

# Update on Lyme Disease in Vermont – 2010



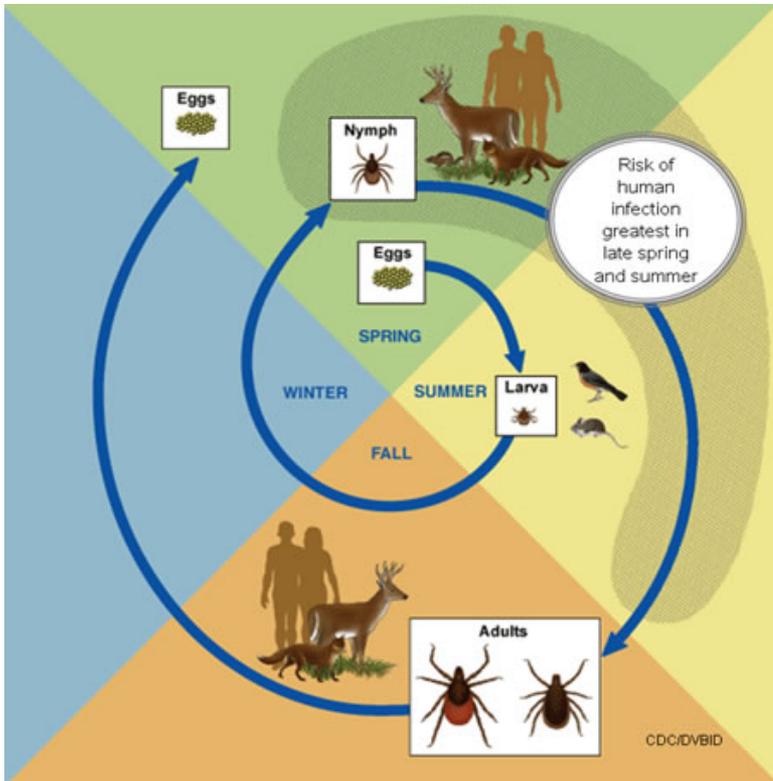
Erica Berl DVM, MPH

Health Surveillance Epidemiologist

# Overview

- Bacterial infection
  - *Borrelia burgdorferi*
- Transmitted by ticks
  - *Ixodes scapularis* (aka black-legged tick or deer tick)
- Illness
  - Variable – skin, joints, heart, nervous system
  - Treatable with antibiotics
- Prevention

# 2-Year Life Cycle of Deer Ticks



- Deer ticks feed only once during each stage of life
- Larva have not fed yet so they are not infectious
- Nymphs, which emerge in the spring, may be infectious
- Adults emerge in the late summer or fall. If they acquired the Lyme disease bacteria as a larva or nymph, they will be infectious.

