

# Infectious Disease Epidemiology Program

## Vector-borne Diseases

### Prevention of Tick-Borne Disease

Limiting exposure to ticks reduces the likelihood of any tick-borne disease infection. In persons exposed to tick-infested habitats, prompt careful inspection and removal of crawling or attached ticks is an important method of preventing disease. It may take several hours of attachment before microorganisms are transmitted from the tick to the host.

It is unreasonable to assume that a person can completely eliminate activities that may result in tick exposure. Therefore, prevention measures should be aimed at personal protection:



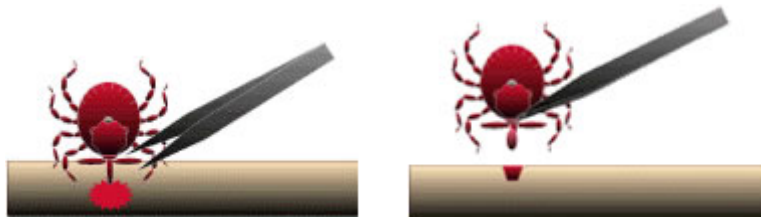
- Wear light-colored clothing -- this will allow you to see ticks that are crawling on your clothing
- Tuck your pants legs into your socks so that ticks cannot crawl up the inside of your pants legs.
- Apply repellents to discourage tick attachment. Repellents containing permethrin can be sprayed on boots and clothing, and will last for several days. Repellents containing DEET (n, n-diethyl- m-toluamide) can be applied to the skin, but will last only a few hours before reapplication is necessary. Use DEET with caution on children because adverse reactions have been reported.
- Conduct a body check upon return from potentially tick-infested areas by searching your entire body for ticks. Use a hand-held or full-length mirror to view all parts of your body. Remove any tick you find on your body.

### To remove attached ticks, use the following procedure:

1. Use fine-tipped tweezers or shield your fingers with a tissue, paper towel, or rubber gloves.

2. Grasp the tick as close to the skin surface as possible and pull upward with steady, even pressure. Do not twist or jerk the tick; this may cause the mouthparts to break off and remain in the skin. (If this happens, remove mouthparts with tweezers. Consult your healthcare provider if infection occurs.)
3. Do not squeeze, crush, or puncture the body of the tick because its fluids may contain infectious organisms.

#### Tick Removal



4. Do not handle the tick with bare hands because infectious agents may enter through mucous membranes or breaks in the skin. This precaution is particularly directed to individuals who remove ticks from domestic animals with unprotected fingers. Children, elderly persons, and immunocompromised persons may be at greater risk of infection and should avoid this procedure.
5. After removing the tick, thoroughly disinfect the bite site and wash your hands with soap and water.
6. You may wish to save the tick for identification in case you become ill within 2 to 3 weeks. Your doctor can use the information to assist in making an accurate diagnosis. Place the tick in a plastic bag and put it in your freezer. Write the date of the bite on a piece of paper with a pencil and place it in the bag.

Note: Folklore remedies such as petroleum jelly or hot matches do little to encourage a tick to detach from skin. In fact, they may make matters worse by irritating the tick and stimulating it to release additional saliva, increasing the chances of transmitting a tick-borne disease. These methods of tick removal should be avoided. Also, a number of tick removal devices have been marketed, but none are better than a plain set of fine tipped tweezers.

Tick Control Strategies to reduce vector tick densities through area-wide application of acaricides (chemicals that will kill ticks) and control of tick habitats (e.g., leaf litter and brush) have been effective in small-scale trials. New methods under development include applying acaricides to rodents and deer by using baited tubes, boxes, and deer feeding stations in areas where these pathogens are endemic. Biological control with fungi, parasitic nematodes, and parasitic wasps may play important roles in integrated tick control efforts. Community-based integrated tick management strategies may prove to be an effective public health response to reduce the incidence of tick-borne infections. However, limiting exposure to ticks is presently the most effective method of prevention.

This document is also available at:

<http://www.cdc.gov/ncidod/dvrd/ehrlichia/Prevention/Prevention.htm> 