



NEW YORK CITY DEPARTMENT OF
HEALTH AND MENTAL HYGIENE
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Commissioner

2022 Veterinary Advisory #6: West Nile Virus in New York City

- Mosquito surveillance has detected more West Nile virus (WNV) in 2022 than any prior year in New York City (NYC)
 - Mosquitoes collected in traps are “pooled” together by species and tested in groups of 50 mosquitoes or fewer. In 2022, a record number of mosquito pools have tested positive; 1,436 positive pools to date, compared to a total positive pool count of 1,117 in 2021 and 446 in 2020
 - 14 human cases have been reported
- An increased number of WNV infected wild birds has also been reported
 - Some bird species can develop severe disease and die from WNV infection, most notably corvids (including crows, ravens, and jays) and raptors. Other bird species may be refractory to infection, or do not develop severe disease
- WNV has been rarely reported in companion animals
- WNV vaccines are available for horses and have been used off-label in captive birds
- WNV circulates in NYC during mosquito season (July 1 – October 31), for updated surveillance data and more information on WNV, visit our website at www.nyc.gov/health/wnv

September 8, 2022

Dear Veterinary and Animal Health Colleagues:

This alert provides updated information about West Nile virus (WNV) surveillance findings for 2022, to date, as well as information about WNV in wild birds. Animal health professionals should be aware that peak mosquito season usually lasts from July 1st to October 31st.

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 DOHMH 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. There has been a record number of mosquito pools testing positive for WNV this year, with more being reported at this point in the season compared to all previous years. To date, 1,436 mosquito pools have tested positive for WNV in NYC. Staten Island has had the largest number of positive pools (449) followed by Queens (464), Brooklyn (277), the Bronx (178), and Manhattan (68). There have been 14 human WNV cases reported in NYC to date. For the most recent surveillance data, visit our website at www.nyc.gov/health/wnv.

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](#). The notable number of positive reports this year suggests that the increase in WNV activity in NYC is impacting wild birds. In addition, the Wild

Bird Fund, the largest wildlife rehabilitation facility in NYC, has seen a significant rise in the number of crows and ravens that die within hours of intake or are too sick to release; this year only 3 of 41 survived compared to 2021 when 15 of 32 survived.

WNV in Animals: WNV has been identified in over 300 species of birds in the U.S.¹ Corvids such as crows, ravens, and jays are particularly susceptible to illness and death due to WNV, as well as raptors. Multiple reports have also identified several psittacine species, including budgerigars, cockatiels, and cockatoos, that are at risk for severe disease and death. Clinical signs in birds may include loss of coordination, head tilt, tremors, weakness, and apparent blindness. Veterinarians may direct clients to bring sick and injured wild birds to the [Wild Bird Fund](#) for rehabilitation.

WNV disease has rarely been reported among companion animals in NYC. Several reports in the literature show dogs and cats can be infected.²⁻¹² However, most remain asymptomatic. Mild illness has been reported in cats when experimentally inoculated.¹² In one study, cats infected with WNV showed non-specific symptoms such as slight fever and mild lethargy during the first week after infection.¹² In the same study, cats developed WNV antibodies after consuming WNV infected mice; however, none became clinically ill. In 1999, one stray kitten (in New Jersey) was found with neurologic disease attributed to WNV infection.³

WNV is the leading cause of arbovirus encephalitis in horses in the United States. Signs of WNV infection in horses include ataxia, knuckling, head tilt, muscle tremors, and recumbency with inability to rise. The case fatality rate is approximately 33%, and 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](#).

WNV has been detected in many other animal species including harbor seals, squirrels, chipmunks, mice, rats and other rodents, as well as skunks, canids, white-tailed deer, raccoons, bears, opossums, bats, and non-human primates. However clinical disease due to WNV in most mammals (with the exception of horses) appears to be very rare.

Human Disease: Most infections are asymptomatic. Approximately 20% of infected persons will develop West Nile fever; symptoms may include fever, headache, myalgia, fatigue, muscle weakness, and/or 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.

Infection Control Measures to Prevent Transmission from Infected Animals: There is no indication that a person can get WNV from simply handling live or dead infected birds or other animals. However, evidence suggests that persons with occupational exposure to birds and other animal remains have occasionally become infected with WNV. Reports exist of laboratory workers becoming infected with WNV via percutaneous inoculation while working with animal remains.¹³ 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.¹⁴ Additionally, in 2010, a veterinary student became infected while performing an autopsy on an infected pony, most likely through mucous membrane exposure to droplets.¹⁵ The student handled the brain using latex gloves, although no protective inhalation or eye gear was used. Persons should avoid barehanded contact when handling dead animals and use gloves or double plastic bags for proper disposal. If performing an autopsy, gloves, masks, and eye gear are indicated. 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: DOHMH will continue to work to reduce the number of potential mosquito-breeding sites and control mosquito larvae in NYC. Adulticiding activities are scheduled as needed in areas where surveillance indicates that the risk of transmission to humans is high. The pesticide used in spraying is Anvil 10+10 ULV, a pyrethroid product designed to kill adult mosquitoes. This product is used at a very low dosage rate, 0.0036 lbs/acre, and poses little risk to humans and pets. We do 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 the DOHMH website at www.nyc.gov/health/wnv.

Prevention measures for pets: 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. We urge you to recommend precautionary measures to your clients including:

- **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”**

Animal Disease Reporting: Arboviral encephalitis is one of 16 animal diseases reportable in NYC. Please report any laboratory-diagnosed cases of arboviral infection in your patients to the NYC DOHMH by calling 347-396-2600 or complete and fax an Animal Disease Case report to 347-396-2753. Our report form is available online at <https://www1.nyc.gov/assets/doh/downloads/pdf/zoo/zoo-disease-report-form.pdf> (nyc.gov, search “animal disease”). In 2008, the reporting and testing of individual birds was discontinued as it was determined that these efforts were of limited value in the early detection of WNV. However, the DOHMH receives reports of clusters of 10 or more dead birds of any species or 3 or more water birds to help detect diseases that may be of public health concern.

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 more 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, please email zivdu@health.nyc.gov

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