



Nebraska Department of Health and Human Services  
**HEALTH ALERT NETWORK**  
**Advisory**

TO: Nebraska Healthcare Providers, Laboratories, Public Health

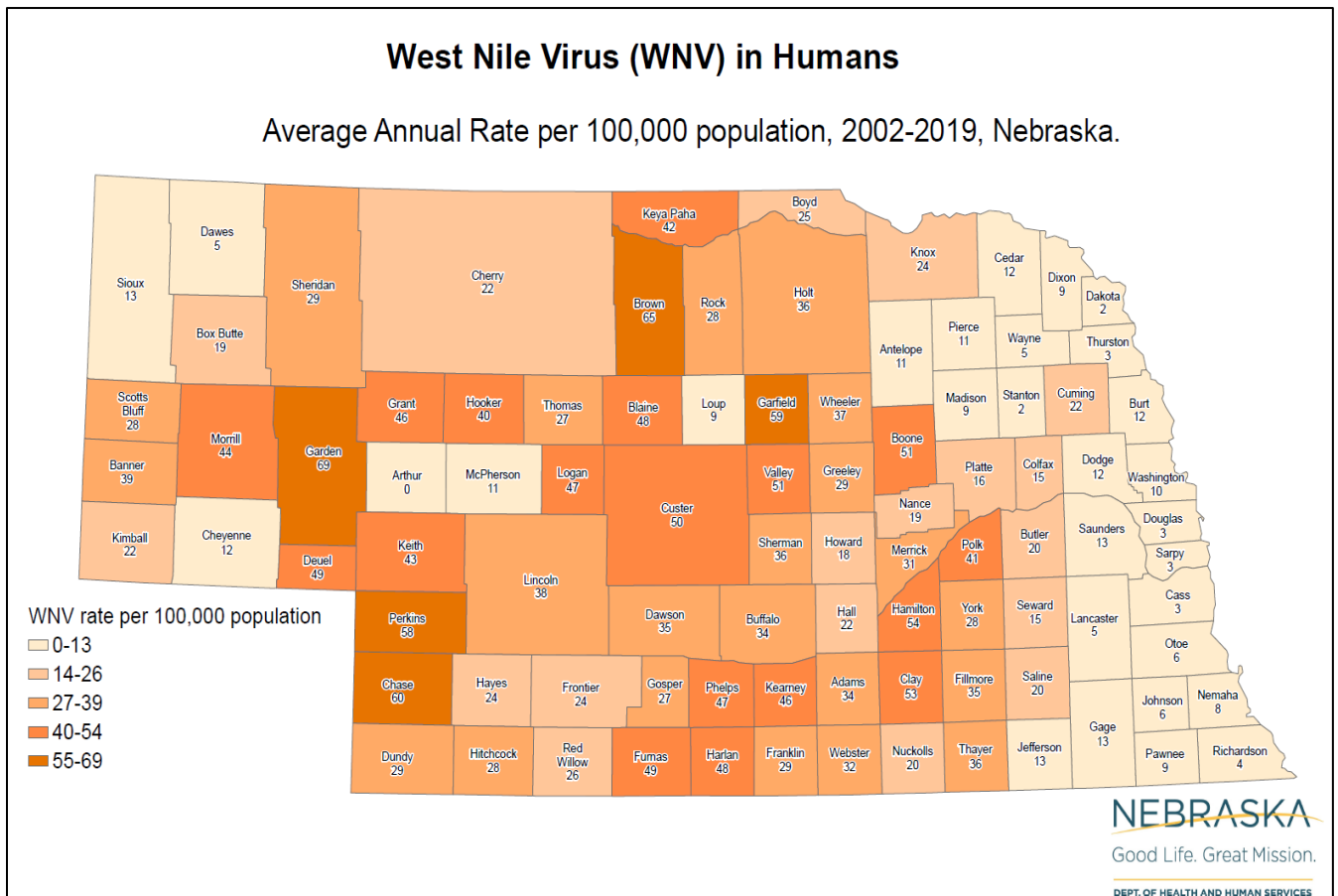
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RE: **West Nile Virus**

DATE: June 19, 2020

**West Nile Virus (WNV):**

WNV first arrived in the US in New York City in 1999, and remains an important public health issue for the nation and especially for Nebraska. Since its arrival in Nebraska in 2002, Nebraska has reported a total of 4,015 persons with WNV (28 in 2019) placing our state’s rate in the top three nationally. *Culex* species mosquitoes are an excellent WNV vector and are well established as a resident mosquito throughout our state. Since 2000, Nebraska has tracked WNV in the *Culex* mosquito population through an established protocol of trapping and testing mosquito pools. Over the last 10 years, a total of 25,700 *Culex* mosquito pools have been tested, of which 1,343 (5.2%) were positive. For the current 2020 WNV season, surveillance began the last week in May and will continue through the end of September. Weekly WNV surveillance reports will be released during May through September and can be found by visiting the DHHS WNV Surveillance Data webpage: <http://dhhs.ne.gov/Pages/West-Nile-Virus.aspx>



Human WNV infections 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. Symptoms include: fever, headache, fatigue, skin rash on the trunk of the body, swollen lymph glands, and eye pain. At the time of 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 for IgM and IgG antibodies to WNV. These tests are widely available at commercial labs. If neuroinvasive WNV is suspected, testing can be performed at the Nebraska Public Health Lab (NPHL) at public health expense, provided the following criteria are met:

- The person has signs and symptoms consistent with neuroinvasive (meningitis, encephalitis, acute flaccid paralysis, etc.) WNV disease.
- The specimen is accompanied by a NPHL requisition completed and printed off via NPHL’s NUIrt system: <https://nulirt.nebraskamed.com/login>. For individuals who need access to become users of NUIrt, please visit: <http://www.nphl.org/phlip.cfm> for instructions on how to obtain credentials to become a user of the NUIrt system.
- The sample collection date is between June 1 and October 31.
- **The submitted specimen must include a cerebrospinal fluid (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.
- 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.
- Patients testing (+) for both IgM and IgG antibodies on an initial specimen need a “convalescent” serum (collected at least 14 days following the initial specimen).
- Stable antibody titers on acute and convalescent specimens suggest infection in the distant past. Rising IgM and IgG titers between the acute and the convalescent specimens 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*; further testing necessary‡
IgM IgG	indeterminate negative	Inconclusive ‡request convalescent serum

\*Note that some individuals may have persisting antibodies from the previous WNV season; ‡  
Paired acute and convalescent serum samples may be useful for demonstration of  
seroconversion.

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**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>