VERMONT
DEPARTMENT OF HEALTH

Health Advisory
August 31, 2023

TO: Vermont Health Care Providers and Veterinarians
DATE: **August 31, 2023**
FROM: Natalie Kwit, State Public Health Veterinarian

Elevated Risk of Eastern Equine Encephalitis (EEE) and Other Arboviruses in Vermont

BACKGROUND

Eastern equine encephalitis (EEE)–a mosquito-transmitted virus that can cause serious and potentially fatal disease in humans and animals–was detected in mosquitoes collected from Alburgh and Swanton on August 8, and again in Swanton on August 21. These are the first detections of EEE virus in mosquitoes in Vermont since 2015. In July and August, West Nile virus (WNV) was detected in mosquitoes from Alburgh, St. Albans, Colchester, and Vergennes. Overall, arboviral activity is still relatively low in the community, but the risk for human infections with WNV and EEE virus in Vermont is highest in late summer.

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

REQUESTED ACTIONS

- Counsel patients about how to prevent mosquito bites.
- Test for mosquito-borne infections in patients presenting with signs and symptoms of meningitis or encephalitis.
- Report all suspected or confirmed mosquito-borne infections to the Vermont Department of Health by calling 802-863-7240.

Diagnosis & Reporting

Eastern equine encephalitis (EEE) should be considered in any person with a febrile or acute neurologic illness who has had recent exposure to mosquitoes—especially during late summer months.

In addition to other more common causes of encephalitis and aseptic meningitis (e.g., herpes simplex virus and enteroviruses), other arboviruses (e.g., West Nile virus) should also be considered in the differential etiology of suspected EEE illness.

Clinical Signs & Symptoms

Most people infected with EEE virus have no apparent illness. Symptomatic people typically develop a systemic febrile illness that can progress to meningitis or encephalitis in less than 5% of individuals. Signs and symptoms in patients with neuroinvasive disease include headache, confusion, focal neurologic deficits, meningismus, seizures or 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.

Diagnostic Testing
Patients with encephalitis or aseptic meningitis should be tested for both WNV and EEE.

Serologic testing is the primary method for diagnosing WNV and EEE virus infections. The incubation period for EEE—the time from infected mosquito bite to onset of illness—ranges from four to 10 days. Samples taken early in the course of illness may be negative, so a convalescent sample may be necessary for accurate diagnosis.

Ideal timing of specimen collection for serologic testing:

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

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.

WNV and EEE virus antibody tests are available commercially. However, a positive IgM test result should be confirmed by neutralizing antibody testing through 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 WNV and EEE virus infections can cause severe illness and death in unvaccinated, susceptible animals (e.g., horses, donkeys, mules, alpacas, llamas). 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 WNV or EEE in animals by calling the Health Department at 802-863-7240.

ADDITIONAL RESOURCES

- CDC Eastern Equine Encephalitis Virus webpage
- CDC West Nile Virus webpage
- VDH Mosquito Surveillance webpage

If you have any questions, please contact Dr. Natalie Kwit at: Natalie.Kwit@vermont.gov.

To be removed from the HAN or have your information updated please email the Vermont HAN Coordinator at: vthan@vermont.gov.

HAN Message Type Definitions

Health Alert: Conveys the highest level of importance; warrants immediate action or attention.
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 VDH, which is not necessarily considered to be of an emergent nature.