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## What is ehrlichiosis?

Ehrlichiosis is a tick-borne disease caused by bacteria named *Ehrlichia chaffeensis*, *Ehrlichia ewingii* or *E. muris eauclairensis*. These *Ehrlichia* bacteria are transmitted by the lone star tick and the blacklegged tick and infect human white blood cells. Ehrlichiosis is a relatively new tick-borne disease; the first human case was identified in 1986. Next to Lyme disease, it is the second most common tick-borne disease to affect persons in Virginia.

## Who gets ehrlichiosis?

Anyone can get ehrlichiosis, but the majority of cases are seen in adults. Anyone who spends time in tick-infested forest areas is at greatest risk of exposure.

## How is ehrlichiosis spread?

The bacteria are transmitted to humans by the bites of infected ticks. Ehrlichiosis cannot be transmitted from person to person. Lone star ticks are the most common tick to bite people in Virginia, and as many as 1 in 20 lone star ticks (5%) may be infected with an *Ehrlichia* agent. A lone star tick must be attached to a person for at least 24 hours before the *Ehrlichia* bacteria can be transmitted.

## What are the symptoms of ehrlichiosis?

Ehrlichiosis may be mild to moderately severe but can be life-threatening or fatal. Illness may cause a fever and at least one or more of the following symptoms: headache, chills, muscle pain, nausea, vomiting, diarrhea, confusion, and a rash. The rash may appear in up to 30% of infected adults and 60% of infected children. The rash may be similar to the rash caused by Rocky Mountain spotted fever. Patients having a severe illness may develop difficulty breathing, bleeding disorders, or neurologic problems. Patients often develop a low white blood cell count, a low platelet count, and have elevated liver enzyme levels. The initial symptoms of ehrlichiosis are very similar to those of anaplasmosis and Rocky Mountain spotted fever, so those illnesses may also be considered in the diagnosis. It is likely that most persons diagnosed with Rocky Mountain spotted fever in Virginia are actually infected with ehrlichiosis.

## How soon after exposure do symptoms appear?

Persons generally become ill about one to two weeks after an infectious tick bite. Not every exposure to an infected tick results in infection.

## How is ehrlichiosis diagnosed?

The diagnosis of ehrlichiosis must be based on clinical signs and symptoms and can later be

confirmed using specialized confirmatory laboratory tests. There are multiple ways to test for ehrlichiosis. Treatment should never be delayed pending the receipt of laboratory test results or be withheld on the basis of an initial negative laboratory result.

## **What is the treatment for ehrlichiosis?**

Prompt treatment (in the first five days of illness) with an appropriate antibiotic (doxycycline) will minimize the chances of a severe illness development and usually results in a rapidly effective cure. Ehrlichiosis can be a severe or fatal illness, so treatment should be given based on suspicion of illness and not be delayed until laboratory test results are complete.

## How can ehrlichiosis infection be prevented?

Avoiding the bites from ticks will prevent ehrlichiosis. Ticks primarily live in grassy, brushy, or wooded areas, or even on animals. When working or playing in tick-habitats, wear light-colored clothing and tuck pants into socks and tuck shirts into pants. Wear clothing, shoes and socks that have been treated with repellents (permethrin) for clothing. Apply other repellents (containing active ingredients such as DEET, Picaridin, oil of lemon eucalyptus, Bio-UD, or IR3535) to exposed skin, particularly to the legs at and below the knees and the arms at the elbows.

## How should a tick be removed?

Remove attached ticks as soon as possible because ehrlichiosis transmission can occur once ticks have been attached for more than 24 hours. Use fine-tipped tweezers to grab the tick's head as close to the skin as possible and exert a steady pull until the tick lets go. Do not jerk or twist the tick out, or squeeze or rupture the tick's body when removing it. After removing the tick, thoroughly clean the bite area and your hands with rubbing alcohol or soap and water. The species identity of a tick will provide important clues as to what types of diseases it might carry, so you may want to save the tick for identification by placing it in a jar or plastic bag. The tick may be frozen or placed in alcohol to preserve it.

## How can I get more information about ehrlichiosis?

- If you have concerns about Ehrlichiosis, contact your healthcare provider.
- Call your local health department. You can find your local health department at [vdh.virginia.gov/health-department-locator/](http://vdh.virginia.gov/health-department-locator/).
- Visit the CDC page on ehrlichiosis at [cdc.gov/ehrlichiosis/](http://cdc.gov/ehrlichiosis/) for more information.

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