# Preventing Disease Spread By Ticks

*Adult female dog tick (shown on top) and adult female deer tick*

**Massachusetts Department of Public Health**

**Division of Epidemiology and Immunization**

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## What are ticks?

Ticks are bugs that feed on the blood of mammals, birds, and reptiles. **Dog ticks** and **deer ticks** are found throughout Massachusetts and may spread different disease causing germs when they bite you. Ticks go through a multiple-stage life cycle that includes larval, nymphal, and adult stages. Young ticks (nymphs) are most active during the warm weather months, May through June. Adult ticks are most active during the fall and spring but will also be out searching for a host any time winter temperatures are above freezing. Ticks are generally found in grassy, brushy, or wooded areas. Ticks do not fly or jump. They attach to animals or people that come into direct contact with them. Deer tick nymphs are the size of a poppy seed and deer tick adults are the size of a sesame seed. Adult dog ticks are about the size of a watermelon seed. (See page 8 for actual sizes.)

***Adult female dog tick***

## 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 3 to 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 often appears 3 to 5 days after the fever begins. In Massachusetts, cases occur most frequently in the southeastern part of the state, on Cape Cod, and on Martha's Vineyard.

**Tularemia** is caused by bacteria that can be spread to people in a number of ways, including through the bite of an infected dog tick. Symptoms vary depending on the way the germs are transmitted and usually begin between 3 to 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). In Massachusetts, cases occur most frequently on Cape Cod, Martha's Vineyard, and Nantucket.

## Deer ticks: What diseases can they spread?

*Adult female deer tick*

**Lyme disease** is caused by bacteria. Initial symptoms usually begin 3 to 30 days after a person is bitten by an infected deer tick and may 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. Cases of Lyme disease occur throughout Massachusetts.

**Babesiosis** is caused by a parasite that affects red blood cells. Most people who are infected will show no or only very mild signs of illness. Symptoms, when they do occur, begin gradually about 1 to 8 weeks after being bitten by an infected deer tick and can include fever, chills, headache, achy joints and muscles, fatigue, nausea, vomiting, abdominal pain, and dark urine. The elderly and people without a healthy spleen or immune system are more likely to develop serious symptoms. In Massachusetts, cases occur most frequently on Cape Cod, Martha's Vineyard, and Nantucket.

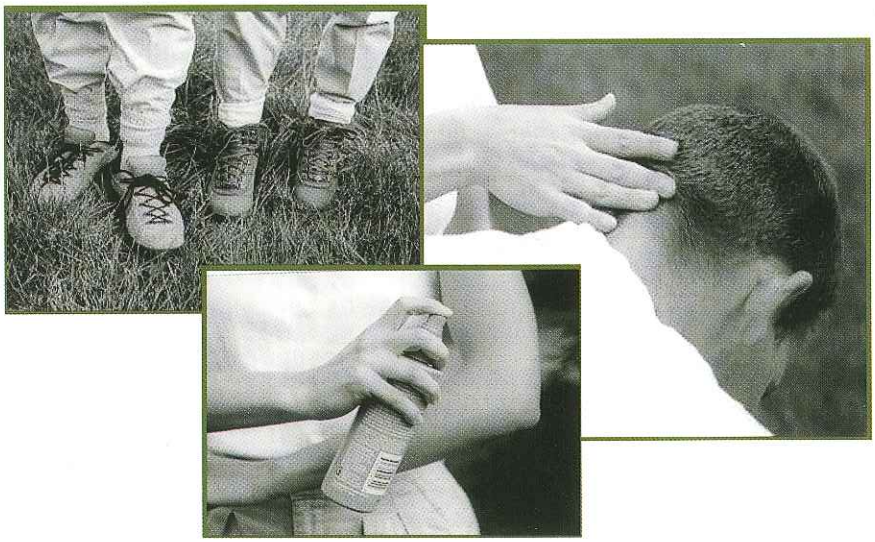
**Anaplasmosis** (a.k.a. human granulocytic ehrlichiosis) is caused by bacteria that affect certain white blood cells called granulocytes. Symptoms typically appear suddenly 7 to 14 days after being bitten by an infected deer tick and can include fever, headache, muscle aches, chills, sweating, nausea, and vomiting. Because symptoms may become life-threatening, immediate treatment is necessary. The elderly, people with diabetes or collagen vascular disease, and people without a healthy immune system are more likely to develop serious symptoms. In Massachusetts, cases occur most frequently on Cape Cod, Martha's Vineyard, and Nantucket.

