

To: Vermont Health Care Providers and Veterinarians
Date: August 29, 2024
From: Patsy Kelso, PhD, State Epidemiologist

Elevated Risk of Eastern Equine Encephalitis (EEE) in Vermont

Summary

Vermont continues to see [much higher numbers](#) of mosquitoes testing positive for EEE virus this year compared to previous years, affecting more areas of the state. Health officials issued a [press release](#) on August 28, 2024 strongly recommending that people in towns at high risk avoid spending time outdoors as much as possible between 6 p.m. and 6 a.m. to avoid mosquitoes that could carry the virus. High-risk towns currently include Alburgh, Burlington, Colchester, and Swanton. The recommendation will be in place until the first hard frost that kills mosquitoes. Additional testing could increase the number of towns at high risk in the coming days and weeks.

Requested Actions

- Counsel patients on how to [prevent mosquito bites](#).
- Test for EEE virus infections in patients presenting with signs and symptoms of meningitis or encephalitis.
- Report all suspected or confirmed EEE virus infections to the Vermont Department of Health by calling 802-863-7240, option 2.

Background

An [August 7, 2024 Health Advisory](#) described detections earlier this year of two arboviruses, Eastern equine encephalitis (EEE) virus and West Nile virus (WNV), in mosquitoes collected in northwestern Vermont. Since then, the number of towns with positive EEE virus mosquito detections has increased and **EEE virus has been found in mosquitoes collected from Alburgh, Colchester, Highgate, Cornwall, Whiting, Milton, Sudbury, Swanton, Fairfield, Grand Isle, and Vergennes**. One confirmed human case of Eastern equine encephalitis was also reported from Chittenden County in early August. A [map](#) indicating risk levels throughout the state is available on the Health Department website. Arboviral activity is expected to remain high for the remainder of the summer with risk for human infections with both EEE virus and WNV from now until a hard frost.

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The Vermont Department of Health laboratory tests mosquitoes for EEE virus and WNV to help inform communities about potential risks. Mosquito collection and testing occurs from June through mid-October. Mosquito testing results and reports of human and animal illnesses are summarized on the Health Department's [mosquito surveillance webpage](#).

Diagnosis and Reporting

Consider EEE in any person with a febrile or acute neurologic illness who has had recent exposure to mosquitoes. Other arboviruses, such as West Nile virus, should also be considered in the differential diagnosis of suspected EEE illness in addition to more common causes of encephalitis and aseptic meningitis (e.g., herpes simplex virus and enteroviruses).

Clinical Signs and Symptoms

Most people infected with EEE virus have no apparent illness. Symptomatic people typically develop a systemic febrile illness that can progress in less than 5% of individuals to meningitis or encephalitis. Signs and symptoms in patients with neuroinvasive disease can include headache, confusion, focal neurologic deficits, meningismus, seizures and coma. EEE neuroinvasive disease is estimated to have a 30% case fatality rate and results in neurologic sequelae (such as seizure disorders, hemiplegia, and cognitive dysfunction) in more than 50% of survivors. The incubation period for EEE – the time from infected mosquito bite to onset of illness – ranges from four to 10 days.

Diagnostic Testing

Patients with encephalitis or aseptic meningitis should be tested for both EEE virus and WNV. Serologic testing is the primary method for diagnosing EEE virus and WNV infections. However, molecular testing (e.g., RT-PCR) on a CSF sample might be appropriate for patients who are immunocompromised when testing is done early in the course of illness.

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). Samples taken early in the course of illness may be negative, so a convalescent sample may be necessary for accurate diagnosis.

Ideal timing of serum or CSF specimen collection for serologic testing:

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

The detection of only IgG antibody is not suggestive of an acute infection.

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EEE virus and WNV antibody tests are available commercially. However, a positive IgM test result should be confirmed by neutralizing antibody testing through the CDC, facilitated by the Health Department Laboratory. At least 0.5 ml of serum or 1.0 ml of CSF is required for confirmatory testing.

For Veterinarians

Both EEE virus and WNV infections can cause severe illness and death in unvaccinated, susceptible animals (e.g., horses, donkeys, mules, alpacas, llamas, and emus). Consider diagnostic testing in animals with one or more of the following clinical signs:

- Ataxia or stumbling and incoordination
- Inability to stand
- Acute paralysis or limb weakness
- Sudden death with no other diagnosis
- Severe hemorrhagic enteritis (EEE in emus)

The Vermont Department of Health can coordinate [free postmortem testing](#) of highly susceptible species by request. For antemortem diagnostic testing, please submit serum or CSF specimens to your normal veterinary diagnostic reference laboratory for IgM-capture ELISA and PCR testing. Report cases of EEE or WNV in animals by calling the Health Department at 802-863-7240, option 2.

Additional Resources

- [Eastern Equine Encephalitis Virus](#) (CDC)
- [West Nile Virus](#) (CDC)
- [Mosquito Surveillance](#)

If you have any questions, please contact Patsy Kelso at: patsy.kelso@vermont.gov

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HAN Message Type Definitions

Health Alert: Conveys the highest level of importance; warrants immediate action or attention.

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Health Advisory August 29, 2024

Health Advisory: Provides important information for a specific incident or situation; may not require immediate action.

Health Update: Provides updated information regarding an incident or situation; unlikely to require immediate action.

Info Service Message: Provides general correspondence from the Vermont Department of Health, which is not necessarily considered to be of an emergent nature.

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