



# Eastern Equine Encephalitis

## Symptoms & Treatment

### Symptoms

The incubation period for Eastern equine encephalitis virus (EEEV) disease (the time from infection to illness) ranges from 4 to 10 days. EEEV infection can result in a systemic febrile illness or neuromeningitis (infection of the membranes that surround the brain and spinal cord) or encephalitis. The severity of illness will depend on the age of the person and other host factors. Some people who become infected are asymptomatic (will not develop any symptoms).

Systemic infection is characterized by fever, chills, malaise, arthralgia, and myalgia. The illness usually resolves with complete recovery when there is no central nervous system involvement. Signs and symptoms include fever, headache, vomiting, diarrhea, seizures, behavioral changes, drowsiness, and coma. In young children, the disease often occurs soon after onset; in older children and adults, encephalitis may occur at a later stage of illness.

Approximately a third of all people with encephalitis due to EEEV infection die. Death usually occurs within a few days of symptoms but can occur much later. Of those who recover, many are left with physical or mental sequelae, ranging from mild brain dysfunction to severe intellectual impairment, personality disorders, seizures, and motor dysfunction. Many patients with severe sequelae require long-term care and die within a few years.

### Treatment

There is no approved human vaccine or specific antiviral treatment for EEEV infections. Patients should be evaluated by a healthcare provider, appropriate serologic and other diagnostic tests performed, and supportive treatment provided.

## Clinical Evaluation (for Health Care Providers)

Cerebrospinal fluid (CSF) findings include neutrophil-predominant pleocytosis and elevated protein. Neuroimaging shows brain lesions consistent with encephalitis, including neuronal damage in the cerebral cortex, midbrain, and brain stem. There is minimal involvement of the spinal cord.

EEEV is difficult to isolate from clinical samples; almost all isolates (and PCR positive samples) are from CSF. Serologic testing remains the primary method for diagnosing EEEV infection. Combined with a compatible clinical presentation in an endemic area, a rapid and accurate diagnosis of acute EEEV disease can be made by detecting EEEV-specific IgM antibody in serum or CSF. EEEV IgM testing is available at CDC and some state health departments. A positive EEEV IgM test result should be confirmed by neutralizing antibody testing at a state health department. To submit specimens for testing at CDC, please contact your [state health department](#).

All EEEV disease cases should be reported to local public health authorities. Reporting can assist public health authorities to recognize outbreaks of this rare disease and to institute control measures to limit further spread.