

**SPECIALIZED FAMILY CARE  
Provider Training**

Category:	<b>Health</b>
Title:	<b>Ticks and Lyme Disease</b>
Materials:	Articles from Center for Disease Control and Prevention, <a href="http://www.cdc.gov/ticks">http://www.cdc.gov/ticks</a>
Goal:	Provider knows preventive techniques to avoid illness related to tick bites.
Credit Hours:	1 Hour
Date Developed:	June 2012
Developed by:	Donna McCune, MSW, Specialized Family Care Liaison

This skill-building instruction has been approved for Specialized Family Care Provider training by:

*Pat Mass* *June 20-2012*  
Specialized Family Care Program Manager Date

Training Objectives:

- Provider knows how to reduce risks of exposure to ticks
- Provider know how to locate and remove ticks from the body
- Provider can recognize the common symptoms of tick-related illness
- Provider knows the symptoms of Lyme disease

Training Procedures:

- Provider initiated self-study
- Test completed by Provider
- Review of test responses by Family Based Care Specialist and Provider

I certify that I have completed all the materials associated with this training module. I feel that I have a basic understanding of the material completed.

\_\_\_\_\_  
Specialized Family Care Provider Date

Reviewed by: \_\_\_\_\_  
Family Based Care Specialist Date

This Program is funded by the WV Department of Health & Human Resources, Bureau for Children & Families and administered by the Center for Excellence in Disabilities, West Virginia University.

WVDHHR/CED/SFC/Ticks and Lyme Disease/June 2012

## TICKS AND LYME DISEASE

The following narrative is provided by the CDC – Centers for Disease Control and Prevention, 1600 Clifton Road, Atlanta, GA 30333.

Telephone: 800-CDC-INFO (800-232-4636) TTY: (888-232-6348

<http://www.cdc.gov/ticks>

### PREVENTING TICK BITES

While it is a good idea to take preventive measures against ticks year-round, be extra vigilant in warmer months (April-September) when ticks are most active.

#### Avoid Direct Contact with Ticks

- Avoid wooded and bushy areas with high grass and leaf litter.
- Walk in the center of trails.

#### Repel Ticks with DEET or Permethrin

- Use repellents that contain 20% or more (DEET) (N, N-diethyl-m-toluamide) on the exposed skin for protection that lasts up to several hours. Always follow product instructions. Parents should apply this product to their children, avoiding hands, eyes and mouth.
- Use products that contain permethrin on clothing. Treat clothing and gear, such as boots, pants, socks and tents. It remains protective through several washings. Pretreated clothing is available and remains protective for up to 70 washings.
- Other repellents registered by the Environmental Protection Agency (EPA) may be found at <http://cfpub.epa.gov/oppre/insect/>

#### Find and Remove Ticks from Your Body

- Bathe or shower as soon as possible after coming indoors (preferably within two hours) to wash off and more easily find ticks that are crawling on you.
- Conduct a full-body tick check using a hand-held or full-length mirror to view all parts of your body upon return from tick-infested areas. Parents should check their children for ticks under the arms, in and around the ears, inside the belly button, behind the knees, between the legs, around the waist, and especially in their hair.
- Examine gear and pets. Ticks can ride into the home on clothing and pets, then attach to a person later, so carefully examine pets, coats, and day packs. Tumble clothes in a dryer on high heat for an hour to kill remaining ticks.

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## PREVENTING TICKS IN THE YARD

### Apply Pesticides Outdoors to Control Ticks

Pesticides for ticks, known as acaricides, can reduce the number of ticks in your yard. These benefits have been best-studied for *Ixodes scapularis* (the black-legged tick), and include:

- Consistent and timely pest control
- Easy to apply
- Relatively inexpensive
- Safe if applied according to the label

Only small amounts of acaricide applied at the right time of year are necessary. Application should focus on control of nymphal *I. scapularis* ticks, the stage most likely to transmit Lyme disease, anaplasmosis and babesiosis, by spraying once in May or early June. An October application of acaricide may be used to control adult blacklegged ticks, however, they less commonly transmit disease. The use and timing of acaricides to control other ticks of public health concern is less well studied, but may still be helpful.

If you have health concerns about applying acaricides:

- Check in with local health or agricultural officials about the best time to apply acaricide in your area.
- Identify rules and regulations related to pesticide application on residential properties (Environmental Protection Agency and your state determine the availability of pesticides).
- Consider using a professional pesticide company to apply pesticides at your home.

### Create a Tick-safe Zone to Reduce Ticks in the Yard

Here are some simple landscaping techniques (from the Connecticut Agricultural Experimental Station) for preventing tick bites:

- Remove leaf litter.
- Clear tall grasses and brush around homes and at the edge of lawns.
- Place a 3-ft wide barrier of wood chips or gravel between lawns and wooded areas to restrict tick migration into recreational areas.
- Mow the lawn frequently.
- Stack wood neatly and in a dry area (discourages rodents).
- Keep playground equipment, decks, and patios away from yard edges and trees.
- Discourage unwelcoming animals (such as deer, raccoons, and stray dogs) from entering your yard by constructing fences.
- Remove old furniture, mattresses, or trash from the yard that may give ticks a place to hide.



