



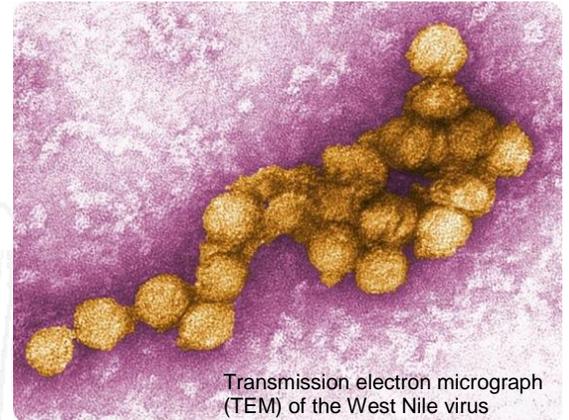
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West Nile Virus Fact Sheet

THE VIRUS

- West Nile (WN) virus is a flavivirus commonly found in Africa, West Africa, and the Middle East. It is closely related to the St. Louis encephalitis virus found in the United States.
- WN virus was first isolated from a febrile adult woman in the West Nile District of Uganda in 1937.
- Equine disease caused by WN virus was first noted in Egypt and France in the early 1960s.
- The WN virus first appeared in North America in 1999.



Transmission electron micrograph (TEM) of the West Nile virus

INFECTION AND TRANSMISSION

- The WN virus can infect humans, birds, mosquitoes, horses, and some other mammals.
- The principle route of human infection with WN virus is through the bite of an infected mosquito.
- Thirty-six mosquito species have been found in the West Nile positive mosquito pools in the United States since 1999. They are primarily members of the *Culex* genus.
- The WN virus infects mosquitoes when they feed on infected birds, which may circulate the virus in their blood for a few days. The virus eventually finds its way into the mosquito's salivary glands. During subsequent blood meals, the virus may be injected into humans and animals, where it can multiply and possibly cause illness.
- There is no evidence of person-to-person or animal-to-person transmission of WN virus.
- There are some documented cases of WN virus transmission via blood and organ transfusions. The FDA issued an alert to blood banks and organizations to be vigilant in excluding individuals who may have early symptoms of West Nile virus from donating blood.

ILLNESS

- Most people who are infected with the WN virus will not have any type of illness.
- It is estimated that about 20% of people infected with WN virus will develop WN fever.
- The mild illness caused by WN virus, known as WN fever, is characterized by flu-like symptoms including: fever, headache, and body aches, occasionally with a skin rash on the trunk of the body and swollen lymph glands. Symptoms will generally last a few days.
- It is estimated that 1 in 150 persons infected with WN virus will develop a more severe form of disease (WN encephalitis or WN meningitis).
- Symptoms of WN encephalitis and WN meningitis include headache, high fever, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, and paralysis. Symptoms may last several weeks, although neurological effects may be permanent.
- Of those who have the more severe form of WN illness (WN encephalitis or WN meningitis), the human case fatality rate in the United States has been about 11%.
- The incubation period of the WN virus in humans (time from infection to onset of symptoms) is 3 to 14 days.
- Following transmission by an infected mosquito, WN 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.
- In 2002, 4161 people in the United States became infected with the WN virus and 277 people died from the infection.
- The largest recorded epidemic caused by the WN virus occurred in South Africa in 1974. A large human outbreak of WN encephalitis occurred in Israel in 2000.

PREVENTION

- The best way to reduce the risk of becoming infected with the WN virus is to protect against mosquito bites. Apply insect repellent sparingly to exposed skin. The more DEET a repellent contains the longer time it can protect you from mosquito bites.
- Spray clothing with repellents containing permethrin or DEET since mosquitoes may bite through thin clothing.
- The hours from dusk to dawn are peak mosquito biting times. Consider avoiding outdoor activities during these times -- or take *extra* care to use repellent and protective clothing during evening and early morning.

- When possible, wear long-sleeved shirts and long pants whenever you are outdoors.
- Place mosquito netting over infant carriers when you are outdoors with infants.
- Help reduce the number of mosquitoes in areas outdoors where you work or play, by draining sources of standing water.
- Vitamin B and "ultrasonic" devices are NOT effective in preventing mosquito bites.
- There is currently not a vaccine against WN encephalitis, but several companies are developing one.

ANIMALS

- WN virus has been detected in dead birds of at least 138 species. Although birds, particularly crows and jays, infected with WN virus can die or become ill, most infected birds do survive.
- WN virus does not appear to cause extensive illness in dogs or cats.
- Cases of WN virus disease in horses have been documented in 1999, 2000, and 2001. Approximately 40% of equine WN virus cases result in the death of the horse. Horses most likely become infected with WN virus in the same way humans become infected, by the bite of infectious mosquitoes.
- In locations where WN virus is circulating, horses should be protected from mosquito bites as much as possible. Horses vaccinated against Eastern Equine Encephalitis (EEE), Western Equine Encephalitis (WEE) and Venezuelan Equine Encephalitis (VEE) are NOT protected against WN virus protection. A WN virus vaccination for horses was recently licensed, but its effectiveness is unknown.
- There is no reason to destroy a horse just because it has been infected with WN 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.

