

Tick Talk: It's Lyme Time

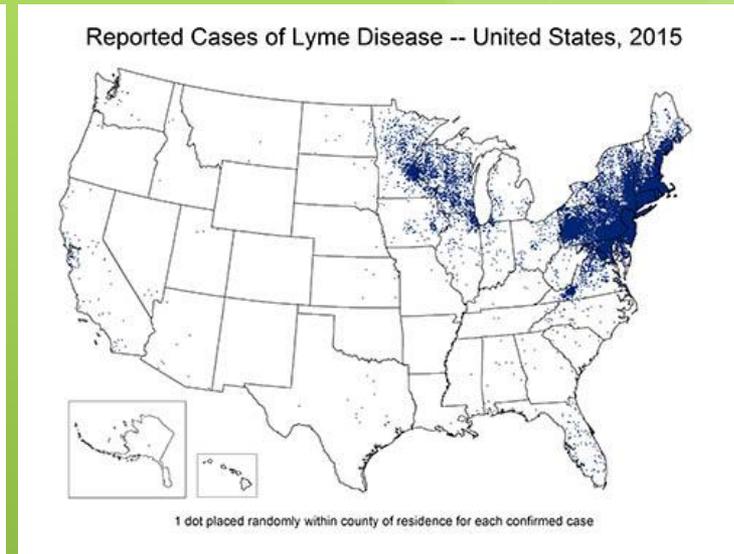


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Why Do We talk About Lyme?



Lyme Disease has increased in number of cases, and into many new areas since 2001.

It is estimated cases have tripled since the early '90s

Why the Increase?

- Warmer winters
 - Ticks move to new areas
- Increase in deer population
- Deforestation
 - Started over 200 years ago
 - Forests came back and developed into little pieces
 - Great news for the white-footed mouse!

What Does The Mouse Have To Do With Anything?

- Forests are packed with mice
- Mice are chronically infected with Lyme Disease and covered in ticks
 - Highly efficient transmitters of Lyme
 - Mice can have 50-100 ticks
 - Can infect up to 95% of ticks with Lyme

What is Lyme Disease?

- ❖ A bacterial infection caused by *Borrelia burgdorferi*
- ❖ Transmitted through tick bites
 - ❖ Usually the black legged, or deer tick
- ❖ Most common vector-borne illness in the United States
- ❖ 65 countries around the world
- ❖ In New York State, there were over 100,000 reported cases
- ❖ CDC estimates only 10% cases are reported

What Kind of Ticks Do We See?



The American Dog Tick: Reddish-brown and larger than deer ticks



Brown Dog Tock: Usually found on dogs, but may bite humans

What Kind of Ticks Do We See?



Lone Star Tick

- Becoming more common in New York State
- Adult female has a white dot "Lone Star" on her back
- Aggressive tick that bites humans

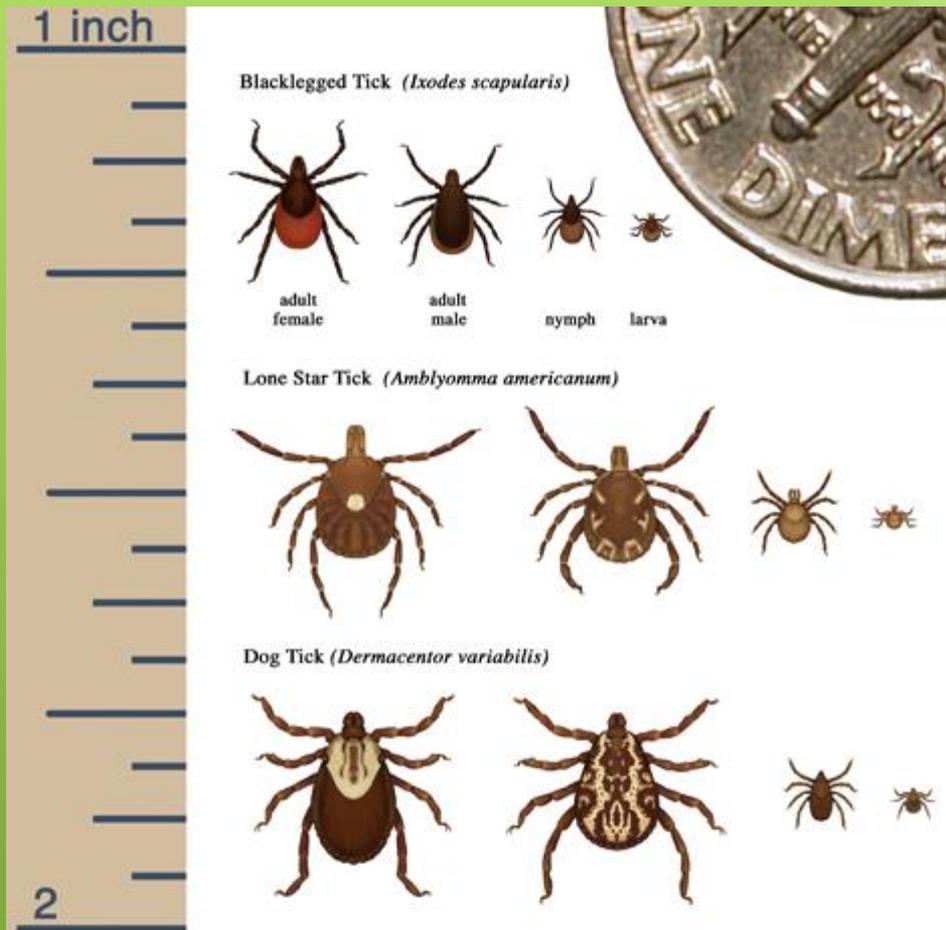
What Kind of Ticks Do We See?



