



Anaplasmosis and Ehrlichiosis

Disease Fact Sheet

What are anaplasmosis and ehrlichiosis?

Anaplasmosis and ehrlichiosis are similar diseases caused by two different groups of bacteria named *Anaplasma* and *Ehrlichia*, respectively. Anaplasmosis was previously known as human granulocytic ehrlichiosis (HGE), and ehrlichiosis used to be called human monocytic ehrlichiosis (HME). Both infections are transmitted by the bite of an infected tick that can infect white blood cells causing illness in both humans and animals. Only one species of *Anaplasma* is known to cause human disease (*A. phagocytophilum*), but there are several species of *Ehrlichia* that infect humans in the United States, including *E. chaffeensis*, *E. ewingii*, and the *E. muris*-like bacterium.

Where do anaplasmosis and ehrlichiosis occur?

Anaplasmosis is most often reported in the upper Midwest and northeastern United States. In Wisconsin, anaplasmosis is far more common than ehrlichiosis. Ehrlichiosis (*E. chaffeensis* and *E. ewingii*) occurs primarily in the south central and southeastern United States. However, since 2008 there has been an increase in reports of *Ehrlichia* cases in Wisconsin. A new species of *Ehrlichia* (*Ehrlichia muris*-like) was discovered in Wisconsin and Minnesota in 2009.

Who gets anaplasmosis or ehrlichiosis infections?

Everyone is susceptible to these diseases, but people who spend time outdoors in tick-infested environments are at increased risk of exposure. In Wisconsin, reports of anaplasmosis and ehrlichiosis illnesses are usually seen from spring through autumn when ticks are active. The highest number of infections is reported between May and July. Illness occurs more frequently in adults than in children.

How are anaplasmosis and ehrlichiosis spread?

In Wisconsin and the upper Midwest, the bacteria are transmitted to humans by the bite of an infected blacklegged or deer tick (*Ixodes scapularis*), the same tick responsible for the spread of Lyme disease.

What are the symptoms of anaplasmosis and ehrlichiosis?

Some people may experience only mild symptoms or no symptoms at all. Most patients will experience fever, muscle pain, severe headache, fatigue and chills. Less frequent signs and symptoms include nausea, vomiting, acute weight loss, diarrhea, joint pain, mental confusion, cough, rigors and skin rash.

If not treated, anaplasmosis and ehrlichiosis can be serious illnesses, and occasionally can even be fatal. Signs of severe illness may include difficulty breathing or renal failure. The elderly and people with compromised immune systems may be at higher risk for getting severe symptoms.

How soon do symptoms occur?

Symptoms typically begin 7 to 14 days after exposure to an infected tick bite.

How are anaplasmosis and ehrlichiosis diagnosed?

Certain blood test results can suggest a diagnosis of anaplasmosis or ehrlichiosis. These include a low white blood cell count, low platelet count, and an elevation in certain liver function tests. A more definitive diagnosis involves specialized blood tests that detect the presence of antibodies against *Anaplasma* or *Ehrlichia* bacteria. Because antibody tests often cannot distinguish anaplasmosis from ehrlichiosis, a more sensitive and specific polymerase chain reaction (PCR) test can be performed to detect the presence of *Anaplasma* or *Ehrlichia* bacteria.

What is the treatment for anaplasmosis and ehrlichiosis?

In general, anaplasmosis and ehrlichiosis respond well to tetracycline-type antibiotics such as doxycycline, usually taken for 10-14 days.

What precautions can be taken to prevent getting anaplasmosis or ehrlichiosis?

The most effective way to prevent illness is to avoid tick bites. When in areas that may be tick-infested, take the following measures to reduce the risk of getting anaplasmosis or ehrlichiosis:

- Wear a long-sleeved shirt, long pants, socks, and closed shoes (rather than sandals). Tuck shirts into pants and pant cuffs into tops of socks. Light-colored clothing will make any ticks on clothes more easily visible. Walk in the center of cleared or mowed trails to avoid brushing against shrubs and tall grass.
- Conduct thorough tick checks on yourself and your children after spending time in a tick-infested area, and promptly remove any ticks found.
- Insect repellents containing 0.5% permethrin or 20-30% DEET have been shown to be effective in repelling deer ticks. If such products are used, be sure to follow the manufacturer's directions on the label.
- Take a shower after coming in from outdoors to remove any residual insect repellent and any ticks remaining on the body.

How should an attached tick be removed?

Prompt removal of attached ticks may reduce the chances of transmitting *Anaplasma* or *Ehrlichia*. To remove a tick that has attached to the skin, grasp the tick with a pair of narrow-bladed tweezers or forceps as close as possible to the attachment (skin) site, and pull outward with a firm steady traction. If tweezers are not available, the fingertips can be used, but should be shielded from the tick with tissue paper or rubber gloves. Avoid squeezing or puncturing the body of the tick because it may contain infectious fluids. After tick removal, wash the bite site and your hands with soap and water, and apply a disinfectant or antibiotic ointment to the site.