

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

EEE & WNV Detected in Mosquito Pools

– Please Distribute Widely –

Eastern equine encephalitis (EEE) virus was detected in a mosquito pool collected on August 1 from the town of Whiting in southern Addison County. A total of seven mosquito pools have tested positive for West Nile virus (WNV) this year. These detections confirm that the viruses are circulating in Vermont again this year.

In 2012 the first two human cases of EEE were confirmed in Vermont. Both patients died. West Nile virus has been documented in the state since 2000. In 2012, three human cases of WNV were confirmed. There have been no deaths from WNV.

To date, significant EEE activity has only been detected in the southern Addison and northern Rutland county region. However, it is likely that this virus is present in other parts of the state as well. Over the years, WNV activity has been detected in every county in Vermont.

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 EEEV 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.

West Nile Virus

Symptoms

- **Asymptomatic infection** – Most people (70-80%) who become infected with WNV do not develop any symptoms.
- **West Nile fever** – About one in five people who are infected will develop a fever with other symptoms such as headache, body aches, joint pains, vomiting, diarrhea or rash. Most people with this type of WNV disease recover completely, but fatigue and weakness can last for weeks or months.
- **Neuroinvasive disease** – Fewer than 1 percent of people who are infected will develop a serious neurologic illness such as meningitis or encephalitis. Symptoms of neurologic illness can include headache, high fever, neck stiffness, disorientation, coma, tremors, seizures or paralysis. People with certain medical conditions such as cancer, diabetes, hypertension and kidney disease are also at greater risk for serious illness. Recovery from severe disease may take several weeks or months. Some of the neurologic effects may be permanent. About 10 percent of people who develop neurologic infection due to West Nile virus will die.

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.

Laboratory Testing – Contact the Vermont Department of Health Laboratory at 800-660-9997, extension 7560 for forms and serology mailers.

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>

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