- Black-legged, or deer tick
- Carries the bacteria that causes Lyme
- Adult females are red and black
- Adult males are black
- Adults are the size of a sesame seed

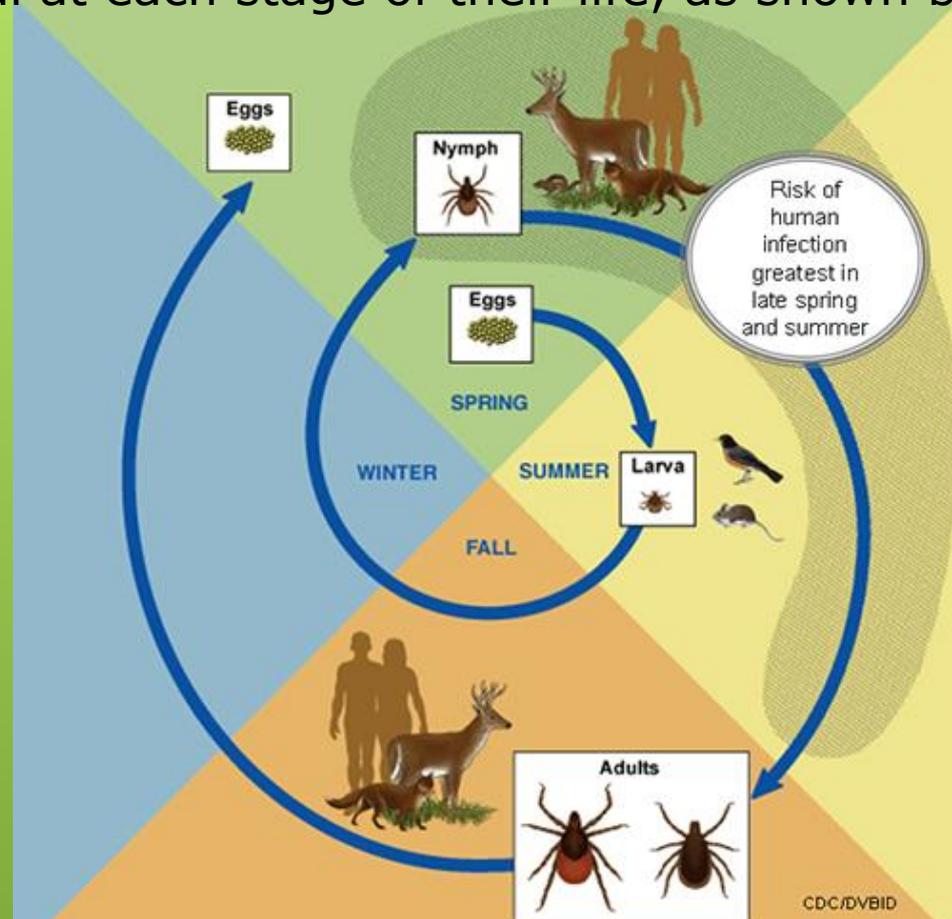
Tick Life Cycle

- Very complex, but plays a role in disease transmission
- Each life stage looks different



Tick Life Cycle

Ticks can feed on mammals, birds, reptiles, and amphibians. Most ticks prefer to have a different host animal at each stage of their life, as shown below:



This diagram shows the life cycle of blacklegged ticks that can transmit anaplasmosis, babesiosis, and Lyme disease.

