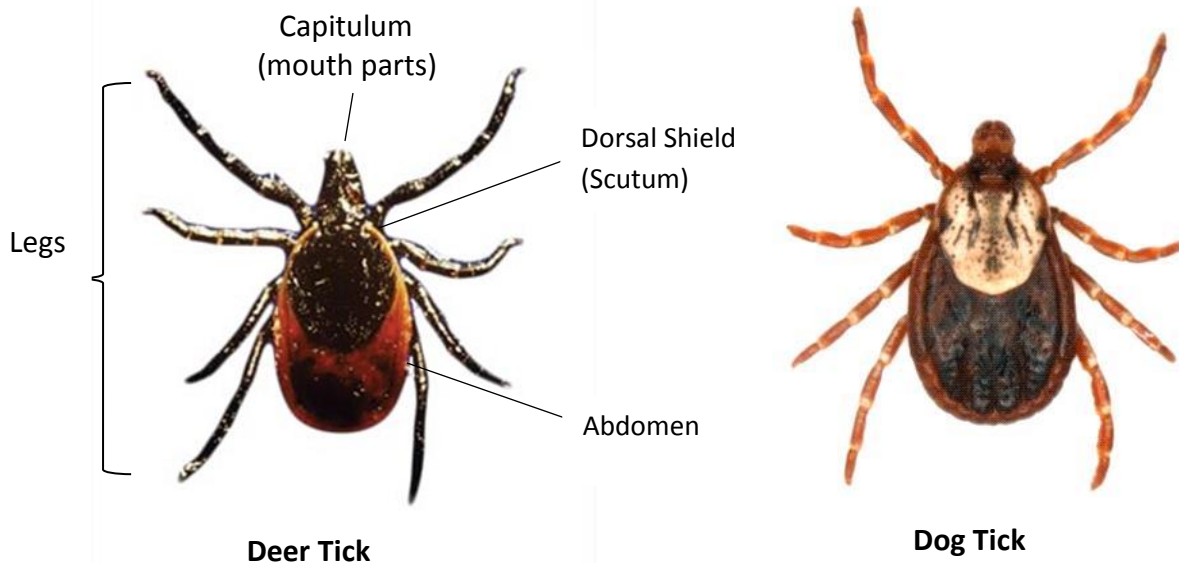


## Tick Identification

(2:31) <https://www.youtube.com/watch?v=0uf1cWmJ5ig>

Key facts to take away from this video:

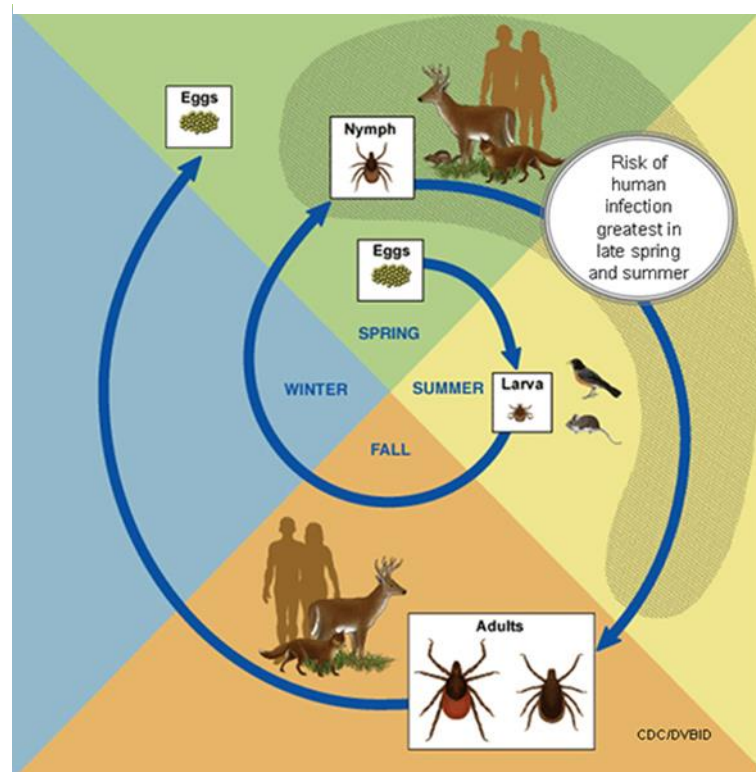
- 1) In Maine, dog ticks do not carry the pathogens that can cause disease. Deer ticks can carry the pathogens that can cause diseases such as anaplasmosis, babesiosis, Lyme, and Powassan.
- 2) Deer ticks have a dark red/brown scutum, whereas dog ticks have white on their scutum.
- 3) Deer ticks are active anytime the temperature is above freezing, but are most commonly seen between April and October.



- UMaine Cooperative Extension has a great website showing information on all 14 species of ticks potentially found in Maine. UMaine will also identify the species and level of engorgement for free on submitted ticks.
- UMaine Cooperative Extension:
  - Phone: 207.581.3880 or 800.287.0279
  - E-mail: [extension@maine.edu](mailto:extension@maine.edu)
  - Website: <https://extension.umaine.edu/ipm/tickid/submit/>

**All 14 Maine Tick Species:** American Dog Tick, Brown Dog or Kennel Tick, Deer Tick, *Ixodes angustus*, *Ixodes dentatus*, *Ixodes gregsoni*, Lone Star Tick, Mouse Tick, Rabbit Tick, Seabird Tick, Squirrel Tick, Winter Tick or Moose Tick, Woodchuck Tick.

