

FAQs from CDC web site

<http://www.cdc.gov/ncidod/dvbid/westnile/q&a.htm>

Q: What are West Nile virus, West Nile fever, and West Nile encephalitis?

A. West Nile virus is a flavivirus commonly found in Africa, West Asia, and the Middle East. It is closely related to St. Louis encephalitis virus found in the United States. The virus can infect humans, birds, mosquitoes, horses and some other mammals.

West Nile fever is a case of mild disease in people, characterized by flulike symptoms. West Nile fever typically lasts only a few days and does not appear to cause any long-term health effects.

More severe disease due to a person being infected with this virus can be West Nile encephalitis, West Nile meningitis, or West Nile meningoencephalitis. Encephalitis refers to an inflammation of the brain, meningitis is an inflammation of the membrane around the brain and the spinal cord, and meningoencephalitis refers to inflammation of the brain and the membrane surrounding it.

Where did West Nile virus come from?

A. West Nile virus has been commonly found in humans and birds and other vertebrates in Africa, Eastern Europe, West Asia, and the Middle East, but until 1999 had not previously been documented in the Western Hemisphere. It is not known from where the U.S. virus originated, but it is most closely related genetically to strains found in the Middle East.

Q. Historically, where has West Nile encephalitis occurred worldwide?

A. See the map describing distribution of flaviviruses, including West Nile virus:

Q. How long has West Nile virus been in the U.S.?

A. It is not known how long it has been in the U.S., but CDC scientists believe the virus has probably been in the eastern U.S. since the early summer of 1999, possibly longer.

Q. I understand West Nile virus was found in "overwintering" mosquitoes in the New York City area in early 2000. What does this mean?

A. One of the species of mosquitoes found to carry West Nile virus is the *Culex* species, which survives through the winter, or "overwinters," in the adult stage. That the virus survived along with the mosquitoes was documented by the widespread transmission during the summer of 2000.

Q. Is West Nile virus now established in the Western Hemisphere?

A. The continued expansion of West Nile virus in the United States indicates that it is permanently established in the Western Hemisphere.

Q. Is the disease seasonal in its occurrence?

A. In the temperate zone of the world (i.e., between latitudes 23.5° and 66.5° north and south), West Nile encephalitis cases occur primarily in the late summer or early fall. In the southern climates where temperatures are milder, West Nile virus can be transmitted year round.

Q. How many cases of West Nile disease in humans have occurred in the U.S.?

A. Our [Statistics, Surveillance, and Control](#) page contains maps showing the distribution of West Nile virus-related human disease cases, by state, in the U.S. in 2002.

Please see CDC's [current case count](#) (on the Office of Media Relations page) for the number and nature of human cases of West Nile virus-related disease reported in the U.S. in 2002.

In 2001, there were 66 human cases of severe disease and 9 deaths. In 2000, 21 cases were reported, including 2 deaths in the New York City area. In 1999, 62 cases of severe disease, including 7 deaths, occurred in the New York area.

No reliable estimates are available for the number of cases of West Nile encephalitis that occur worldwide.

Q. What proportion of people with severe illness due to West Nile virus die?

A. Among those with severe illness due to West Nile virus, case-fatality rates range from 3% to 15% and are highest among the elderly. Less than 1% of persons infected with West Nile virus will develop severe illness.

How do people get infected with West Nile virus?

A. People become infected by the bite of a mosquito infected with West Nile virus.

Q. What is the basic transmission cycle of West Nile virus?

A. Mosquitoes become infected when they feed on infected birds, which may circulate the virus in their blood for a few days. Infected mosquitoes can then transmit West Nile virus to humans and animals while biting to take blood. The virus is located in the mosquito's salivary glands. During blood feeding, the virus may be injected into the animal or human, where it may multiply, possibly causing illness.

Q. If I live in an area where birds or mosquitoes with West Nile virus have been reported and a mosquito bites me, am I likely to get sick?

A. No. Even in areas where the virus is circulating, very few mosquitoes are infected with the virus. Even if the mosquito is infected, less than 1% of people who get bitten and become infected will get severely ill. The chances you will become severely ill from any one mosquito bite are extremely small.

Q. Can you get West Nile encephalitis from another person?

A. No. West Nile encephalitis is NOT transmitted from person-to-person. For example, you cannot get West Nile virus from touching or kissing a person who has the disease, or from a health care worker who has treated someone with the disease.

Q. Is a woman's pregnancy at risk if she gets infected with West Nile virus?

A. There is no documented evidence that a pregnancy is at risk due to infection with West Nile virus.

Q. Can you transmit West Nile virus through blood transfusions?

A. Please refer to [Blood Transfusions and Transmission: Questions and Answers](#).

Q. Besides mosquitoes, can you get West Nile virus directly from other insects or ticks?

A. Infected mosquitoes are the primary source for West Nile virus. Although ticks infected with West Nile virus have been found in Asia and Africa, their role in the transmission and maintenance of the virus is uncertain. However, there is no information to suggest that ticks played any role in the cases identified in the United States.

