

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 different bacteria that cause disease in humans:

Pathogen	<i>Ehrlichia chaffeensis</i>	<i>Ehrlichia ewingii</i>	<i>Anaplasma phagocytophilum</i> (formerly <i>Ehrlichia phagocytophila</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)

- 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 7 to 10 days after a tick bite. ▪ Symptoms include fever, headache, muscle aches, nausea, vomiting, and loss of appetite. ▪ Meningoencephalitis occurs in approximately 20% of cases. ▪ Development of a rash is possible. This may be confused with Rocky Mountain spotted fever.
HGA	<ul style="list-style-type: none"> ▪ Symptoms appear 7 to 14 days after a tick bite. ▪ Symptoms include fever, headache, and muscle aches. ▪ Meningoencephalitis 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 tick borne disease is possible.
- The immune system is directly infected. Secondary infection and other complications can arise quickly.
- The elderly and sick are more likely to develop severe illness.
- 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.

Keep Ticks Off

- Ticks are most active from late spring through early fall.
- Insect repellent containing 20–50% DEET is recommended to prevent tick 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, be aware that wooded or brushy areas with tall grass and leaf litter are prime tick habitat.
- Check yourself, your kids and your pets daily for ticks when spending time in tick habitat.

To Remove Ticks

- Use fine-tipped tweezers and protect bare hands with a tissue or gloves.
- 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: www.MarylandTickOff.org