Tick Life Cycle

- Require feeding at every life stage
 - Many will die because they can't find a host
- Humans are most frequently bit by nymphs
- Very tiny – the size of poppy seeds
- Most active in Spring and Summer
- In the Fall, they morph into adults
- Female adult ticks can also bite humans

Habitat

- Ticks are usually found in shady, moist areas
- Lawns and gardens
- At the edge of woods
- Around stone walls
- Usually no more than 18-24 inches off the ground
- Ticks cannot fly or jump
- They do not drop onto people passing by

Picking a Host

- Ticks detect animals' breath or body odor
- Sense body heat, moisture and vibrations
- Some can identify a shadow
- Identify well used paths
- Wait in a "questing position"
 - They hold onto leaves and grasses with their third and fourth legs
 - First legs reach out waiting for a host
 - They grab on and climb aboard
 - Some will attach right away, others wander



Transmitting Disease

- Ticks transmit disease through the feeding process
- Grasps the skin and cuts into the surface
- Inserts the feeding tube
 - A cement like secretion or barbs on the feeding tube keep tick in place
- Can secrete an anesthetic with the saliva



Transmitting Disease

- Ticks will suck blood for several days
- Will ingest any blood borne pathogens from the host
- Saliva will transfer pathogens from the tick to the host
- Generally takes 36-48 hours to transmit the bacterium that causes Lyme
- After feeding, fall off to prepare for next life cycle
- Will transmit pathogens to new host in next life cycle

Protecting Against Tick Bites

- Easiest way is to avoid soil, leaf litter, and vegetation
- However, we like to hike, camp, hunt, fish, garden
- We need to reduce the risk while outdoors
- Easy precautions we can take

Protecting Against Tick Bites

- We can ENJOY the great outdoors!
- Walk in the center of trails, avoiding contact with overgrown grass, brush, and leaf litter
- Wear light colored clothing with a tight weave
- Wear enclosed shoes, long pants, and a long-sleeved shirt
- Tuck pants into socks or boots
- Tuck shirt into pants

Protecting Against Tick Bites

- Check clothes and exposed skin frequently for ticks
 - Keep in mind: If you tuck pants into socks, and shirt into pants, ticks will climb upward to the head and neck
- Consider insect repellent
 - Spray repellent with 20% DEET on clothes and exposed skin
 - Treat clothing and gear (boots, tents) with 0.5% permethrin
 - Will last for several washings
 - Pre-treated clothing is available
 - Never spray permethrin directly on the skin
 - Always follow product instructions

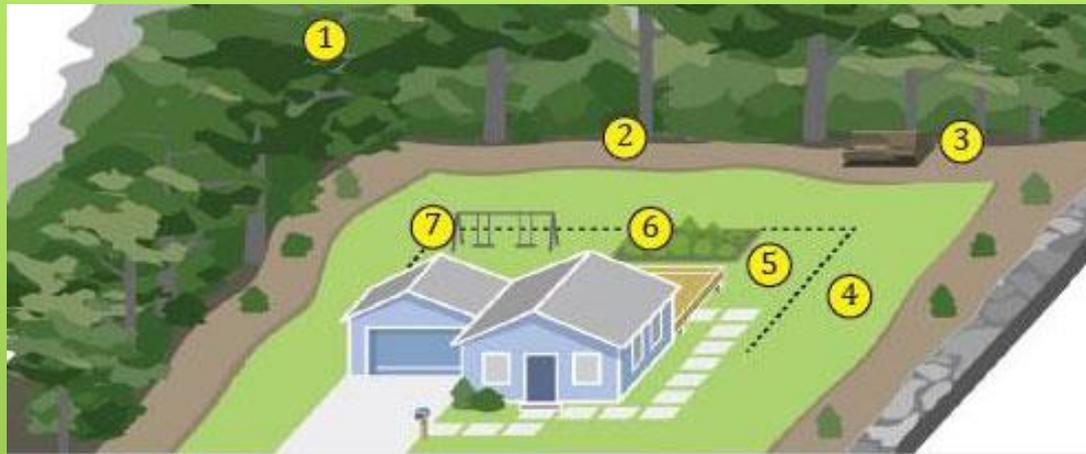
Protecting Against Tick Bites

- Avoid sitting directly on the ground or stonewalls
- Keep long hair tied back, especially while gardening
- Bathe or shower as soon as possible after being outside
 - Within 2 hours if possible
- Do a final, full-body tick check at the end of each day
 - Remember to check children and pets as well
- Dry clothes first, then wash
 - Heat will kill the ticks

