SYMPTOMS OF MOSQUITO-BORNE ILLNESSES

EASTERN EQUINE ENCEPHALITIS
EEE symptoms include an abrupt onset of chills, fever, generally unhealthy feeling, joint pain, and muscle pain. Signs and symptoms in patients with encephalitis (brain inflammation) are fever, headache, irritability, restlessness, drowsiness, loss of appetite, vomiting, diarrhea, bluish discoloration, convulsions, and coma.

WEST NILE VIRUS
Severe West Nile Virus symptoms can include high fever, headache, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, vision loss, numbness, and paralysis. Milder symptoms can include fever, headache, body aches, nausea, vomiting, swollen lymph glands, or rash on the chest, stomach, and back.

ZIKA VIRUS
Common symptoms of Zika include fever, rash, joint pain, headache, muscle pain, and pink eye. Zika can also be spread from pregnant mothers to their unborn children, and can cause birth defects.

AT-RISK POPULATIONS

- Anyone who works or plays outdoors, such as athletes, hikers, gardeners, and landscapers
- Elderly
- Pregnant women (Zika virus)
- Children
- Anyone with a weakened immune system
- Travelers (Zika virus)
WHAT YOU CAN DO

**CLOTHING**
When spending time outside during warm weather, wear long-sleeved shirts/pants whenever possible, especially if outside during dawn or dusk.

**DUMP STANDING WATER**
Remove any water from unused swimming pools, wading pools, boats, planters, trash and recycling bins, tires, and anything else that collects water, and cover them.

**NETTING**
Put insect netting over strollers and playpens.

**SCREENS**
Put screens on windows and doors. Fix screens that have holes.

**BUG SPRAY**
Use EPA-approved bug spray with one of the following active ingredients: DEET (20-30% strength), picaridin, IR3535, and oil of lemon eucalyptus or para-menthane-diol. Do not use DEET on infants.

**CLEAN GUTTERS**
Remove anything around your house and yard that collects water. Clean gutters and downspouts to ensure proper drainage.

MOSQUITOES
Climate change can cause heavier precipitation, longer warm seasons, and warmer winters. This can make the environment more hospitable to certain types of mosquitoes. Mosquitoes can carry or spread many diseases, including West Nile Virus (WNV), Eastern Equine Encephalitis (EEE), and Zika Virus. The species of mosquitoes that carry WNV and EEE are found in Rhode Island and bite until the first heavy frost (usually the end of October). The species of mosquitoes that carry Zika, chikungunya, dengue fever, malaria, and Yellow Fever are not established in Rhode Island right now. Rhode Islanders traveling to other areas can come in contact with these mosquitoes.

PROJECTIONS
Climate change is expected to influence mosquitoes and the viruses they carry.

Changes in precipitation and temperature may alter the primary habitat and range of mosquitoes, and impact survival and spread of viruses transmitted from mosquitoes to humans.

West Nile Virus and Eastern Equine Encephalitis may become more common with climate change.
**Lyme disease is extremely common in Rhode Island.**

Rhode Island has the fourth-highest rate of Lyme disease in the country.

Washington County has the highest rate of Lyme disease in the state; nearly twice the rate of Newport and Bristol counties.

**TICKS CAN CARRY**

Lyme disease, anaplasmosis, ehrlichiosis, babesiosis, powassan and Rocky Mountain spotted fever (rare in Rhode Island).

**COMMON SYMPTOMS**

can include tiredness, body/muscle aches, joint pain, fever, rash, stiff neck, and facial paralysis. The type and severity of symptoms vary with the specific disease.

**SYMPTOMS CAN START**
as soon as a few days after being bitten or as late as a few months after a tick bite. Some people may have no symptoms at all.

**EARLY DIAGNOSIS**
is helpful in successfully treating tick-borne diseases. It is important to contact your healthcare provider if you are experiencing any of these symptoms.

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**DATA AND PROJECTIONS**

- **900+ CASES PER YEAR**
  - Lyme disease is extremely common in Rhode Island.

- **4TH**
  - Rhode Island has the fourth-highest rate of Lyme disease in the country.

- **2X**
  - Changing temperature and precipitation patterns could make conditions more hospitable for ticks.

- **2X**
  - Washington County has the highest rate of Lyme disease in the state; nearly twice the rate of Newport and Bristol counties.

**FOR MORE INFORMATION:**

*Everything You Need to Know About Mosquitoes & Ticks* is part of the Rhode Island Department of Health’s series, *Climate Change and Your Health: A Guide for Rhode Islanders*. To read the full booklet, visit [www.health.ri.gov/climate change](http://www.health.ri.gov/climate change).

- [www.health.ri.gov/ticks](http://www.health.ri.gov/ticks)
- [www.health.ri.gov/mosquito](http://www.health.ri.gov/mosquito)
- RIDOH Health Information Line: 401-222-5960
**WHAT YOU CAN DO**

**AVOID DIRECT CONTACT WITH TICKS**

- Avoid wooded and brushy areas with high grass and leaf litter and walk in the center of trails.
- Wear long pants and long sleeves whenever possible. Wear light colored clothing so you can see the ticks more easily.
- Tuck your pants into your socks so ticks don’t crawl under your clothes.
- Use products that contain permethrin on shoes and clothing.

**Where to look:**
- Along your hairline
- Ears
- Back of your neck
- Armpits
- Groin
- Behind the knees
- Legs
- Between your toes

**Deer Tick actual size:**
- Nymph
- Adult Male
- Adult Female

**CHECK FOR TICKS**

- Bathe or shower as soon as possible after coming indoors (preferably within 2 hours) to wash off and more easily find ticks that are crawling on you.
- Conduct a full-body tick check using a hand-held or full-length mirror to view all parts of your body upon return from tick-infested areas.
- Examine gear and pets. Ticks can ride into the home on clothing and pets, then attach to a person later, so carefully examine pets, coats, and day packs.

**REMOVE TICKS FROM YOUR BODY**

To remove an attached tick, grasp with tweezers as close as possible to the attachment (skin) site, and pull upward and out with a firm and steady pressure. If tweezers are not available, use fingers shielded with tissue paper or rubber gloves.