



West Nile Virus: What You Should Know

The West Nile Virus (WNV), commonly found in Africa, West Asia, and the Middle East, has emerged in recent years in North America. Since 1999 it has been reported in all states, but Hawaii, Alaska, and Oregon. WNV is established as a seasonal epidemic that flares up in the summer and continues into the fall. The development of the disease in states seems to follow a pattern. It is believed that once infected, people have long-lasting immunity.

If someone is infected with West Nile virus (WNV) they will have one of three outcomes:

- no symptoms (most likely);
- West Nile Fever (in about 20 percent of infected people); or
- severe West Nile disease such as meningitis or encephalitis (in less than 1 percent of cases).

The most significant risk factor for developing severe disease is advanced age. If you develop a high fever with severe headache consult your health care provider.

How is it spread?

The virus is spread by mosquito bites to people and animals. It is not known to be spread from animal to person. There is at least one documented case of a pregnant woman passing the infection to her unborn baby. The possibility of passing the infection through breast milk is currently being investigated. In temperate areas (northern states), the virus is spread primarily in the late summer or early fall. Where temperatures are milder (southern climates), West Nile Virus can be transmitted year round. One of the species of mosquitoes found to carry West Nile virus is the *Culex* species, which survives through the winter, or “overwinters,” in the adult stage. This means that the virus can survive along with the mosquitoes. This species was responsible for the widespread transmission of West Nile virus in the United States during the summer of 2000.

Do animals get West Nile virus?

The virus can infect humans, birds, horses and some other mammals. Some wild birds are particularly susceptible to infection with West Nile virus. Mosquitoes feed on the infected birds and then spread the infection to another bird, person, or animal that the mosquito bites. An increase in the number of dead birds may indicate that mosquitoes in the area are carrying the virus. Persons who find a dead bird (especially a crow, raven, magpie, jay or hawk) are encouraged to report it to the Department of Health Services through the West Nile Virus Dead Bird Hotline (877-WNV-BIRD).

What are the symptoms?

Symptoms generally occur three to 15 days after exposure. The infection may be asymptomatic or mildly symptomatic with flu-like symptoms such as fever, headache and body aches which last a few days. There do not appear to be long-term health issues associated with the virus. Rarely, the virus can cause encephalitis (inflammation of the brain) and death. The risk of contracting the virus or becoming seriously ill from it is very low in humans.

How is West Nile virus treated?

There is no specific treatment for West Nile virus. The rare person who develops West Nile encephalitis requires hospitalization and supportive therapy.

Who is most likely to get seriously ill?

People with weak immune systems and people over 50 are the most at risk to develop serious illness. Infants and children rarely become ill. According to the Center for Disease Control, “Pregnant women should take precautions to reduce their risk for West Nile virus by avoiding mosquitoes and by using protective clothing and repellents containing

N, N-diethyl-m-toluamide (DEET) per manufacturers' directions."

What do providers and parents need to know?

Mosquitoes primarily transmit the virus, so prevention of mosquito bites and cleaning up mosquito breeding areas will help. Guidelines for prevention include:

- Since mosquitoes lay their eggs in standing water, empty out or remove any standing water including wading pools, birdbaths, old tires, fountains, plastic covers, toys, potted plant trays and rain gutters at least every four to seven days. Use drip spouts instead of containers of water for watering pets and make sure sandboxes drain thoroughly.
- Keep swimming pools treated and circulating.
- Avoid being outside at dawn and dusk during mosquito season (April to October) when mosquitoes are most active. Take care to wear protective clothing and use repellent if you are outside during these times.
- Make sure window and door screens are "bug tight."
- Replace your outdoor lights with yellow "bug" lights.
- Seek mosquito control advice from your local Health Department, Vector Control or Mosquito Abatement Program, if you are surrounded by standing water such as irrigation ditches or creeks.

What are the most effective insect repellents?

A wide variety of insect repellents are available. The Centers for Disease Control (CDC) recommends using products that contain active ingredients that are registered with the Environmental Protection Agency (EPA.) Insect repellents currently registered by the EPA contain:

- DEET,
- Picaridin or
- Oil of Lemon Eucalyptus.

These products have been tested and have been found to be safe and effective if used according to label instructions. Use the concentration of repellent that is appropriate for the amount of time you will be exposed. Higher concentrations are not more effective, but work for a longer period of time.

To reduce the risk of adverse effects, use the lowest concentration you can for your situation. The American Academy of Pediatrics (AAP) recommends that repellents not be used on children under two months of age. Also note that labels for Oil of Lemon Eucalyptus products state that they should not be used on children under 3 years. Both the AAP and the EPA recommend the following precautions when using insect repellents:

- Apply repellents only to exposed skin and or clothing. Do not use under clothing.
- Never use repellents over cuts, wounds, or irritated skin.
- Do not apply to eyes or mouth, and apply sparingly around ears. When using sprays, do not spray directly on face, spray on hands first and then apply to face.
- Do not allow children to handle the product. When using on children apply to your own hands first. Do not apply on children's hands.
- Use just enough to cover exposed skin, heavy applications do not work better, if a thin film does not work, you can apply a bit more.
- After returning indoors, wash treated skin with soap and water. Also wash treated clothing before wearing again. (Check product label for further instructions.)
- If a child develops a rash, stop using it, wash with mild soap and water and call poison control or your doctor for guidance.

For more information, see CCHP's related Health and Safety Notes *Summer Safety and The Use of Insect Repellent by Child Care Programs*. For copies, visit <https://cchp.ucsf.edu/content/health-and-safety-notes>.

Resources and References:

California Department of Public Health, Mosquito Control and Repellent Information, https://westnile.ca.gov/resources_reports?resource_category_id=2

Centers for Disease Control, 2021. Mosquito Control, <https://www.cdc.gov/westnile/vectorcontrol/index.html>