## Tick Life Cycle



## FAQ

- Are dog ticks always larger than deer ticks? No, it depends on where each tick is in the life cycle but just because a tick is larger doesn't mean it's a dog tick. Use the scutum, or shield on the back of the tick, to identify the type of tick. A deer tick has a dark red/brown scutum whereas the dog tick has a white markings or racing stripes on the scutum.
- Are tick larvae infectious? No, they need a blood meal in order to become infected.
- How many blood meals do ticks take? Three, one to get through each stage in their lifecycle.

## Resources

- For more information, visit <https://www.maine.gov/dhhs/mecdc/infectious-disease/epi/vector-borne/tick-messaging.shtml> and click the Tick Ecology & Tick Testing box.

### Questions you still can't answer?

[Disease.reporting@maine.gov](mailto:Disease.reporting@maine.gov)

[PHC.DHHS@maine.gov](mailto:PHC.DHHS@maine.gov)

## Reducing Tick Habitat Around Your Home

(2:18) <https://youtu.be/UHu7E9J-A9I>

Key facts to take away from this video:

- 1) Mow your lawn, create a barrier, organize wood piles and rock walls.
- 2) Deer ticks prefer wooded and leafy coverage for their habitats.
- 3) Most deer tick encounters occur where your lawn meets a wooded area.



Create a barrier between  
your yard and the woods



Typical deer tick habitat



Japanese Barberry – *Berberis thunbergii*

- Ticks are unable to survive in open areas that are exposed to wind and sun, which dry them out.
- Remove Japanese Barberry (*Berberis thunbergii*) an invasive species that holds onto humidity and creates an ideal environment for ticks.

# FAQ

- Are there plants that will keep deer away? Some gardeners grow plants that deer don't like, for example rosemary, oregano, asparagus, and garlic, as a border.
- Does the length of the lawn affect ticks? There is no definitive length to keep your lawn, but mowing it regularly will reduce ticks.
- Is leaf litter helpful or a concern? Leaf litter needs to be cleared because it creates a tick habitat.
- What can you make a yard barrier with? Crushed rocks, wood chips, or larger rocks for a rock wall
- What's the recommendation on bird feeders? Maine CDC does not recommend bird feeders in the summer, but if you want one, make sure it is on the edge of your lawn because fallen seeds attract rodents which could carry ticks.

## Resources

- For more information, visit [maine.gov/dhhs/tickfaq](https://maine.gov/dhhs/tickfaq) and click the Tick Prevention & Property Management box.

### Questions you still can't answer?

[Disease.reporting@maine.gov](mailto:Disease.reporting@maine.gov)

[PHC.DHHS@maine.gov](mailto:PHC.DHHS@maine.gov)

# How To Perform A Tick Check


(2:07) <https://www.youtube.com/watch?v=4ORIWFgVyMc>

Key Facts to take away from this video:

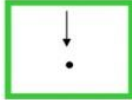
- 1) The earlier you find a tick on your body and remove it, the better.
- 2) Spots where ticks like to hide on humans: hairline, behind ears, armpits, elbows, backs of knees, groin area and around ankles.
- 3) Taking a shower after being in a tick habitat will remove any unattached ticks and provide a good opportunity to perform a thorough tick check.

## Don't Forget to Check for Ticks!!

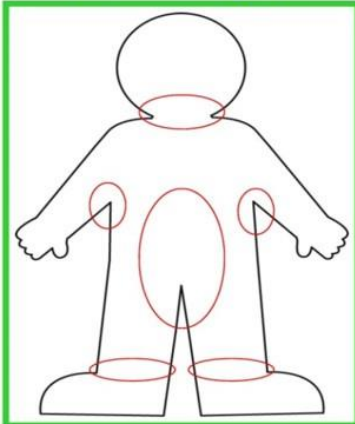
They look a little something like this:



But their actual size is more like this:



Places on your body where ticks commonly hide



WHAT TO DO IF YOU FIND ONE ON YOUR BODY:

- Grasp the tick with tweezers as close to the skin as possible.
- Pull gently but firmly until the tick lets go.
- Do not handle the tick with bare hands or squeeze the tick.
- Apply antiseptic to the bite.

# FAQ

- How often should you perform a tick check? After every time you are in a tick habitat and at least once per day.
- Do I need to check my pets for ticks? Yes, your pets can pick up ticks any time they are in a tick habitat.
- What do you do with a tick after it's removed? The best way to kill a tick after it's removed is to put it in rubbing alcohol which will dry it out. You can find out more about removal and disposal of ticks by watching our tick removal video.

## Resources

- For more information, visit [maine.gov/dhhs/tickfaq](http://maine.gov/dhhs/tickfaq) and click the Tick Attachment & Tickborne Diseases box.

### Questions you still can't answer?

[Disease.reporting@maine.gov](mailto:Disease.reporting@maine.gov)

[PHC.DHHS@maine.gov](mailto:PHC.DHHS@maine.gov)

## How Do I Remove A Tick?

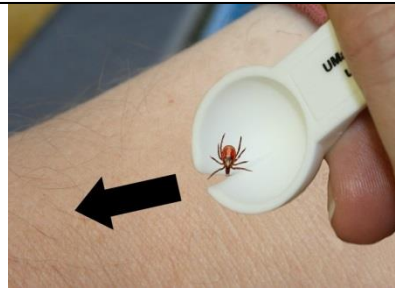
(2:59) <https://www.youtube.com/watch?v=XZ14TP7FSQk>

Key facts to take away from this video:

- 1) If you have tweezers, grasp the tick as close to the skin as possible and pull slowly out.
- 2) To use the tick spoon, slide the tick spoon from the side and gradually slide the tick off.
- 3) After the tick is removed, clean the wound with soap and water or alcohol.
- 4) **DO NOT USE:** petroleum products, matches, or your fingers to remove.



