



NEW YORK CITY DEPARTMENT OF
HEALTH AND MENTAL HYGIENE
Ashwin Vasani, MD, PhD
Commissioner

2023 Veterinary Alert #8 West Nile Virus in New York City

- **West Nile virus (WNV) has been detected in 738 pools of mosquitoes collected from all New York City (NYC) boroughs. Six people with WNV disease have been reported this year.**
 - **WNV circulates in NYC during mosquito season (May through October). For a map of surveillance data and more information on WNV, [visit the NYC Department of Health and Mental Hygiene's WNV website](#).**
- **Horses can develop severe clinical illness and die from WNV; WNV disease is rarely reported in companion animals.**
- **Wild birds infected with WNV are reported each year. Corvids (including crows, ravens, and jays) and raptors can develop severe disease and die. Other bird species may be refractory to infection, or do not develop severe disease.**
- **WNV vaccines are available for horses and have been used off-label in captive birds.**

Please share with your colleagues in Veterinary Medicine and your staff.

August 28, 2023

Dear Colleagues,

This alert provides current information about West Nile virus (WNV) surveillance findings in NYC for 2023. Mosquitoes are most active from May through October. WNV cycles between mosquitoes (especially *Culex pipiens*, *restuans* and *salinarius* in NYC) and birds. Some infected birds can develop high levels of the virus in their bloodstream and mosquitoes can become infected by biting these infected birds. After about a week, infected mosquitoes can pass the virus to more birds when they bite. Infected mosquitoes can also transmit WNV to people, horses, and other mammals.

Surveillance Findings

Each year, the New York City Department of Health and Mental Hygiene (NYC Health Department) conducts surveillance for WNV during peak adult mosquito season. Laboratory testing is performed using mosquitoes collected from traps set throughout NYC. During testing, mosquitoes are sorted by species into groups, called "pools," containing up to 50 mosquitoes each. Each pool is then tested collectively for evidence of WNV. To date, 738 mosquito pools have tested positive for WNV in NYC. Queens has the largest number of positive pools (341) followed by Staten Island (210), the Bronx (91), Brooklyn (82) and Manhattan (14). Six people with WNV disease (three in Queens, two in Staten Island, and one in Manhattan) [have been reported to date this year](#). For the most recent mosquito and human surveillance data, visit the NYC Health Department's [West Nile virus webpage](#).

WNV in Birds

Wild birds are not routinely collected for WNV testing in NYC. However, wild birds submitted to the Cornell Wildlife Health Laboratory that test positive for WNV are [reported online here](#). Since WNV arrived in North America in 1999, WNV has been identified in over 300 species of birds in the U.S. Raptors and corvids such as crows, ravens, and jays are particularly susceptible to illness and death due to WNV.¹ Multiple reports have also identified several psittacine species, including budgerigars, cockatiels, and cockatoos, that are at risk for

severe disease and death. Signs of WNV in birds may include ataxia, head tilt, tremors, weakness and loss of vision. Veterinarians may direct clients to bring sick and injured wild birds to the [Wild Bird Fund](#) for rehabilitation.

WNV in Companion Animals

While dogs and cats can be infected with WNV, the disease is rarely reported.² In 1999, a stray kitten in New Jersey had neurologic disease which was attributed to WNV infection.³ In a laboratory setting, experimentally inoculated cats became viremic and developed mild non-specific illnesses including slight fever, lethargy, and modest decrease in appetite while inoculated dogs remained asymptomatic.⁴

WNV in Horses

WNV is the leading cause of arbovirus encephalitis in horses in the United States. Signs of WNV infection in horses may include ataxia, knuckling, head tilt, muscle tremors, and recumbency with inability to rise. The case fatality rate is approximately 33%. Among horses that survive, gait and behavioral abnormalities may persist for months following acute illness. WNV vaccines are available for horses and are recommended as a core vaccine by the American Association of Equine Practitioners.⁵

WNV in Other Animals

WNV has been detected in many other animal species including rodents (rats, mice, squirrels, chipmunks, and other rodents), raccoons, skunks, opossums, bats, white-tailed deer, bears, and non-human primates. However, clinical disease due to WNV in most mammals (except for horses) appear to be very rare.

