



## Where can I get more information?

For further information contact:

**Division of Epidemiology, Environmental and Occupational Health**  
**New Jersey Department of Health and Senior Services**  
PO Box 369  
Trenton, NJ 08625-0369  
(609) 588-7465

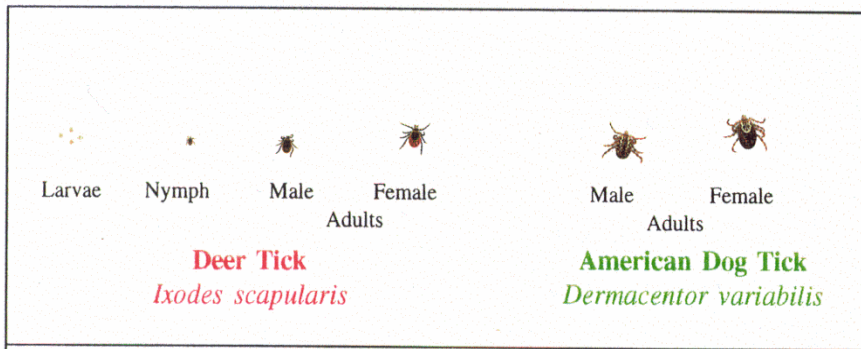
<http://www.state.nj.us/health/>

For more detailed information on repellents and insecticides contact:

**The New Jersey Department of Environmental Protection** at (609) 292-2885 or at <http://www.state.nj.us/dep/index.html>, or visit the **Environmental Protection Agency** website at <http://www.epa.gov/>

For information on pesticide use contact:

**The New Jersey Department of Environmental Protection, Pesticide Control Program** at: (609) 626-1786 or <http://www.state.nj.us/dep/enforcement/pcp/>



# Preventing Disease Caused By Ticks



**Burlington County  
Health Department**

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## What are ticks?

Ticks are bugs that feed on the blood of mammals, birds, and reptiles. There are many different types of ticks and all go through a multiple-stage lifecycle that includes larval, nymphal, and adult stages. The two types of ticks responsible for most tickborne disease in New Jersey include the deer tick (*Ixodes scapularis*) and the dog tick (*Dermacentor variabilis*). Each of these ticks is found throughout New Jersey and can transmit different diseases. Most tickborne diseases occur during warm weather, but they can occur year-round. In general, the longer an infected tick remains attached to a person or animal, the higher the likelihood of successful disease transmission. All of the diseases discussed in this brochure can be treated with antibiotics.



American Dog Tick



Lone Star Tick



Deer Tick

## Deer ticks: What diseases can they spread?

Lyme disease is a bacterial disease. Initial symptoms begin 3-30 days after being bitten by an infected deer tick and include an expanding rash at the site of the bite, and/or flu-like symptoms. If left untreated, the bacteria can spread to almost any site in the body and can cause arthritis, neurologic difficulties, and/or heart problems.



Babesiosis is caused by a parasite that affects red blood cells. Most people who are infected will show very mild signs of illness or no signs at all. Symptoms, when they do occur, begin gradually about 1-9 weeks after being bitten by an infected deer tick and can include fever, chills, headache, achy joints and muscles, .



## Do “natural” repellents work?

A number of plant-derived products are available for use as repellents. These include products containing citronella, eucalyptus, lavender, peppermint, and soybean, among many others. Limited information is available regarding the short and long term health effects and overall effectiveness of these products. The information that is available indicates that citronella and other natural repellent products do not provide the same level or duration of protection as DEET or permethrin containing products.

## What should I do if I have a reaction to a repellent?

If you suspect that you or your child is having an adverse reaction to a repellent, wash the treated area, remove treated clothing, and call the poison control center toll-free at (800) 876-4766. If you go to the doctor, take the repellent with you; the label information may be useful to your physician. If you or your doctor needs specific medical information about the repellent, call the National Pesticide Information Center (NPIC) at (800) 858-7378, Monday through Friday, during business hours. You can access their website at <http://npic.orst.edu/>.





## What precautions should I take with repellents?

The two most common active ingredients in repellent products include DEET (N-N-diethyl-meta-toluamide) and permethrin. These products will remain effective for many hours, so it is not necessary to reapply the repellent.

Repellents containing DEET can be applied to both exposed skin and clothing. DEET is effective in repelling ticks and other insects when used according to the manufacturer's recommendations.

Since DEET can be absorbed through the skin, and in rare cases causes illness, do not apply too much, do not apply to broken skin, and do not apply to skin that will be covered by clothing. Avoid applying in closed spaces, like cars or tents. When using repellents on young children, do not apply to their hands or faces, as children often rub their eyes and faces and put their fingers in their mouths. It is recommended that DEET not be used on infants; that repellents containing more than 10-15% DEET not be used on children; and that those containing more than 30-35% DEET not be used on anyone. After returning indoors, be sure to wash treated areas with soap and water, and to wash treated clothing before reuse.