Place the spoon's notch on the skin near the tick. It can be used from any direction (the front, back, or side of the tick).



Apply slight downward pressure on the skin and slide the spoon forward so the notch is framing the tick. Continue sliding the spoon forward to detach the tick (do not pry, lever, or lift up).



Once the tick detaches, examine the bite site to make sure the mouthparts were completely removed. The tick can now be disposed of or saved for identification. Clean thoroughly with alcohol, iodine or soap and water.



Use the tweezers to grasp the tick as close to the skin's surface as possible. 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. The tick can now be disposed of or saved for identification.



After removing the tick, thoroughly clean the bite area, your hands, and the tweezers with rubbing alcohol, an iodine scrub, or soap and water.

Source: <https://extension.umaine.edu/ipm/tickid/tick-removal/>

# FAQ

- Why is it important to get close to the head versus squeezing the belly of a tick? If you squeeze the belly you'd be pushing the stomach contents into the skin increasing your risk of infection.
- What happens if the head of the tick is left in? It is not that big of a deal if the head of the tick is not fully removed, your body will expel it similar to a splinter...the body of the tick is no longer attached to transmit pathogens.
- What is the best way to kill a tick you find on your body? Put in rubbing alcohol.
- Can I submit a tick to test for Lyme or other pathogens? While the Maine CDC doesn't recommend submitting ticks for disease testing, because it will not tell you if the tick passed the pathogen to you, there are a couple places that do test ticks for pathogen. They are:
  - UMaine Cooperative Extension: <https://extension.umaine.edu/ipm/tickid/submit/>
  - UMass Laboratory of Medical Zoology: <https://www.tickreport.com/>
  - Medical Diagnostic Laboratories in New Jersey: <http://www.mdlab.com/>  
Phone Number: (877-269-0090)
  - UConn Vet Lab: <http://cvmdl.uconn.edu/service/tick.php>
- Do you recommend using tweezers, a tick spoon, or a tick key? It does not matter which one you use. The important thing is to remove the tick quickly and safely.
- Will flushing the tick kill it? No, it will not. Alcohol is the best way to kill a tick.

## Resources

- For more information, visit [maine.gov/dhhs/tickfaq](http://maine.gov/dhhs/tickfaq).

### Questions you still can't answer?

[Disease.reporting@maine.gov](mailto:Disease.reporting@maine.gov)

[PHC.DHHS@maine.gov](mailto:PHC.DHHS@maine.gov)



# Tickborne Diseases in Maine: Lyme Disease

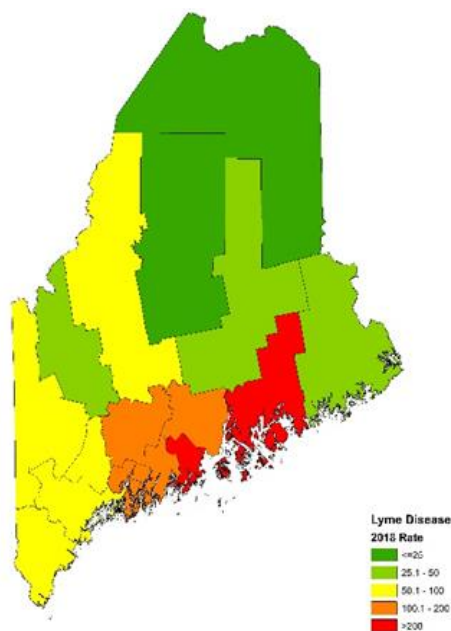
(2:13) <https://youtu.be/NDoGZlqBLWo>

Key facts to take away from this video:

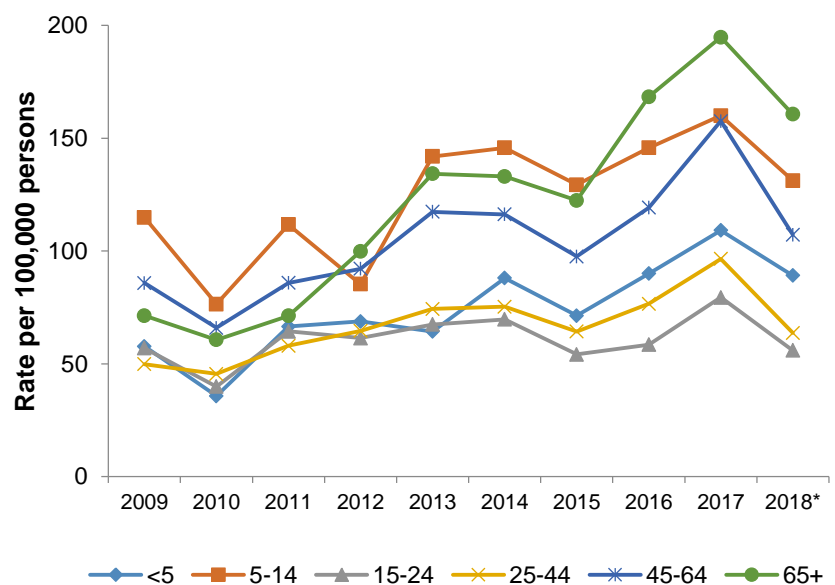
- 1) Symptoms of Lyme disease: bulls eye rash, headache, fever, chills (summer flu) arthritic pains.
- 2) In Maine, adults ages 65 years and older have the highest rate of Lyme disease, followed by kids aged 5-14 with the second highest rates.
- 3) The tick needs to feed for at least 24 hours before transmitting the bacteria that can cause Lyme disease.

