New Hampshire
Department of
Health and Human Services

Fact Sheet

Eastern Equine Encephalitis

What is eastern equine encephalitis?

Eastern equine encephalitis (EEE) is an uncommon but serious disease caused by EEE virus. EEE is an arbovirus (short for *ar*thropod-*bo*rne, meaning spread by insects). The virus can be transmitted to horses, other animals, and, in rare cases, people.

How do people get eastern equine encephalitis?

The EEE virus grows in birds that live in freshwater swamps. The virus has a complex life cycle involving birds and a specific type of mosquito, called *Culiseta melanura*. This particular mosquito does not bite people. Sometimes though, the virus can escape from its marsh habitat by means of other mosquitoes that feed on both birds and mammals. These mosquitoes can then transmit the virus to animals and people.

What are the symptoms of EEE?

Infection can cause a range of illnesses. Most people have no symptoms; others get only a mild flu-like illness with fever, headache, and sore throat. For people with infection of the central nervous system, a sudden high fever (103° to 106°), severe headache, and stiff neck can be followed quickly by seizures and coma. About one third of these patients die from the disease. Of those that survive, many suffer permanent brain damage and require lifetime institutional care.

How soon after exposure do symptoms appear?

Symptoms of EEE usually appear 4 to 10 days after the bite of an infected mosquito.

How is eastern equine encephalitis diagnosed?

Diagnosis is based on tests of blood or spinal fluid.

Who is at risk for eastern equine encephalitis?

Anyone can get EEE, but some people are at increased risk, such as people living in or visiting areas where the disease is common, people who work outside or participate in outdoor recreational activities in areas where the disease is common, and children and those over age 55 are more susceptible to the disease. The risk of getting EEE is highest from late July through September.

What is the treatment for eastern equine encephalitis?

There is no specific treatment for eastern equine encephalitis. Antibiotics are not effective against viruses, and no effective anti-viral drugs have yet been discovered. Care of patients centers around treatment of symptoms and complications.

How common is eastern equine encephalitis?

EEE is a rare disease. Fewer than 5 cases are reported in the United States in most years. There is concern, however, that EEE is re-emerging. In NH, EEE has been found in horses, mosquitoes and several species of birds. Since 2005, ten human cases were reported in NH resulting in two deaths.

How can eastern equine encephalitis be prevented?

A vaccine is available for horses, but not for humans. Prevention of the disease centers around controlling mosquitoes and on individual action to avoid mosquito bites. To avoid being bitten by the mosquitoes that transmit EEE:

- If possible, stay inside between dusk and dark, when mosquitoes are most active.
- When outside between dusk and dark, wear long pants and long-sleeved shirts.
- Use an insect repellent with DEET or Picaridin according to manufacturer's directions when outside. Oil of lemon eucalyptus and IR3535 have been found to provide protection similar to repellents with low concentrations of DEET.
- Put screens on windows and make sure they do not have holes.
- Eliminate standing water and other mosquito breeding locations from your property. Do not alter natural water bodies. The management of ponds and wetlands is regulated by the Department of Environmental Services and any alterations require a permit before work may begin.

For more information about eastern equine encephalitis, call the New Hampshire Department of Health and Human Services' Communicable Disease Control Section at 603-271-4496 or 800-852-3345 x4496 or visit our website at www.dhhs.nh.gov or the Centers for Disease Control and Prevention website at www.cdc.gov .