

# West Nile Virus

## West Nile Virus Background and History in Nevada

Prior to 1999, no WNV cases had been reported in the United States, although the virus had a wide distribution in Africa, Asia, the Middle East and Europe and caused occasional epidemics. In 1999, the virus appeared in New York City, and was responsible for an encephalitis outbreak causing 62 human cases and seven deaths.

Between 1999 and 2003, WNV expanded from the northeastern U.S. to the south central states and westward, appearing on the west coast for the first time in 2002. Across the U.S., the number of human WNV cases in 2002 increased dramatically and greatly expanded in geographic range (4,161 reported cases with 277 deaths). The 2002 epidemic was the largest WNV epidemic ever reported and the largest of any reported arboviral encephalitis epidemic in the Western Hemisphere.

In 2003, WNV activity continued to increase, and was reported in 48 states and the District of Columbia. Today, WNV is firmly established throughout most of the US. WNV was first detected in Nevada in 2004, and has been reported in all counties.

## How do people get West Nile Virus?

The main way that humans become infected is after being bit by an infected mosquito. There is no evidence of human to human transmission.

In 2002, additional ways of getting infected were recognized, but this represents a very small proportion of cases. These include receiving an infected organ in transplants, receiving infected blood in transfusions, mother-to-baby in pregnancy and possibly via breastfeeding, and laboratory exposure to WNV infected products.

People over 50 years of age have the highest risk of developing a severe illness because as we age, our bodies have a harder time fighting off disease. People with compromised immune systems may also be at increased risk. For everyone, being outside means you're at risk. The more time you're outdoors, the greater your chances of being bitten by an infected mosquito. Pay attention to avoiding mosquito bites if you spend a lot of time outside, either working or playing.

## Symptoms of infection in humans

The majority of the people who get infected with WNV have no illness or at most, have an infection similar to a mild flu with fever, headache and fatigue. People with mild infections may experience fever, headache, body aches, skin rash and swollen lymph glands. This is called West Nile Fever.

Occasionally, the virus will multiply in the central nervous system and cause meningitis or encephalitis. People with more severe infections may experience high fever, neck stiffness, stupor, disorientation, coma, tremors, occasional convulsions and paralysis. This is called West Nile Encephalitis. If you develop any of these symptoms, contact your health care provider.

While most WNV infections are mild, West Nile Encephalitis can result in death or serious brain damage. Fewer than 1% of people infected with WNV develop encephalitis, and even fewer die from complications. Rarely, people infected with WNV have developed a form of flaccid paralysis which may not improve significantly over time. This is still being studied.

## Information for pregnant and breastfeeding women

There has been one documented case of transplacental (mother-to-child) transmission. A newborn was born with medical problems, and it is unknown whether the West Nile infection contributed to these problems or if it was coincidental. This issue is still being studied by the CDC. Pregnant women, like everyone else, should focus on reducing their exposure by avoiding mosquitoes, wearing long sleeves and pants when outside and wearing repellents containing DEET. There are no reported side-effects from the use of repellents containing DEET in pregnant or breastfeeding women. Because the health benefits of breastfeeding are well established, and the risk for WNV transmission through breastfeeding is unknown but considered very small, no change in breastfeeding habits is recommended. Lactating women who are ill or are having difficulty breastfeeding for any reason, as always, are advised to consult their physicians.

## Blood donations and organ transplants

Donating blood is safe, and is encouraged now and in the future. If you are sick, however, you should wait to donate blood until you are well. A person who has had West Nile virus can still donate blood after they completely recover. All blood and organs which are donated in the U.S. are screened for West Nile Virus. The benefits of receiving needed transfusions or transplants far outweigh the potential risk for infection.

## Is there a treatment or vaccine for West Nile Virus?

There is no specific treatment for WNV infection, nor is there a proven vaccine for humans. Bed rest, fluids and other supportive care is routinely recommended, and most people fully recover from the infection; however, in some severe cases, hospitalization may be needed.

## Insect repellent - the best way to protect yourself outdoors

When it comes to West Nile Virus protection, it is not necessary to limit any outdoor activities; the best way to "fight the bite" is to try to reduce your risk of being bitten by mosquitoes.

