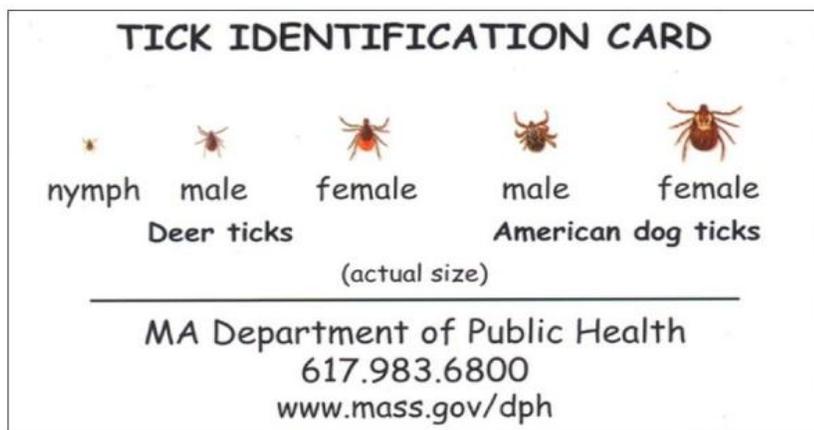


## Lyme Disease and Other Tick-borne Diseases

Lyme Disease is the most commonly reported tick-borne disease in Massachusetts. Thousands of cases are reported yearly in the state. Diseases spread by ticks can become serious if not recognized and treated early. There is currently no human vaccine available to protect against Lyme disease or any other tick-borne disease.

Ticks are tiny bugs that feed on the blood of mammals, birds and reptiles. They have a multiple stage lifecycle that includes larval, nymphal and adult stages. Ticks are most active during warmer months and are most likely found in brushy, wooded, or high grassy areas. They may even be in your own backyard! Ticks do not fly or jump. They do attach themselves to animals and/or people that come in contact with them. In Massachusetts there are two types of ticks that can spread disease, dog ticks and deer ticks. Deer ticks are very tiny - the nymphs are the size of a poppy seed and the adults are the size of a sesame seed. Dog ticks are somewhat larger - the adult is the size of a watermelon seed. For reference, view the ticks on the tick identification card below.



### What diseases can Dog ticks spread?

- **Rocky Mountain spotted fever (RMSF)** is a rare bacterial disease that usually presents as a high fever with severe headache and fatigue 2 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 usually 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.



Adult dog tick

- **Tularemia** is caused by bacteria 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 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.

### What diseases can Deer ticks spread?

- **Lyme disease** is caused by bacteria. Initial symptoms 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.



Adult deer tick

- **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 6 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 in Barnstable, Nantucket and Plymouth Counties. There were 191 confirmed cases of babesiosis in Massachusetts in 2011, representing more than a two-fold increase over the number of cases reported in 2010. Further, Babesia is also transmissible through blood transfusion and in the United States has been recognized as currently the most transmitted transfusion-transmitted pathogen. Since 2006, 20 cases of transfusion-associated babesiosis and seven positive donors have been identified and reported in Massachusetts.

- **Human granulocytic ehrlichiosis (HGE)** 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 myself, my family and my pets?**

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. If you find a tick attached to the skin, don't panic. 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 any unusual illness following a tick bite.

- Stick to main pathways and the center of trails when hiking.

- Wear long-sleeved, light colored shirts and long pants tucked into your socks.

- Repellents that contain DEET can be used on your exposed skin. Permethrin is a product that can be used on your clothes. Always follow the product instructions and use repellents with no more than 30-35% DEET on adults, and 10-15% DEET on children. Never use insect repellents on infants.

- Talk to your veterinarian about the best ways to protect your pets from ticks.

### **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 bird feeders 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 and remind your children not to cross that barrier.
- Ask your landscaper or local nursery about plants to use in your yard that do not attract deer.
- 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 and signs to be posted around the property after the application.

Information on Lyme Disease and other tick-borne diseases and prevention tips excerpted from Massachusetts Department of Public Health brochures and fact sheets.