Preventing Ticks in the Yard

- Help reduce the tick population around your home:
- Keep lawns mowed and edges trimmed
- Keep leaves raked
- Stack woodpiles neatly and away from the house, preferably off the ground
- Place a 3 foot barrier of gravel or wood chips between lawns and wooded areas
- Keep playground equipment, decks and patios away from trees and in the sun
- Remove any old furniture, mattresses or trash from the yard
- Keep ground under bird feeders clean so as to not attract small animals into the yard that may have ticks
- Approved pesticide once a year
 - Follow regulations

Preventing Ticks in the Yard



- 1 Tick zone** Avoid areas with forest and brush where deer, rodents, and ticks are common.
- 2 Wood chip barrier** Use a 3 ft. barrier of wood chips or rock to separate the "tick zone" and rock walls from the lawn.
- 3 Wood pile** Keep wood piles on the wood chip barrier, away from the home.
- 4 Tick migration zone** Maintain a 9 ft. barrier of lawn between the wood chips and areas such as patios, gardens, and play sets.
- 5 Tick safe zone** Enjoy daily living activities such as gardening and outdoor play inside this perimeter.
- 6 Gardens** Plant deer resistant crops. If desired, an 8-ft. fence can keep deer out of the yard.
- 7 Play sets** Keep play sets in the "tick safe zone" in sunny areas where ticks have difficulty surviving.

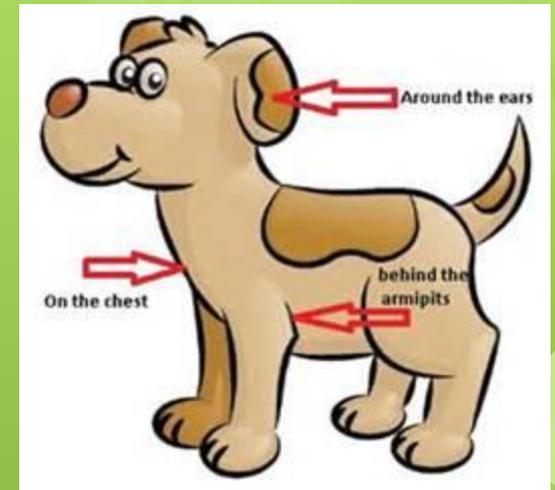
Based on a diagram by K. Stafford, Connecticut Agricultural Experiment Station

Ticks and Our Pets

- Dogs are very susceptible to tick bites and tick-borne illness
- Vaccines are not available for all diseases
- Vaccines will not prevent dogs from bringing ticks into the home
- Children spend a lot of time with their pets
- We can reduce the chance of illness to our pets

Ticks and Our Pets

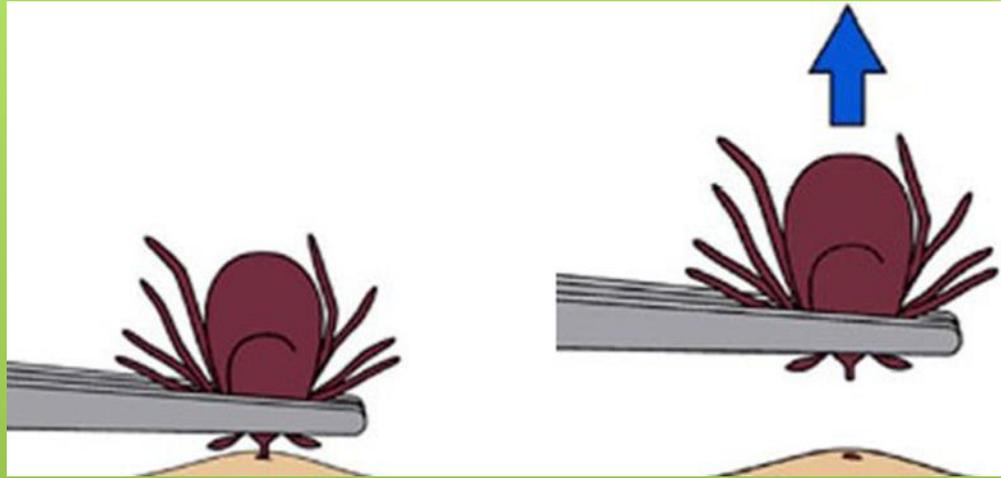
- Check your pets daily, especially after being outside
 - Don't forget ears, stomach, legs, armpits
- If you find a tick, remove it right away
- Ask your veterinarian to perform a tick check at every visit
- Reduce tick habitat
- Consider tick preventatives
 - For dogs, products can either kill ticks or repel them
 - Cats are very sensitive to chemicals. Check with a veterinarian before using any product



I Have a Tick...What Do I Do?

