

West Nile Virus

West Nile is a mosquito-borne virus that was first detected in the United States in 1999. The virus, which causes encephalitis, or inflammation of the brain, has been found in Africa, Western Asia, the Middle East, the Mediterranean region of Europe, and, most recently, in the United States.

Mosquitoes acquire the West Nile virus (WNV) from birds and pass it on to other birds and animals. While humans and horses may be infected by the virus, there is no documentation that infected horses can spread the virus to uninfected horses or other animals. Migrating birds appear to play a role in spreading the disease.

U.S. History

On September 14, 1999, the National Veterinary Services Laboratories (NVSL) of the U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS) isolated a virus from neurological and other tissues of flamingos and tragopans (pheasants) from the Bronx Zoo and crows from the New York City area. Samples of the isolated virus were sent to the U.S. Department of Health and Human Services' Centers for Disease Control and Prevention (CDC) for identification. On September 27, 1999, CDC officials announced that the isolated virus was very similar to that of WNV, previously unseen in the Western Hemisphere. CDC later confirmed the virus as West Nile and connected it to an encephalitis outbreak that killed 7 people and infected at least 55 others in the New York City area in 1999. The virus has since been identified in horses, mosquitoes, or wild birds in all 48 continental States and the District of Columbia.

Because the virus is transmitted by mosquitoes, it has the potential to affect livestock and poultry. In 2003, more than 5,181 equines in 48 States were diagnosed with cases of West Nile equine encephalitis.

Clinical signs of WNV infection in horses include ataxia (stumbling or poor coordination), depression or apprehension, weakness of limbs, partial paralysis, muscle twitching, or death. Fever is not often observed.

Although the role of commercial poultry in maintaining or transmitting the virus is not thoroughly understood, no clinical signs have been reported in U.S. poultry. According to scientific literature, chickens can develop a short-lived infection, but clinical signs are not seen.

Federal Actions to Protect Agriculture

Any horses showing clinical signs of severe encephalitis in an area without previous equine cases that year and where other common causes such as rabies can be ruled out, will be investigated by APHIS' Veterinary Services (VS) program as having a potential foreign animal disease. VS uses reliable diagnostic tests for WNV and is on the lookout for virus activity across the United States.

USDA's Agricultural Research Service has conducted WNV inoculation studies with turkeys. NVSL did the same with chickens and studies were conducted with horses at the Department of Homeland Security's (DHS) Plum Island Animal Disease Center (PIADC). Only chickens showed the likely potential to produce enough of the virus in their blood to infect mosquitoes. Each species developed antibodies after being inoculated, and encephalitis was not observed in any of the animals.

VS continues to treat all situations where birds show neurological signs as having the potential for hosting a foreign animal disease. Such a response allows NVSL to rule out exotic poultry diseases, such as Newcastle disease and highly pathogenic avian influenza, before testing for WNV.

The CDC, the U.S. Geological Survey's National Wildlife Health Center, and APHIS are cooperating to survey for the virus in a wide range of wild birds. This Federal working group, in conjunction with relevant State agencies, gathers and analyzes surveillance data to define the extent to which the virus may be distributed in mosquito and bird populations in the United States.

How You Can Protect Your Animals

You can decrease the chances of your animals being exposed to WNV by decreasing their exposure to adult mosquitoes. The best way to do this is by removing any potential sources of water in which mosquitoes can breed. Dispose of any water-holding containers, including discarded tires. Drill holes in the bottom of containers that are left outside. Clean clogged roof gutters on an annual basis. Turn over wading pools or wheelbarrows when not in use, and do not allow water to stagnate in birdbaths. Aerate ornamental pools or stock them with fish. Clean and chlorinate swimming pools that are not in use and be aware that mosquitoes can breed in water that collects on your property; mosquitoes can breed in any puddle that lasts more than 4 days. Thoroughly clean livestock-watering troughs on a monthly basis. Local mosquito-control authorities can help in assessing the mosquito-breeding risks associated with your property.

Pet birds can also be protected by limiting their exposure to mosquitoes. In areas reporting large numbers of wild bird deaths, investigations are conducted and samples collected to determine the cause of deaths. People finding dead wild birds should notify local health officials.

Currently, there is no treatment for WNV; however, there are currently two licensed WNV vaccines available to aid in the prevention of the disease in horses. In November 2002, VS granted a full license to Fort Dodge Animal Health, of Fort Dodge, IA, for the manufacture of a killed WNV vaccine. A full license was also granted to Merial, Inc., in December 2003 for the manufacture of a live vectored recombinant vaccine. Use of these vaccines is now no longer restricted to licensed veterinarians.

Additional Information

For more information about WNV, contact:

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For more information about human health issues related to WNV, check the CDC Web site at www.cdc.gov.

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