Q. How many types of animals have been found to be infected with West Nile virus?

A. Although the vast majority of infections have been identified in birds, WN virus has been shown to infect horses, cats, bats, chipmunks, skunks, squirrels, and domestic rabbits.

Q. Can you get West Nile virus directly from birds?

A. There is no evidence that a person can get the virus from handling live or dead infected birds. However, persons should avoid bare-handed contact when handling *any* dead animals and use gloves or double plastic bags to place the carcass in a garbage can.

Q. Can you get infected with West Nile virus by caring for an infected horse?

A. West Nile virus is transmitted by infectious mosquitoes. There is no documented evidence of person-to-person or animal-to-person transmission of West Nile virus. Normal veterinary infection

control precautions should be followed when caring for a horse suspected to have this or any viral infection.

Q. Can you get WNV from eating game birds or animals that have been infected?

A. There is no evidence that WNV virus can be transmitted to humans through consuming infected birds or animals. In keeping with overall public health practice, and due to the risk of known food-borne pathogens, people should always follow procedures for fully cooking meat from either birds or mammals.

Q. How does West Nile virus actually cause severe illness and death in humans?

A. Following transmission by an infected mosquito, West Nile virus multiplies in the person's blood system and crosses the blood-brain barrier to reach the brain. The virus interferes with normal central nervous system functioning and causes inflammation of brain tissue.

Q. How long does the West Nile virus remain in a person's body after they are infected?

A. There is no scientific evidence indicating that people can be chronically infected with West Nile virus. What remain in a person's body for long periods of time are antibodies and "memory" white blood cells (T-lymphocytes) that the body produces to the virus. These antibodies and T-lymphocytes last for years, and may last for the rest of a person's life. Antibodies are what many diagnostic tests look for when clinical laboratories testing is performed. Both antibodies and "memory" T-lymphocytes provide future protection from the virus.

Q. If a person contracts West Nile virus, does that person develop a natural immunity to future infection by the virus?

A. It is assumed that immunity will be lifelong; however, it may wane in later years.

Q. What are the symptoms of West Nile virus infection?

A. Most people who are infected with West Nile virus will not have any type of illness. It is estimated that 20% of the people who become infected will develop West Nile fever: mild symptoms, including fever, headache, and body aches, occasionally with a skin rash on the trunk of the body and swollen lymph glands.

The symptoms of severe infection (West Nile encephalitis, meningitis, and meningoencephalitis) include headache, high fever, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, and paralysis. It is estimated that 1 in 150 persons infected with West Nile virus will develop a more severe form of disease.

Q. What is the incubation period in humans (i.e., time from infection to onset of disease symptoms) for West Nile encephalitis?

A. Usually 3 to 14 days.

Q. How long do symptoms last?

A. Symptoms of mild disease will generally last a few days. Symptoms of severe disease may last several weeks, although neurological effects may be permanent.

Q. I think I have symptoms of West Nile virus infection. What should I do?

A. Contact your health care provider if you have concerns about your health. If you or your family members develop symptoms such as high fever, confusion, muscle weakness, and severe headaches, you should see your doctor immediately.

Q. How do health care providers test for West Nile virus infection?

A. Your physician will first take a medical history to assess your risk for West Nile virus. People who live in or traveled to areas where West Nile virus activity has been identified are at risk of getting West Nile virus-related disease; persons older than 50 years of age have the highest risk of severe disease. If you are determined to be at high risk and have symptoms of West Nile encephalitis, your provider will draw a blood sample and send it to a commercial or public health laboratory for confirmation.

Q. How is West Nile virus-related disease treated?

A. There is no specific treatment for West Nile virus-related diseases. In more severe cases, intensive supportive therapy is indicated, often involving hospitalization, intravenous fluids, airway management, respiratory support (ventilator), prevention of secondary infections (pneumonia, urinary tract, etc.), and good nursing care.

Q. Can West Nile virus cause illness in dogs or cats?

A. West Nile virus does not appear to cause serious illness in dogs or cats. A study conducted in New York City in 1999 indicated that dogs do become infected with the virus, however disease from WN virus infection in dogs has yet to be documented.

Q. Can infected dogs or cats be carriers (i.e., reservoirs) for West Nile virus and transmit the virus to humans?

A. West Nile virus is transmitted by infectious mosquitoes. There is no documented evidence of person-to-person, animal-to-animal, or animal-to-person transmission of West Nile virus. Veterinarians should take normal infection control precautions when caring for an animal suspected to have this or any viral infection.

