



Eastern Equine Encephalitis Virus (EEE)

What is an eastern equine encephalitis virus infection?

Eastern equine encephalitis (EEE) virus is a rare but serious disease spread to people through the bite of an infected mosquito.

How is EEE virus spread?

The virus that causes EEE is spread through the bite of an infected mosquito. Mosquitoes become infected when they bite infected birds. Infected mosquitoes will then occasionally feed on horses, humans and other mammals. Although humans, horses and other types of mammals can become infected, they do not spread disease.

What are the signs and symptoms of an EEE virus infection?

Some people infected with EEE virus do not become ill. When symptoms do occur they can range from flu-like symptoms such as a high fever and headache to more serious illness. Other symptoms include muscle aches, lack of energy, neck stiffness or confusion. Severe cases develop swelling of the brain (encephalitis) which can be dangerous. These symptoms show up three to ten days after a bite from an infected mosquito and illness usually lasts about 1 to 2 weeks, but it can take much longer to recover.

How common is EEE in Boston?

EEE is a very rare disease. In Massachusetts, mosquitoes infected with the EEE virus are most often found in and around freshwater swamps. Since 1938, when the virus was first identified in Massachusetts, there have been fewer than 100 people who have gotten EEE. Mosquitoes that carry EEE are rare in Boston but are much more common in areas such as Plymouth and Norfolk counties.

Who gets EEE virus infections?

Most mosquitoes do not transmit disease, however, anyone bitten by an infected mosquito can get EEE virus. People of all ages are at risk for infection with the EEE virus but individuals over age 40 have a greater risk for developing severe disease.

Is there a vaccine to protect humans from eastern equine encephalitis?

No. There is no vaccine because the virus it so rarely occurs in people. But there is a vaccine for use in horses.

What is the treatment for EEE virus infection?

There is no specific treatment for EEE virus infection. A healthcare provider may prescribe medications to relieve the symptoms of the illness. Many cases will require hospitalization.

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How Can I Protect Myself?

Follow these steps to prevent mosquito bites:

If you are outdoors in an area with mosquitoes, consider these options:



Use a repellent with DEET 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 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. Apply DEET to exposed skin (not eyes or mouth) only and do not use it on open cuts or wounds. Do not let children apply DEET themselves.

If possible, wear protective clothing such as long sleeved shirts, long pants and socks when outdoors.

Although mosquitoes can bite at any time of day, try to limit time outdoors between dusk and dawn when mosquitoes are most active (or use above precautions).

Make sure window and door screens don't have holes in them. Screens in good condition will help prevent mosquitoes from getting inside your house.

Follow these steps to prevent mosquitoes from breeding:

Mosquitoes need water to breed. They can develop into adults in as little as a week. Make sure items like those below don't collect water, or that you clean them out regularly

Containers - Turn over or cover unused flower pots, buckets, garbage cans, and wheelbarrows. Change water in birdbaths once a week. Drill holes in the bottom of recycling containers and tire swings that are left outdoors so that water can drain out.

Gutters - Remove leaves and other debris that can clog gutters and trap water.

Pools - Cover unused swimming pools and turn over kiddie pools when not in use. Be sure to keep swimming pool covers clear of leaves and water.

Old Tires - Cover or dispose of them. They are a favorite mosquito-breeding site.

**For more information, please contact
Boston Public Health Commission
Communicable Disease Control
(617) 534-5611 or www.bphc.org**