



Ticks & Tick-borne Diseases

2017 is proving to be a very bad year for tick-bites. And we should have seen it coming!

It started two years ago in 2015 with an unusually large abundance of acorns here in New Jersey and the whole Northeast. Oak trees go through a boom-and-bust cycle with acorn production. The reason for 'mast years' or years when an immense amount of tree-nuts are produced, is largely unknown.

Trees in an area synchronize their mast years. One theory suggests with so many acorns falling, it is impossible for all to be consumed. Therefore, leftover acorns are able to take up roots and propagate. During non-mast years, animals that feed on acorns such as birds, mice, and squirrels decline. But the population of mice and other rodents boom following a mast year, as it did in 2016. The increase in host animals then leads to a boom in their parasites, the lowly tick. The tick has a two-year life cycle. The bigger concern is not the adult ticks which died off in the spring 2017, but the newly formed nymph ticks that acquired the Lyme disease pathogen when they feasted on mouse blood as larvae during the Fall of 2016 and are now looking for new hosts in 2017. Rising temperatures and relatively mild winters allow adult and nymph ticks to be more active year-round.

The three most common ticks in New Jersey are the dog tick, the deer tick and the lone star tick. The three species can range in size from a poppy seed as a nymph, to about ¼ inch as an adult. Ticks in the State can carry a variety of diseases. While Lyme disease is the most prevalent tick-borne disease, according to the State Department of Health (<http://www.state.nj.us/health/cd/documents/tick%20brochure%202017%20final.pdf>) there are several other tick-borne diseases that are present in New Jersey:

- The black-legged deer tick can carry Lyme disease, anaplasmosis, babesiosis, and Powassan disease.
- The American dog tick can transmit Rocky Mountain spotted fever and tularemia.
- The lone star tick can transmit ehrlichiosis, tularemia and STARI.

Lyme disease bacteria are carried by the white-footed mouse. Ticks acquire them by feeding on mouse blood and can then transmit the bacteria to other animals and humans. Like many Northeast states, New Jersey has a higher rate of the disease than national rate.

If Lyme is detected early, the disease can be treated successfully with antibiotics. If left untreated, it can lead to serious heart and nervous system problems. Other long-term effects include chronic headaches or stomach problems, memory loss, stiffness of joints and speech impairment. Early symptoms of Lyme disease include:

- A bullseye shaped rash at the site of the bite that appears about a week later.
- Severe headaches and neck stiffness.
- Joint and nerve pain.

This lesson plan is intended for general information purposes only. It should not be construed as legal advice or legal opinion regarding any specific or factual situation. Always follow your organization's policies and procedures as presented by your manager or supervisor. For further information regarding this bulletin, please contact your Safety Director at 877.398.3046.

PREVENTION STRATEGIES FOR EMPLOYERS & EMPLOYEES

Employers

- Decrease tick population around your facilities such as public works buildings, lift stations, and recreational buildings by removing leaf litter and mowing, or even removing, grass and brush from around buildings.
- Use an exterminating service to control rodents.
- Discourage deer and other animal activity in proximity of facilities (ex. - do not feed wildlife).
- Encourage workers to wear long sleeves and long pants when assigning work in areas likely to hold ticks. Consider making lockers available for employees to store spare clothes. Don't forget summer employees.
- Consider making insecticide wipes available.
- Consider provided workers with protective clothing pre-treated with permethrin. Professionally pre-treated clothing may offer more effective and longer protection than over-the-counter products.
- Offer employee training and morning reminders when applicable. Links have been provided at the end of the Bulletin for handouts.

Employees

- Educate yourself on tick behavior and identification. Avoid areas where ticks are more likely. Use the middle of trails or work from mowed areas when possible.
- Wear light-colored clothing. This make ticks easy to spot before they find a place to bite you. This includes long-sleeved shirts and long pants. Tuck pant legs into shoes or sock, and shirt tails into pants.
 - For employees who may wear short pants, consider having a spare pair of long pants in your locker or vehicle.
 - At home, put clothes in the dryer on HIGH heat for 10 - 15 minutes to kill ticks, then launder. Ticks are very sensitive to dryness. Washing, even in hot water, will not kill them reliably.
- Use insect repellent which contains 20 – 50 % DEET, picaridin, or IR 3535 on exposed skin and outer clothing. Spray the inside surfaces of pant legs also. Re-apply as directed by the product's label.
- Consider treating clothing with Permethrin. This can remain effective through several washings.
- Showering at the end of the day to wash off residual insecticide and unattached ticks, and to check yourself for attached ticks. Use a mirror if needed. It takes more than 24 hours for a tick to infect you with the above diseases.
- If you do find a tick, remove it properly.
 - Using fine-tipped tweezers, grasp the tick firmly as close to your skin as possible.
 - With a steady motion, pull the tick from your skin. Do not jerk; this may rip the tick in half.
 - Do not use petroleum jelly, hot matches, nail polish remover or similar products.
 - Wash the area with soap and warm water.
 - If possible, retain the tick for identification.

Employees should immediately report tick bites to their employer and follow instructions. Closely monitor your health for rash, fever, headache, joint or muscle pains, or swollen lymph nodes that may develop within 30 days of a tick bite.
