



STATE OF NEW HAMPSHIRE  
DEPARTMENT OF HEALTH AND HUMAN SERVICES  
DIVISION OF PUBLIC HEALTH SERVICES



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Mary Ann Cooney  
Director

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TO: N.H. Licensed Veterinarians:

The NH Departments of Agriculture, Markets & Food and Health and Human Services, in conjunction with other state and local agencies will begin enhanced surveillance for West Nile virus (WNV) and Eastern Equine Encephalitis (EEE) virus in New Hampshire on June 1, 2007. This endeavor includes receiving reports and specimens of mosquitoes, horses and other owned animals (e.g. llamas, alpacas, emus), humans and wild birds. Two equine cases of WNV were confirmed in 2001 and one case was confirmed in 2003. Three horses and three emus tested positive for EEE in 2004 and 9 horses, 2 emus, 4 alpacas, and 1 llama tested positive for EEE in 2005; and 1 horse tested positive for EEE in 2006.

### Case Finding

Your assistance is appreciated (...if you find...) in case finding of animal subjects who fit the following criteria. Reports should be made to the State Veterinarian's office, 603-271-2404.

Date of onset of clinical signs: June 1 – October 31 (NH resident animals); broader dates for animals with relevant travel history

Species: Equids, camelids (i.e., llama, alpaca), and ratites (i.e., emus)

Clinical signs (one or more of the following):

- Ataxia or stumbling and incoordination
- Inability to stand
- Acute paralysis, weakness in limbs, limb paralysis
- Sudden death without another diagnosis
- Severe hemorrhagic enteritis (emus)

These signs may be indistinguishable from those produced by other encephalitides, including rabies, equine herpesvirus-1, equine protozoal myeloencephalitis, and western or venezuelan equine encephalomyelitis.

### Laboratory Analysis

Serologic tests and molecular assays are available to detect the presence of antibody and virus due to WNV or EEE infection. Tests will be performed to confirm virus infection and in some cases follow-up (convalescent) specimens will be requested.

The NH Public Health Laboratories are able to perform the following tests free of charge (see enclosed "Specimen Submission Form for Veterinary Specimens"):

- All species (necropsy specimens): molecular assay (PCR) for EEE and WNV  
\*Please note that necropsy specimens (i.e., heads) must be sent to the NH Veterinary Diagnostic Laboratory (603-862-2726). The only exception is rabies testing for small animals (i.e., dogs, cats, foxes) for which heads can be shipped directly to the state public health laboratory.
- Equines only (CSF and/or serum): IgM ELISA for EEE and WNV

The NHVDL can perform histologic examination of brain tissue to further evaluate specimens that test negative for rabies and arboviral disease. Routine fees will be charged to the referring veterinarian. Contact the lab at 603-862-2726 for more information.

Commercial diagnostic laboratories are able to perform serologic tests for WNV and EEE for non-equine species for a fee.

When reporting a case or submitting samples for virus testing, the following information is critical for accurate interpretation of test results:

- Date of onset of disease clinical signs
- Dates of specimen collection
- Travel history
- Vaccination history
- Description of clinical illness
- Specimen types and amounts

Acute serum ( $\geq 3$ ml) and CSF ( $\geq 1$  ml) for screening by enzyme immunoassays should be collected within the first 14 days following onset of symptoms and sent immediately to the State Public Health Laboratories. In general, convalescent-phase specimens should be drawn approximately 10-14 days after acute phase specimens.

#### Mammals Submitted for Rabies Testing:

Unlike an arbovirus, rabies can be transmitted to humans through the bite of an infected animal. It is important that all mammals with neurological symptoms that have had contact with humans, pets, or domestic animals, and that meet guidelines for rabies testing, be submitted for testing in accordance with the NH Public Health Laboratories guidelines. Animals testing positive for rabies will not be tested for WNV and EEE virus.

## **Clinical Illness and Prevention**

Typical symptoms of EEE and WNV in animals include anorexia and neurologic signs; involuntary muscle movements, head pressing, circling, ataxia, paralysis and convulsions. Fever is a clinical symptom of EEE along with impaired vision and abnormal sensitivity to light and sound. Fever has been detected in less than one quarter of all WNV confirmed equine cases.

In unvaccinated horses, the fatality rate may reach 90% for EEE and 40% for WNV. When considering the time to vaccinate, remember horses should be immunized at least 2-4 weeks before infected mosquitoes are likely to bite. As effectiveness of vaccines licensed for EEE and WNV may wane, requiring boosters during a 12-month period, timing of vaccination is important. Surveillance in NH indicates these viruses may be present as early as mid-July until early October, therefore vaccination efforts should occur in the spring.

The following precautions can be used to prevent EEE and WNV in humans and animals.

- Eliminate standing water and other mosquito breeding locations.
- Find out where mosquitoes live and breed and keep them from entering your home or barns.
- Protect yourself and your animals from mosquito bites by using effective mosquito repellants and approved veterinary products.
- An equine vaccination is effective and may be useful in other animal species such as emus. Because no vaccination is 100% effective, the above recommendations should be followed in conjunction with vaccination to reduce the risk of disease.

The following web addresses will provide information and recommendations that will assist you in answering questions or concerns from the public.

<http://www.aphis.usda.gov>

<http://www.nwhc.usgs.gov>

<http://www.cdc.gov>

[http://www.dhhs.nh.gov/DHHS/DHHS\\_SITE/default.htm](http://www.dhhs.nh.gov/DHHS/DHHS_SITE/default.htm)

[http://www.aep.org/pdfs/AAEP\\_vacc\\_guide.pdf](http://www.aep.org/pdfs/AAEP_vacc_guide.pdf)

General WNV or EEE questions may be directed to the NH DHHS EEE/WNV Information Line, 1-866-273-6453. You may also visit our website listed above for additional information such as fact sheets and test results. For further technical information regarding diagnostic testing and specimen submission, please call the Public Health Laboratories at 603-271-2764 or 1-800-852-3345, extension 2764.

**Case Definition: Equine Arboviral Infection (USDA, APHIS)**

A clinical illness that includes one or more the following (CNS signs):

- Ataxia
- Inability to stand
- Acute paralysis
- Limb paralysis
- Impaired vision
- Abnormal sensitivity to light and sound

Confirmed Case: Clinical illness plus one of the following:

- WNV or EEE virus isolated from tissue, blood, CSF;

Or

- Equal to or greater than 4 fold change in Plaque Reduction Neutralization Test (PRNT) titer between paired sera;

Or

- IgM Ab capture PRNT titers in single serum.

On behalf of the NH Department of Agriculture, Markets and Food, Division of Animal Industry and NH Department of Health and Human Services, Division of Public Health Services, we thank you for your continued cooperation and support of our unified efforts to identify the presence of and emphasize prevention measures for West Nile virus and Eastern Equine Encephalitis in our state.

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Enclosure: Specimen Submission Form for Veterinary Specimens