

FROM START TO FINISH

Special Edition

May 2007

As mosquito season starts in the northeast and continues in the southeast, we at Teigland, Franklin, and Brokken DVMs would like to take this opportunity to educate our clients on the importance of vaccinating their horses for one of the mosquito-borne illnesses, West Nile Virus.



Sports Medicine for the Equine Athlete

WEST NILE VIRUS

By Dr. Sara P. Langsam

West Nile Virus (WNV) is a potentially fatal and commonly debilitating mosquito-borne disease of horses and humans. Classified as a flavivirus, WNV causes an encephalitis or inflammation of the brain and spinal cord. First identified in Uganda in 1937, it wasn't diagnosed in North America until 1999, when there was an outbreak in New York. At that time there were 25 equine cases in a limited area around New York City. By 2002, there were more than 15,000 equine cases in 41 states and, in late 2002, WNV was reclassified as an endemic, or continuously diagnosed, disease in the United States. Thankfully, the number of equine cases declined in 2003 and has continued to decrease to about 1,086 in 2006. This decline is most likely due to several factors, including a greater number of horses vaccinated against WNV and increased mosquito control efforts.

West Nile Virus is maintained within a transmission cycle between wild birds and mosquitoes. Birds get infected by the virus and replicate it in their blood to very high levels, usually without showing signs of the disease. A mosquito then feeds off their blood through a bite, infecting itself. This mosquito then may bite another bird and continue the cycle or feed on a human or horse and spread WNV to them. Unlike most birds or mosquitoes, humans and horses can develop illness from the virus. Because neither replicates the virus in their blood enough to become infectious to others, they are what are called "dead-end hosts." WNV spreads to other geographical areas via infected birds and their migratory habits. About 10-39% of infected horses develop signs of the disease. Of those horses that develop the disease, there is about a 30% fatality rate, depending on multiple factors including the animal's previous general health and subsequent course of treatment for WNV.

Horses of all ages are susceptible to West Nile; however, most cases appear in adults. Initial symptoms are usually a mild-low grade fever, feed refusal, and depression. Lameness may also be an early symptom, as

one or more legs may be more severely affected. These symptoms can progress to more serious neurological signs such as ataxia, or lack of coordination, and paralysis. Facial and neck tremors can also be seen in a majority of the cases, and that combined with depression can cause the horse to carry its head low and lead to severe facial swelling. Of infected horses, the fatality rate is generally 30%, and significantly higher if the animal becomes recumbent, or down and unable to stand. In those cases, euthanasia is generally chosen due to the problems associated with recumbent horses, such as generalized infection, respiratory infection, skin and muscle sores, and trauma due to the horse thrashing as they try to stand. Of those horses that are less severely affected, clinical signs of the disease can last from one day to several weeks, with 80-90% of owners reporting that the horse returned to normal function in 1-6 months. However, at least 10% of owners also reported that there were long-term deficits that limited athletic potential and resale value. These deficits included residual weakness or ataxia in one or more legs, fatigue with exercise, focal or generalized muscle atrophy, and changes in personality and behavior.

Diagnosis of West Nile is generally based on presenting symptoms, but can be confirmed by a specific blood test. In most states, a veterinarian must submit the test, and any horse demonstrating clinical signs of encephalomyelitis must be reported to the state regulatory services.

Treatment of West Nile Virus is supportive, as there is no specific antiviral therapy against these types of viruses. Supportive therapy generally consists of combinations of anti-inflammatory drugs, intravenous fluids to help the horse maintain hydration, antibiotics for secondary infections, and/or sedation for down horses to help prevent thrashing injuries. Until EPM is ruled out, prophylactic anti-protozoal medications, such as Marquis or others, may be given. Veterinarians may try to maintain recumbent horses in a sling during recovery in order to prevent some of the complications of recumbency, but not all horses have the right temperament to stay in the sling without fighting, hurting themselves and/or their

caretakers.

Risk of exposure to WNV is variable and depends on changes in distribution of mosquitoes and the reservoirs of the disease - infected birds. Because of the unpredictable nature of these factors, it is recommended that all horses in North America be vaccinated for WNV, with vaccination as the primary method of reducing the risk of infection. There are three licensed vaccines currently available, and all have been proven effective as an aid in the prevention of illness for as long as twelve months after primary vaccination. Please consult your veterinarian to choose which product is best for you and your horses. For all three, vaccination protocols are generally similar. Following the label instructions, previously unvaccinated horses should be given two doses, 3 to 6 weeks apart, and then annually, or up to every four months for horses who live in areas where mosquito season is year round such as in the southern states, or any horses that are at a particularly higher risk of infection. If revaccinating annually, plan on completing it in the spring, prior to the onset of peak mosquito season.

Though none of the vaccines is licensed for use in pregnant mares, its use is common, as the risk for infection far outweighs the risks of vaccine use. Mares should be revaccinated 4 to 6 weeks prior to foaling so that adequate protection can be passed onto their foal via the mare's colostrum, or first milk.

In addition to vaccinating horses for WNV, management practices may help to minimize the risk of the spread and transmission of WNV from infected mosquitoes. Reduction of mosquito numbers and exposure can be achieved by reducing or eliminating any stagnant or standing water in the area, keeping horses in the barns from dusk to dawn, keeping air moving with fans, and removing muck promptly. Chemicals are also available for spraying the environment and treating areas of standing water.

If you have any further questions about preventing West Nile Virus in your horses, please don't hesitate to contact your veterinarian.