Human Disease

Most infections are asymptomatic. Approximately 26% of infected persons will develop West Nile fever; symptoms may include fever, headache, vomiting, diarrhea, myalgia, fatigue, muscle weakness, and arthralgia. Less than 1% of infected persons may develop neuroinvasive disease with more severe neurologic symptoms such as confusion, lethargy, muscle weakness, ocular disturbances, movement disorders, severe headache, stiff neck, or photophobia.⁶

Infection Control Measures to Prevent Transmission from Infected Animals

Few people with occupational exposure to birds and dead animals have become infected with WNV; however, veterinarians should take precautions. Reports exist of laboratory workers becoming infected with WNV via percutaneous inoculation while working with animal remains.⁷ In 2002, turkey farm workers in Wisconsin were thought to have acquired WNV infections via percutaneous inoculation, fecal-oral, or respiratory routes; an investigation on the farm detected WNV in the feces of infected turkeys.⁸ Additionally, in 2010, a veterinary student became infected while performing an autopsy on an infected pony, most likely through mucous membrane exposure to droplets. The student handled the brain using latex gloves, although no protective inhalation or eye gear was used.⁹

People should avoid barehanded contact when handling dead animals by wearing gloves and using double plastic bags for proper disposal. Gloves, masks, and eye gear are indicated if performing an autopsy. Veterinarians and their staff should use infection control precautions when caring for an animal suspected to have WNV or any viral infection.

Mosquito Control Activities

The Health Department conducts activities to eliminate standing water to reduce the number of potential mosquito-breeding sites and larvaciding to control mosquito larvae. Adulticiding is scheduled as needed in



areas where surveillance indicates that the risk of transmission to humans is high. The [pesticides used to kill adult mosquitoes](#) poses little risk to humans and pets. We recommend, however, that people and pets remain indoors during the applications. Information on upcoming spray events can be found by calling 311 or by [visiting our mosquito control webpage](#).

Prevention Measures for Pets and Their Owners

While small mammal pets do not appear to be at risk for clinical illness due to WNV, pet birds (especially psittacine birds) and horses should be considered at equal risk as humans. Recommend these precautionary measures to your clients:

- **Vaccinate horses against WNV**
- **Keep birds indoors, particularly at dawn and dusk, during the mosquito season**
- **If pet birds are brought outdoors, provide a mosquito-proof enclosure using screens or mosquito netting**
- **Check all windows for intact screens**
- **Reduce possible mosquito-breeding habitats (standing water) on the property, or report standing water by calling 311 or report online: [nyc.gov](#), search “standing water”**
- **Encourage clients to use repellent while walking their dogs at dusk and dawn when the mosquitoes that transmit WNV are most active**

Animal Disease Reporting

Arboviral encephalitis is one of 16 animal diseases reportable in NYC (see box below for all reportable animal diseases). Report any laboratory-diagnosed cases of arboviral infection in your patients to the Health Department by using our [secure web-based reporting platform](#), calling 347-396-2600, or faxing an [Animal Disease Case report](#) to 347-396-2753.

Reporting and testing of individual birds for WNV is not required. However, clusters of 10 or more dead birds of any species or three or more water birds can be reported to the Health Department by calling 311 to help detect diseases that may be of public health concern.

References

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As always, we appreciate your continued collaboration with our efforts to monitor public health issues in New York City.

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Visit our webpage for information and resources for veterinarians: [Zoonotic and Vector-borne Diseases: Information for Providers](#)

If you do not receive these alerts via email and would like to be added to the distribution list, email zivdu@health.nyc.gov

Report animal diseases to the NYC Department of Health and Mental Hygiene:

- Online through a [secure web-based reporting platform](#)
- Call 347-396-2600
- Fax the [Animal Disease Case Report form](#) to 347-396-2753

Report upon suspicion: Anthrax, brucellosis, glanders, influenza (novel with pandemic potential), monkeypox, plague, Q fever, rabies, SARS, tularemia

Report upon laboratory diagnosis: Arboviral encephalitides, leptospirosis, psittacosis, Rocky Mountain spotted fever, salmonellosis, tuberculosis

Report within 24 hours any outbreak or suspected outbreak of any disease, condition, or syndrome, of known or unknown etiology, which may pose a danger to public health.