

WEST NILE VIRUS

What is West Nile virus encephalitis?

West Nile virus (WNV) encephalitis is a mosquito-borne viral disease, which can cause an inflammation of the brain. WNV is commonly found in Africa, West Asia, the Middle East and Europe. For the first time in North America, WNV was confirmed in the New York metropolitan area during the summer and fall of 1999. WNV successfully over-wintered in the northeastern United States and was present in humans, horses, birds, and mosquitoes in 2000, 2001 and 2002.

How do people get West Nile virus encephalitis?

WNV is transmitted to people by the bite of a mosquito that has become infectious after feeding on a bird infected with the virus. Birds serve as the reservoir hosts of WNV, and the principal vector in the transmission from one bird to another is the northern house mosquito, *Culex pipiens* and other *Culex* mosquitoes. WNV has also been found in several species of *Aedes* mosquitoes, which could serve as bridge vectors by transmitting it to humans or horses.

How many cases of West Nile virus infection occurred in New Jersey in 2002?

Twenty-five residents of New Jersey, out of a total of 206 who initially met WNV testing criteria, have been confirmed positive for WNV.

What are the symptoms of West Nile virus infection?

Most infections produce no symptoms in people, or symptoms are mild or moderate. Symptoms may include: fever, headache, and body aches, often with skin rash and swollen lymph glands. More severe infections may be marked by headache, high fever, neck stiffness, muscle weakness, stupor, disorientation, convulsions, paralysis, coma, and, rarely, death.

If I am ill, how can I be tested for WNV?

To screen potential cases for WNV, blood and cerebrospinal fluid samples are sent to the Public Health and Environmental Laboratory (PHEL) for an Enzyme-Linked Immunosorbent Assay (ELISA) test that detects antibodies IgG & IgM in sera and IgM only in cerebrospinal fluid. If the ELISA test is positive, samples are then forwarded to the National Centers for Disease Control and Prevention (CDC) for a plaque reduction neutralization test (PRNT), which is the final confirmatory test for WNV in humans.

How is West Nile encephalitis treated?

There is no specific therapy. In more severe cases, intensive supportive therapy is indicated, i.e., hospitalization, intravenous (IV) fluids, airway management, respiratory support (ventilator) if needed, prevention of secondary infections (pneumonia, urinary tract, etc.), and good nursing care.

What is the incubation period in humans?

Symptoms usually appear 5 to 15 days from the time a mosquito carrying WNV infects a

person.

Can you get WNV directly from crows or from other people?

There is no evidence that a person can get the virus from handling live or dead infected birds. However, avoid barehanded contact when handling any dead animal. WNV is NOT transmitted from person-to-person. There is some evidence that crow-to-crow transmission of WNV is possible without mosquito vectors.

What is the basic transmission cycle for WNV?

Mosquitoes become infected by feeding on birds with the virus circulating in their blood. After an incubation period of 10 days to two weeks, the infected mosquitoes can then transmit the virus to other animals or humans when biting to take a second blood meal.

Why are crows, but not most other dead birds, tested for WNV?

From 1999 - 2002, there was a large die-off of crows from WNV in New Jersey and other states. Although other birds can also become infected with the virus, the mortality rate is much lower in other birds. Because crows are extremely susceptible to WNV, they are very useful as sentinels to monitor viral activity.

Why have some areas stopped collecting dead birds?

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.

What agencies conduct the surveillance and provide mosquito control services?

The WNV surveillance plan is coordinated among a number of state and local agencies. They include the Department of Environmental Protection (DEP), Office of Mosquito Control and Coordination; NJ Department of Health and Senior Services (DHSS); Department of Agriculture, Division of Animal Health; Rutgers University, 21 county mosquito control agencies, local health departments, physicians and hospitals, in addition to the national Centers for Disease Control and Prevention (CDC) and other states in the region.

The primary responsibility for mosquito control rests with the 21 county mosquito control agencies. Each agency conducts numerous activities that include: education, surveillance, source reduction and biological and chemical control of larval and adult mosquitoes.

Can West Nile virus cause illness in dogs and cats?

The virus does not usually cause illness in dogs and cats. A serosurvey of dogs and cats in the New York WNV epidemic area in 1999 showed a low infection rate in healthy dogs and cats. There is no evidence that a dog or cat can transmit the virus to humans or other animals.

What can I do to reduce my risk of becoming infected with WNV?

- **Eliminate stagnant water around the home in discarded tires, blocked gutters, unclean birdbaths, poorly maintained pools, and any type of receptacle with decaying organic matter.**
- **Limit outdoor activities at dawn, dusk and in the early evening, when possible.**
- **Wear long-sleeved shirts and long pants whenever you are outdoors.**
- **Make sure screen doors and windows are in good condition.**
- **When outside, use an effective skin or clothing mosquito repellent. Always use a repellent according to the directions on the product label.**
- **Maintain your swimming pools. Empty or cover swimming pools when not in use.**
- **Keep birdbaths clean. Change the water at least once a week.**

Source: NJ Department of Health and Senior Services