

**TICK BORNE DISEASE INFORMATION SHEET**

<p><b>Deer Tick</b></p> <ul style="list-style-type: none"> <li>- Lyme Disease</li> <li>- Babesiosis</li> <li>- Ehrlichiosis HGE</li> </ul>		<p><b>Dog Tick</b></p> <ul style="list-style-type: none"> <li>- RMSF</li> </ul>		<p><b>Lone Star Tick</b></p> <ul style="list-style-type: none"> <li>- Ehrlichiosis HME</li> </ul>	
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**Lyme Disease**

Lyme disease is caused by a spirochete (type of bacteria) *Borellia burgdorferi* transmitted by the deer tick (*Ixodes scapularis*). In New York over 40,000 cases have occurred since Lyme disease became reportable in 1986. In most cases, the tick must be attached for 48 hours or more before the bacteria can be transmitted.

Symptoms: Lyme disease may cause symptoms affecting the skin, nervous system, heart and/or joints of an individual. In 60%-80% of the cases, a large, reddish rash about 2 inches in diameter appears and expands around or near the site of the bite. Sometimes, multiple rash sites appear. Early symptoms may develop a week to a month after the tick bite. The early stage of Lyme disease is usually marked by one or more of the following symptoms and signs: chills and fever, headache, fatigue, stiff neck, muscle and/or joint pain, and swollen lymph nodes. If left untreated, complications from late Lyme disease, such as arthritis, meningitis, facial palsy or heart abnormalities, may occur within a few weeks to months. These later symptoms may develop in people who did not have early symptoms or did not recognize them. Swelling and pain in the large joints may recur over many years.

Current therapy includes the use of such antibiotics as amoxicillin, doxycycline and ceftriaxone. Duration of therapy varies, usually 2-4 weeks. Prognosis is improved with prompt diagnosis and appropriate, early treatment. Past infection with Lyme disease does not make a person immune. Information available at present indicates that re-infection is possible.

Testing: A serological test (blood test of patient) is available. Best results if test is done 4-6 weeks after tick bite. Consult a physician. Ticks can be tested by PCR.

**Ehrlichiosis (HGE & HME)**

Ehrlichiosis is caused by two different *Ehrlichia* bacteria. Human Monocytic Ehrlichiosis (HME) is caused by *Ehrlichia chaffeensis*, which is transmitted by the lone-star tick (*Amblyomma americanum*). Human Granulocytic Ehrlichiosis (HGE) is caused by an *Ehrlichia* bacteria that is transmitted by the deer tick (*Ixodes scapularis*). In New York State, most cases of ehrlichiosis have been reported on Long Island and in the lower Hudson Valley. The majority of known cases have been in adults.

Symptoms appear one to three weeks after the bite of an infected tick. However, not every exposure results in infection. Symptoms of HME and HGE are the same and usually include fever, muscle aches, weakness and headache. Patients may also experience confusion, nausea, vomiting and joint pain. A rash is not common. Infection usually produces mild to moderately severe illness, but may occasionally be life-threatening or even fatal.

Tetracycline antibiotics are usually rapidly effective for ehrlichiosis. Because these antibiotics can cause dental staining in children, physicians should consult an infectious disease expert when treating children.

Testing: A serological test (blood test of patient) is available. Consult a physician.

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### Babesiosis

Babesiosis is a parasitic infection caused by the protozoa *Babesia* resulting from the bite of the *Ixodes* tick (Deer Tick). In the United States, most of the hundreds of reported cases of babesiosis have been caused by *Babesia microti*, a parasite of small mammals. Most reported cases of babesiosis occur in the northeast, specifically in New York, Massachusetts, Connecticut, and Rhode Island.

Babesiosis is usually an asymptomatic infection in healthy individuals. The mortality rate is low. Most cases improve spontaneously without treatment. Babesiosis affects all age groups with similar frequency; however, patients older than 50 years are at increased risk for severe infection and death. The disease most severely affects patients who are elderly, immunocompromised, or have undergone spleen removal.

It is not known whether past infection with babesiosis can make a person immune. Standardized treatments for babesiosis have not been developed, but some drugs used in the treatment of malaria are effective in some patients with babesiosis.

Symptoms: Incubation period is from 1-4 weeks, sometimes as long as 8 weeks. Infections can occur without producing symptoms. The disease can cause fever, fatigue and hemolytic anemia lasting from several days to several months, weight loss, muscle and joint pain, depression, dark urine, nausea and vomiting, cough, shortness of breath; fever, shaking chills, jaundice, & malaise.

Testing: A serological test (blood test of patient) is available. Consult a physician. Ticks can be tested by PCR.

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### Rocky Mountain Spotted Fever

RMSF is caused by the organism *Rickettsia rickettsii* transmitted found in the American dog tick (*Dermacentor variabilis*) in the eastern United States. An estimated 4% of the American dog ticks are infected with *Rickettsia* species, but the vast majority of these are nonpathogenic *Rickettsia*. Therefore, the chance of an individual tick harboring *Rickettsia rickettsii* is slight. Approximately 600-800 new cases per year occur. Cases are geographically distributed: North Carolina and Oklahoma account for one third of total cases reported. South Carolina, Tennessee, and Georgia accounted for the third, fourth, and fifth highest number of cases. Fewer than 50 cases are reported annually in New York State, most have occurred on Long Island.

*Rickettsia* is introduced into humans after an infected tick feeds for more than 6 hours. After an average of 1 week (3-12 days), the patient develops clinical manifestations of infection. Mortality rate from RMSF has been reported to be 4%, with death usually occurring 8 days after onset of symptoms. A significant portion of this mortality is due to delay in diagnosis and treatment. Incidence is highest in children (peak in children aged 5-9 years) and in males older than 60 years.

Symptoms: Symptoms usually appear within two weeks of the bite of an infected tick. RMSF is characterized by a sudden onset of moderate to high fever (which can last for two or three weeks), severe headache, fatigue, deep muscle pain, chills and rash. Rash typically begins around wrists and ankles, but may start on the trunk or be diffuse at the onset. Fifty percent have a rash by the third day. Classic distribution of RMSF rash on palms and soles occurs relatively late in the course (in 43% of patients only after the fifth day of symptoms). Some reports have observed 36–80% of RMSF patients without the classic distribution of rash on palms and soles.

Approximately 10–15% of patients have Rocky Mountain spotless fever (more often in older patients and African American patients).

One attack probably provides permanent immunity. Certain antibiotics such as tetracycline or chloramphenicol may be effective in treating the disease.