



TOWN OF TRURO
HEALTH & CONSERVATION DEPARTMENT
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**Eastern Equine Encephalitis (EEE) Virus
Confirmed in Mosquitoes from TRURO**

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TOWN: Truro

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The Massachusetts Department of Public Health (MDPH) announced today that EEE virus has been detected in mosquitoes collected from Truro.

EEE is a rare but serious illness spread by the bite of an infected mosquito. While EEE can infect people of all ages, people under 15 years of age or over 50 years of age are at greatest risk for serious illness.

By taking a few, common-sense precautions, people can help to protect themselves and their loved ones:

Avoid Mosquito Bites

- **Be Aware of Peak Mosquito Hours** - The hours from dusk to dawn are peak biting times for many mosquitoes. Consider rescheduling outdoor activities that occur during evening or early morning. If you are outdoors at any time and notice mosquitoes around you, take steps to avoid being bitten by moving indoors, covering up and/or wearing repellent.
- **Clothing Can Help** reduce mosquito bites. Although it may be difficult to do when it's hot, wearing long-sleeves, long pants and socks when outdoors will help keep mosquitoes away from your skin.
- **Apply Insect Repellent** when you go outdoors. Use a repellent with DEET (N, N-diethyl-m-toluamide), permethrin, picaridin (KBR 3023), IR3535 or oil of lemon eucalyptus [p-methane 3, 8-diol (PMD)] according to the instructions on the product label. DEET products should not be used on infants under two months of age and should be used in concentrations of 30% or less on older children. Oil of lemon eucalyptus should not be used on children under three years of age. Permethrin products are intended for use on items such as clothing, shoes, bed nets and camping gear and should not be applied to skin.

Mosquito-Proof Your Home

- **Drain Standing Water** - Many mosquitoes lay their eggs in standing water. Limit the number of places around your home for mosquitoes to breed by draining items that hold water. Check rain gutters and drains. Empty unused flowerpots and wading pools and change water in birdbaths.
- **Install or Repair Screens** - Some mosquitoes like to come indoors. Keep them outside by having tightly-fitting screens on all your windows and doors.
- **Protect Your Animals** - As noted above- reduce potential mosquito breeding sites on your property by eliminating standing water, especially after heavy rains. Water troughs should be flushed out at least once a week to reduce mosquitoes near paddock areas. Horses should be kept in indoor stalls at night to reduce their risk of exposure to mosquitoes. Horse owners should contact their vet about approved mosquito repellents and vaccinations to prevent WNV and EEE. If an animal is suspected of having WNV or EEE, owners are required to report to DAR division of animal health by calling 617-626-1795, and DPH at 617-983-6800.

While the Truro Board of Health continues to work closely with the MDPH and other local agencies, we are encouraging the public to avoid going outdoors during peak mosquito hours, and to take precautions when they are outside.

Information about EEE and reports of current and historical EEE virus activity in Massachusetts can be found on the MDPH website at www.mass.gov/dph/mosquito.

Eastern Equine Encephalitis

Technical Fact Sheet: Eastern Equine Encephalitis

Virus

Eastern equine encephalitis virus (EEEV) is a member of the genus *Alphavirus*, family *Togaviridae*. EEEV is closely related to western equine encephalitis virus and Venezuelan equine encephalitis virus.

Transmission

EEEV is maintained in a cycle between *Culiseta melanura* mosquitoes and avian hosts in freshwater hardwood swamps. *Cs. melanura* is not an important vector of EEEV to humans because it feeds almost exclusively on birds. Transmission to humans requires mosquito species capable of creating a “bridge” between infected birds and uninfected mammals such as some *Aedes*, *Coquillettidia*, and *Culex* species.

Geographic distribution

An average of 7 human cases of EEE are reported each year in the United States. Florida, Georgia, Massachusetts, and New Jersey typically have the largest number of cases. EEEV transmission is most common in and around freshwater hardwood swamps in the Atlantic and Gulf Coast states and the Great Lakes region.

Risk factors

All residents of and visitors to areas where virus activity has been identified are at risk of infection with EEEV, particularly persons who engage in outdoor work and recreational activities in these areas. Persons over age 50 and younger than age 15 are at greatest risk of severe disease (encephalitis) following infection. EEEV infection is thought to confer life-long immunity against re-infection.

Incubation period

Usually 4-10 days

Symptoms

EEEV infection can result in one of two types of illness, systemic or encephalitic (EEE). Systemic infection has an abrupt onset and is characterized by chills, fever, malaise, arthralgia, and myalgia. The illness lasts 1 to 2 weeks; recovery is complete when there is no central nervous system involvement. In infants, the encephalitic form is characterized by abrupt onset; in older children and adults, encephalitis is manifested after a few days of systemic illness. Signs and symptoms in encephalitic patients are fever, headache, irritability, restlessness, drowsiness, anorexia, vomiting, diarrhea, cyanosis, convulsions, and coma.

Treatment

No specific antiviral treatment for EEEV infections is available. Patients with suspected EEE should be hospitalized, appropriate serologic and other diagnostic tests ordered, and supportive treatment provided.

Mortality rate

Approximately a third of those who develop EEE die. Many of those who survive will have mild to severe permanent neurologic damage. Many patients with severe sequelae die within a few years.

Prevention

Prevent mosquito bites. There is no vaccine or preventive drug.

