



# Eastern Equine Encephalitis Information Sheet

## NORAD-USNORTHCOM/SG

### What is eastern equine encephalitis (EEE)?

Eastern Equine Encephalitis (EEE) is a mosquito-borne viral disease. As the name suggests, EEE occurs in the eastern half of the US. Because of the high case fatality rate (35%), it is regarded as one of the more serious mosquito-borne diseases in the United States.

### Why are we concerned with EEE as a bio-weapon?

Venezuelan equine encephalitis (VEE) was weaponized in both liquid and dry forms by both the United States and Russia prior to the Biological Weapons Treaty. VEE is almost indistinguishable from EEE as the viruses are so similar. Therefore, EEE could feasibly be weaponized. At the very least, release of infected swarms of mosquitoes could prove to be a method of weaponization.

**Does this disease occur naturally?** Yes. It is recognized in eastern and north central United States and adjacent areas of Canada as well as in scattered areas of Central and South America and the Caribbean islands.

**Are there different forms of this disease?** No.

**Is the disease seasonal in its occurrence?** No. However, transmission occurs only when mosquitoes are active.

### How does it spread?

EEE virus is transmitted to humans through the bite of an infected mosquito. The main EEE transmission cycle is between birds and mosquitoes. Several species of mosquitoes can become infected with EEE virus. The most important mosquito in maintaining the enzootic (animal-based, in this case bird-mosquito-bird) transmission cycle is *Culiseta melanura*. Horses can become infected with, and die from, EEE virus infection. Human cases occur relatively infrequently, largely because the primary transmission cycle takes place in swamp areas where populations tend to be limited.

### What is the risk of catching EEE?

- Residents of and visitors to endemic areas (areas with an established presence of the virus)
- People who engage in outdoor work and recreational activities
- Persons over age 50 and younger than age 15 seem to be at greatest risk for developing severe disease

### What are the symptoms of EEE?

Symptoms range from mild flu-like illness to encephalitis (inflammation of the brain), coma and death. The EEE case fatality rate (the % of persons who develop the disease who will die) is 35%, making it one of the most pathogenic mosquito-borne diseases in the US. It is estimated that 35% of people who survive EEE will have mild to severe neurologic deficits

### How soon after exposure do people get sick?

The incubation period is usually 5-15 days.

### How is EEE diagnosed?

EEE is diagnosed primarily by history, symptoms and lab work performed on a sample of the patient's blood.

### Is a vaccine available to prevent EEE?

No. There is no licensed vaccine for humans available.

### Can EEE be treated?

No. There are no effective therapeutic drugs available to treat EEE.

### Where will the medications/immunizations to treat infected individuals come from?

Local resources or national stockpiles as the situation directs. Again, therapy is only supportive not curative.

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**Are there contraindications to antibiotic therapy or other treatments (ie. pregnancy, immunosuppression, etc)?** Not applicable as there are no effective therapeutic drugs available.

**How long can EEE exist in the environment?**

As long as there is a host reservoir the disease will exist. Mosquitoes, one infected, are infective for life.

**What should someone do if they suspect they or others have been exposed to EEE?**

See your health care provider immediately.

**What can I do to reduce the risk of getting EEE or giving it to someone else?**

People should avoid mosquito bites by employing personal and household protection measures, such as using insect repellent containing DEET, wearing protective clothing, taking precautions from dusk to dawn when mosquitoes are most likely to bite, and controlling standing water that can provide mosquito breeding sites. For more information about preventing mosquito-borne disease see [Preventing West Nile Virus](#). EEE is not transmitted from person to person.

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