Q. How do dogs or cats become infected with West Nile virus?

A. The same way humans become infected—by the bite of infectious mosquitoes. The virus is located in the mosquito's salivary glands. During blood feeding, the virus is injected into the animal. The virus then multiplies and may cause illness. Mosquitoes become infected when they feed on infected birds, which may circulate the virus in their blood for a few days. It is possible that dogs and cats could become infected by eating dead infected animals such as birds, but this is unproven.

Q. Can a dog or cat infected with West Nile virus infect other dogs or cats?

A. No. There is no documented evidence that West Nile virus is transmitted from animal to animal.

Q. How long can a dog or cat be infected with West Nile virus?

A. The answer is not known at this time.

Q. Should a dog or cat infected with West Nile virus be destroyed? What is the treatment for an animal infected with West Nile virus?

A. No. There is no reason to destroy an animal just because it has been infected with West Nile virus. Full recovery from the infection is likely. Treatment would be supportive and consistent with standard veterinary practices for animals infected with a viral agent.

West Nile Virus and Horses

Q. Has West Nile virus caused severe illness or death in horses?

A. Yes, while data suggest that most horses infected with West Nile virus recover, results of investigations indicate that West Nile virus has caused deaths in horses in the United States.

Q. How do the horses become infected with West Nile virus?

A. The same way humans become infected—by the bite of infectious mosquitoes. The virus is located in the mosquito's salivary glands. When mosquitoes bite or "feed" on the horse, the virus is injected into its blood system. The virus then multiplies and may cause illness. The mosquitoes become infected when they feed on infected birds or other animals.

Q. How does the virus cause severe illness or death in horses?

A. Following transmission by an infected mosquito, West Nile virus multiplies in the horse's blood system, crosses the blood-brain barrier, and infects the brain. The virus interferes with normal central nervous system functioning and causes inflammation of the brain.

Q. Can I get infected with West Nile virus by caring for an infected horse?

A. West Nile virus is transmitted by infectious mosquitoes. There is no documented evidence of person-to-person or animal-to-person transmission of West Nile virus. Normal veterinary infection control precautions should be followed when caring for a horse suspected to have this or any viral infection.

Q. Can a horse infected with West Nile virus infect horses in neighboring stalls?

A. No. There is no documented evidence that West Nile virus is transmitted between horses. However, horses with suspected West Nile virus should be isolated from mosquito bites, if at all possible.

Q. My horse is vaccinated against eastern equine encephalitis (EEE), western equine encephalitis (WEE), and Venezuelan equine encephalitis (VEE). Will these vaccines protect my horse against West Nile virus infection?

A. No. EEE, WEE, and VEE belong to another family of viruses for which there is no cross-protection.

Q. Can I vaccinate my horse against West Nile virus infection?

A. A West Nile virus vaccine for horses was recently approved, but its effectiveness is unknown.

Q. How long will a horse infected with West Nile virus be infectious?

A. We do not know if an infected horse can be infectious (i.e., cause mosquitoes feeding on it to become infected). However, previously published data suggest that the virus is detectable in the blood for only a few days.

Q. What is the treatment for a horse infected with West Nile virus? Should it be destroyed?

A. There is no reason to destroy a horse just because it has been infected with West Nile virus. Data suggest that most horses recover from the infection. Treatment would be supportive and consistent with standard veterinary practices for animals infected with a viral agent.

West Nile Virus and Birds

Q. Do birds infected with West Nile virus die or become ill?

A. In the 1999 New York area epidemic, there was a large die-off of American crows. Since then, West Nile virus has been identified in more than 100 species of birds found dead in the United States. Most of these birds were identified through reporting of dead birds by the public.

Q. How can I report a sighting of dead bird(s) in my area?

A. State and local health departments may start collecting reports of dead birds at different times in the year. Some wait until the weather becomes warm before initiating their surveillance program. For information about reporting dead birds in your specific area, please contact your state or local health department.

Q. Why have some areas stopped collecting dead birds?

A. Some states and jurisdictions are no longer collecting dead birds because they have sufficiently established that the virus is in an area, and additional testing will not reveal any more information. Shifting resources away from testing of dead birds allows those resources to be devoted elsewhere in surveillance and control.

Q. Should people stop feeding birds?

A. There is no reason for people to stop feeding birds. Feeding birds does not increase a person's risk for contracting WNV infection.

Q. How often should you change the water in your birdbath?

A. In order to interrupt mosquito-breeding cycles, change the water at least once or twice a week in birdbaths and other outdoor containers such as animal water dishes. Look around the yard or

patio to make sure that buckets and other containers that are not in use are empty, and turn them over so that they cannot collect water. Be sure to check for containers or trash that may be hard to see (such as those under a bush or under the house).