\*2018 data are preliminary as of 1/15/19

**Lyme disease rates in Maine, 2018\***



**Lyme disease rates by age group, Maine 2009-18\***



- Lyme disease is caused by the bacterium *Borrelia burgdorferi*.
- Bull's eye rash is found in 80% of those infected, according to national research.
- Symptoms may appear within 3-30 days of the tick bite.
- Lyme disease is usually diagnosed by presence of symptoms; doctors may order tests to confirm the diagnosis.
- Lyme disease is treated with antibiotics.
- Lyme disease cannot be passed from person to person.
- In 2018 (preliminary data as of January 15<sup>th</sup>, 2019) providers reported 1,373 confirmed and probable cases of Lyme disease among Maine residents, which is a rate of 101.7 cases of Lyme disease per 100,000 persons in Maine.
- Coinfection with other tickborne diseases is possible.

# FAQ

- If you've been bitten and don't know what kind of tick should you have your provider treat you? Treatment is only recommended for individuals who have symptoms.
- Am I eligible for prophylaxis? Yes, if...
  - the tick is identified as a deer tick and was attached for more than 24 hours
  - it is less than 72 hours since the original bite
  - more than 20% of the ticks in your area are known to be infected
  - you do not have problems taking doxycycline.
- How is Lyme disease diagnosed? Lyme disease is diagnosed through clinical evaluation and can be confirmed through laboratory testing.
- What is the treatment for Lyme disease? Lyme disease can be easily treated if it's detected in the early stages with oral antibiotics. If found later, intravenous antibiotics may be given.
- If I'm pregnant and was recently infected with Lyme, how will it affect my pregnancy? Pregnant women should stay away from all tick areas as Lyme can be transmitted to an unborn child, although it is extremely rare. It could also cause the mother to miscarry her child or deliver a stillborn child in rare instances. Contact your OBGYN to discuss further.
- Is there a vaccine for Lyme disease? No, currently there is no vaccine.
- Can I get Lyme disease again after being successfully treated for it? Yes, you can get Lyme disease more than once if you are bitten by an infected tick.
- Can I get Lyme disease from another person? No, Lyme is not passed from person to person.
- How many people in Maine die each year from Lyme disease? There are no known deaths from Lyme disease in Maine.

## Resources

- For more information, visit [maine.gov/dhhs/tickfaq](http://maine.gov/dhhs/tickfaq) and click the Tick Attachment & Tickborne Diseases box.
- For more information on Lyme disease, visit [maine.gov/lyme](http://maine.gov/lyme).

### Questions you still can't answer?

[Disease.reporting@maine.gov](mailto:Disease.reporting@maine.gov)

[PHC.DHHS@maine.gov](mailto:PHC.DHHS@maine.gov)



maine.gov/idepi  
800-821-5821



# Tickborne Diseases in Maine: Anaplasmosis

(1:55) <https://www.youtube.com/watch?v=bnttDCTcEXw>

Key facts to take away from this video:

- 1) Anaplasmosis is a bacterial infection passed through the bite of an infected deer tick.
- 2) Symptoms begin 5-21 days after bite.
- 3) Symptoms include: fever, headache, lack of appetite, nausea, muscle pain and vomiting.

## Anaplasmosis Cases by County of Residence – Maine, 2018

(data are preliminary as of 1/15/2019)

County	Anaplasmosis
Androscoggin	31
Aroostook	0
Cumberland	71
Franklin	3
Hancock	15
Kennebec	57
Knox	88
Lincoln	44
Oxford	14
Penobscot	8
Piscataquis	0
Sagadahoc	27
Somerset	10
Waldo	23
Washington	1
York	85
<b>Total</b>	<b>477</b>

- In 2018, there were 477 confirmed and probable cases of anaplasmosis in Maine, a 28% decrease from the 662 cases in 2017.
- Cases occurred in residents of 14 counties in 2018; Androscoggin, Cumberland, Franklin, Hancock, Kennebec, Knox, Lincoln, Oxford, Penobscot, Sagadahoc, Somerset, Waldo, Washington, and York.
- Anaplasmosis is treatable with antibiotics.
- Anaplasmosis is typically confirmed by PCR testing, following symptoms.
- Coinfection with other tickborne diseases is possible.

# FAQ

- How long does it take to transmit the bacteria that causes this disease? We currently do not know how long the tick has to be attached to transmit the bacteria that causes anaplasmosis.
- Can I get anaplasmosis and Lyme from the same tick? Yes, you can get up to four diseases from the same tick (anaplasmosis, babesiosis, Lyme, and Powassan).
- How is anaplasmosis treated? With oral antibiotics.
- Is prophylaxis effective for anaplasmosis? There is no data to support its prevention of anaplasmosis. The best defense is watching for symptoms after a tick bite.
- How serious is anaplasmosis? Anaplasmosis can put you in the hospital, and patients have died from anaplasmosis.
- Is anaplasma the same as ehrlichia? No- they used to have similar names, but are different diseases transmitted by different ticks.

## Resources

- For more information, visit [maine.gov/dhhs/tickfaq](http://maine.gov/dhhs/tickfaq) and click the Tick Attachment & Tickborne Diseases box.
- For more information on anaplasmosis, visit [maine.gov/dhhs/anaplasmosis](http://maine.gov/dhhs/anaplasmosis).

### Questions you still can't answer?

[Disease.reporting@maine.gov](mailto:Disease.reporting@maine.gov)

[PHC.DHHS@maine.gov](mailto:PHC.DHHS@maine.gov)



maine.gov/idepi  
800-821-5821



# Tickborne Diseases in Maine: Babesiosis

(2:13) <https://www.youtube.com/watch?v=4ojjOSMPm3M>

Key facts to take away from this video:

- 1) Deer ticks can carry the parasite that causes babesiosis.
- 2) Symptoms of babesiosis include: fatigue, sweating, dark urine, chills, and anemia.
- 3) Symptoms can begin to show within a week of exposure, but some people can be exposed and show no symptoms.

