



Nebraska Department of Health and Human Services
HEALTH ALERT NETWORK
Advisory



TO: Primary care, infectious disease, laboratories, infection control, and public health

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RE: WEST NILE VIRUS IN NEBRASKA

DATE: July 13, 2022

West Nile Virus (WNV)

In 2021 the Nebraska Department of Health and Human Services recorded 107 WNV human disease cases. This was the highest number of cases reported since 2018. Additionally, 69 of these cases were classified as the severe neuroinvasive disease form with nine deaths also reported. To date there have been no confirmed human cases or positive mosquito samples this season in the state. However, WNV activity typically begins picking up in July. Weekly WNV surveillance reports can be found by visiting the DHHS WNV Surveillance Data webpage: <http://dhhs.ne.gov/Pages/West-Nile-Virus.aspx>

Human WNV infections generally follow in the wake of positive mosquito pools, typically beginning in mid-July, peaking around Labor Day, and disappearing around mid-September. The majority of WNV-infected persons (approximately 80%) are asymptomatic. Those who develop symptoms have an incubation period of 3–14 days. Approximately 1 in 5 people who are infected will develop a febrile disease. Symptoms of febrile disease include: fever, headache, fatigue, myalgia/arthralgia, skin rash on the trunk of the body, swollen lymph glands, and eye pain. Some people (1 in 150) will develop neuroinvasive disease affecting the central nervous system including encephalitis or meningitis. Other symptoms of neuroinvasive disease include: high fever, headache, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, vision change/loss, numbness, and paralysis. At the time of initial symptom onset, the viremia has usually resolved and the patient is seropositive for IgM antibodies. Infected persons appear to develop permanent immunity and cannot be re-infected.

Laboratory testing:

Patients suspected of WNV infection should be tested via PCR or for IgM and IgG antibodies to WNV. These tests are widely available at commercial labs. If neuroinvasive WNV is suspected, antibody testing can be performed at the Nebraska Public Health Lab (NPHL) at DHHS' expense, provided the following criteria are met:

- The person has signs and symptoms consistent with neuroinvasive WNV disease (e.g., meningitis, encephalitis, acute flaccid paralysis).
- The specimen is accompanied by a NPHL requisition completed and printed off via NPHL's NULirt system: <https://nulirt.nebraskamed.com/login>. For individuals who need access to become users of NULirt, please visit: <http://www.nphl.org/phlip.cfm> for instructions on how to obtain credentials to login.
- The sample collection date is between July 1 and October 31.
- **The submitted specimen must include a CSF for WNV IgM antibody testing. However, it is preferred that the CSF specimen be paired with a serum specimen for WNV IgM/IgG antibody testing.**
- Testing of serum specimens without a concurrent or prior CSF specimen requires approval from public health: call 402-471-2937.

