

## Report to the Boards of Health

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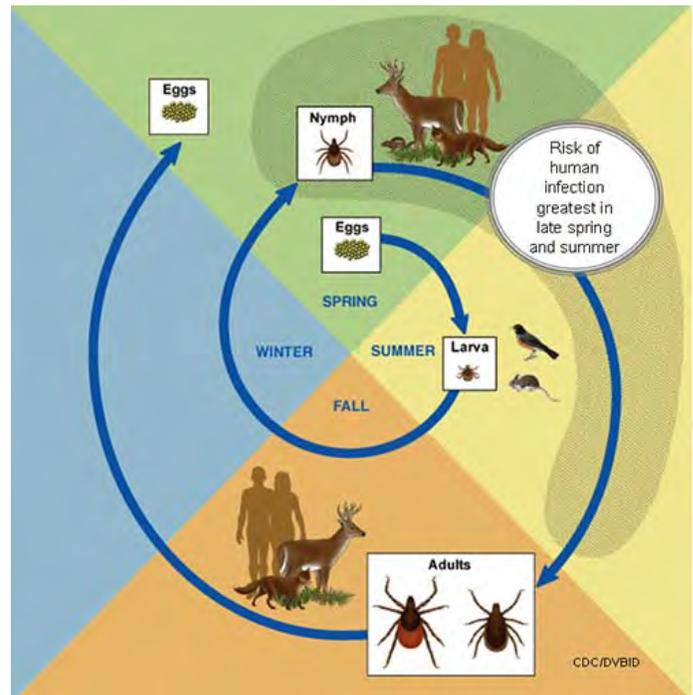
Mid-Michigan District Health Department, Wednesday, June 27, 2018  
Central Michigan District Health Department, Wednesday, May 27, 2018  
District Health Department #10, Friday, June 29, 2018



### Ticks, Mosquitos and Poison Ivy

1. **Ticks.** Ticks are very small insects that feed on the blood of wildlife, but will also feed on people and pets that work in or enjoy the areas ticks live. Ticks most commonly live in wooded areas, fields near wooded areas, and grassy shorelines. They are rarely found indoors, unless they are brought in on a pet, person, or clothing.

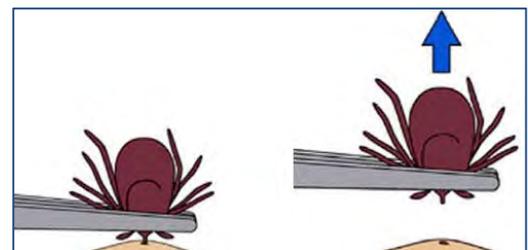
Ticks start as an egg, then go through a larval stage, a nymphal stage, then become adults. Larva start life disease-free. They can become infected with diseases when they feed on an infectious host animal. Blacklegged, or deer, ticks carry Lyme disease, the most commonly reported tick-borne illness. These ticks start as larva in the late summer. Once larva feed, they drop off their host, molt over winter and emerge in May as nymphal ticks, which are about the size of a poppy seed. These nymphal ticks feed through mid-summer. Most cases of Lyme disease occur from May through July, which is due to this active feeding of nymphal ticks. Adult ticks, primarily females, become active in October. Females that are blood-engorged and survive the winter will lay eggs in late May, that will hatch in July and then larval ticks will begin feeding in August and September once again. Dogs, horses, cattle, white-tailed deer, mice, chipmunks, gray squirrels, raccoons, and opossums can all be infected with Lyme disease, therefore any larva feeding on these animals can carry it to another animal, including humans. Opossums are the only animal known to eat ticks.



Ticks do not jump or fly, they reach out from vegetation and grab on to their next host. Attempt to avoid contact with ticks by staying in the center of hiking trails, tucking pant legs into high socks, and wearing long sleeved shirts. Treat clothing and hiking shoes or boots with permethrin, an excellent repellent of both ticks and mosquitos. It is important to check yourself for ticks often and do a full-body tick check after returning from tick-prone areas. In order for Lyme disease to be transmitted, the blacklegged tick must be attached and feeding for at least 36 to 48 hours, so early tick removal is important to prevent infection.

