



## EASTERN EQUINE ENCEPHALITIS

### What is Eastern Equine Encephalitis (EEE)?

Eastern Equine Encephalitis (EEE) is a rare but serious disease caused by the EEE virus. The EEE virus is an alphavirus spread by infected mosquitoes and can cause disease in both humans and horses. The first confirmed horse cases were identified in Massachusetts in 1831 and the first confirmed human cases were reported in New England in 1938. In the United States, an average of 11 human cases are reported annually. In Delaware, sentinel chickens are routinely checked for the presence of antibodies to EEE virus.

### Who gets EEE?

Anyone can be infected with EEE virus, especially if they live, work, or visit areas where EEE virus-infected mosquitoes are present. However, people over the age of 50 and under the age of 15 are at the greatest risk for developing severe disease if infected with EEE virus. EEE virus transmission is most common in and around freshwater hardwood swamps in the Atlantic and Gulf Coast States and the Great Lakes region.

### How is EEE spread?

The EEE virus is normally maintained in a cycle between birds and black-tailed mosquitoes (*Culiseta melanura*) that live in freshwater hardwood swamps. This mosquito feeds almost entirely on birds, so it is not considered an important vector of EEE virus to people. However, sometimes the virus can escape from its swamp habitat via other mosquito species (e.g., *Aedes*, *Coquillettidia*, and *Culex*) that feed on both birds and mammals. These mosquito species create a “bridge” from infected birds to uninfected people and horses.

EEE virus has also been reported to be transmitted through infected organ transplants.

### What are the symptoms of EEE?

Most people infected with EEE virus do not have any symptoms. Infection can cause febrile illness or neurologic disease, which depend on the age of the person and other factors. Symptoms of febrile illness include fever, chills, body aches, and joint pain. Symptoms of neurologic disease include fever, headache, vomiting, diarrhea, seizures, behavioral changes, drowsiness, encephalitis, meningitis, and coma. Approximately one-third of all people with encephalitis from EEE die and those who recover are left with long-term physical or mental impairments.

### How soon do symptoms appear?

The time from mosquito bite to feeling sick (incubation period) ranges from four to 10 days.



### **How is EEE diagnosed?**

Health care providers diagnose EEE virus infection based on signs and symptoms, history of possible exposure to the mosquitoes that can carry EEE, and laboratory testing of blood or spinal fluid.

### **Should an infected person be excluded from work or school?**

An infected person does not need to be excluded from work or school.

### **What is the treatment for EEE?**

There is no treatment for EEE other than supportive care. Hospitalization may be necessary for more serious cases. Rest, fluids, and over-the-counter pain medications may relieve some symptoms. While there are no vaccines for humans, there are approved vaccines to protect horses from EEE virus.

### **What can a person or community do to prevent the spread of EEE?**

The most important way to prevent your chances of developing EEE is to prevent mosquito bites. Take these recommended steps:

- Repair any tears or rips in window screens to prevent mosquitoes from entering your home. Use air conditioning if available.
- Clean leaves and debris from gutters, which can hold water if they are clogged.
- Recycle old tires, which are perfect habitats for mosquito larvae.
- Turn containers and wheelbarrows over, so that they cannot collect water. Empty water from tarps that are covering items like boats, mulch, dirt, etc.
- Change the water in bird baths.
- Use netting over strollers, playpens, etc.
- Consider using EPA-registered mosquito repellents containing DEET, picaridin, or oil of lemon eucalyptus (OLE), and apply them according to the product label.
- Wear loose-fitting, long-sleeved shirts and pants.

### **Resources**

Centers for Disease Control and Prevention,  
<https://www.cdc.gov/easternequineencephalitis/index.html>