

EEE Diagnosis in a Horse in Franklin County

To: Franklin County Healthcare Providers, Hospitals and Ambulatory Care Centers
From: Harry Chen MD, Commissioner of Health

– Please Distribute Widely –

A horse in Franklin County became ill from Eastern equine encephalitis (EEE) virus and was euthanized last week. This is the first time that EEE has been diagnosed in an animal in this region of Vermont. In 2012, the first two human cases of EEE were confirmed in residents of Rutland County. Both patients died. Prior to the diagnosis in the horse, significant EEE activity had only been detected in the southern Addison and northern Rutland county region.

Finding the virus in a horse indicates that mammal-biting mosquitoes are infected with the virus, which raises the risk for human illness in the area. Highgate is now considered to be at high risk for EEE. Because of this, the Health Department has recommended that organized evening outdoor activities be cancelled or rescheduled to reduce exposure to mosquitoes, which are most active from dusk to dawn. This recommendation is in effect until the first hard frost – defined as a temperature of 28 or below for two consecutive hours. Because of the proximity to Highgate, Swanton residents are considered to be at a moderate risk level. The recommendation for this community is to limit outdoor evening activity.

For more information about estimated risk levels and prevention recommendations, see <http://healthvermont.gov/prevent/arbovirus/index.aspx>

Eastern Equine Encephalitis

Symptoms

EEE infection can result in either systemic or encephalitic illness. The type of illness and symptoms depends on the age of the person and other host factors. Some people who become infected with EEE virus may be asymptomatic.

- **Systemic infection** – Abrupt onset characterized by chills, fever, malaise, arthralgia, and myalgia. The illness lasts one to two weeks, and recovery is complete when there is no central nervous system involvement.
- **Encephalitic infection** – 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.

Prognosis

Approximately one-third of all people with the severe form of EEE die from the disease. Death usually occurs two to 10 days after onset of symptoms, but can occur much later. Many survivors are left with disabling and progressive mental and physical conditions that can range from minimal brain dysfunction to severe intellectual impairment, personality disorders, seizures, paralysis and cranial nerve dysfunction.

Diagnostic Testing

Patients with encephalitis or aseptic meningitis should be tested for both WNV and EEE. Testing is not recommended for patients with mild illness.

Serologic testing is the primary method for diagnosing WNV and EEE infection. The incubation period is typically between four and 10 days for EEE and two and 14 days for WNV. Therefore, samples taken early in the course of illness may be negative, and a convalescent sample may be necessary for accurate diagnosis. Ideal timing of specimens for serology:

- **Acute:** three to 10 days after onset of symptoms
- **Convalescent:** two to three weeks after acute sample

Combined with a consistent clinical presentation in an endemic area, a rapid and accurate diagnosis of acute arboviral disease can be made by the detection of virus-specific IgM antibody in serum or cerebrospinal fluid (CSF). The detection of only IgG antibody is not suggestive of an acute infection. PCR on a CSF sample can also be diagnostic when testing is done early in the course of illness.

EEE and WNV virus antibody tests are available commercially. However, a positive IgM test result from a commercial laboratory should be confirmed by neutralizing antibody testing at a state public health laboratory or the Centers for Disease Control & Prevention. The Health Department can help coordinate that testing. At least 1.0 mL of serum and 1.0 mL of CSF, if available, is required for confirmatory testing.

Report Cases – Report all EEE and WNV disease cases to the Vermont Department of Health. To report a suspect case or to ask questions about testing for these diseases, call Infectious Disease Epidemiology at 802-863-7240.

For more information see <http://www.healthvermont.gov/prevent/arbovirus/index.aspx>