## Cases by County of Residence – Maine, 2018

(data are preliminary as of 1/15/2019)

County	Babesiosis
Androscoggin	9
Aroostook	0
Cumberland	20
Franklin	0
Hancock	5
Kennebec	5
Knox	17
Lincoln	5
Oxford	2
Penobscot	2
Piscataquis	0
Sagadahoc	2
Somerset	0
Waldo	6
Washington	1
York	27
<b>Total</b>	<b>101</b>

- Babesiosis is caused by a parasite which infects red blood cells.
- In 2018, there were 101 confirmed and probable babesiosis cases in Maine which is a 14% decrease from the 117 cases in 2017.
- Babesiosis is typically confirmed by a smear review or PCR testing, following symptoms.
- It is most common in the elderly, those without a spleen, and without a healthy immune system.
- Babesiosis is treated with antiparasitic medications.
- Babesiosis can be transmitted by blood transfusion.
- Coinfection with other tickborne diseases is possible.

# FAQ

- What is the treatment for babesiosis? Babesiosis requires two drug therapy.
- How serious is babesiosis? Babesiosis can cause hospitalization and/or death.
- Can babesiosis be transmitted via blood transfusion? Yes. For this reason, those who have had babesiosis are excluded from donating blood.
- Is there more than one species of *Babesia*? Yes, *B. microti* is the most commonly identified species. However, not all species are pathogenic in humans.

## Resources

- For more information, visit [maine.gov/dhhs/tickfaq](http://maine.gov/dhhs/tickfaq) and click the Tick Attachment & Tickborne Diseases box.
- For more information on babesiosis, visit [maine.gov/dhhs/babesiosis](http://maine.gov/dhhs/babesiosis).

**Questions you still can't answer?**

[Disease.reporting@maine.gov](mailto:Disease.reporting@maine.gov)

[PHC.DHHS@maine.gov](mailto:PHC.DHHS@maine.gov)

## Tickborne Diseases in Maine: Powassan Encephalitis

(1:10) <https://www.youtube.com/watch?v=kZiLHeuPwy4>

Key facts to take away from this video:

- 1) Deer ticks and woodchuck ticks can carry viruses that cause the symptoms of Powassan Encephalitis.
- 2) Symptoms of Powassan: headache, body ache, fever, vomiting. In the long term, swelling of the brain can occur which is much more serious and can result in death.
- 3) Symptoms can occur one week to one month after the tick bite.



Woodchuck Tick



Deer Tick

- There were 0 cases of Powassan in 2018.
- The transmission time for the viruses that cause Powassan is thought to be much quicker than for the bacteria that causes Lyme disease.
- Powassan is the only tickborne arbovirus in Maine.
- There are two viruses which can cause Powassan Encephalitis:
  1. Powassan virus- most often carried by the woodchuck tick.
  2. Deer tick virus- most often carried by the deer tick.

# FAQ

- Where and when have most cases of Powassan virus disease occurred? Most cases occur in the northeastern Great Lakes region of the United States during the late spring, early summer, and mid-fall.
- How soon do people get sick after getting bitten by an infected tick? The incubation period ranges from one week to one month.
- What is the transmission time for the viruses that can cause Powassan? Transmission may take as little as 15 minutes of attachment.
- How is Powassan virus disease diagnosed? Diagnosis is based on a combination of signs and symptoms and laboratory tests of blood or spinal fluid.
- What is the treatment for Powassan virus disease? There is no specific medicine to cure or treat Powassan virus disease. Treatment for severe illnesses may include hospitalization, respiratory support, and intravenous fluids.

## Resources

- For more information, visit [maine.gov/dhhs/tickfaq](http://maine.gov/dhhs/tickfaq) and click the Tick Attachment & Tickborne Diseases box.
- For more information on Powassan, visit [maine.gov/powassan](http://maine.gov/powassan).

### Questions you still can't answer?

[Disease.reporting@maine.gov](mailto:Disease.reporting@maine.gov)

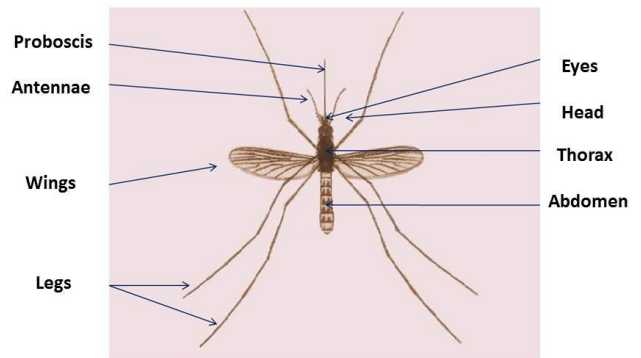
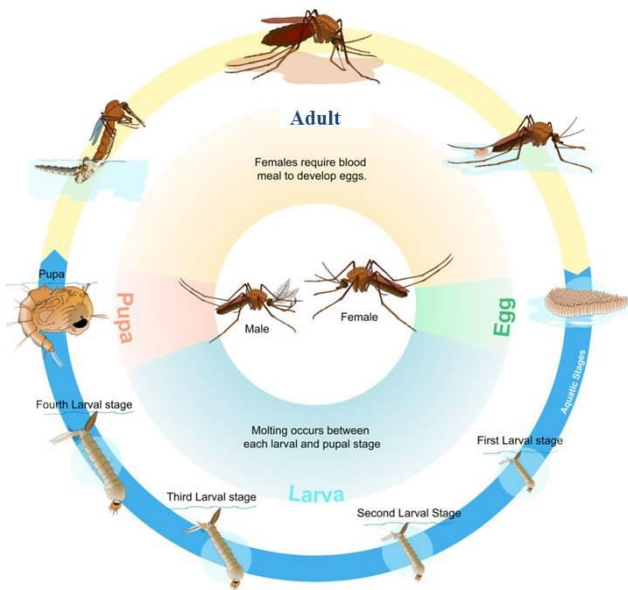
[PHC.DHHS@maine.gov](mailto:PHC.DHHS@maine.gov)



