

Ehrlichiosis and Anaplasmosis

The Diseases and Transmission

- *Ehrlichia* and *Anaplasma* are related bacteria that are transmitted by ticks. These bacteria infect white blood cells in humans.
- There are three main different bacteria that cause disease in humans:

Pathogen	<i>Ehrlichia Chaffeensis</i>	<i>Ehrlichia ewingii</i>	<i>Anaplasma Phagocytophilum</i> (formerly <i>ehrlichichia phagocytophilia</i>)
Disease	Human monocytic ehrlichiosis (HME)	Ehrlichiosis ewingii	Human granulocytic anaplasmosis (HGA, formerly HGE)
Tick Vector	<i>Amblyomma Americanum</i> (lone star tick)		<i>Ixodes scapularis</i> (black legged tick)
Location	Southeast and south central US		Northeast and upper Midwest US

- Animal reservoirs for *E. chaffeensis* and *E. ewingii* are white-tailed deer and dogs. The reservoirs for *A. phagocytophilum* include cattle, deer, and rodents. You cannot get the diseases directly from animals.
- The diseases are not spread between humans other than through blood transfusions.
- Maryland is home to both the lone star tick and the black-legged tick.

Symptoms and Treatment

Disease	Clinical Features
HME, Ehrlichiosis ewingii	<ul style="list-style-type: none"> • Symptoms appear 1 to 2 weeks after a tick bite. • Symptoms include fever, headache, muscle aches, nausea, vomiting, diarrhea, confusion, chills and malaise. • Conjunctival infection (red eyes) • Development of a rash may occur in up to 60% of children and <30% of adults. This may be confused with Rocky Mountain spotted fever.
HGA	<ul style="list-style-type: none"> • Symptoms appear 1 to 2 weeks after a tick bite. • Symptoms include fever, headache, cough, nausea/abdominal pain, chills, malaise, confusion and muscle aches. • Rash is rare

- Most infections occur when tick activity is highest, in late spring and summer.
- If left untreated, HME and HGA may be severe.
- Co-infection with more than one tickborne disease is possible.
- Persons with compromised immunity caused by immunosuppressive therapies (e.g., corticosteroids, cancer chemotherapy, or longterm immunosuppressive therapy following organ transplant), HIV infection, or splenectomy appear to develop more severe disease
- Contact your health care provider if you develop any of these symptoms after a tick bite or after being in tick habitat. Your health care provider may order a blood test to help diagnose the disease.
- The diseases are effectively treated with antibiotics, most commonly doxycycline.

Prevention tips

- Ticks are most active from late spring through early fall.
- Insect repellent containing 20–30% DEET is recommended to prevent tick or fly bites.
- Repellents with up to 30% DEET can safely be used on children over 2 months of age.
- Treat clothes with permethrin (don't use permethrin directly on skin).
- Long pants and long sleeves help keep ticks off of skin, and tucking pant legs into socks and shirts into pants keeps ticks on outside of clothing.
- Light colored clothing lets you spot ticks more easily.
- Talk to your veterinarian about tick control products for your pets.
- When enjoying the outdoors, avoid wooded or brushy areas with tall grass and leaf litter and walk in the center of trails.
- Check yourself, your kids and your pets daily for ticks when spending time in tick habitat.
- Bathe or shower as soon as possible after coming indoors (within 2 hours) to wash off ticks.
- Tumble dry clothes in a dryer on high heat for 10 minutes to kill ticks on dry clothes after you come indoors.

To remove ticks

- Use fine-tipped tweezers.
- Grab the tick close to the skin; do not twist or jerk the tick.
- Gently pull straight up until all parts of the tick are removed.
- Wash your hands with soap and water or an alcohol-based rub.
- Clean the site of the tick bite with soap and water or an antiseptic.
- Do not use petroleum jelly, a hot match, nail polish, or other products to remove ticks.

For more information on tick borne diseases, visit:

- <http://www.cdc.gov/ehrlichiosis/>
- <http://www.cdc.gov/anaplasmosis/>