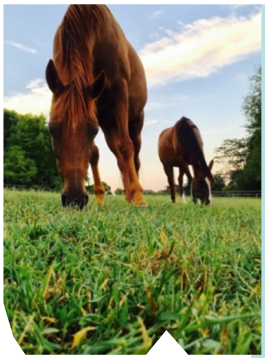

W 775

For the Equine Owner
West Nile Virus

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TOP 5 PREVENTION TIPS:

1 ELIMINATE MOSQUITO HABITAT

Reduce mosquito populations by disposing of containers holding stagnant water and turning over wading pools when not in use. Clean roof gutters monthly, and clean water troughs and stables weekly (or as often as possible).

2 USE MOSQUITO REPELLANTS

During peak season, use mosquito repellants approved for equines. This website can help to identify repellants and insecticides best for your animal: veterinaryentomology.org/vetpestx.

3 REDUCE EXPOSURE TO BIRDS

Discourage wild birds and chickens from nesting or roosting near or in stables. Remove and report any dead birds located around your horses to the local Department of Health, especially corvids (e.g., crows, blue jays).

4 CHEMICAL MOSQUITO CONTROL

When necessary, EPA-approved larvicides and/or adulticides can be used to reduce mosquito populations. Contact a local pest management professional to identify an appropriate product based on your mosquito population.

5 VACCINATION

The American Association of Equine Practitioners considers the West Nile virus vaccine a core vaccine and recommends it for all horses in North America. It is important to note that vaccination alone may not give your horse full protection.

THE BEST METHOD OF PREVENTION IS TO REDUCE THE RISK OF EXPOSURE TO MOSQUITOES.

West Nile virus also affects humans. Do not forget to protect yourself as well. Be sure to wear clothing that covers your skin and apply mosquito repellant after sunscreen when spending time outdoors.

WHAT IS WEST NILE VIRUS?

West Nile virus, often referred to as WNV, is an endemic, mosquito-borne virus that causes an encephalitis disease. The virus is distributed worldwide, but it was first recognized in New York in 1999 and has since spread throughout North America. Infection may result in an encephalomyelitis, or inflammation of the brain and spinal cord, resulting in central and peripheral nervous system dysfunction. Encephalomyelitis caused by this virus can cause catastrophic illness in many vertebrate hosts; however, clinical disease is primarily observed in birds, equines, and humans.

WHAT ARE THE SIGNS THAT YOUR HORSE COULD BE INFECTED?

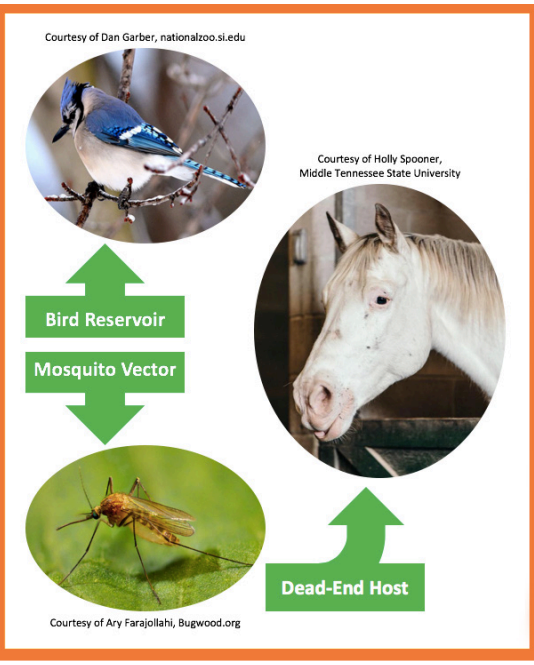
Clinical signs are usually observed within 3-15 days after exposure. The severity of clinical signs depends on the areas of the central nervous system affected by the virus and the extent of the damage. The most commonly observed signs include incoordination such as gait abnormality, aimless wandering, or in severe cases, paralysis, especially of the hind limbs; muscle tremors such as twitching of the muzzle, lower lip, neck, shoulders, or pectoral region; and behavior abnormalities such as heightened sensitivity to noise or touch, depression, drowsiness, and less sensitivity and reactivity. Other clinical signs include fever, weakness, impaired vision, inability to swallow, colic, anorexia, or even coma.

HOW IS A SUSPECTED HORSE DIAGNOSED WITH WEST NILE VIRUS?

Clinical signs alone cannot diagnose West Nile virus because many signs resemble those of other equine neurological diseases and disorders such as Eastern/Western equine encephalitis, rabies, equine protozoal myeloencephalitis, equine herpesvirus-1 and botulism, among others. Diagnosis is based on combination of: (1) the horse presents clinical signs, (2) the horse is located in or has visited an area with mosquito activity or previous confirmed cases of WNV, (3) the horse's vaccination history, and (4) a method of laboratory examination has detected antibodies to the virus itself, the virus itself, viral antigens, or viral genetic material.