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

**Prevention begins with 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 as soon as possible.
- Use repellents that contain DEET on your exposed skin, and those that contain permethrin on your clothes. (See additional information about repellents on page 6.)
- Stick to main pathways and the center of trails when hiking.
- Wear long-sleeved, light colored shirts and long pants tucked into your socks. This may be difficult to do when the weather is hot, but it will help keep ticks away from your skin and make it easier to spot a tick on your clothing.
- Talk to your veterinarian about the best ways to protect your pets and livestock from ticks.

There is currently no human vaccine available to protect against Lyme disease or any other tickborne disease found in Massachusetts.



## 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 (see photo at right). Ticks are less likely to cross the barrier into the lawn because they are prone to drying out. It also serves as a reminder that people who cross the barrier into the wooded area may be at higher risk of getting ticks.
- Ask your local nursery about plants to use in your yard that do not attract deer.
- Use deer fencing (for yards 15 acres or more).

***Create a barrier between your yard and the woods***

**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, 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.

## What kind of repellent should I use?

Different products work against different kinds of bugs. It is important to look at the "active ingredient" on the product label. Products with **DEET** (N,N-diethyl-m-toluamide) or **permethrin** are recommended for protection against ticks. Some repellents, such as picaridin or oil of lemon eucalyptus, have been found to provide protection against mosquitoes but have not been shown to work against ticks.

**DEET** is the active ingredient found in most repellent products. It can be used directly on exposed skin or on clothing. If you use it on your clothes, be aware that DEET can damage some synthetic fabrics such as acetate, rayon or spandex.

There are over 200 products containing DEET registered with the Environmental Protection Agency (EPA), ranging in concentration from 5% to 100% DEET. In general, the higher the percentage of DEET, the longer the duration of activity. **Read the product label to determine the percentage of DEET included and how often it should be reapplied.** DEET products should not be used on infants under 2 months of age. Children older than two months should use concentrations of 30% or less.

**Permethrin** products are intended for use on items such as clothing, shoes, bed nets and camping gear and should not be applied to skin. Apply the permethrin to your clothes before you put them on and follow the product's instructions.

## Use these products wisely!

- Follow the instructions on the product label. If you have questions after reading the label, contact the manufacturer.
- Don't use repellents under clothing.
- Don't use repellents on cuts or irritated skin.
- Don't use repellents near the mouth or eyes and use them sparingly around the ears. When using spray products, spray the repellent on your hands first, then apply it to your face.
- Use just enough repellent to lightly cover exposed skin and/or clothing. Putting on a larger amount does not make the product work any better.

- Don't let children handle the product. When using repellents on children, put some on your hands first, then apply it to the child. Don't put repellents on a child's hands.
- When you come inside, wash your skin and the clothes that had repellent on them.

### Do "natural" repellents work?

A number of plant-derived products are available for use as repellents. Limited information is available regarding how well these products work and how safe they are. The information that is available shows that these products do not work as well or as long as products containing DEET or permethrin against ticks.

### 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 (for example, if you develop a rash or other symptoms you think were caused by using a repellent), remove any treated clothing, wash the affected area with soap and water, and contact your doctor or local poison control center. If you go to the doctor, take the repellent with you; the label information may be useful to your physician. The toll-free telephone number for the Regional Center for Poison Control and Prevention (serving Massachusetts and Rhode Island) is (800) 222-1222.

***Removal of embedded adult female deer tick***

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

The tick should be carefully removed as soon as possible. **The longer an infected tick remains attached to a person or animal, the higher the likelihood of disease transmission**. Use fine point tweezers to grip the mouthparts of the tick as close to the skin as possible. 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 and may result in injury. Circle the calendar date and note where on the body the tick was removed. You may want to save the tick for identification. Your physician may choose to treat you following a deer tick bite. Notify your health care provider if you have been bitten by a deer tick or if you develop a rash or other signs of illness following a tick bite.

## For more information on diseases spread by ticks:

Massachusetts Department of Public Health
Division of Epidemiology and Immunization
(617) 983-6800 or toll-free at 1-888-658-2850
www.mass.gov/dph/tick

## For more information on repellents and pesticides:

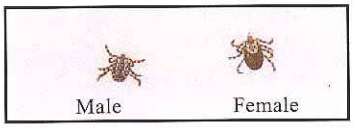
Massachusetts Department of Public Health
Bureau of Environmental Health
(617) 624-5757

Massachusetts Department of Public Health Website
Fact Sheet on Tick Repellents
http://www.mass.gov/dph

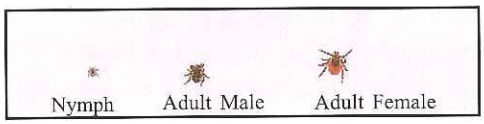
National Pesticide Information Center
1-800-858-7378
www.npic.orst.edu

Massachusetts Department of Agricultural Resources, Pesticide Bureau
(617) 626-1700

## Actual sizes of adult American dog ticks:




## Actual sizes of deer ticks:

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