## TICK REMOVAL

If you find a tick attached to your skin, there's no need to panic. There are several tick removal devices on the market, but a plain set of fine-tipped tweezers will remove a tick quite effectively.

### How to Remove a Tick

1. Use fine-tipped tweezers to grasp the tick as close to the skin's surface as possible.
2. Pull upward with steady, even pressure. Don't twist or jerk the tick; this can cause the mouth-parts to break off and remain in the skin. If this happens, remove the mouth-parts with tweezers. If you are unable to remove the mouth easily with clean tweezers, leave it alone and let the skin heal.
3. After removing the tick, thoroughly clean the bite area and your hands with rubbing alcohol, an iodine scrub, or soap and water.

Avoid folklore remedies such as "painting" the tick with nail polish or petroleum jelly, or using heat to make the tick detach from the skin. Your goal is to remove the tick as quickly as possible—not waiting for it to detach.

### Follow-up

If you develop a rash or fever within several weeks of removing a tick, see your doctor. Be sure to tell the doctor about your recent tick bite, when the bite occurred, and where you most likely acquired the tick.

## SYMPTOMS OF TICKBORNE ILLNESS

Many tickborne diseases can have similar signs and symptoms. If you have been bitten by a tick and develop the symptoms below within a few weeks, a health care provider should evaluate the following before deciding on a course of treatment:

- Your symptoms
- The geographical region in which you were bitten
- Diagnostic tests, if indicated by the symptoms and the region where you were bitten

The most common symptoms of tick-related illnesses are:

- **Fever/chills:** With all tickborne diseases, patients can experience fever at varying degrees and time of onset.
- **Aches and pains.** Tickborne disease symptoms include headache, fatigue, and muscle aches. With Lyme disease you may also experience joint pain. The severity and time of onset of these symptoms can depend on the disease and the patient's personal tolerance level.
- **Rash.** Lyme disease, southern tick-associated rash illness (STARI) Rocky Mountain spotted fever (RMSF), ehrlichiosis and tularemia can result in distinctive rashes:

- In Lyme disease, the rash may appear within 3-30 days, typically before the onset of fever. The Lyme disease rash is the first sign of infection and is usually a circular rash called erythema migrans or EM. This rash occurs in approximately 70-80% of infected persons and begins at the site of a tick bite. It may be warm, but is not usually painful. Some patients develop additional EM lesions in other areas of the body several days later.
- The rash of (STARI) is nearly identical to that of Lyme disease, with a red expanding "bulls eye" lesion that develops around the site of a lone star or tick bite. Unlike Lyme disease, STARI has not been linked to any arthritic or neurological symptoms.
- The rash seen with Rocky Mountain spotted fever (RMSF) varies greatly from person to person in appearance, location, and time of onset. About 10% of people with RMSF never develop a rash. Most often, the rash begins 2-5 days after the onset of fever as small, flat, pink, non-itchy spots on the wrists, forearms, and ankles and spreads to the trunk. It sometimes involves the palms and soles. The red to purple, spotted rash of RMSF is usually not seen until the sixth day or later after onset of symptoms and occurs in 35-60% of patients with the infection.
- In the most common form of tularemia, a skin ulcer appears at the site where the organism entered the body. The ulcer is accompanied by swelling of regional lymph glands, usually in the armpit or groin.
- In about 30% of patients (and up to 60% of children), ehrlichiosis can cause a rash. The appearance of the rash ranges from macular to maculopapular to petechial, and may appear after the onset of fever.

Tickborne diseases can result in mild symptoms treatable at home to severe infections requiring hospitalization. Although easily treated with antibiotics, these diseases can be difficult for physicians to diagnose. However, early recognition and treatment of the infection decreases the risk of serious complications.

## LYME DISEASE

The Lyme disease bacterium is spread through the bite of infected ticks. The blacklegged tick (or deer tick) spreads the disease in the northeastern, mid-Atlantic, and north-central United States and the western blacklegged tick spreads the disease on the Pacific Coast.

Ticks can attach to any part of the human body but are often found in hard-to-see areas such as the groin, armpits, and scalp. In most cases, the tick must be attached for 36-48 hours or more before the Lyme disease bacterium can be transmitted.

Most humans are infected through the bites of immature ticks called nymphs. Nymphs are tiny (less than 2mm) and difficult to see; they feed during the spring and summer months. Adult ticks can also transmit Lyme disease bacteria, but they are much larger and may be more likely



to be discovered and removed before they have had time to transmit the bacteria. Adult ticks are most active during the cooler months of the year.