IS TREATMENT AVAILABLE FOR INFECTED HORSES?

If you are uncertain that your horse is affected by West Nile virus encephalomyelitis, you should contact your veterinarian as soon as possible to provide proper care. Immediate attention could be lifesaving. There is currently no specific antiviral treatment for WNV, even in people, so supportive care is the best management strategy. Support focuses on controlling inflammation and pain. To control inflammation in the central nervous system, anti-inflammatory drugs may be recommended and administered by a veterinarian. Other supportive measures, depending on the severity of the clinical disease, may include nutritional support, intravenous fluids, sedatives, and treatment of self-inflicted wounds.



THE TRANSMISSION CYCLE

Transmission of West Nile virus occurs in a cycle between birds and mosquitoes (shown left). Mosquitoes, primarily *Culex* species, obtain the virus from infected birds and then transmit to susceptible animals. In Tennessee, both the northern and southern house mosquitoes are primary vectors and frequently test positive for WNV. Several species of birds and mosquitoes serve as amplifying hosts, supporting replication of the virus.

Migratory birds infected with WNV can introduce the virus to new geographic regions. A wide range of bird species have high virus levels, but no clinical disease. Fatal infections are common among corvids such as American crows, blue jays, house finches, and magpies upon first exposure to the virus.

OTHER ROUTES OF INFECTION

WNV infection in mammals does not result unless enough virus is circulating in the bloodstream. A mosquito cannot obtain the virus from feeding from an infected mammal; hence, they are termed dead-end hosts. WNV is not directly contagious from horse to horse, horse to human, or human to horse.

It is possible for WNV to be transmitted during equine blood transfusions. Experimentally, transmission has been recorded during cohabitation, as well as from oral exposure through drinking water in birds.

WHAT AREAS ARE AT RISK?

From 2008-2017, Centers for Disease Control and Prevention and USDA data reported 55 Tennessee counties with diagnosed cases of West Nile virus (human, veterinary, or both). Risk areas include previous WNV-infected mosquito activity, and reoccurring confirmed cases of WNV.

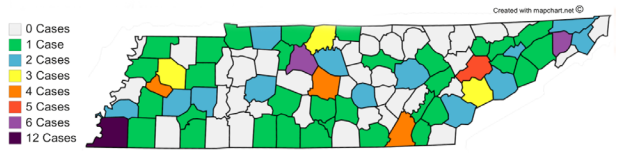


Figure 1: Locations of West Nile virus cases identified in 55 of the 95 counties in Tennessee within the last decade. (2008-2017)

WHICH SEASONS ACCOUNT FOR MOST WNV CASES?

In Tennessee, West Nile virus flares up in the summer and continues throughout the fall. Human WNV cases are associated with increased temperatures and decreased precipitation.

TENNESSEE WNV EQUINE VACCINATION SCHEDULE

The American Association of Equine Practitioners (AAEP) recommends a 2-dose vaccine series for non-vaccinated adult horses with a 4- to 6-week interval between doses. Annual February-March boosters prior to mosquito season are AAEP recommended. In the Southeast, an additional booster in August-September is recommended.

To stimulate antibody presence within colostrum, mares should be vaccinated 4 to 6 weeks before foaling. For unvaccinated pregnant mares, it is recommended that the full 2-dose series should be started 2 months before foaling. Some mares do not produce antibodies within colostrum if vaccinated for the first time during gestation.

In foals that have received adequate amounts of colostrum from a vaccinated mare, a 3-dose series should begin at 4-6 months of age, the next dose 4 to 6 weeks later, with the last dose at 10-12 months of age. In foals born to non-vaccinated or minimally vaccinated mares, the 3-dose series should begin at 3-4 months of age, the next dose 4 weeks later, and the last dose 8 weeks later. Horses younger than 5 years of age, older than 15 years of age, or located in high-risk areas should be revaccinated semi-annually.

Contact your veterinarian to determine the appropriate vaccination schedule for your location. For additional information on implementing disease prevention or other health management plans on your farm, contact your local Extension agent or visit UTHorse.com.

WILL AN INFECTED HORSE RECOVER?

In the United States, about 10-39 percent of infected horses develop clinical disease. Horses older than 15 years of age and younger than 5 years of age have a mortality rate of approximately 35-45 percent. While most of these deaths are from euthanasia for humane reasons, WNV-related death can occur. Horses that become recumbent have a fatality rate of about 60-80 percent. Clinical signs can last from a day to several weeks, but improvement or recovery usually occurs within 7 days of onset clinical signs. While more than 80 percent of owners report that horses return to normal function within 1 to 6 months, at least 10 percent of owners have reported long-term limitations.

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