



**Contra Costa
Mosquito
& Vector
Control
District**

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West Nile virus IS preventable and your help is essential!

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migration routes. Local mosquitoes then bite the birds, pick up the virus, and can then transmit it to other birds and potentially to people.

What are the symptoms of West Nile virus?

The incubation period for the virus is from 3 to 14 days from the time of the bite. The majority of the cases, about 80 in 100, result in mild symptoms or in no detectable symptoms at all. About 20 in 100 patients will develop what's called West Nile fever, which has been described as a mild flu-like illness lasting about 3 to 6 days. Symptoms include fever, headache, stomach ache, vomiting, rash, body aches, and swollen glands. In rare cases, about 1 in 150 people who are infected with WNV can develop severe brain inflammation (encephalitis). This can lead to muscle weakness, partial or complete paralysis, mental confusion and memory loss. As with most viral infections, there is currently no cure or vaccine available, although supportive care in a hospital will aid in a patient's recovery.

How is it transmitted?

The virus is primarily transmitted through mosquito bites, although there has been some evidence that in rare cases it can also be transmitted by blood transfusion, organ transplants or by breast feeding from an infected human donor. It is not known to be contagious by person to person contact. In Contra Costa County, there are 22 species of mosquitoes, some of which can transmit West Nile virus, as well as other diseases. They vary quite a bit in their habitats, but all of them require standing water to complete part of their lifecycle.

Who is at risk of contracting West Nile virus?

The severe disease is most common in persons aged 50 or older. Severe disease is extremely rare in children and in younger adults. Between 5 percent and 14 percent of these severe cases result in death. It appears that elderly patients are at the greatest risk of complications and death from the virus.

Can the virus affect my pets? What about horses?

Dogs and cats appear to be resistant to the virus unless they already have another illness. Pet birds may also be susceptible and should be kept indoors if possible when mosquitoes are present. Use mosquito screening to protect outdoor aviaries and bird cages. Horses are highly susceptible and about 30 percent of infected



horses die. Fortunately for horse owners, a vaccine is available through their veterinarian and is highly recommended. Clinical signs of West Nile virus infection in horses include: listlessness, stumbling, lack of coordination, partial paralysis, and death. Horses with West Nile virus often do not have a fever.

Where did West Nile virus come from?

West Nile virus is not native to North America. It was first isolated in the West Nile district in Africa in 1937. Since then, there have been occasional outbreaks in Africa, the Middle East, India, Russia, and Europe. In 1999, the first cases in North America were reported in New York City.

Officials there were completely taken by surprise by the WNV outbreak as the virus had not previously been detected in North America. The outbreak served as a reminder that mosquitoes

can be more than just a nuisance. By the year 2002, WNV had reached 44 states with over 4,100 human cases reported and nearly 300 deaths. In California, one human case of locally-acquired WNV was found in Los Angeles County. Further WNV activity was not found in the state in 2002.

How did New York respond to the new virus? Were they prepared?

At the time the virus first appeared, New York City had no mosquito surveillance or control program. The program had been discontinued due to budget cuts several years earlier. Mosquitoes were considered a nuisance, but not a disease risk and the thousands of backyard and urban sources that were present in New York City were not considered a threat. As a consequence of not having a surveillance program, city



officials were not aware of the virus until human cases began being reported by hospitals. At that point, the only response possible was wide-spread helicopter and truck-based aerosol spraying of pesticides to try to contain the outbreak.

How does the District's surveillance program work?

The first component of the surveillance program is sentinel chickens. Chickens do not get sick from the virus, but if bitten by an infected mosquito, produce antibodies that can be detected in their blood. This makes them an ideal tool for detecting the virus. There are 206 sentinel chicken flocks located throughout California that are operated by local vector control districts or other



public health agencies. In Contra Costa County, we have four chicken flocks which are located in Hercules, Martinez, Oakley, and Knightsen. Blood samples from these chickens are taken twice monthly to be tested for



virus antibodies and provide us with an early warning of virus activity.

The second component of the surveillance program is mosquito surveillance. Larval mosquito populations (baby mosquitoes) are monitored by our district's field inspectors who check bodies of water that are known to produce mosquitoes. Adult mosquito populations are monitored using special traps that are located throughout the county. Samples of mosquitoes collected in these traps are sent to the University of California for virus testing and the information from this monitoring program is then used to direct our mosquito control efforts.



The third component of the surveillance program is dead bird testing. Dead birds, particularly birds in the crow family, are often the first indication of West Nile virus activity in any particular area. If you find a recent dead bird that did not die from an obvious cause like injury or accident, you can call the state department of health services toll free at 1-877-WNV-BIRD. If the bird is a candidate for testing, a district technician will come to your

house to pick it up. Not all birds can be tested. Decayed specimens or specimens of low risk species may not be accepted for testing. Be sure to wear rubber gloves when handling any dead animal.

What is the District doing to protect the residents of Contra Costa County?

As a public health agency – we have been protecting public health for over 75 years. Today, we continue to reduce the risk of mosquito-borne disease by monitoring and controlling mosquito populations throughout the county. This year we have doubled our work force and increased our surveillance efforts. We have also expanded our cooperation with other agencies and to ensure residents understand the importance of their role in mosquito reduction, we have increased our community outreach efforts.

What's the bottom line?

We are prepared to respond to West Nile virus and other mosquito-borne diseases and we'll be more successful in our efforts with the public's help. Fortunately, the disease risk for residents is small: even in a virus outbreak, fewer than 1 in 100 mosquitoes are carriers of the virus and fewer than 1 in 150 people who became infected with the virus will develop a serious illness.



What can you do to reduce your risk of contracting West Nile virus?

Everyone plays a crucial part in helping to reduce the risk of contracting West Nile virus and other mosquito-borne diseases. The most important activity you can do to help us "fight the bite" is to:

- ◆ Eliminate standing water on your property where mosquitoes may breed. Backyard sources are often the county's number one source of mosquito breeding. Hundreds of mosquitoes can breed in just a tablespoon of water. They can breed in anything that holds standing water for more than
- just a couple of days, such as dirty swimming pools, backyard ornamental ponds, discarded tires, clogged rain gutters, pool and boat covers, cans, buckets and many other "containers."
- ◆ Report dead birds. Call the State Department of Health Services toll free at 1-877-WNV-BIRD (1-877-968-2473).
- ◆ Repair window and door screens to prevent mosquitoes from entering homes and businesses.

- ◆ Wear long sleeves and pants if you have to be outdoors when mosquitoes are present.
- ◆ Use a repellent containing the ingredient DEET – 10 percent or less of DEET is recommended for children and 30 percent is recommended for adults.
- ◆ Visit our District office to get FREE mosquitofish for your backyard ornamental pond and to report mosquito problems in your neighborhood.

"Homeowners are a crucial line of defense against the virus because our number one source of mosquitoes come from their backyards."

– Gale Jirik, Operations Manager