- Use insect repellent containing DEET, picaridin, IR3535 or oil of lemon eucalyptus on exposed skin and/or clothing. The repellent/insecticide permethrin can be used on clothing to protect through several washes. Always follow the directions on the package.
- Wear long sleeves and pants when weather permits.
- Have secure screens on windows and doors to keep mosquitoes out.
- Get rid of mosquito breeding sites by emptying standing water from flower pots, buckets, barrels and other containers. Drill holes in tire swings so water drains out. Keep children's wading pools empty and on their sides when they aren't being used.

Page last reviewed: December 17, 2018

Content source: [Centers for Disease Control and Prevention, National Center for Emerging and Zoonotic Infectious Diseases \(NCEZID\), Division of Vector-Borne Diseases \(DVBD\)](#)

EEE (Eastern Equine Encephalitis)

What is Eastern Equine Encephalitis?

Eastern equine encephalitis (EEE) is a rare but serious disease caused by a virus.

How is the EEE virus spread?

The virus that causes EEE is spread through the bite of an infected mosquito. In Massachusetts, the virus is most often identified in mosquitoes found in and around freshwater, hardwood swamps. More information about different types of mosquitoes that can spread the virus can be found on the MDPH website at www.mass.gov/dph/mosquito.

EEE virus particularly infects birds, often with no evidence of illness in the bird. Mosquitoes become infected when they bite infected birds. Although humans and several other types of mammals, particularly horses and llamas, can become infected, they do not spread disease.

How common is EEE in Massachusetts?

EEE is a very rare disease. Since the virus was first identified in Massachusetts in 1938, fewer than 100 cases have occurred. Over 60% of those cases have been from Plymouth and Norfolk counties.

Outbreaks of EEE usually occur in Massachusetts every 10-20 years. These outbreaks will typically last two to three years. The most recent outbreak of EEE in Massachusetts began in 2010 and included nine cases with four fatalities through 2012.

What are the symptoms of EEE?

The first symptoms of EEE are fever (often 103° to 106°F), stiff neck, headache, and lack of energy. These symptoms show up three to ten days after a bite from an infected mosquito. Inflammation and swelling of the brain, called encephalitis, is the most dangerous and frequent serious complication. The disease gets worse quickly and some patients may go into a coma within a week.

What is the treatment for EEE?

There is no treatment for EEE. In Massachusetts, about half of the people identified with EEE died from the infection. People who survive this disease will often be permanently disabled. Few people recover completely.

What can you do to protect yourself from EEE?

Since the virus that causes EEE is spread by mosquitoes, here are some things you can do to reduce your chances of being bitten:

- Schedule outdoor events to avoid the hours between dusk and dawn, when mosquitoes are most active.
- When you are outdoors, wear long pants, a long-sleeved shirt and socks. This may be difficult to do when the weather is hot, but it will help keep mosquitoes away from your skin.
- Use a repellent with **DEET** (N, N-diethyl-m-toluamide), **permethrin**, **picaridin** (KBR 3023), **IR3535** (3-[N-butyl-N-acetyl]-aminopropionic acid) or **oil of lemon eucalyptus** [p-menthane 3, 8-diol (PMD)] according to the instructions given on the product label. DEET products should not be used on infants under two months of age and should be used in



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- Keep mosquitoes out of your house by repairing any holes in your screens and making sure they are tightly attached to all your doors and windows.
- Remove areas of standing water around your home. Here are some suggestions:
 - Look around outside your house for containers and other things that might collect water and turn them over, regularly empty them, or dispose of them.
 - Drill holes in the bottom of recycling containers that are left outdoors so that water can drain out.
 - Clean clogged roof gutters; remove leaves and debris that may prevent drainage of rainwater.
 - Turn over plastic wading pools and wheelbarrows when not in use.
 - Change the water in birdbaths every few days; aerate ornamental ponds or stock them with fish.
 - Keep swimming pools clean and properly chlorinated; remove standing water from pool covers.
 - Use landscaping to eliminate standing water that collects on your property.
- More information on choosing and using repellents safely is included in the MDPH Mosquito Repellents fact sheet which can be viewed online at www.mass.gov/dph/mosquito. If you can't go online, contact the MDPH at (617) 983-6800 for a hard copy.

Did you know?

Mosquitoes can begin to multiply in any puddle or standing water that lasts for more than four days! Mosquito breeding sites can be anywhere. **Take action** to reduce the number of mosquitoes around your home and neighborhood. Organize a neighborhood clean up day to pick up containers from vacant lots and parks and to encourage people to keep their yards free of standing water. Mosquitoes don't care about fences, so it's important to remove areas of standing water throughout the neighborhood.

Where can I get more information?

- Your doctor, nurse, or health care clinic, or your local board of health (listed in the telephone directory under local government).
- The Massachusetts Department of Public Health (MDPH), Division of Epidemiology and Immunization at (617) 983-6800 or on the MDPH Arbovirus website (www.mass.gov/dph/mosquito).
- **Health effects of pesticides**, MDPH, Bureau of Environmental Health at 617-624-5757.
- **Mosquito control in your city or town:** Mosquito control in Massachusetts is conducted through nine mosquito control districts. The State Reclamation and Mosquito Control Board (SRMCB) oversees all districts. Contact information for each district can be found online at <https://www.mass.gov/state-reclamation-and-mosquito-control-board-srmcb>. You may also contact the SRMCB within the Massachusetts Department of Agricultural Resources at 617-626-1777 or your local board of health.