**How to remove a tick** (adapted from <https://www.cdc.gov/lyme/removal/index.html>):

Several tick removal devices are available on the market, but a plain set of fine-tipped tweezers will remove a tick effectively. 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—do not wait for it to detach.



- a. Use fine-tipped tweezers to grasp the tick as close to the skin's surface as possible.
  - b. 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.
  - c. After removing the tick, thoroughly clean the bite area and your hands with rubbing alcohol, an iodine scrub, or soap and water.
  - d. You can have the tick identified professionally, as only certain ticks can transmit disease. If the tick is still alive and is a blacklegged tick, it can also be tested to see if it is carrying Lyme disease. Directions for tick testing can be found at: [www.michigan.gov/emergingdiseases](http://www.michigan.gov/emergingdiseases) .
    - 1) If the tick is alive, place it in a small container with a few pieces of fresh grass, or a small piece of paper towel moistened with a few drops of water.
    - 2) If the tick is dead, place it in a small container like an old medication bottle.
    - 3) You can also submit a photo of the tick for identification.
  - e. You can attempt to identify the tick yourself. Go to [http://www.tickencounter.org/tick\\_identification](http://www.tickencounter.org/tick_identification) for very clear, large images of all lifecycles of all tick types. Also see "Michigan's Five Most Common Ticks" at the end of this report for a simple-to-use guide.
  - f. When done with the tick, dispose of a live tick by submersing it in alcohol, placing it in a sealed bag/container, wrapping it tightly in tape, or flushing it down the toilet. *Never crush a tick with your fingers.*
2. **Mosquitos.** In Michigan, mosquitos are responsible for transmitting West Nile virus, St. Louis encephalitis, Eastern equine encephalitis, and the California group of encephalitis viruses (which includes La Crosse encephalitis). These viruses affect animals as well as humans, and mosquitos also spread heartworms to dogs. Other important illnesses caused by mosquitos around the world include malaria, yellow fever, chikungunya, dengue, and Zika.

The best advice for dealing with mosquitos can be found on the "Mosquito Prevention and Protection" document at the end of this report. It consists of the 3 D's: Drain, Dress, and Defend. Draining of water eliminates habitats suitable for mosquitoes to lay eggs and for mosquito larva to develop. Any amount of water can act as a breeding ground. Artificial containers in yards account for a large portion of the mosquito population in urban areas. When dressing, remember that light colored clothing is less likely to attract mosquitos and shoes and clothing can be treated with permethrin, which is also an excellent tick repellent. Defend against bites using repellents approved for both mosquitos and ticks which include: DEET, picaridin, IR3535, Oil of Lemon Eucalyptus (OLE), para-menthane-diol (PMD), and 2-undecanone.

3. **Poison Ivy and Poison Sumac.** Three highly-allergenic plants grow in Michigan. Eastern poison ivy is by far the most common, but western poison ivy and poison sumac are also found. All three plants contain the same resin, urushiol that causes severe allergic reactions to more than half of people that come in contact with it. Most will develop a rash after their first contact, and many will develop a worse rash after their second exposure. Avoiding exposure is the most effective way to prevent this miserable rash.

Eastern poison ivy grows in the area shaded green on the map top right and western poison ivy grows in the area shaded orange. The most notable difference between the two plants is western ivy does not climb.



**Images of Poison Ivy:**



Eastern Poison Ivy: In summer, tiny flowers may appear. Flowers turn to green berries.

Western poison ivy berries

In winter thick vines can have a hairy look, thinner vines are smooth. The winter sap still contains the urushiol oil that causes the rash.



The Rules of Poison Ivy		
<p><b>Always has leaves in groups of three, the leaves have a wide range of sizes.</b></p>		<p><b>Never has more than 3, never an extra pair</b></p>
<p><b>Always has leaf groups growing alternating left and right.</b></p>		<p><b>Never has leaf groups growing opposite each other.</b></p>
<p><b>Leaves can be shiny or not shiny.</b></p>		<p><b>Never has thorns of any kind, anywhere.</b></p>
<p><b>Leaves can have notches or not.</b></p>		<p><b>Never has neat, even tiny, saw-tooth leaf edges.</b></p>
<p><b>Some spring leaves are bright red, but others are green, even on the same vine.</b></p>		<p><b>Never has neat, even scalloped leaf edges.</b></p>

Poison Sumac can be found in the areas colored blue. It *only* grows in *very wet areas*. Poison sumac has red stems, loose growing fruit and smooth-edged leaves.



