

# THIS IS AN OFFICIAL NH DHHS HEALTH ALERT

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## Arboviral Disease in New Hampshire: Preparation for the 2015 Season

### NH Division of Public Health Services (NH DPHS) recommends:

1. Vigilance is needed during the summer months to consider mosquito-borne diseases, including West Nile Virus (WNV) and Eastern Equine Encephalitis (EEE), in patients with compatible clinical features. Laboratory testing is recommended and may be arranged by calling (603) 271-4496 during business hours or (603) 271-5300 after hours. Forms and human testing information are available at <http://www.dhhs.state.nh.us/dphs/cdcs/arboviral/index.htm>.
2. Remind patients to take preventive measures, including avoiding mosquito bites by use of insect repellents and wearing protective clothing, and environmental reduction of mosquito populations.
3. Equine vaccines are available for both EEE and WNV and should be used to protect horses. Vaccines are not available for human use.
4. Report all arboviral illnesses, confirmed or suspected, to the Division of Public Health Services (DPHS) within 24 hours at 603-271-4496 (after hours 1-800-852-3345, x5300).

### Background

Arboviruses in NH include West Nile virus (WNV) and Eastern Equine Encephalitis (EEE) virus, both transmitted to humans through the bite of an infected mosquito. In 2013, the first human case of locally acquired Jamestown Canyon virus (JCV) was identified in NH. EEE and WNV are maintained in a bird-mosquito cycle with humans considered incidental hosts. JCV is maintained in a deer-mosquito cycle, and reports of human illness are rare. The greatest risk for human acquisition of arboviral diseases is between July and October. Year-round transmission is possible in some geographic locations in the US.

Nationally last season (2014), there were 2,122 human cases of WNV reported in the US, including 85 deaths. Neuroinvasive Disease (meningitis and/or encephalitis) was recorded in 1,283 cases, while 839 cases were diagnosed with milder West Nile fever. There were 8 human cases of EEE reported in the US.

In NH during the 2014 season, there was one WNV-positive mosquito batch. There were no veterinary or human cases of WNV reported. There were 18 EEE positive mosquito batches and three EEE positive animals. Three human cases of EEE were reported.

In 2014, the first local transmission of chikungunya virus (CHIKV) was identified in the US, and the first travel-associated cases were reported in NH. There were 2,481 travel associated cases reported in the US and 11 locally-transmitted cases (all were acquired in Florida). There were 22 travel-associated cases of CHIKV reported in NH. The mosquito species that are capable of transmitting CHIKV have not been identified in NH.

### When to Suspect Arboviral Illness

The incubation period following the bite of an infected mosquito ranges from 3 to 14 days. Most arboviral infections are mild and non-apparent. Mild forms of disease normally present as a febrile illness but sudden onset of symptoms can occur and may include headache, myalgias and arthralgias. Approximately 20% of those infected with WNV develop a mild illness known as West Nile Fever.

The more severe forms of arboviral infection include altered mental status and/or neurological dysfunction (cranial and peripheral neuritis or other neuropathies, including acute flaccid paralysis syndrome). A minority of patients with severe disease develop a diffuse maculopapular or morbilliform rash. Approximately 1 in 150 WNV infections will result in severe neurological disease with encephalitis more common than meningitis. Older patients are at increased risk of developing severe West Nile Virus infections. For EEE, approximately one-third of all people who develop clinical encephalitis will die from the disease. Among those who recover, many suffer from permanent brain damage. Severe disease can be seen in any age group, including children.

The typical laboratory findings are normal or elevated total leukocyte counts, lymphocytopenia and anemia, and hyponatremia in peripheral blood. Examination of cerebrospinal fluid (CSF) shows pleocytosis (usually with a predominance of lymphocytes), elevated protein, and normal glucose levels. For about one-third of WNV patients, magnetic resonance imaging (MRI) shows enhancement of the leptomeninges, the periventricular areas, or both, while MRI of EEE patients often reveal abnormalities of the basal ganglia and thalami.