Permethrin-containing products kill ticks and other insects on contact. Clothing should be treated and allowed to dry in a well-ventilated area prior to wearing. Because permethrin binds very tightly to fabrics, once the fabric is dry, very little of the permethrin gets onto the skin. Permethrin products are not designed to be applied to the skin. Certain permethrin products can also be used on dogs.



fatigue, nausea, vomiting, abdominal pain, and dark urine

Human granulocytic ehrlichiosis (HGE) is a bacterial disease that affects certain white blood cells called granulocytes. Symptoms typically appear suddenly 7-14 days after being bitten by an infected deer tick, and can include fever, headache, muscle aches, chills, sweating, nausea, and vomiting. Because symptoms may become life-threatening, immediate treatment is necessary.

## Dog ticks: What diseases can they spread?

Rocky Mountain spotted fever (RMSF) is a rare bacterial disease that usually presents as a high fever with severe headache and fatigue 2-14 days after being bitten by an infected dog tick. A rash that spreads to the palms of the hands and soles of the feet occurs in about half of cases.

Tularemia is a bacterial disease that can be spread to people in a number of ways, including through a bite of an infected dog tick. Symptoms vary depending on the way the germs are transmitted and usually begin between 3-5 days after an exposure, although it can take as long as 21 days. People infected by a tick bite typically have a slow-healing skin sore (ulcer) and swollen glands (lymph nodes).

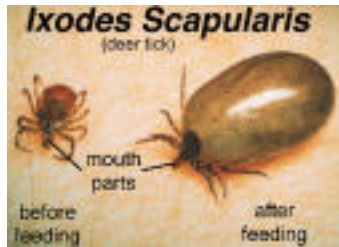
## Lone Star Ticks: What diseases can they spread?

Human Monocytic Ehrlichiosis (HME) is transmitted by the bite of an infected tick. In New Jersey it is most commonly transmitted by the lone star tick. Patients with ehrlichiosis generally visit a physician in their first week of illness, following an incubation period of about 5-10 days after the tick bite. Initial symptoms generally include fever, headache, malaise, and muscle aches. Other signs and symptoms may include nausea, vomiting, diarrhea, cough, joint pains, confusion, and occasionally rash.



## What should I do if I find a tick on myself?

The tick should be carefully removed as soon as possible. Use fine point tweezers to grip the mouthparts of the tick. The tick should not be squeezed or twisted, but pulled straight outward with steady, gentle pressure. You *should not* apply kerosene, petroleum jelly, nail polish, or a hot match tip to remove the tick. These measures are not effective, may result in tick mouthparts remaining embedded in the skin, and can cause injury. Notify your health care provider if you develop any unusual illness following a tick bite.



## How can I protect my family and myself from tick bites?

There is currently no vaccine available to protect against Lyme disease or other tickborne diseases. The only way to protect yourself is to prevent ticks from biting you. Follow these tips if you live, work, or spend leisure time in an area likely to have ticks:

- The single most important thing you can do is check yourself for ticks once a day. Favorite places ticks like to go on your body include areas between the toes, back of the knees, groin, armpits, and neck, along the hairline, and behind the ears. Remember to check your children and pets, too.
- Remove any attached tick you find as soon as possible (see above).
- Stick to main pathways and the center of trails when hiking.
- Wear long-sleeved, light colored shirts and long pants tucked in.



## How can I reduce the number of ticks around my home?

You don't have to be walking in the woods to be bitten by a tick. You can be in your own backyard! You can reduce the number of ticks around your home by following these tips:

- Keep grass cut short.
- Remove leaf litter and brush from around your home.
- Prune low lying bushes to let in more sunlight.
- Keep woodpiles and birdfeeders off the ground and away from your home.
- Keep the plants around stone walls cut short.
- Use a three-foot wide woodchip, mulch or gravel barrier where your lawn meets the woods.
- Ask your landscaper or local nursery about plants to use in your yard that do not attract deer.
- Use deer fencing (for yards 15 acres or more).



Courtesy of the Western Westport Health District, CT

If you choose to use a pesticide to reduce the number of ticks on your property, hire a licensed applicator experienced with tick control. Your local landscaper or arborist may be a licensed applicator. In general, good tick control can be achieved with no more than two pesticide applications in any year. When selecting an applicator, you should ask if they will provide:

- A written pest control plan that includes information on the pesticide to be used.
- Information about non-chemical pest control alternatives.
- Signs to be posted around the property after the application.