Do not confuse it with staghorn sumac which is very common (on left), or winged sumac (right), which is less common.



The urushiol resin persists in the plant year-round and can persist years after the plant dies. Clothing, pets, and fingernails can harbor the allergenic urushiol for many days and it can seep through clothing and penetrate rubber or latex gloves, but not heavy-duty vinyl gloves. Do not burn poison ivy or sumac as the smoke can cause serious reactions.

After being exposed to poison ivy or sumac, remove any clothing that came in contact with the plants and gently wash skin with mild soap and water as soon as possible. Fingernails should also be washed carefully to remove any of the urushiol resin that may remain under the nails. Vigorous scrubbing is *not* useful and can actually worsen the rash that will develop. An over the counter product, Tecnu skin cleaner, may be slightly more effective than dishwashing soap but likely not worth the cost. However, it does come in small travel packets that may be handy for backpacks and first aid kits. Clothing, tools, and other items that may have come in contact with the plants also should be washed with warm, soapy water. There are barrier creams available but it is controversial if they prevent rashes from poison ivy or sumac. The barrier cream that has the best evidence of effectiveness is bentoquatam (Ivy Block), which is an organoclay compound.



If you are unfortunate and get poison ivy rash (or dermatitis), soothing measures such as oatmeal baths, cool, wet compresses, and calamine lotion may be helpful. Antihistamines typically do little to help the itching in poison ivy dermatitis. High-potency topical corticosteroids (prescription steroid creams) are most helpful early; once the vesicles, or water blisters, develop, they are little help. Oral prednisone (steroid pills) started at a maximum initial dose of 60 mg/day can be dramatically helpful for more serious cases. The dose should be tapered over no less than two to three weeks or the rash will return as soon as the steroids are stopped.

#### **Health Living Recommendations:**

1. Take steps to avoid tick bites.
2. Check for ticks regularly and remove ticks properly.
3. Practice the 3 D's of prevention from mosquitos – Drain, Dress, Defend.
4. Go to [www.michigan.gov/emergingdiseases](http://www.michigan.gov/emergingdiseases) for information on submitting ticks for ID, submitting photos of ticks for ID, tick and mosquito borne illnesses, and other insect and animal-linked illnesses.
5. Learn to identify poison ivy and poison sumac.

#### **Sources:**

- TickEncounter Resource Center. (n.d.). Life-cycle of Ixodes scapularis (a.k.a. blacklegged or deer tick). Retrieved May 09, 2017, from [http://www.tickencounter.org/tick\\_identification/deer\\_tick\\_life\\_cycle](http://www.tickencounter.org/tick_identification/deer_tick_life_cycle)
- The Centers for Disease Control and Prevention. Life Cycle of Hard Ticks that Spread Disease. Retrieved June 14, 2018 from [https://www.cdc.gov/ticks/life\\_cycle\\_and\\_hosts.html](https://www.cdc.gov/ticks/life_cycle_and_hosts.html)
- Michigan Emerging Disease Issues. <https://www.michigan.gov/emergingdiseases>
- The American Mosquito Control Association. <https://www.mosquito.org/>
- Poison Ivy, Poison Oak, Poison Sumac. <http://www.poison-ivy.org/>

## Michigan's Five Most Common Ticks

Ticks are significant carriers of pathogens that cause human and animal disease. Listed here is a ranked order of the ticks most likely to bite humans in Michigan.



### 1. American dog tick (*Dermacentor variabilis*)

**Distribution:** Widespread throughout Michigan forests and grassy areas

**Key Facts:** These ticks are active from early May-November, and will bite both humans and companion animals.

**Diseases:** Diseases associated with the American dog tick are rare in Michigan, but may include [Rocky Mountain spotted fever](#) and [tularemia](#).