Lyme disease diagnosis is based on:

- Signs and symptoms
- A history of possible exposure to infected blacklegged ticks

#### **Are there other ways to get Lyme disease?**

- There is no evidence that Lyme disease is transmitted from person-to-person. For example, a person cannot get infected from touching, kissing or having sex with a person who has Lyme disease.
- Lyme disease acquired during pregnancy may lead to infection of the placenta and possible stillbirth; however, no negative effects on the fetus have been found when the mother receives appropriate antibiotic treatment. There are no reports of Lyme disease transmission from breast milk.
- Although no cases of Lyme disease have been linked to blood transfusion, scientists have found that the Lyme disease bacteria can live in blood that is stored for donation. Individuals being treated for Lyme disease with an antibiotic should not donate blood. Individuals who have completed antibiotic treatment for Lyme disease may be considered as potential blood donors.
- Although dogs and cats can get Lyme disease, there is no evidence that they spread the disease directly to their owners. However, pets can bring infected ticks into your home or yard. Consider protecting your pet, and possibly yourself, through the use of tick control products for animals.
- You will not get Lyme disease from eating venison or squirrel meat, but in keeping with general food safety principles meat should always be cooked thoroughly. Note that hunting and dressing deer or squirrels may bring you into close contact with infected ticks.
- There is no credible evidence that Lyme disease can be transmitted through air, food, water, or from the bites of mosquitoes, flies, fleas, or lice.
- Ticks not known to transmit Lyme disease include Lone star ticks, the American dog tick, the Rocky Mountain wood tick, and the brown dog tick.

#### **Signs and Symptoms of Lyme Disease**

If you had a tick bite, live in an area known for Lyme disease or have recently traveled to an area where it occurs, and observe any of these symptoms, you should seek medical attention! Reasons to suspect Lyme disease include symptoms such as rash, fever, chills, fatigue, joint or muscle pain, or facial paralysis.

#### **Early localized stage (3-30 days post-tick bite)**

- Red, expanding rash called erythema migrans (EM)
- Fatigue, chills, fever, headache, muscle and joint aches, and swollen lymph nodes

Some people may get these general symptoms in addition to an EM rash, but in others, these general symptoms may be the only evidence of infection.

Some people get a small bump or redness at the site of a tick bite that goes away in 1-2 days, like a mosquito bite. This is not a sign that you have Lyme disease. However, ticks can spread other organisms that may cause a different type of rash. For example, Southern Tick-associated Rash Illness (STARI) causes a rash with a very similar appearance.

#### **Erythema migrans (EM) or “bull’s eye” rash**

- Rash occurs in approximately 70-80% of infected persons and begins at the site of a tick bite after a delay of 3-30 days (average is about 7 days).
- Rash gradually expands over a period of several days, and can reach up to 12 inches across. Parts of the rash may clear as it enlarges, resulting in “bull’s-eye” appearance.
- Rash usually feels warm to the touch but is rarely itchy or painful.
- EM lesions may appear on any area of the body.

#### **Early disseminated stage (days to weeks post-tick bite)**

Untreated, the infection may spread from the site of the bite to other parts of the body, producing an array of specific symptoms that come and go, including:

- Additional EM lesions in other areas of the body
- Facial or Bell’s palsy (loss of muscle tone on one or both sides of the face)
- Severe headaches and neck stiffness due to meningitis (inflammation of the spinal cord)
- Pain and swelling in the large joints (such as knees)
- Shooting pains that interfere with sleep
- Heart palpitations and dizziness due to changes in heartbeat

Many of these symptoms will resolve over a period of weeks to months, even without treatment. However, lack of treatment can result in additional complications, described below.

#### **Bell’s (facial) palsy**

Loss of muscle tone on one or both sides of the face is called facial or “Bell’s” palsy.

#### **Late disseminated state (months-to-years post-tick bite)**

Approximately 60% of patients with untreated infection may begin to have intermittent bouts of arthritis, with severe joint pain and swelling. Large joints are most often affected, particularly the knees. Arthritis caused by Lyme disease manifests differently than other causes of arthritis and must be distinguished from arthralgias (pain, but not swelling, in joint).

Up to 5% of untreated patients may develop chronic neurological complaints months to years after infection. These include shooting pains, numbness or tingling in the hands or feet, and problems with short-term memory.

#### **Arthritis**

Pain and swelling in the large joints (such as knees) can occur.

#### **Lingering symptoms after treatment (post-treatment Lyme disease syndrome)**



Approximately 10-20% of patients with Lyme disease have symptoms that last months to years after treatment with antibiotics. These symptoms can include muscle and joint pains, cognitive defects, sleep disturbance, or fatigue. The cause of these symptoms is not known, but there is no evidence that these symptoms are due to ongoing infection. This condition is referred to as Post-treatment Lyme disease syndrome (PTLDS). There is some evidence that PTLDS is caused by an autoimmune response, in which a person's immune system continues to respond, doing damage to the body's tissues, even after the infection has been cleared. Studies have shown that continuing antibiotic therapy is not helpful and can be harmful for persons with PTLDS.

#### **Lyme Disease Diagnosis and Treatment**

Lyme disease is diagnosed based on:

- Signs and symptoms
- A history of possible exposure to infected blacklegged ticks.

Laboratory blood tests are helpful if used and performed with validated methods. Laboratory tests are not recommended for patients who do not have symptoms typical of Lyme disease. Just as it is important to correctly diagnose Lyme disease when a patient has it, it is important to avoid misdiagnosis and treatment of Lyme disease when the true cause of the illness is something else.