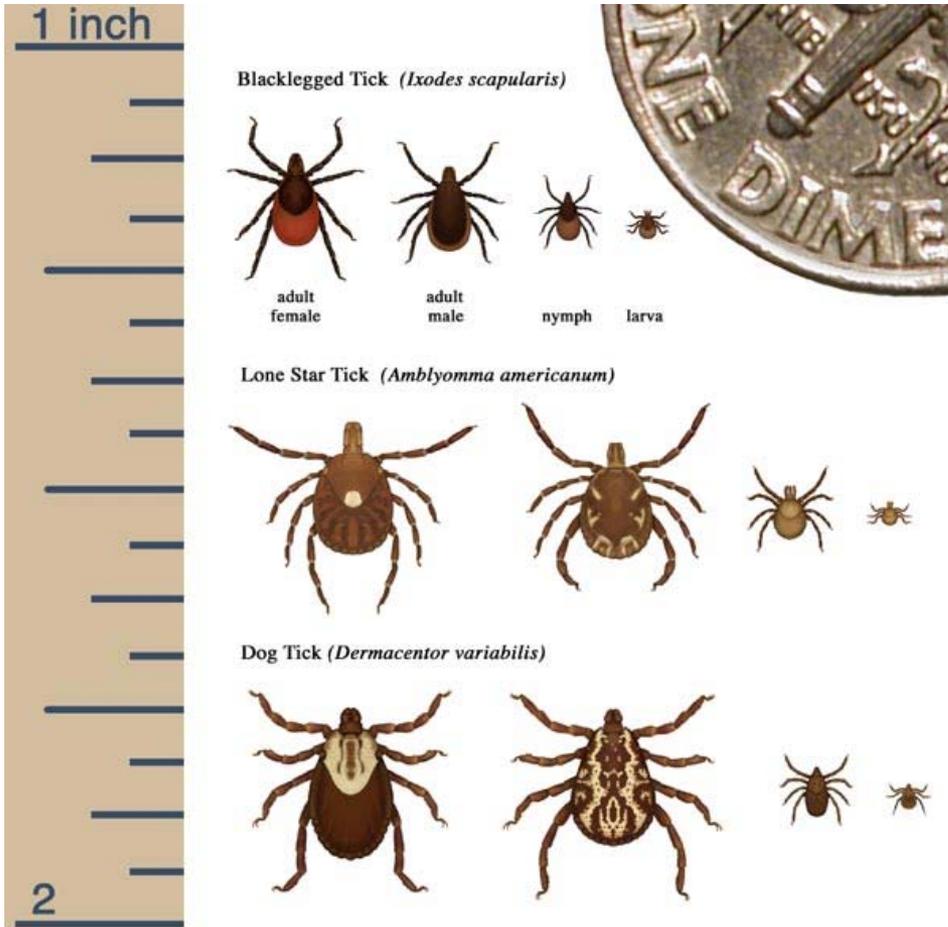


**Unfed and  
engorged female  
*I. scapularis***

**Adult and nymph  
*I. scapularis***



# Other Ticks

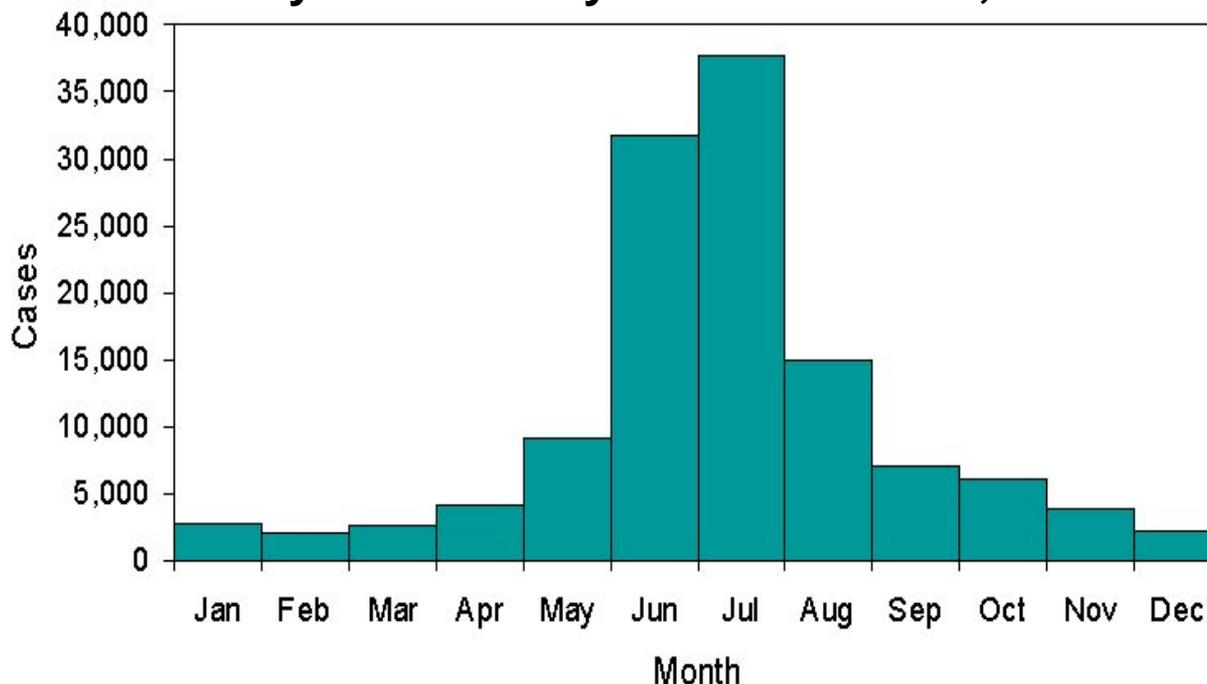


