

# You may not be aware that you have been bitten by a tick.

These are the four tick species found in Fairfax County that can transmit disease. Tick activity is seasonal, with higher tick activity in the spring and summer. Ticks feed slowly and will not transmit disease (if they are infected) until they have been attached for several hours. Remember to check yourself often for ticks and remove any that you find as soon as possible.

## Black-legged (Deer) Tick

(Ixodes scapularis)



### Lyme Disease: Black-legged (Deer) Tick

Lyme disease is an inflammatory illness caused by *Borrelia burgdorferi*, a corkscrew-shaped bacterium. The disease is transmitted to humans via the bite of ticks infected with the bacteria. Ticks become infected after feeding on white-footed mice and other small mammals, which are the reservoirs for the bacteria. Deer do not harbor *B. burgdorferi* and therefore do not pass the Lyme disease bacteria to ticks.

**The first sign of infection** is usually a red rash called erythema migrans that begins at the site of the tick bite after a delay of three to 30 days. The rash gradually expands over several days, and gives the appearance of a bull's-eye — a spot with a ring around it. However, not all persons develop this rash. Patients also experience fatigue, chills, fever, headache, muscle and joint aches, and swollen lymph nodes.

**If untreated**, the infection may spread to other parts of the body. This can produce a number of other symptoms that may appear separately, including loss of muscle tone on one or both sides of the face, severe headaches and neck stiffness, shooting pains, heart palpitations, dizziness, and pain that moves from joint to joint.

**After several months**, approximately 60% of patients with an untreated infection may begin to have intermittent bouts of arthritis with severe joint pain and swelling. Up to 5% of untreated patients may develop neurological complaints for months after infection.

### Anaplasmosis: Black-legged (Deer) Tick

The symptoms of human granulocytic anaplasmosis (HGA) can vary, but most patients have a moderately severe fever and exhibit symptoms such as headache, muscle pain, and malaise. These symptoms will typically appear after an incubation period of one week after tick exposure. Anaplasmosis can be fatal in some cases if left untreated.

### Babesiosis: Black-legged (Deer) Tick

Babesiosis is caused by a protozoan called *Babesia microti*. Most people who are infected, however, do not display any symptoms. The disease is more severe in the elderly and in people with suppressed immune systems and those who have had their spleen removed. The symptoms of babesiosis include fever, chills, sweating, muscle pain, and fatigue. They typically occur after an incubation period of one to four weeks, and can last several weeks.

## Lone Star Tick

(Amblyomma americanum)



### Ehrlichiosis: Lone Star Tick

Human monocytic ehrlichiosis (HME) is caused by the bacteria *Ehrlichia chaffeensis*, which infect white blood cells. Symptoms usually appear within a few weeks of infection. Early symptoms may include a sudden high fever, headache, muscle aches, chills, and a general feeling of weakness and fatigue. Typically, the disease is more severe in people with weakened immune system.

### Borrelia lonestari: Lone Star Tick

*Borrelia lonestari* is a bacterium that is a possible causative agent for Southern Tick Associated Rash Illness (STARI). STARI is a Lyme disease-like illness that often presents with a bull's-eye rash (erythema migrans) that is also typically seen in the early stages of Lyme disease. Other symptoms of STARI include fever, fatigue, headache, muscle and joint pain.

## American Dog Tick

(Dermacentor variabilis)



### Rocky Mountain

### Spotted Fever: American Dog Tick

Rocky Mountain spotted fever is caused by the bacteria *Rickettsia rickettsii*. It can be very difficult to diagnose in its early stages, even by experienced physicians who are familiar with the disease. The combination of a fever, rash, and history of tick bite is a strong indication, but it is not always easy to detect. People infected with *R. rickettsii* generally develop symptoms five to ten days after a tick bite, and the symptoms are generally severe enough to cause them to visit a physician in the first week of their illness. Initially, Rocky Mountain spotted fever may resemble a variety of other infectious and non-infectious diseases. Other symptoms may include: (initially) nausea, vomiting, muscle pain, and lack of appetite; and (as the disease progresses) abdominal pain, joint pain, and diarrhea.

## Gulf Coast Tick

(Amblyomma maculatum)



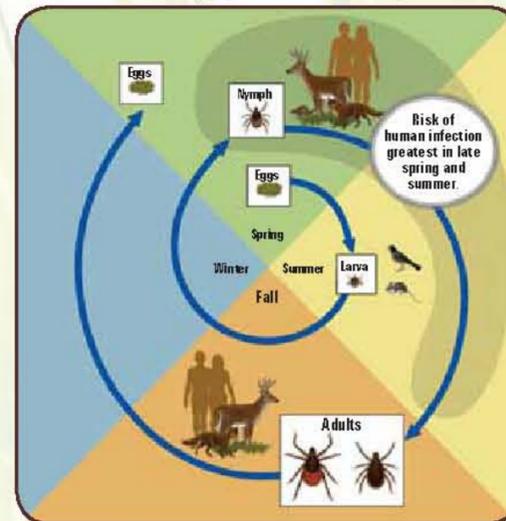
### Rickettsia parkeri: Gulf Coast Tick

*Rickettsia parkeri* is a bacterium belonging to the spotted fever group that also includes the bacterium that causes Rocky Mountain spotted fever (RMSF). The symptoms of *R. parkeri* infection are mild fever, fatigue, rash, muscle weakness or muscle pain. Symptoms usually occur within 2-10 days after being bitten by an infected tick. Although symptoms closely resemble those of RMSF, patients with *R. parkeri* infection will usually find a sore at the site of the bite.

## The Tick Life Cycle

### Black-legged tick life cycle

- There are four stages in the two-year life cycle of a tick: egg, larva, nymph and adult.
- The eggs hatch into larvae, often called "seed ticks".
- Larvae attach to a host, take a blood meal and change into nymphs.
- Nymphs will attach to another host, take another blood meal and change into adults.
- Adult females will take yet another blood meal from a third host, become engorged (sometimes to the size of a small grape) and fall off. Each female will eventually lay about 3,000 eggs on the ground.



Courtesy of CDC

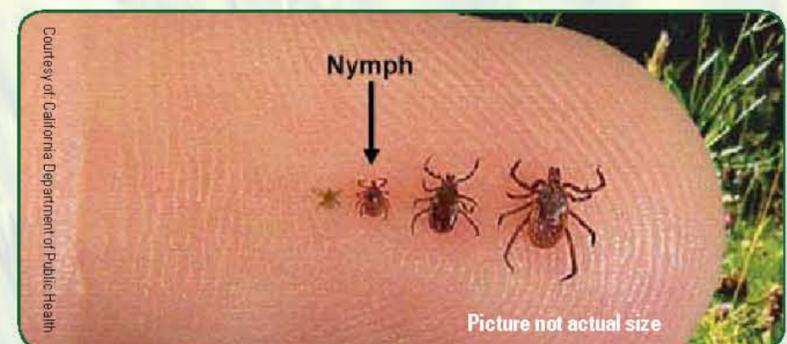
All of these diseases are treatable if detected early, and remember — not all ticks are infectious!

If you have been in a tick-infested area and experience any of the symptoms described above, you should contact your doctor.

## We Can Identify Your Tick



Bring it to: Fairfax County Health Department  
10777 Main Street, Suite 100  
Fairfax, VA 22030



During the nymph stage, Lyme disease transmission risk is greatest