

FACTSHEET

Veterinary Services

United States
Department of
Agriculture

Animal and
Plant Health
Inspection
Service

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West Nile Virus: Questions and Answers

Q. What is West Nile virus?

A. West Nile is a type of virus that causes encephalitis, or inflammation of the brain. The virus has been found in Africa, western Asia, the Middle East, the Mediterranean region of Europe, and recently in the New York City area. The virus is transmitted by mosquitoes that acquire it from infected birds. Migrating birds may play a role in spreading the disease.

Q. Why is the U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS) involved?

A. This virus has the potential to affect livestock and poultry, and APHIS is the agency within USDA responsible for protecting the health of U.S. livestock. The National Veterinary Services Laboratories (NVSL), the only Federal facilities in the United States dedicated to the diagnosis of both domestic and foreign animal diseases, provides support for APHIS programs designed to protect the health of the Nation's livestock and poultry. NVSL uses state-of-the-art diagnostic techniques to rapidly determine what disease agent is present and what risk it presents to U.S. animal health. Because the West Nile virus was killing birds, the Bronx Zoo went to NVSL for assistance in isolating the agent causing the outbreak.

Q. How did APHIS help the Health and Human Service's Centers for Disease Control and Prevention (CDC) identify the virus?

A. On September 14, 1999, NVSL isolated an unknown virus from neurological and other tissues of flamingos and tragopans (pheasants) from the Bronx Zoo and crows from the New York City area. NVSL sent samples of the isolated virus to CDC for

identification. On September 27, CDC officials announced that the virus was very similar to that of the West Nile virus, previously unseen in the Western Hemisphere. CDC later confirmed the virus as West Nile and connected it to the encephalitis outbreak that killed 7 people and infected at least 55 others in the New York City area. The virus was also identified in crows and wild birds in Connecticut, New Jersey, and one county in Maryland.

Q. What other monitoring activities is APHIS undertaking?

A. The CDC, the U.S. Geological Survey's National Wildlife Health Center, and USDA are cooperating to survey for West Nile virus in a wide range of wild birds. This Federal working group, in conjunction with relevant State agencies, will gather and analyze surveillance data to define the extent to which the virus may be distributed in mosquito and bird populations along the Atlantic seaboard. Intensified surveillance for infected birds and mosquitoes may detect the virus in an even broader geographic range. In addition, APHIS will continue to monitor horses for encephalitis that could be caused by West Nile virus.

Q. What other actions is USDA taking?

A. APHIS officials are working with Federal, State, and local health and agricultural officials to coordinate efforts to ensure that future West Nile virus outbreaks do not become significant animal health problems. APHIS developed a diagnostic test for the virus, conducted inoculation studies to determine the effects on U.S. livestock, and developed a virus surveillance plan. USDA's Agricultural Research Service conducted inoculation studies with turkeys. NVSL did the same with chickens, and NVSL's Foreign Animal Disease Diagnostic Laboratories conducted studies with horses.

Only chickens showed the likely potential to produce enough virus in their blood to infect mosquitoes. Each species developed antibodies after being inoculated, and encephalitis was not observed in any of the animals.

Although no clinical signs of the virus have been reported in U.S. poultry, VS will treat all situations where birds show neurological signs as a potential for foreign animal disease. This allows NVSL to rule out exotic poultry diseases, such as Newcastle disease and highly pathogenic avian influenza before testing for West Nile.

APHIS' Wildlife Services program will carry out wild bird specimen collection, initially focused on East Coast States from Connecticut to Florida, for West Nile virus testing.

Q. Was the outbreak the result of a bioterrorist attack?

A. There is no reason to believe that this disease outbreak was caused by a bioterrorist attack rather than by an unintentional introduction.

Q. Are animals other than birds affected by the virus?

A. Horses on Long Island, NY, showed signs of encephalitis, and the NVSL positively identified West Nile virus as the cause of the infection. Clinical signs of the virus in horses included listlessness, stumbling and incoordination, weakness of limbs, ataxia, partial paralysis, or death. A fever was not usually observed. Experimental tests suggest that sheep, chickens, and pigs could be affected by the virus. However, no cases in these animals have been reported in New York or anywhere else in the United States. In tests, the virus caused pregnant sheep to abort. Cows may show antibodies to the virus, which means they have contracted it without showing any clinical signs or becoming ill.

Q. What precautions can be taken to protect animals from this virus?

A. Preventing animals' exposure to mosquitoes is essential. 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 out-of-doors. Clean clogged roof gutters on an annual basis. Turn over plastic wading pools or wheelbarrows when not in use, and do not allow water to stagnate in bird baths. 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 the water that collects on swimming pool covers. Use landscaping to eliminate standing 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.

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

No vaccines or specific treatments are currently available for West Nile virus.

Q. Must horses affected by the virus be euthanized?

A. No. Because horses are incidental hosts, it is highly unlikely that mosquitoes feeding on an infected horse could ingest enough of the virus to transmit it to other animals. Horses are humanely euthanized only when they are suffering from illness from which they will not be able to recover.

Q. Will horses affected by the virus be quarantined?

A. No. Since infected horses do not appear to be carriers for the disease, it's unlikely a quarantine would be necessary.

Q. What was the horse mortality rate in the affected area?

A. A total of 25 horses had clinical signs of a West Nile virus infection. Of those, 9, or 36 percent, died or were euthanized, and the others recovered. This does not rule out the possibility that other horses may have been infected with the virus. It is likely that many horses recover from infection without clinical illness. At least 35 other horses on Long Island were found with antibodies to West Nile virus but had never shown signs of illness.

Q. Are dogs and cats affected by the virus?

A. It is unlikely that dogs or cats will show signs of clinical illness, although any mammal or bird could potentially be exposed to the virus through mosquito bites.

Q. Were there trade implications associated with the outbreak?

A. Yes. The European Union, Hong Kong, Brazil, Argentina, and the United Arab Emirates restricted importation of horses or poultry from all or part of the United States. All restrictions were lifted by January 31, 2000.