- Lone Star tick – common in southeastern US; reported occasionally in VT
- Dog tick – used to be the most common tick in VT
- Neither of these transmit Lyme disease

# Lyme Transmission

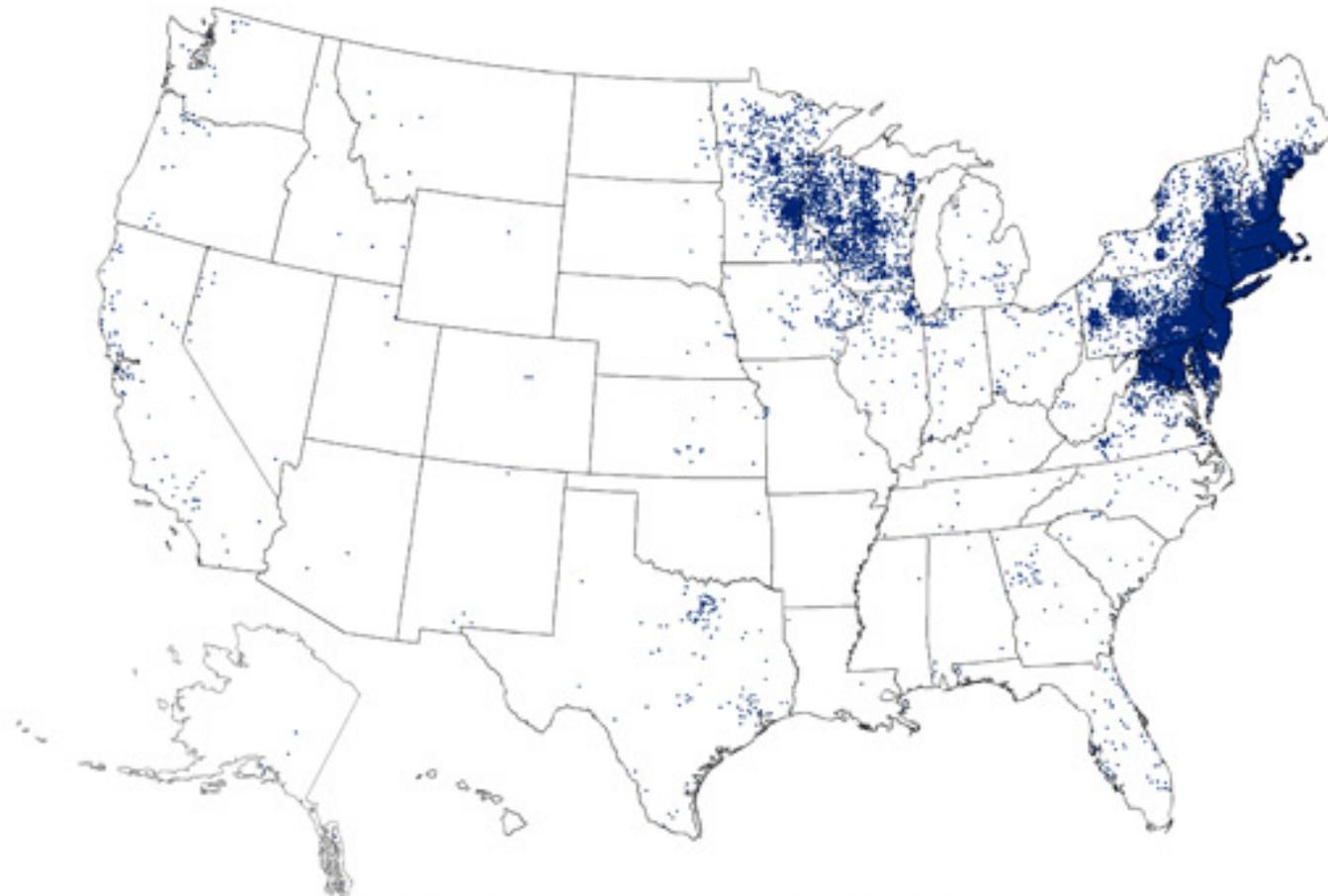
- Nymphs account for most human cases
  - Often unrecognized so allowed to feed > 36 hours (adults usually removed sooner)

