

Eastern Equine Encephalitis

What is eastern equine encephalitis?

Eastern equine encephalitis (EEE) is a rare but serious disease caused by the eastern equine encephalitis virus, which is an arbovirus. An arbovirus is short for *arthropod-borne virus*. EEE is spread to humans by the bite of infected mosquitoes. Birds are the source of infection for mosquitoes, which can sometimes transmit the infection to horses, other animals, and, in rare cases, people. EEE is in the same family as West Nile virus but has a higher death rate.

Where is eastern equine encephalitis found?

EEE is found in North America, Central and South America, and the Caribbean. In the United States, most cases have been reported from the eastern seaboard states, the Gulf Coast, and some inland midwestern areas.

How do people get eastern equine encephalitis?

The eastern equine encephalitis virus has a complex life cycle involving birds and a specific type of mosquito, called *Culiseta melanura*, which lives in marshes and swamps. This particular mosquito feeds only on birds. Sometimes though, the virus can escape from its marsh habitat by means of other mosquitoes that feed on both birds and mammals (including horses and humans). 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 fever and severe headache can be followed quickly by seizures and coma. About half of these patients die from the disease. Of those that survive, many suffer permanent brain damage and require lifetime institutional care. EEE has an overall mortality rate of about 30%.

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 serious illness.

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 spreading, much like West Nile virus has. In 2004, several cases were reported among animals, include horses and emus.

Is eastern equine encephalitis an emerging infectious disease?

Yes. The EEE virus was first isolated in the United States in 1933. The risk of exposure has been increasing as people move into previously undeveloped areas where the virus lives. Increased deaths of horses are a sign of increased spread of the virus in a community.

How can eastern equine encephalitis be prevented?

A vaccine is available for horses, but not for humans. Prevention centers around controlling mosquitoes and on individual action to avoid mosquito bites. To avoid being bitten by the mosquitoes that cause 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 according to manufacturer's directions when outside.

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.