# Mosquito Biology

(2:22) <https://www.youtube.com/watch?v=yJc5fDMN-v4>

- 1) Mosquitoes have antennae, a proboscis, wings, legs, head, eyes, thorax, and an abdomen.
- 2) The mosquito life cycle relies heavily on water, from eggs until adulthood.
- 3) Mosquitoes fly between 1 and 7 miles from their breeding ground, but generally they only fly as far as the nearest food source.



# FAQ

- Do male mosquitoes bite humans? Only the female mosquitoes feed on humans, the male mosquitoes feed on plant nectar.
- How much water is necessary for mosquitoes to breed? As little as a water bottle cap-full.
- How long do mosquitoes live? On average female mosquitoes live two to three weeks, but in ideal conditions they can live up to eight weeks. Male mosquitoes live about ten days on average.

## Resources

- For more information, visit [maine.gov/dhhs/mosquitofaq](http://maine.gov/dhhs/mosquitofaq) and click the Mosquito Ecology & Mosquito Testing box.

**Questions you still can't answer?**

[Disease.reporting@maine.gov](mailto:Disease.reporting@maine.gov)

[PHC.DHHS@maine.gov](mailto:PHC.DHHS@maine.gov)

## Mosquito Habitat

(3:33) <https://www.youtube.com/watch?v=dfQTvsnoVLw>

Key facts to take away from this video:

- 1) All mosquitoes require water for their life cycle.
- 2) Water needs to be unmoving and undisturbed for 2 weeks.
- 3) Treating pools with chlorine and introducing natural predators (fish) to ponds can reduce mosquito breeding habitats.



- Some mosquitoes prefer to live in bogs with clear or tea colored water, where there are different kinds of plants. This is the favored habitat for mosquitoes that can carry Eastern Equine Encephalitis virus (EEE).
- Household containers are the favored habitats for mosquitoes that can carry West Nile virus (WNV).

**Questions you still can't answer?**

[Disease.reporting@maine.gov](mailto:Disease.reporting@maine.gov)

[PHC.DHHS@maine.gov](mailto:PHC.DHHS@maine.gov)

## Reducing Mosquito Habitat Around Your Home

(1:33) <https://youtu.be/wJxCqUbSKME>

Key facts to take away from this video:

- 1) Stagnant water around your house and yard are ideal places for mosquitoes to breed.
- 2) Because mosquitoes need approximately 2 weeks to complete the lifecycle, remove standing water from sources around your home such as flower pots, tires, bird baths, and children's toys once a week.
- 3) Unmounted car tires are the most common mosquito habitat in the United States.



- Common places to check for standing water include:
  - Gutters
  - Bird baths
  - Children's toys
  - Pots and planters
- For items that can't be turned over (i.e. large planters), consider drilling holes so water can drain
- Check and repair screens around your home to prevent mosquitoes from entering the house

# FAQ

- Do dragonflies and bats eat mosquitoes? Yes they do, but not enough to make a difference.
- Are products like mosquito dunks and magnets effective? They can be, but make sure to read and follow directions carefully.
- How often does standing water need to be emptied? Different sources will say different time periods but Maine CDC recommends once a week
- How many species of mosquitoes are there in Maine? There are 45 known species in Maine, less than half are known to be able to carry the viruses that can cause disease.

## Resources

- For more information, visit [maine.gov/dhhs/mosquitofaq](http://maine.gov/dhhs/mosquitofaq) and click the Mosquito Prevention & Property Management and Mosquito Ecology & Mosquito Testing boxes.

**Questions you still can't answer?**

[Disease.reporting@maine.gov](mailto:Disease.reporting@maine.gov)

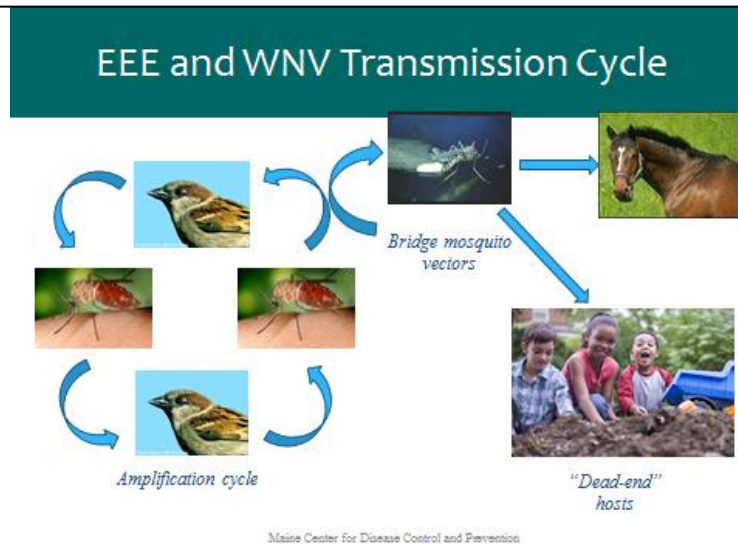
[PHC.DHHS@maine.gov](mailto:PHC.DHHS@maine.gov)

