

Update on West Nile Virus, August 2002

Drs. Foster & Smith Educational Staff

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PLEASE NOTE: Reports that a dog was found to be infected with West Nile virus are NOT true. It was suspected the dog was infected, but later tests confirmed the dog was NOT. For more information on West Nile virus in dogs and cats see the "West Nile virus in birds and animals" section below

The following information is reprinted, with permission, from information provided by the Centers for Disease Control and Prevention.

Q. What is West Nile encephalitis?

A. "Encephalitis" means an inflammation of the brain and can be caused by viruses and bacteria, including viruses transmitted by mosquitoes. West Nile encephalitis is an infection of the brain caused by West Nile virus, a flavivirus commonly found in Africa, West Asia, and the Middle East. In 1999 it was isolated in the United States. It is closely related to St. Louis encephalitis virus found in the United States.

Q. 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. 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 scientists from the Centers for Disease Control and Prevention (CDC) believe the virus has probably been in the eastern U.S. since the early summer of 1999, possibly longer.

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

A. From 1999 through 2001, there were 149 cases of West Nile virus human illness in the United States reported to CDC and confirmed, including 18 deaths. In 1999, 62 cases of severe disease, including 7 deaths, occurred in the New York area. In 2000, 21 cases were reported, including 2 deaths in the New York City area. In 2001, there were 66 human cases of severe disease and 9 deaths.

A large number of cases of human infections with West Nile virus have been reported recently. For the year 2002, as of August 30, state health departments have released information on 638 cases of West Nile virus related human illness, including 31 deaths. As of August 16, West Nile virus infections were reported in 3128 dead birds, 167 horses, and a total of 952 mosquito pools have been reported as positive.

Human West Nile virus infections and deaths in 2002, as of August 30, 2002		
State	Confirmed/ Probable Human Cases	Deaths
Alabama	13	
Arkansas	3	
Connecticut	1	
District of Columbia	1	
Florida	1	
Georgia	6	2
Illinois	122	7
Indiana	10	
Iowa	1	
Kentucky	6	1
Louisiana	205	8
Maryland	2	
Massachusetts	1	
Michigan	21	2
Minnesota	2	
Mississippi	104	3
Missouri	27	1
Nebraska	4	1
New York	5	1
North Dakota	3	

Ohio	35	4
Oklahoma	2	
South Carolina	1	
South Dakota	5	
Tennessee	5	
Texas	43	1
Virginia	3	
Wisconsin	6	
Totals	638	31

Q. Do the findings indicate that West Nile virus is 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.

Transmission of West Nile virus

Q. How do people get West Nile encephalitis?

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

Q. What is the basic transmission cycle?

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. 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. 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. Can you get West Nile virus directly from birds or infected animals?

A. There is no evidence that a person can get the virus from handling live or dead infected birds or animals. However, persons should avoid bare-handed contact when handling any dead animals. If birds or other potentially infected animals must be handled, a protective barrier (e.g., gloves, inverted plastic bags) should be used.

West Nile virus infection in people

Q. Who is at risk for getting West Nile encephalitis?

A. All residents of areas where virus activity has been identified are at risk of getting West Nile encephalitis; persons over 50 years of age have the highest risk of severe disease.

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. 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 15 days.

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

A. Most humans infected with West Nile virus have no symptoms. A small proportion develop mild symptoms that include fever, headache, body aches, and occasionally skin rash or swollen lymph glands. Less than 1% of infected people can develop a more severe illness that includes meningitis (inflammation of the spinal cord) or encephalitis. The symptoms of these illnesses can include headache, high fever, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, and paralysis. Of the few people that develop encephalitis, a small proportion die but, overall, this is estimated to occur in less than 1 out of 1000 infections.

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.

Q. What is the treatment for West Nile virus infection?

A. There is no specific treatment for West Nile virus infection or vaccine to prevent it. Treatment of severe illnesses includes hospitalization, use of intravenous fluids and nutrition, respiratory support, prevention of secondary infections, and good nursing care. Medical care should be sought as soon as possible for persons who have symptoms suggesting severe illness.

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

A. There is no documented evidence that a pregnancy is at risk due to infection with West Nile 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. 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. If I think I have symptoms of West Nile virus, 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?

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 encephalitis; 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.

Prevention of West Nile virus infection in people

Q. How can people decrease their risk of becoming infected with West Nile virus?

- A.**
- Stay indoors at dawn, dusk, and in the early evening.
 - Wear long-sleeved shirts and long pants whenever you are outdoors. Spray clothing with repellents containing permethrin or DEET, since mosquitoes may bite through thin clothing.
 - Apply insect repellent sparingly to exposed skin. An effective repellent will contain 35% DEET (N,N-diethyl-meta-toluamide). DEET in high concentrations (greater than 35%) provides no additional protection.
 - Repellents may irritate the eyes and mouth, so avoid applying repellent to the hands of children.
 - Whenever you use an insecticide or insect repellent, be sure to read and follow the manufacturer's DIRECTIONS FOR USE, as printed on the product.
 - Install or repair window and door screens so that mosquitoes cannot get indoors.

- Note: Vitamin B and "ultrasonic" devices are NOT effective in preventing mosquito bites

Q. Is there a vaccine against West Nile encephalitis?

A. No, but several companies are working towards developing a vaccine.

Q. Where can I get more information on mosquito repellents?

A. Visit the American College of Physicians web site (<http://www.acponline.org/journals/annals/01jun98/mosquito.htm>) to view the article: "Mosquitoes and mosquito repellents: A clinician's guide" (Mark S. Fradin, MD. *Annals of Internal Medicine*. June 1, 1998; 128:931-940). You can also find information on insect repellents containing DEET at the Environmental Protection Agency (EPA) web site (www.epa.gov/pesticides/citizens/deet.htm). Another good source of information about pesticides and repellents is the National Pesticide Information Center, which also operates a toll-free information line: 1-800-858-7378 (check their web site for hours at www.npic.orst.edu).

Q. Where can I get information about the use of pesticide sprays that are being used for mosquito control?

A. The federal agency responsible for pesticide evaluation is the Environmental Protection Agency (EPA). See the EPA web site for detailed answers to the questions about pesticides used for mosquito control.

West Nile virus in birds and animals

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. West Nile virus has been identified in more than 70 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. For information on your specific area, please contact your state or local health department.

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.

Editor's Note: Many pet owners have concerns about safeguarding their pets against mosquito bites as a way not only to protect against the transmission of West Nile virus, but against heartworm, as well. There are a number of flea and tick products that do act as mosquito repellents. Products with mosquito-repellent properties contain pyrethrins or permethrins such as Defend, Biospot for Dogs, and many products for cats. These products need to be used with care, and permethrins should never be used on cats. For more information on flea and tick product ingredients and using these products, see [Ingredients in Flea and Tick Products](#) and [Using Flea and Tick Products Together](#).