### 2. Blacklegged tick (*Ixodes scapularis*)

**Distribution:** Emerging in Michigan, see map at right

**Key Facts:** Found on low forest vegetation, often along human and animal trails.

**Diseases:** [Lyme disease](#) is the most common tick-borne disease in Michigan. Other rare diseases include: [anaplasmosis](#), [babesiosis](#), [deer-tick virus](#), and [ehrlichiosis](#).



### 3. Lone star tick (*Amblyomma americanum*)

**Distribution:** Occasionally found in wooded and grassy areas across the state

**Key Facts:** An aggressive biter of humans and companion animals, adult females have distinctive "Lone Star" mark

**Diseases:** [Ehrlichiosis](#), [rocky mountain spotted fever](#), [tularemia](#)



### 4. Woodchuck tick (*Ixodes cookei*)

**Distribution:** Found most commonly on pets throughout Michigan

**Key Facts:** Usually found near dens of skunks and woodchucks, will bite companion animals near animal dens and occasionally humans

**Diseases:** [Powassan encephalitis](#)



### 5. Brown dog tick (*Rhipicephalus sanguineus*)

**Distribution:** Occasionally found in Michigan.

**Key Facts:** can uniquely survive and breed in indoor environments, has been associated with kennel, shelter, and breeding facilities. Good hygiene practices can prevent indoor infestations.

**Diseases:** [Rocky mountain spotted fever](#), [canine babesiosis](#), [canine ehrlichiosis](#)

## Tick Bite and Tick-Borne Disease Prevention

- Use insect repellents containing no more than 30 percent DEET.
- Use repellents that contain permethrin on clothing.
- After spending time outdoors, check your skin and clothes for ticks.
- See your healthcare provider if you have symptoms of fever, rash, body aches or fatigue.



# Mosquito Prevention and Protection



## Always remember the 3 D's of protection from mosquitoes



### Drain

Many mosquito problems in your neighborhood are likely to come from water-filled containers that you, the resident, can help to eliminate. All mosquitoes require water in which to breed. Be sure to drain any standing water around your house.

- Dispose of any tires. Tires can breed thousands of mosquitoes.
- Drill holes in the bottom of recycling containers.
- Clear roof gutters of debris.
- Clean pet water dishes regularly.
- Check and empty children's toys.
- Repair leaky outdoor faucets.
- Change the water in bird baths at least once a week.
- Canoes and other boats should be turned over.
- Avoid water collecting on pool covers.
- Empty water collected in tarps around the yard or on woodpiles.
- Plug tree holes.
- Even the smallest of containers that can collect water can breed hundreds to thousands of mosquitoes. They don't need much water to lay their eggs. (bottles, barrels, buckets, overturned garbage can lids, etc.)



### Dress

Wear light colored, loose fitting clothing. Studies have shown that some of the 174 mosquito species in the United States are more attracted to dark clothing and most can readily bite through tight-fitting clothing of loose weave. When practical, wear long sleeves and pants.



### Defend

Choose a mosquito repellent that has been registered by the Environmental Protection Agency. Registered products have been reviewed, approved, and pose minimal risk for human safety when used according to label directions. Four repellents that are approved and recommended are:

- DEET (N,N-diethyl-m-toluamide)
- Picaridin (KBR 3023)
- Oil of lemon eucalyptus (p-methane 3- $\beta$ -diol, or PMD)
- IR3535

### Here are some rules to follow when using repellents:

- Read the directions on the label carefully before applying.
- Apply repellent sparingly, only to exposed skin (not on clothing).
- Keep repellents away from eyes, nostrils and lips: do not inhale or ingest repellents or get them into the eyes.
- The American Academy of Pediatrics (AAP) suggests that DEET-based repellents can be used on children as young as two months of age. Generally, the AAP recommends concentrations of 10% or less, unless disease risk is imminent, then concentration can be increased to 30% or less.
- Avoid applying repellents to portions of children's hands that are likely to have contact with eyes or mouth.
- Repellents can be used by pregnant or nursing women. The EPA does not recommend any additional precautions for repellent use by pregnant or nursing women.
- Never use repellents on wounds or irritated skin.
- Use repellent sparingly and reapply as needed. Saturation does not increase efficacy.
- Wash repellent-treated skin after coming indoors.
- If a suspected reaction to insect repellents occurs, wash treated skin, and call a physician. Take the repellent container to the physician.



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