- Don't panic... not all ticks are infected and it doesn't mean you're going to be infected
- You're chances of becoming infected are greatly reduced if the tick is removed within 36 hours
- 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
- Use a pair of pointed tweezers to grasp the tick as closely to the skin surface as possible
 - Don't grasp the tick body

I Have a Tick...What Do I Do?



- Pull up with a steady, even pressure
- DO NOT twist or jerk
 - This can cause mouth parts to remain in the skin
 - If that happens, remove mouth parts with tweezers
 - If they can't be removed with tweezers, leave them and let the skin heal

I Have a Tick...What Do I Do?

- Place the tick in a small container of rubbing alcohol to kill it
 - You can also use a sealed container, wrap it tightly in tape, or flush it down the toilet
 - Never crush it with your fingers
- Clean the bite area with rubbing alcohol, hydrogen peroxide, and iodine scrub, or soap and water
- Use an antibiotic ointment
- Cover with a bandage
- Monitor the site for 30 days to the development of a rash
- If you develop a rash or flu-like symptoms see your health care provider
 - Be sure to tell the provider about your recent tick bite, when the bite occurred, and where you most likely acquired the tick.

OK...So What about Lyme Disease?

- The “Great Imitator”
 - Mimics other illnesses
 - ALS, MS, lupus, chronic fatigue syndrome, Alzheimer’s, Parkinson’s
- Early detection and diagnosis is important
- Early treatment with antibiotics usually results in full recovery
- Diagnosis based on
 - Symptoms
 - History of possible exposures to ticks in areas with Lyme
 - Results of blood tests

OK...So What about Lyme Disease?

- Signs and symptoms of early (3 to 30 days after bite) Lyme disease include:
- A characteristic rash, called erythema migrans
 - Occurs in about 70-80% of infected persons

- Begins at the site of bite after delay of 30 days
- Expands gradually over time
- May feel warm to the touch, but very rarely itchy or painful
- Center clears as it enlarges, causing "Bull's Eye"
- May appear on any areas of the body



Early Signs and Symptoms

- Fever
- Chills
- Headache
- Fatigue
- Muscle and joint aches
- Swollen lymph nodes

Late Lyme Disease Signs and Symptoms

- Arthritis
 - Short bouts of pain and swelling
 - Usually in one or more large joints
- Numbness, pain, nerve paralysis
- Meningitis
- Problems with memory or concentration
- Sleep Disturbances
- Not everyone experiences the same signs and symptoms

Lyme and Pregnancy

- Early diagnosis and treatment with antibiotics
- Studies show women infected with Lyme during pregnancy who are treated with antibiotics show no harmful effects on the fetus
- If left untreated, can infect the placenta and cause stillbirth.

Natural Tick Repellents and Pesticides

- EPA determined that all natural plant oils (like peppermint, thyme, garlic, eucalyptus) used in insect repellent products were safe for people
- Pose minimal risk for human health, so don't need registration
- Did not test effectiveness
- For more information:
 - <http://www2.epa.gov/insect-repellents/regulation-skin-applied-repellents>

Natural Tick Repellents and Pesticides

- **Active Ingredient: 2-undecanoe**
- EPA registered
- Essential oil from leaves and stem of the wild tomato plant
- Repels black-legged and lone star tick
- Can be used on skin, clothing, gear
- Commercially available

Natural Tick Repellents and Pesticides

- **Active Ingredient: Garlic Oil**
- EPA exempt
- Essential oil from garlic plants
- Repels black-legged ticks
- For use in lawns and gardens
- Commercially available

Natural Tick Repellents and Pesticides

- **Active Ingredient: Mixed Essential Oils**

- FDA exempt
- Rosemary, lemongrass, cedar, peppermint, thyme, and geranoil
- Essential oil from plants
- Repels black-legged ticks
- Used on skin, lawns, and gardens
- Commercially available

Natural Tick Repellents and Pesticides

- Biological Agent- Based Product
- **Active Ingredient: Fungus**
- FDA registered
- Grow naturally in soils throughout the world
- Kills black-legged ticks and other bugs
- Use on lawns and gardens
- Commercially available

Resources

- www.cdc.gov/lyme
- www.cdc.gov/ticks
- <http://www.health.ny.gov/diseases/communicable/lyme>
- www.LymeDiseaseAssociation.org

- *Thank You!!*
- *Any Questions??*

