

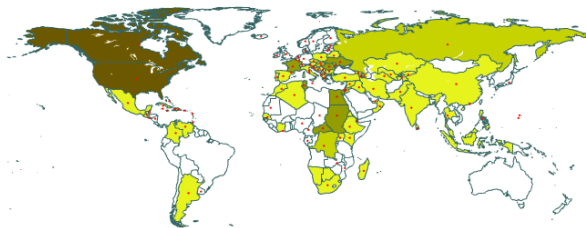


WEST NILE VIRUS

The disease

- West Nile virus is transmitted to people by mosquitoes
- In a very small number of cases, WNV has also been spread through blood transfusions, organ transplants, breastfeeding and in pregnancy from mother to baby
- Can cause fatal neurological disease in humans and horses
- It has been commonly found in Africa, Europe, the Middle East, North America and West Asia
- West Nile virus is maintained in nature in a cycle involving transmission between birds and mosquitoes
- Countries and territories where West Nile fever cases have been reported (as of March, 2021)

Disease is endemic or potentially endemic to 83 countries



Annual Disease rates per 100,000 population
□ Not Endemic ■ >0 to 0.01 ■ >0.01 to 0.05 ■ >0.05 to 0.1 ■ >0.1 to 1 ■ > 1

Symptoms

- Majority of patients (80%) are asymptomatic
- 20% will develop West Nile fever, a mild self-resolving illness with patients complaining of headache, low-grade fever, joint and body pains. A rash is often present
- In rare cases (<1%), severe neuroinvasive complications may occur, for example West Nile fever encephalitis/meningitis

The mosquitoes

- *Culex and Culiseta* species mosquitoes transmit West Nile virus
- These same mosquitoes transmit sindbis virus
- These mosquitoes bite mostly during the night time

Treatment and vaccines

- There is no antiviral medicine to treat West Nile virus disease
- Currently there are no approved vaccines for human use
- Many cases require no treatment
- Symptomatic support such as pain and fever relief is often prescribed

Illness course and outcomes

- Incubation period is usually 3-14 days
- Most patients feel better within two weeks, but usually within 1-6 days
- Older age (over 50) and patients with certain immunosuppressive conditions are at higher risk to develop encephalitis after West Nile infection

Prevention

USE INSECT REPELLANT

- Use DEET-containing insect repellents as directed by the manufacturer
- Reapply during the day as needed

WEAR LONG-SLEEVED SHIRTS AND PANTS

- Consider wearing long-sleeved, loose fitting shirts and pants when outdoors and likely to encounter mosquitoes
- When camping or similar activities consider using permethrin treated gear and clothing

KEEP YOUR SURROUNDS MOSQUITO-FREE

- Screen windows and doors
- Reduce mosquito breeding grounds. Mosquitoes lay eggs in and around water. Minimize the amount of standing water in and around the house – for example pots and other containers that contain stagnant water

Laboratory investigation

- The laboratory diagnosis of West Nile virus is based primarily on the detection of antibodies by haemagglutination inhibition assay or ELISA in serum and cerebral spinal fluid (CSF)
- The detection of IgM antibodies or IgG seroconversion between paired samples which have been taken two weeks apart, indicates recent infection
- West Nile virus serum IgM antibodies may persist for more than a year
- If serum is collected within 8 days of illness onset, the absence of detectable virus-specific IgM does not rule out a diagnosis, and the test may need to be repeated on a later sample
- Reverse transcription polymerase chain reaction (RT-PCR) and virus isolation from a serum or CSF collected early in the course of illness are additional tests that may be useful
- All samples submitted to the laboratory should include a completed case investigation form

More information on arboviral disease:

www.nicd.ac.za under the 'Diseases A-Z' tab

www.cdc.gov/westnile/resources/pdfs/wnvfactsheet_508

www.who.int/news-room/fact-sheets/detail/west-nile-virus



Who should be tested for West Nile virus?

Persons presenting with rash, fever, headache, arthralgia / myalgia or encephalitis/meningitis

AND

Recent/history of mosquito bites

Laboratory testing offered by NICD

- RT-PCR testing and virus culture (clotted blood/serum/CSF) are useful during the transient viraemic stage of infection (<6 days post symptom onset). *A negative RT-PCR / viral culture does not exclude recent infection.*
- Paired serological testing (clotted blood/serum taken up to 14 days apart) or CSF serological testing. A haemagglutination test (HAI) and West Nile virus specific IgM or IgG ELISA is available. Serology is limited by cross-reactivity with other flaviviruses therefore paired serological testing is essential. *Specimens submitted for West Nile virus will also be tested for other arboviruses because of overlapping clinical presentations*
- Serology for West Nile virus may not provide conclusive results
- West Nile virus is a category 3 notifiable medical condition (www.nicd.ac.za/wp-content/uploads/2017/06/SOP-Notifiable-Medical-Conditions_-notification-procedures_v2Jan2018final-Copy.pdf)

Procedures to follow when submitting specimens for West Nile virus testing to the NICD

- Collect blood in a red (clotted blood), yellow top (serum) tube or tan/red top (CSF) tube
- Complete arbovirus case investigation form available on <https://www.nicd.ac.za/diseases-a-z-index/arbovirus/>
- Submit the specimen to the Arbovirus Reference Laboratory, Centre for Emerging Zoonotic and Parasitic Diseases, National Institute for Communicable Diseases for testing
- Samples should be kept cold (on ice packs or cold packs) during transport
- West Nile virus testing will be done during office hours, for additional information contact the laboratory at 011 386 6424 / 082 903 9131 or cezd@nicd.ac.za
- Arrange urgent testing with the NICD Hotline 082 883 9920
- Submission of convalescent specimens is highly recommended to facilitate interpretation of serological assays

