Centers for Disease Control and Prevention
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Technical Fact Sheet: Eastern Equine Encephalitis

Virus:

Eastern equine encephalitis virus (EEEV) is a member of the genus *Alphavirus,* family *Togaviridae*. EEEV is closely related to western equine encephalitis virus and Venezuelan equine encephalitis virus.

Transmission:

EEEV is maintained in a cycle between *Culiseta melanura* mosquitoes and avian hosts in freshwater hardwood swamps. *Cs. melanura* is not an important vector of EEEV to humans because it feeds almost exclusively on birds. Transmission to humans requires mosquito species capable of creating a "bridge" between infected birds and uninfected mammals such as some *Aedes*, *Coquillettidia*, and *Culex* species.

Geographic distribution:

An average of 6 human cases of EEE are reported each year in the United States. Florida, Georgia, Massachusetts, and New Jersey typically have the largest number of cases. EEEV transmission is most common in and around freshwater hardwood swamps in the Atlantic and Gulf Coast states and the Great Lakes region.

Risk factors:

All residents of and visitors to areas where virus activity has been identified are at risk of infection with EEEV, particularly persons who engage in outdoor work and recreational activities in these areas. Persons over age 50 and younger than age 15 are at greatest risk of severe disease (encephalitis) following infection. EEEV infection is thought to confer life-long immunity against re-infection.

Incubation period:

Usually 4-10 days

Symptoms:

EEEV infection can result in one of two types of illness, systemic or encephalitic (EEE). Systemic infection has an abrupt onset and is characterized by chills, fever, malaise, arthralgia, and myalgia. The illness lasts 1 to 2 weeks; recovery is complete when there is no central nervous system involvement. In infants, the encephalitic form is characterized by abrupt onset; in older children and adults, encephalitis is manifested after a few days of systemic illness. Signs and symptoms in encephalitic patients are fever, headache, irritability, restlessness, drowsiness, anorexia, vomiting, diarrhea, cyanosis, convulsions, and coma.

Treatment:

No specific antiviral treatment for EEEV infections is available. Patients with suspected EEE

should be hospitalized, appropriate serologic and other diagnostic tests ordered, and supportive treatment provided.

Mortality rate:

Approximately a third of those who develop EEE die. Many of those who survive will have mild to severe permanent neurologic damage. Many patients with severe sequelae die within a few years.

Prevention:

Prevent mosquito bites. There is no vaccine or preventive drug.

- Use insect repellent containing DEET, picaridin, IR3535 or oil of lemon eucalyptus on exposed skin and/or clothing. The repellent/insecticide permethrin can be used on clothing to protect through several washes. Always follow the directions on the package.
- Wear long sleeves and pants when weather permits.
- Have secure screens on windows and doors to keep mosquitoes out.
- Get rid of mosquito breeding sites by emptying standing water from flower pots, buckets, barrels and other containers. Drill holes in tire swings so water drains out. Keep children's wading pools empty and on their sides when they aren't being used.

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