Treatment is supportive, often involving hospitalization, intravenous fluids, respiratory support, and prevention of secondary infections for patients with severe disease.

### When to Report Suspected Cases of Arboviral Illness

Clinicians, hospitals, and laboratories should report within 24 hours any patient meeting the following criteria:

1. Any patient with encephalitis or meningitis from July through November, who meet criteria a, b and c below without an alternative diagnosis:
  - a. Fever  $\geq$  38.0 C or 100 F, and
  - b. CNS involvement including altered mental status (altered level of consciousness, confusion, agitation, lethargy) and/or other evidence of cortical involvement (e.g., focal neurologic findings, seizures), and
  - c. Abnormal CSF profile suggesting a viral etiology (a negative bacterial stain and culture) showing pleocytosis with predominance of lymphocytes. Elevated protein and normal glucose levels.

### How to Report Suspect Cases of Arboviral Illness

All suspected arboviral cases should first be reported to the New Hampshire Division of Public Health Services by telephone. A completed case report form (attached) must be faxed to the NH Infectious Disease Investigation Section (603-271-0545) *and* a copy submitted with the laboratory specimen(s) to the NH Public Health Laboratories (PHL). DPHS staff members are available 24/7 to help determine if the clinical presentation meets the case criteria and whether further testing would be appropriate. Specimen submission guidelines are attached.

For additional information on arboviral illness and maps of recent activity, please visit the NH DHHS website at <http://www.dhhs.nh.gov/dphs/cdcs/arboviral/results.htm>. For fact sheets on WNV and EEE, go to <http://www.dhhs.nh.gov/dphs/cdcs/arboviral/publications.htm>

### Laboratory Testing for Arboviral Illnesses

Due to a national reagent shortage, some clinical and reference laboratories (LabCorp, ARUP, Mayo) have been forced to stop arbovirus antibody testing for EEE, Western equine encephalitis (WEE), California encephalitis, and Saint Louis encephalitis (SLE).

The NH PHL performs a microsphere immunoassay test developed by Centers for Disease Control and Prevention (CDC), which is not affected by the reagent shortage. The NH PHL's arbovirus panel includes IgM antibody testing for EEE, SLE, and WNV.

Chikungunya virus real time reverse transcriptase polymerase chain reaction (RT-PCR) testing is available at the NH PHL. If the Bureau of Infectious Disease Control is consulted and testing for this condition is appropriate, there will be no charge for this test. Without prior consultation, the cost for the RT-PCR test is \$72.00. Serum specimens should be taken during the acute phase of the disease ( $\leq 7$  days post symptom onset). If the patient makes the first visit to the physician after day 7 of symptoms, the sample is unlikely to yield positive PCR results. Serum collected  $>8$  days post onset will be sent to CDC for antibody testing. Serum should be stored, refrigerated and shipped to the PHL as soon as possible.

### For additional information on WNV and EEE please refer to:

1. The NH DHHS website at: <http://www.dhhs.nh.gov/dphs/cdcs/arboviral/index.htm>
2. The Centers for Disease Control, Division of Vector-Borne Infectious Diseases website at: <http://www.cdc.gov/ncidod/dvbid/westnile/clinicians/>.

If you or other health care providers have questions, please call Bureau of Infectious Disease Control at (603) 271-4496 or 1-800-852-3345, extension 4496 during business hours (8 am to 4:30 pm). Nights or weekends call the New Hampshire Hospital switchboard at 1-800-852-3345 extension 5300 and request the Public Health Professional on-call.

For any questions regarding the contents of this message, please contact NH DHHS, DPHS, Bureau of Infectious Disease Control at 603-271-4496 (after hours 1-800-852-3345 ext.5300).

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Originating Agency: NH Department of Health and Human Services, Division of Public Health Services

**Attachments:**

- 1) NH Arboviral Case Report Form
- 2) Laboratory Submission Guidelines for Arboviral Testing

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