be clinging to the fabric.
- Check your pets for ticks as well. Consult your veterinarian for advice on choosing effective tick repellents for your pets.

## How do you remove ticks?

Try to remove the tick as soon as you discover it because prompt removal can prevent transmission of tick-borne diseases.

To safely remove ticks:

1. Use fine-tipped tweezers and firmly grasp the tick close to the skin. Avoid touching the tick with your bare hands.
2. With a steady motion, pull straight up until all parts of the tick are removed. Do not twist or jerk the tick. Do not be alarmed if the tick's mouthparts remain in the skin. Once the mouthparts are removed from the rest of the tick, it can no longer transmit disease-causing bacteria.

**DO NOT** use petroleum jelly, a hot match, nail polish or other products to remove a tick. These methods are ineffective.

## Thoroughly wash your hands and the bite area

After removing the tick, wash your hands with soap and water or use an alcohol-based hand sanitizer if soap and water are not available. Clean the tick bite with soap and water or use an antiseptic such as iodine scrub or rubbing alcohol.