



West Nile Virus and Eastern Equine Encephalitis in Horses

Can West Nile Virus (WNV) or Eastern Equine Encephalitis (EEE) cause illness in horses?

Yes, horses can be infected with WNV and EEE, and horses have tested positive for these viruses here in New Hampshire. In 2005, no horses tested positive for WNV, however 9 horses tested positive for EEE.

What are the signs of WNV/EEE in a horse?

In a small number of horses, these viruses can affect the central nervous system and cause encephalitis (inflammation of the brain tissue). Horses with severe clinical signs can die as a result of the infection. Clinical signs may include one or more of the following: loss of appetite, depression, fever, weakness of limbs, paralysis of limbs, impaired vision, ataxia, head pressing, head tilt, aimless wandering, convulsions, inability to swallow, circling, hyperexcitability, or coma. However, it is important not to presume that horses with clinical signs of encephalitis have WNV or EEE. A definitive diagnosis requires ruling out other important diseases—such as rabies, botulism, equine protozoal myeloencephalitis, and other mosquito-borne viral diseases caused by Western and Venezuelan encephalitis viruses—that also exhibit neurological signs. It is important to remember that only a relatively small number of infected horses ever develop neurological signs of these diseases.

How do horses become infected with WNV/EEE?

Horses become infected the same way humans become infected: by the bite of an infected mosquito.

Can infected horses be carriers and transmit WNV/EEE to humans?

Infected mosquitoes transmit WNV and EEE. There is no documented evidence of animal-to-person transmission of these diseases. Veterinarians should take the usual infection control precautions when caring for an animal suspected to have this or any other viral infection.

Can a horse infected with WNV or EEE infect other horses?

No. There is no documented evidence that WNV or EEE are transmitted from animal to animal. In fact, humans and horses are known as "dead-end" or "terminal" carriers. These carriers have so few viral particles in the blood stream that a mosquito cannot accumulate enough of the virus

while taking a blood meal to subsequently transmit the infection. Evidence also exists that the virus can be found in the horse's blood stream for only a few days during the entire course of the infection.

How can I confirm that a horse is infected with WNV or EEE?

A positive diagnosis of WNV/EEE can be made only by examining blood or pathology testing from an infected horse.

How are WNV and EEE treated in horses?

To date, no treatment for infected horses exists because no specific antiviral agents have been identified that would affect either virus. Treatment of affected horses should be based on the presenting signs and focused on reducing the severity of the disease. Weakened and impaired animals should be protected from injuring themselves. Fluid and nutrient supportive therapy also may be required, either by intravenous methods or by stomach tube.

Is there a vaccine against WNV and EEE?

Yes, there is an approved vaccine for equine use only. Contact your veterinarian for further information.

Is my farm a mosquito-breeding site?

Several habitats found on farms can support the production of mosquitoes. Larvae can develop in watering troughs, small ponds, irrigation ditches, rain barrels, manure lagoons, ruts where farm equipment frequently travels and other areas where water is allowed to accumulate. Even hoof prints can accumulate water and provide a breeding habitat. The close proximity of livestock, nuisance animals (such as birds) and other animals to mosquito breeding habitats increases the risk for the transmission of animal and human disease.

What can I do to reduce the horse's risk of becoming infected with WNV/EEE?

Horse owners can reduce the likelihood of exposure to mosquitoes by implementing the following pest management practices:

- House horses inside stables during peak periods of mosquito activity (dusk and dawn).
- Avoid turning on lights inside the stable during the evening and overnight. Mosquitoes are attracted to incandescent bulbs.
- Place incandescent bulbs about 50 yards from the stable to attract mosquitoes away from the horses. Black lights are of little value as attractants for mosquitoes.
- Remove all birds, including chickens that are in or near the stable.
- Periodically examine the property for dead birds such as crows. Handle dead birds with caution. Further information on dead bird handling and reporting can be found in the fact sheet "Handling Dead Birds."
- Carefully examine your property and eliminate locations that could serve as breeding grounds for mosquitoes. Shallow standing water, used tires, and manure storage pits are ideal places for mosquitoes to breed.

- Topical preparations containing mosquito repellents are available for horses. Read the product label before using, and follow all instructions carefully.
- Stable premises can be fogged in the evening to reduce the number of mosquitoes.

What is the State doing to address the possible presence of WNV and EEE?

The New Hampshire Department of Health and Human Services, along with other city, state and federal agencies, has developed a plan to assess the presence of WNV/EEE and to find and control the kind of mosquitoes known to carry these viruses. This plan includes trapping and testing mosquitoes in selected areas at selected times throughout the state, testing dead birds and other animals, and human surveillance. If WNV or EEE is found, focused and limited applications of pesticides may be needed to prevent the spread to people.

Should I report dead birds?

Local Animal Control Officers, Health Officers and the Department of Health and Human Services are taking reports on dead bird sightings within New Hampshire. While we are interested in collecting information about dead birds as part of our efforts to understand WNV and EEE, we will not be testing every dead bird reported. Crows and blue jays are of particular interest since they generally die once infected with the West Nile virus. The Department will be collecting only a small sample of dead birds reported. However, we encourage New Hampshire residents to report all dead bird sightings to assist the department's monitoring efforts.

**For more information call the
New Hampshire Department of Health and Human Services,
WNV/EEE Information line
1-866-273-NILE (6453)**

**For specific questions about WNV or EEE in horses,
please call the NH Department of Agriculture at (603) 271 –2404.**

**For health care providers with clinical questions
or to report human suspect or probable cases,
please contact the NH Communicable Disease Control Section at
1-800-852-3345 ext. 4496, or 1-603-271-4496.**