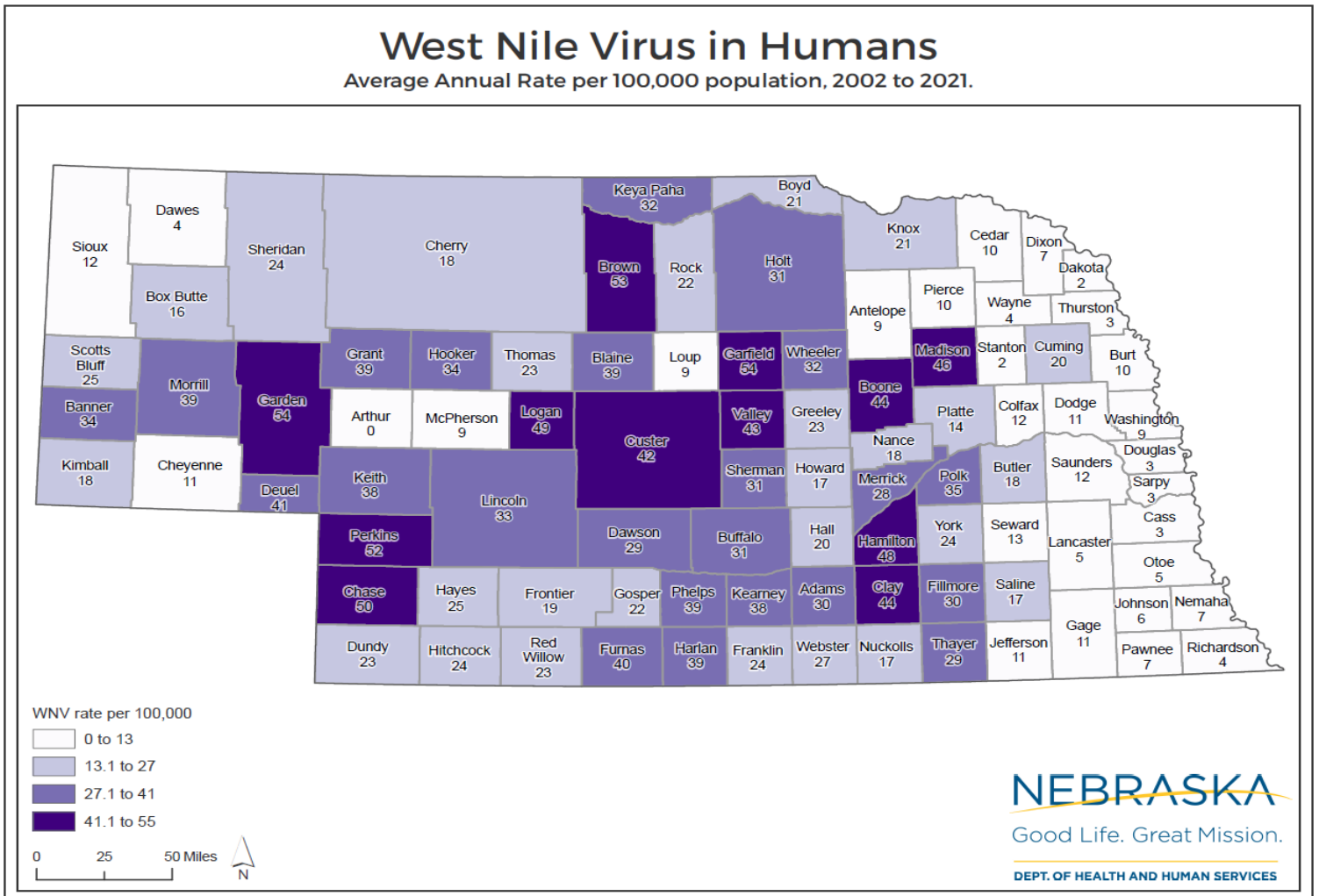
WNV Test Interpretation Guidelines:

- Testing (+) for IgM and (-) for IgG in an acute specimen is consistent with acute WNV infection. Paired acute and convalescent samples may be useful for demonstration of seroconversion and laboratory confirmation of WNV infection.
- Testing (+) for IgG and (-) for IgM is consistent with infection in the distant past.

- CSF which tests (+) for IgM is consistent with acute meningitis/encephalitis.
- Stable antibody titers on acute and convalescent specimens suggest infection in the distant past. A four-fold rise in IgM or IgG titers between an acute and convalescent specimen suggest acute infection.

Tests	Results	Interpretation
IgM IgG	negative negative	Antibody not detected = not a case of WNV
IgM IgG	negative positive	Infection at undetermined time = past infection
IgM IgG	positive negative	Evidence of recent or current infection‡
IgM IgG	positive positive	Evidence of recent or current infection*
IgM IgG	indeterminate negative	Inconclusive; request convalescent serum‡

‡ Paired acute and convalescent samples may be useful for demonstration of seroconversion; *Some individuals may have persisting IgM and IgG antibodies from the previous WNV season.



Additional Information:

Nebraska DHHS West Nile Virus Website: <http://dhhs.ne.gov/Pages/west-nile-virus.aspx>

CDC West Nile Virus Website: <https://www.cdc.gov/westnile/index.html>