U.S. Lyme Cases by Month of Onset, 1992-2004



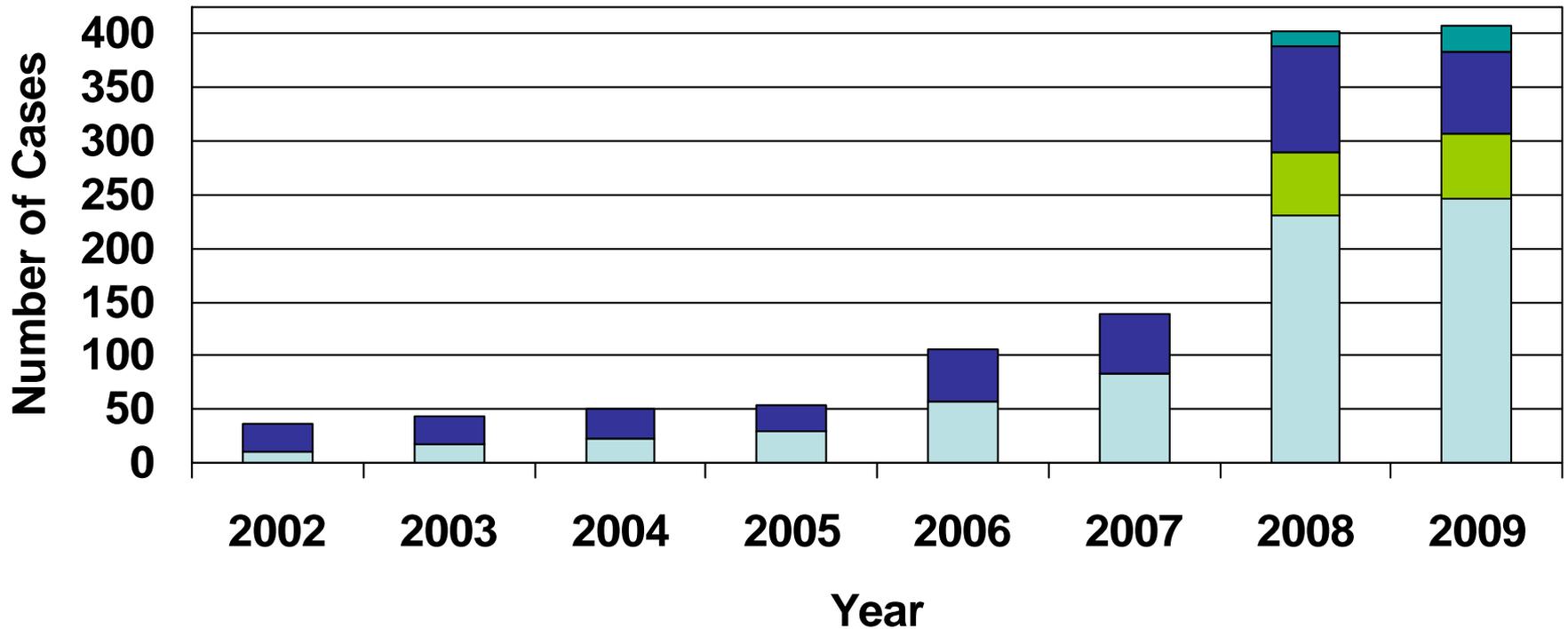
# National Picture

Reported Cases of Lyme Disease -- United States, 2008

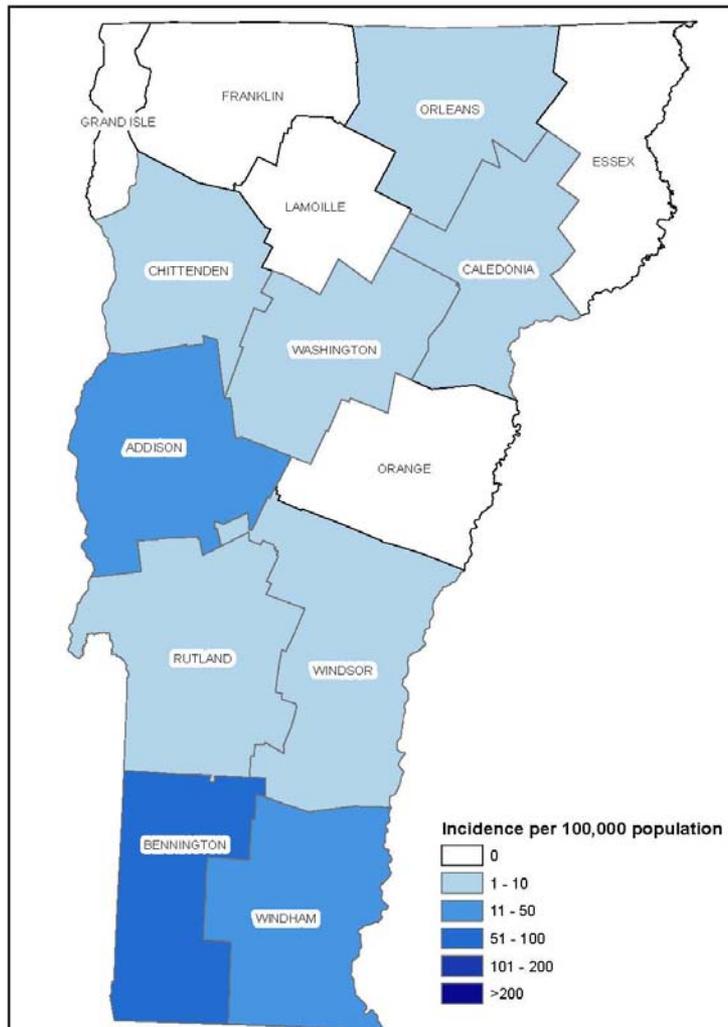


1 dot placed randomly within county of residence for each confirmed case

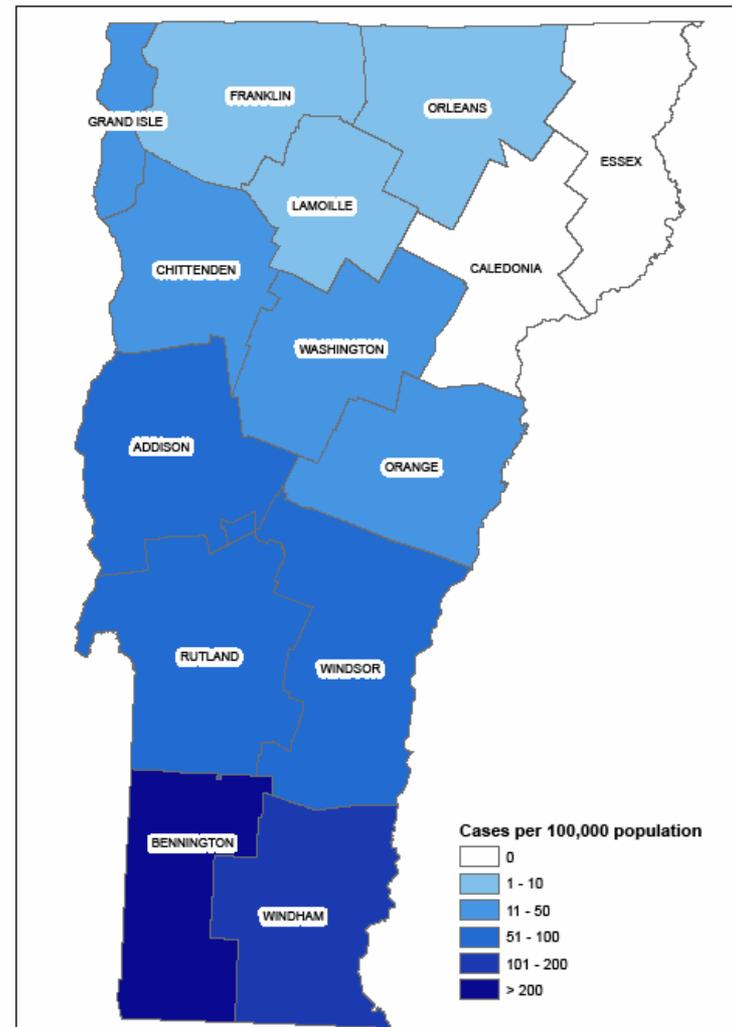
# Vermont Lyme Cases, 2002 – 2009



**Lyme Disease in Vermont 2005:  
Incidence Rate of Confirmed Cases**



**Lyme Disease In Vermont 2009:  
Incidence Rate of Confirmed Cases**



# Symptoms of Lyme Disease

Early symptoms – onset 3 to 30 days after tick bite

- Rash - Erythema migrans (EM)
  - Occurs in 70-80% of infected persons
  - Gradually expands over several days
  - Center may clear
  - Usually not painful
- Fatigue
- Chills/fever
- Headache, muscle aches
- Swollen lymph nodes

# Erythema Migrans (EM)



## **Symptoms (cont)**

Disseminated disease – onset: within days or months

- Multiple EM rashes
- Bell's palsy
- Arthritis with joint pain and swelling
- Numbness and pain in arms or legs
- Meningitis (stiff neck, headache)
- Memory loss
- Difficulty concentrating
- Irregular heartbeat

# Lyme Disease Treatment

- Most cases can be cured with a few weeks of antibiotics.
- Patients treated early with antibiotics usually recover rapidly and completely.
- Disseminated disease also responds well to antibiotics.
- Repeat infections are possible
  - No long-term immunity