The Centers for Disease Control and Prevention (CDC) recommends the use of products containing active ingredients which have been registered with the U.S. Environmental Protection Agency (EPA) for use as repellents applied to skin and clothing. EPA registration of repellent active ingredients indicates the materials have been reviewed and approved for efficacy and human safety when applied according to the instructions on the label. Products containing these active ingredients typically provide longer-lasting protection than others:

- DEET
- Picaridin

Oil of lemon eucalyptus, a plant-based repellent, is also registered with EPA. In two recent scientific publications, when oil of lemon eucalyptus was tested against mosquitoes found in the U.S., it provided protection similar to repellents with low concentrations of DEET. Oil of lemon eucalyptus has not been tested against mosquitoes that spread malaria and some other diseases which occur internationally. See the CDC Travelers' Health website for specific recommendations concerning protection from insects when traveling outside the U.S.

According to the CDC, electromagnetic and ultrasound devices, Vitamin B and commercially-sold products like Avon Skin-so-Soft® are not effective in preventing mosquito bites.

Tips for using insect repellent:

Any insect repellent works better when applied properly. Here are some helpful hints:

- When choosing DEET repellent, check the label for products containing 20%-30% DEET for adults and no more than 10% for children. According to the American Academy of Pediatrics, it is acceptable to use 10% DEET on children over two months of age; other medical agencies use two years of age as a guide.

Follow the label's instructions carefully, especially when applying to children.

- Only adults should apply repellent on a child.
- Spray repellent on your hands and then apply to your face.
- Do not apply repellent over cuts, wounds, or sunburned or irritated skin.
- Only apply repellent to exposed skin and clothing. Do not apply repellent meant for clothing only (permethrin) directly to the skin.
- Do not spray repellent in enclosed areas.
- After returning indoors, wash treated skin with soap and water.
- Wash treated clothing before wearing it again.
- Wear long-sleeved shirts and pants when outdoors for long periods of time.
- Avoid perfumes and colognes when outdoors for extended periods of time.

## Things you can do around the house to reduce the presence of mosquitoes

All mosquitoes which transmit WNV require water to breed. Some mosquitoes lay their eggs in stagnant water around the home. Weeds, tall grass, shrubbery and discarded tires also provide an outdoor home for adult mosquitoes. Water in irrigated fields can also provide a mosquito breeding source. Even a small bucket that has stagnant water in it for a few days can become home to up to 1,000 mosquitoes!

By eliminating places for mosquitoes to breed, we can go a long way toward preventing WNV. Here are some easy tips to eliminate standing water:

- Dispose of tin cans, plastic containers, ceramic pots, discarded tires and any other water-holding containers around your yard. Do not overlook containers that have become overgrown by aquatic vegetation.
- Drill holes in the bottom of recycling containers that are left outside. Drainage holes on the side of containers still collect just enough water for mosquitoes to breed in.
- Clean clogged roof gutters on an annual basis, particularly if the leaves from surrounding trees have a tendency to plug up the drains. Roof gutters are easily overlooked but can produce millions of mosquitoes each season.
- Turn over plastic wading pools and wheelbarrows when not in use.
- Aerate ornamental pools and birdbaths, or stock them with mosquito-eating fish. Water gardens are fashionable but can become major mosquito producers if they are allowed to stagnate.
- Clean and chlorinate swimming pools that are not being used. A swimming pool that is left untended by a family that goes on vacation for a month can produce enough mosquitoes to result in neighborhood-wide complaints. Be aware that mosquitoes may even breed in the water that collects on swimming pool covers. Pools and other large standing water areas can also be treated professionally with larvicides if necessary.
- Use landscaping to eliminate standing water that collects on your property. Mosquitoes will develop in any puddle that lasts for more than four days.

Contact vector control at your local health department if you experience an excessive number of mosquitoes around your home.

## Identifying and reporting dead birds

The presence of dead birds can be an indication that WNV is present in an area, and can be an effective early warning system before the virus is spread to humans. Some of the birds that might die from WNV include crows, ravens, blue jays, cardinals, and birds of prey. These birds are highly sensitive to the virus, and can develop a severe encephalitis which results in death.

To report dead birds in your neighborhood, please call the Nevada Department of Agriculture at 775-688-1180. You can also get more information on submission of dead or sick birds from the Nevada Department of Agriculture's website.