## Protect Yourself From Mosquito-borne Diseases

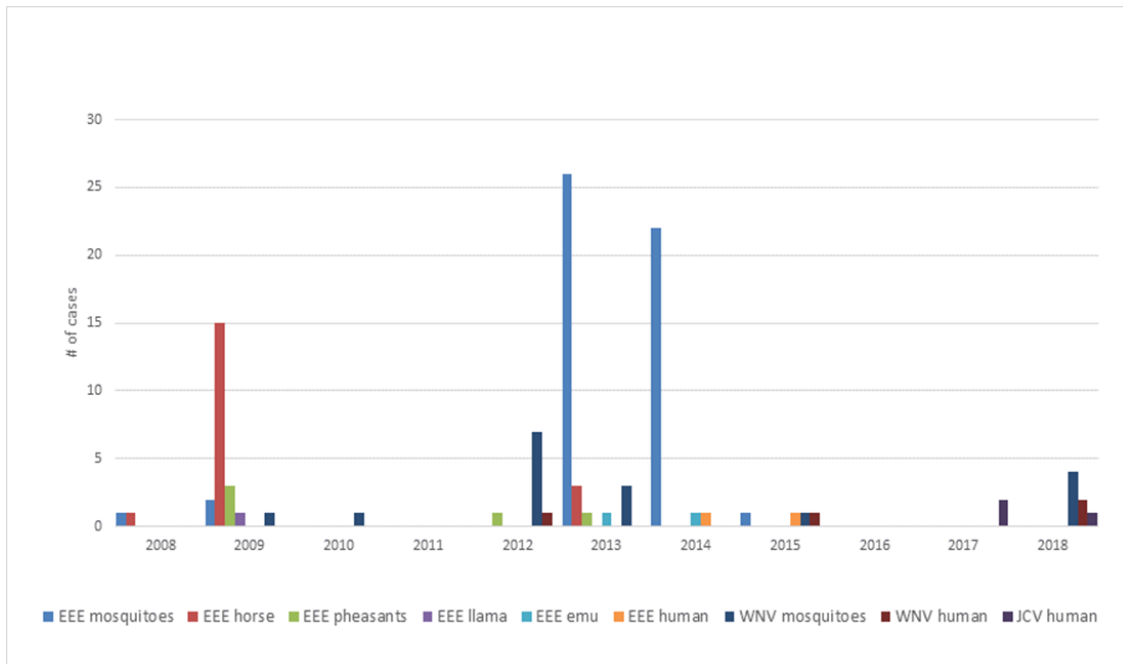
(3:03) <https://www.youtube.com/watch?v=ViBJd688nw>

Key facts to take away from this video:

- 1) Mosquitoes can transmit viruses that can cause diseases such as West Nile (WNV), Eastern Equine Encephalitis (EEE), and Jamestown Canyon virus disease.
- 2) Symptoms of WNV and EEE are similar and include; fever, headaches, body aches, nausea, rash and swollen glands.
- 3) There is no treatment for WNV or EEE, patients with these diseases can only receive supportive therapy.



- EEE & WNV are caused by a virus transmitted via an infected mosquito.
- Humans (and other large mammals, i.e. horses) are dead-end hosts, meaning that we do not have a high enough viral load to infect another mosquito that may bite us.
- Those who are fifty years old and older, as well as fifteen years old and under are at an increased risk for contracting EEE and WNV.
- There is currently a vaccination for horses however, none exists for humans.
- WNV can be transmitted through blood transfusions, organ transplants, pregnancy, and breast feeding.
- 70-80% of individuals infected with West Nile virus will show no symptoms.
- Many of those infected with EEE will show no symptoms, but half of those that do show symptoms will die from the disease.



## FAQ

- Are we at risk for Zika? We are currently not at risk for Zika from mosquitoes here in Maine; we do not have these types of mosquitoes. There is still a risk for transmission from travel and sexual transmission.
- Where mosquitoes feed on birds is it recommended to not feed birds in the summer? It is not recommended to feed birds in the summer as the bird food dropping can also bring along rodents and ticks, and bird baths can bring mosquitoes
- What other viruses can mosquitoes in Maine carry? Mosquitoes in Maine can carry Jamestown Canyon virus. Initial signs and symptoms include fever, muscle aches, fatigue, dizziness, and headache. These signs and symptoms can occur within 3 to 14 days after a bite from an infected mosquito. About half of the reported infections result in hospitalization.

## Resources

- For more information, visit [maine.gov/dhhs/mosquitofaq](http://maine.gov/dhhs/mosquitofaq) and click the Mosquito Prevention & Property Management and Mosquito-borne Diseases boxes.
- For more information on EEE, visit [maine.gov/dhhs/EEE](http://maine.gov/dhhs/EEE)
- For more information on WNV, visit [maine.gov/dhhs/westnile](http://maine.gov/dhhs/westnile)
- For more information on Zika, visit [maine.gov/dhhs/zika/](http://maine.gov/dhhs/zika/)

### Questions you still can't answer?

[Disease.reporting@maine.gov](mailto:Disease.reporting@maine.gov)

[PHC.DHHS@maine.gov](mailto:PHC.DHHS@maine.gov)



## Choosing and applying personal repellents

(4:11) [https://www.youtube.com/watch?v=7i38s-L\\_Wlg](https://www.youtube.com/watch?v=7i38s-L_Wlg)

