HEALTH BASICS

West nile virus

West Nile virus is a mosquito-borne virus that can infect people and animals.

WHAT IT IS
A mosquito-borne virus that can infect people and animals

WHERE IT COMES UP
Mosquito exposure, blood donation screening, or infection testing

WHY IT MATTERS
Infection can rarely affect the brain, spinal cord, or nerves

WHAT IT IS NOT
Not the same as West Nile disease

WHO TO ASK
Primary care clinician or local public health service

HOW IT IS CHECKED
Blood or spinal fluid antibody tests; sometimes molecular testing

Overview

West Nile virus is a virus carried mainly by mosquitoes. It is not itself a disease. The term West Nile disease refers to illnesses that may develop after infection with the virus.

Many people who become infected do not develop an illness. Some develop West Nile fever , a generally mild illness involving fever and other body-wide symptoms. A much smaller group develops neuroinvasive disease , meaning the infection affects the brain, spinal cord, or nearby tissues.

West Nile virus belongs to a family of viruses called flaviviruses. This family also includes dengue, yellow fever, and Zika viruses. They are separate viruses, but their similarities can sometimes make antibody test results harder to interpret.

West Nile virus activity changes by place and season. Local public health agencies may report infected mosquitoes, birds, horses, or people when the virus is circulating in an area.

How it works

The virus normally moves between birds and mosquitoes. A mosquito can pick up the virus

when it feeds on an infected bird. That mosquito may later pass the virus to a person or another animal through a bite.

People and horses can become infected, but they usually do not carry enough virus in their blood to infect another mosquito. For this reason, people and horses are sometimes called dead-end hosts . This term describes the transmission cycle; it does not mean that infection is always severe.

West Nile virus does not spread through ordinary contact such as touching, coughing, sharing food, or caring for someone who is ill.

Rare forms of transmission have occurred through donated blood, organ transplantation, pregnancy, or laboratory exposure. Blood donations are screened for West Nile virus in places where testing is required. Transmission through breastfeeding appears to be very uncommon, and public health agencies have not generally advised stopping breastfeeding solely because of possible exposure.

If infection affects the nervous system, it may cause inflammation. Meningitis is inflammation around the brain and spinal cord. Encephalitis is inflammation within the brain. Acute flaccid myelitis is damage involving the spinal cord that can lead to sudden muscle weakness.

Why it matters for your health

A mosquito bite does not mean that you have West Nile virus. Most mosquitoes do not carry it, even in regions where the virus has been reported. A clinician usually considers your symptoms, location, season, travel, and possible mosquito exposure before deciding whether testing may help.

The main health concern is neuroinvasive disease. It is uncommon, but it can require hospital care. Older adults and people with weakened immune systems have a higher risk of serious illness after infection. A weakened immune system may result from a medical condition, an organ transplant, or medicines that suppress immune activity.

Testing also matters because several infections can cause similar illnesses. A test result must be read alongside your medical history and examination. A positive antibody result does not always prove that West Nile virus is causing a current illness.

There is no specific antiviral medicine routinely used to eliminate West Nile virus. Medical care focuses on the condition caused by the infection, such as managing dehydration, pain, breathing problems, seizures, or brain inflammation.

What can go wrong

West Nile virus infection may be related to several different situations:

Seek emergency care for new confusion, a seizure, difficulty waking, sudden severe weakness, paralysis, or trouble breathing. Fever with a very stiff neck, severe headache, or major change in alertness also needs urgent assessment. These signs have many possible causes and do not confirm West Nile disease.

For a mild fever, headache, body aches, vomiting, diarrhea, or rash after possible mosquito exposure, contact a primary care clinician for advice. This is usually routine follow-up rather than an emergency unless symptoms are severe, worsening quickly, or accompanied by the warning signs above.

- West Nile fever: A short-term illness that may include fever, headache, body aches, tiredness, vomiting, diarrhea, or a rash
- West Nile meningitis: Inflammation of the tissues around the brain and spinal cord
- West Nile encephalitis: Brain inflammation that may cause confusion, marked drowsiness, behavior changes, or seizures
- West Nile acute flaccid myelitis: Spinal cord involvement that can cause sudden weakness or paralysis
- Unclear test results: Antibodies from a past infection or a related flavivirus may affect interpretation

What you can do

There is no routine home test for West Nile virus. If you are well after a mosquito bite, testing is generally not used simply to check whether that mosquito carried the virus.

If you become ill, keep a brief record of when the illness began, where you have recently been, and whether you remember heavy mosquito exposure. Tell the clinician about recent travel, immune-suppressing medicines, organ transplantation, or previous flavivirus infections or vaccinations. These details can affect which tests are useful and how results are interpreted.

A clinician may order an antibody test on blood. When meningitis or encephalitis is suspected, testing may also use cerebrospinal fluid , the clear fluid surrounding the brain and spinal cord. This fluid is collected through a procedure called a lumbar puncture.

Tests often look for IgM antibodies , which are immune proteins that can appear after a recent infection. IgM may remain detectable for some time, so a positive result may not identify exactly when infection occurred. Related flaviviruses can also cause cross-reactions. A public

health laboratory may use additional testing when confirmation is needed.

Molecular tests, which look for the virus's genetic material, may be useful in selected situations. They are not equally helpful at every stage because the virus may be present in the blood only briefly.

Practical steps include:

These measures lower mosquito exposure, but no method removes all risk.

- Ask what a positive or negative result means in your specific situation
- Keep any blood donor screening notice and follow its instructions
- Use insect repellent according to its label
- Wear clothing that covers exposed skin when mosquitoes are active
- Repair window screens and empty standing water around your home
- Check local public health notices during mosquito season

Common questions

Is West Nile virus the same as West Nile disease?

No. West Nile virus is the infectious organism. West Nile disease describes an illness caused by infection, including West Nile fever or neuroinvasive conditions.

Can I catch it from another person?

Not through ordinary contact. It is not spread by touching, coughing, kissing, or sharing household items. Rare transmission routes include blood transfusion, organ transplantation, pregnancy, and laboratory exposure.

Does a positive antibody test mean I am currently ill?

Not always. The result may reflect recent infection, an older infection, or a reaction involving a related virus. Timing, symptoms, travel, vaccination history, and confirmatory testing may all matter.

Can every mosquito spread it?

No. A mosquito must be a type capable of carrying the virus and must first become infected. Local surveillance can show whether West Nile virus has been found in mosquitoes or animals nearby.

Is there a human vaccine?

There is currently no licensed human vaccine for West Nile virus. Vaccines do exist for horses,

but they are not for human use.

Should I report a dead bird?

Some health departments use dead-bird reports to monitor West Nile activity, while others do not. Check your local public health website before handling or reporting one. Avoid bare-handed contact with dead wildlife.

Sources

- Centers for Disease Control and Prevention. About West Nile Virus
- Centers for Disease Control and Prevention. Clinical Signs and Symptoms of West Nile Virus Disease
- Centers for Disease Control and Prevention. Clinical Testing and Diagnosis for West Nile Virus Disease
- Centers for Disease Control and Prevention. West Nile Virus Prevention
- World Health Organization. West Nile Virus Fact Sheet
- U.S. Food and Drug Administration. West Nile Virus Blood Donor Screening