West Nile Virus

Submitted by: Dr. Pete Fincher

Region 6 Director

West Nile Virus was first detected in the United States in August of 1999. West Nile Virus can be a threat to human and equine populations alike. Signs of infection may range from unnoticed or very mild symptoms to a life threatening neurologic condition. This virus was initially diagnosed in the New York City metropolitan area in humans, horses, and various bird species. Horses appear to be more susceptible than other livestock or companion animals to West Nile infections. Since 1999, positive detections have been made in a great majority of the United States and Canadian provinces.

Infected birds serve as the reservoir host for the West Nile Virus. Crows and blue jays are noted for serving as an infected reservoir. The infected birds develop a large number of virus particles in their circulatory system. Mosquitos become infected by taking a blood meal from an infected bird and in turn transmit the disease to horses by biting them. The time between exposure to the virus and appearance of the first signs is estimated to be between 3-15 days. Humans and horses are known as “dead-end” or “terminal” host because no evidence indicates that humans or horses can transmit West Nile to other horses, birds, or humans. These “dead end” hosts have so few virus particles in their bloodstream that a mosquito cannot accumulate enough virus particles to subsequently transmit the infection. Despite this fact, caution should be used when handling samples or tissue from suspect animals.

West Nile Virus affects the central nervous system and may include one or more of the following signs: weakness, incoordination, muscle tremors, a “dog sitting position” altered mental status, cranial nerve deficits, recumbency, seizures and blindness to list a few. Risk of infection seems to increase with the animal’s age. A blood sample may be sent to the diagnostic lab for conformation of West Nile Encephalitis. Rabies, botulism, EPM-(equine protozoal myeloencephalitis), EHV-1 (Rhino-Neurologic form) and the other types of sleeping sickness (VEE, WEE, and EEE) need to be included in a differential diagnosis of West Nile. There are currently four USDA licensed WNV equine vaccines available for use in the United States.

These products provide approximately one year immunity when used according to the labeled instructions in healthy animals. Currently a human vaccine is not available. It is important to note that horses vaccinated against Eastern, Western and Venezuelan equine encephalitis WILL NOT be protected against the West Nile Virus.

Treatment for this viral disease is symptomatic and involves the use of anti-inflammatory agents and other methods to reduce the brain inflammation. Fluids and nutritional supportive care may also be required in certain cases. Neurologically impaired animals should be handled carefully to prevent injuring themselves and their owners. Even when clinically ill horses have recovered from West Nile, some horses may have residual gait abnormalities or demonstrate a change in their temperament and behavior.

Prevention and control of West Nile evolve around the reduction and elimination of mosquito populations. Reducing exposure to mosquito bites through the use of mosquito repellants, protective clothing for humans and equine vaccinations are all methods to reduce the incidence of West Nile Virus infection. Prevention in horses is best accomplished by the proper use of WNV vaccinations.