

## **Ehrlichiosis** (Human granulocytic ehrlichiosis, Anaplasmosis)

*Disease Fact Sheet Series*

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### **What is ehrlichiosis?**

Ehrlichiosis is an acute disease of humans and animals caused by a group of bacteria named *Ehrlichia*. These organisms, which are transmitted by ticks, can infect human white blood cells and cause illness.

### **Where does ehrlichiosis occur?**

One type of ehrlichiosis, caused by the bacterium *Ehrlichia chaffeensis*, occurs primarily in the south central and southeastern United States. This particular organism, which infects the white blood cells called monocytes, has been known to exist for years and is not uncommon in the southern states. A new type of *Ehrlichia* is now known to occur in Wisconsin, Minnesota, and certain northeastern states. This recently discovered *Ehrlichia* has been renamed *Anaplasma phagocytophilum*. Because it infects the white blood cells known as granulocytes, the illness it causes is referred to as human granulocytic ehrlichiosis or anaplasmosis.

### **Who gets ehrlichiosis?**

Although all persons are susceptible to the disease, persons who spend time outdoors in tick-infested environments are at an increased risk of exposure. In the upper Midwest, the risk of tick exposure is highest from late spring through autumn.

### **How is ehrlichiosis spread?**

The bacteria are transmitted to humans by the bite of infected ticks. In the southern USA, the lone star tick (*Amblyomma americanum*) is thought to be responsible for transmission. In the upper Midwest, the agent of human granulocytic ehrlichiosis is transmitted by the deer tick (*Ixodes scapularis*), the same tick responsible for the spread of Lyme disease.

### **What are the symptoms of ehrlichiosis?**

The symptoms are generally nonspecific and can range from very mild to very severe illness. Most patients will experience fever, muscle pain, severe headache and shaking chills. Less frequent signs and symptoms include nausea, vomiting, acute weight loss, mental confusion, cough, and skin rash.

### **How soon do symptoms occur?**

Symptoms typically begin between one and three weeks after exposure.

### **How is ehrlichiosis diagnosed?**

Certain laboratory test results can suggest a diagnosis of 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 *Ehrlichia* agent itself or the presence of antibodies against the bacterium. Tests developed for *E. chaffeensis* infection will generally not be able to detect an infection with *Anaplasma phagocytophilum*.

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

Ehrlichiosis usually responds well to tetracycline-type antibiotics like doxycycline.

**What precautions can be taken to prevent getting ehrlichiosis?**

Prevention hinges upon avoiding tick bites. When in areas that may be tick-infested, the following precautions can reduce the risk of getting ehrlichiosis:

Wear a long-sleeved shirt, long pants, socks, and closed shoes (rather than sandals). Tuck your shirt into your pants and your pant cuffs into tops of socks. Light-colored clothing will make any ticks on them more easily visible. Walk in the center of cleared or mowed trails to avoid brushing up 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.

**How should an attached tick be removed?**

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 an antibiotic ointment to the site.