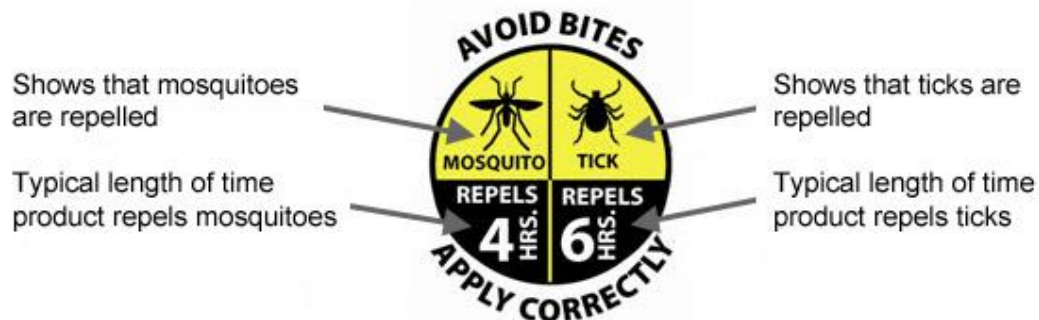
Key facts to take away from this video:

- 1) Mosquitoes and ticks can carry pathogens that can cause disease. Maine CDC recommends applying personal repellent to help prevent tick and mosquito bites.
- 2) Make sure ticks and/or mosquitoes are listed on the label if you want protection from one or both pests.
- 3) Make sure the product is approved for use by the Environmental Protection Agency (EPA). Read the label carefully and follow directions when applying repellent.

When applying personal repellents:

1. Use only enough repellent to cover skin which will be exposed
2. More repellent does not equal more protection
3. Do not apply repellent to open cuts or irritated skin
4. Do not spray repellent directly onto face, spray onto hands and then rub on face
5. Do not spray repellent in enclosed areas or near food
6. Wash skin with soap and water after returning indoors

The EPA label



- Repellents approved by the EPA for use on skin include: DEET, IR3535, Oil of Lemon Eucalyptus, and Picaridin.
- Repellents approved by the EPA for use on clothing include Permethrin.
- To find the insect repellent that is right for you, please visit:  
<https://www.epa.gov/insect-repellents/find-insect-repellent-right-you>

# FAQ

- Are botanical products effective? They do not require EPA approval, so they are not subject to safety and efficacy standards. Maine CDC cannot guarantee safety or effectiveness. The natural repellent approved by the EPA is the oil of lemon eucalyptus.
- What about 100% DEET? 100% DEET is no more effective than 50% DEET.
- What is safe for children? The CDC and American Pediatrics Association approves up to 30% DEET for children older than 2 months. DEET should not be used on children under 2 months of age. Oil of Lemon and Eucalyptus is also not recommended for children under the age of 2 years.
- What about products to control mosquito populations from the egg/larval stage? Products for controlling larval mosquitoes (granules, donuts, or briquettes) are used to kill immature mosquitoes where they breed. Do not apply to deep or running water or water with fish or frogs. Note: a permit is required for larvicides applied to waters in Maine, contact the Department of Environmental Protection.
- Does my town spray for mosquitoes or ticks? You can find out which municipalities have pesticide ordinances at:  
[http://www.maine.gov/dacf/php/pesticides/public/municipal\\_ordinances.shtml](http://www.maine.gov/dacf/php/pesticides/public/municipal_ordinances.shtml)

## Resources

- For more information, visit [maine.gov/dhhs/mosquitofaq](http://www.maine.gov/dhhs/mosquitofaq) and click the Mosquito Prevention & Property Management box.

### Questions you still can't answer?

[Disease.reporting@maine.gov](mailto:Disease.reporting@maine.gov)

[PHC.DHHS@maine.gov](mailto:PHC.DHHS@maine.gov)

## How to Choose a Residential Pesticide Applicator

(3.47) <https://www.youtube.com/watch?v=hT3qeuuht0>

Key facts to take away from this video:

- 1) Look for a company which uses integrated pest management (IPM) programs.
- 2) Ask for Environmental Protection Agency (EPA) certified chemicals and read labels.
- 3) Ask for a written contract and proof of licenses.



[www.gotpests.org](http://www.gotpests.org)

- Application of residential pesticides can reduce human exposure to pests which can carry dangerous pathogens.
- Asking friends, neighbors, or local businesses can give you a good idea of reliable applicators in your area.
- The Board of Pesticide Control publishes a list of licensed companies you can check to make sure you are getting a licensed professional. [www.thinkfirstspraylast.org](http://www.thinkfirstspraylast.org).
- A good company will make a plan for your home including the pests found, extent of the problem, and pesticides they intend to use.

To find further information on repellents see the Board of Pesticide Control:

**Website:** [http://www.maine.gov/dacf/php/pesticides/applicators/applicator\\_resources.html](http://www.maine.gov/dacf/php/pesticides/applicators/applicator_resources.html)

**Phone:** 207-287-2731

**Email:** [pesticides@maine.gov](mailto:pesticides@maine.gov)

# FAQ

- Where can I find a licensed pesticide application company in Maine? The Maine State Pesticide Control Board offers a list of licensed companies offering tick and mosquito control services.
  - <http://www.maine.gov/dacf/php/gotpests/bugs/tick-mosquito-companies.htm>

## Resources

- For more information, visit [maine.gov/dhhs/mosquitofaq](http://maine.gov/dhhs/mosquitofaq) and click the Mosquito Prevention & Property Management box.

**Questions you still can't answer?**

[Disease.reporting@maine.gov](mailto:Disease.reporting@maine.gov)

[PHC.DHHS@maine.gov](mailto:PHC.DHHS@maine.gov)