# Lyme Disease Prevention

The best way to prevent Lyme disease is to prevent tick bites

- 🌿 Personal prevention measures
- 🌿 Landscaping strategies



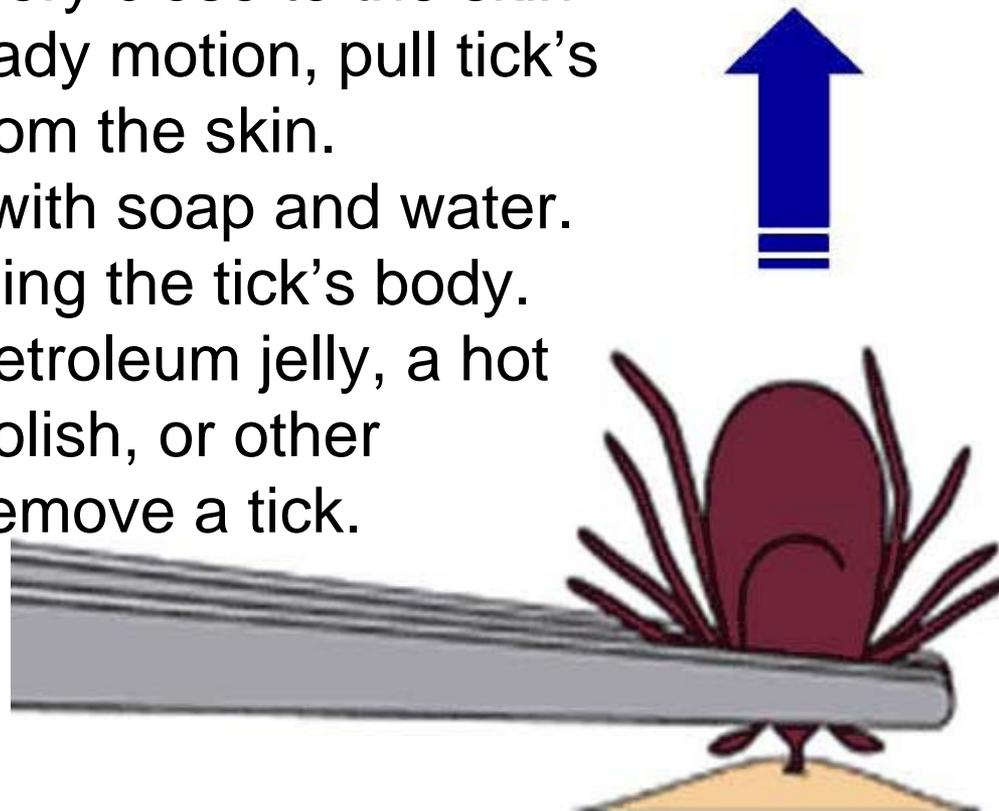
# Personal Prevention

- Avoid tall grass and brushy areas as much as possible
- Keep to the center of trails when hiking
- Wear light-colored clothing
- Tuck pants into socks
- Use repellents – DEET tried and true
- Permethrin-based repellent on clothes
- Check pets for ticks/use appropriate repellents
- Shower within 2 hours of coming inside
- ❖ **Check for ticks daily and remove ticks promptly: A tick has to be attached for about 36 hours to transmit Lyme disease**



# Tick Removal

- Use fine-tipped tweezers. Do not use your fingers!
- Grasp tick very close to the skin.
- Using a steady motion, pull tick's body away from the skin.
- Clean skin with soap and water.
- Avoid crushing the tick's body.
- Don't use petroleum jelly, a hot match, nail polish, or other products to remove a tick.



# Tick Testing

- Testing ticks for the bacteria is not useful
  - Test results are not always accurate.
  - Even if infected, a tick might not have been attached long enough to transmit Lyme.
  - You may have other tick bites that you don't know about. Even if a tick you find tests negative, you may still have been bitten by an infected tick, not know it and develop Lyme disease.
- After removing a tick, monitor your health for symptoms

# Landscape Management

- Keep grass mowed
- Create a barrier (stones, mulch) between your lawn and the brush.
- Remove brush and leaf litter
- Discourage rodent activity
- Move firewood and bird feeders away from houses
- Increase sunlight – trim branches
- Consider applying chemicals to kill the ticks.



Source: Tick Management Handbook, CT Agricultural Experiment Station

# Lyme Disease Info on the Web

Be careful! There is a lot of misinformation about Lyme disease on the Web.

Recommended sites:

- Centers for Disease Control and Prevention:  
[www.cdc.gov](http://www.cdc.gov)
- Vermont Department of Health:  
[www.healthvermont.gov](http://www.healthvermont.gov)
- On these sites there are links to the Tick Handbook and information about repellents from EPA

# Contact Information

- For questions about Lyme disease in humans or pets:
  - Erica Berl
  - Health Surveillance Epidemiologist
  - Vermont Department of Health
  - 802-863-7240
- For questions about ticks or pesticides:
  - Jon Turmel
  - State Entomologist
  - Agency of Agriculture, Food and Markets
  - (802) 241-3545

# Questions?

