

**HEALTH ALERT NETWORK**

TO: Nebraska Healthcare Providers. Laboratories, Public Health
FROM: Thomas J. Safranek, M.D. Joseph M. Acierno, M.D., J.D.
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RE: **Summertime Infectious Disease Update: West Nile Virus & Influenza**
DATE: July 3, 2013

West Nile Virus (WNV)

To date, there are no confirmed human cases of WNV in Nebraska this summer. Scottsbluff, Dawson, and Webster County have had mosquito pools test positive for WNV; no birds have tested positive. Nebraska's mosquito surveillance program shows total 2013 mosquito counts have increased substantially (198%) compared to 2012 numbers. These increases have occurred in both Culex species (the vector for WNV) and non-Culex ("nuisance") species.

Most persons (80%) who become infected with West Nile virus (WNV) are asymptomatic. For those who develop symptoms, the incubation period ranges from 3 to 14 days. Symptoms include but are not limited to: 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 is usually resolved and the patient is seropositive for IgM antibodies. Current knowledge suggests that once a person has recovered from WNV, they have permanent immunity, and cannot be reinfected.

WNV laboratory testing will be provided at public health expense under the following conditions:

- The person has signs and symptoms consistent with neuroinvasive (meningitis, encephalitis, acute flaccid paralysis, etc.) WNV disease.
- The specimen is accompanied by a completed Nebraska Public Health Laboratory (NPHL) requisition http://dhhs.ne.gov/publichealth/Pages/puh_epi_wnv_healthpros.aspx
- The sample collection date is between June 1 and October 31.
- The submitted specimens include a CSF for WNV IgM antibody testing, and serum for WNV IgM/IgG antibody testing.
- Convalescent serum will routinely be tested in patients with suspected neuroinvasive WNV disease provided that CSF from the patient is or was previously submitted.
- Testing of serum specimens without a concurrent or prior CSF specimen require pre-authorization: call 402 471-2937.

WNV Test Interpretation Guidelines

- 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.
- 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.

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

Influenza H3N2v (related to recent exposure to pigs)

In 2012, 309 cases of H3N2v infection across 12 states were detected. This virus is different from human seasonal H3N2 virus which was the predominant circulating strain during the 2012-13 influenza season.

The majority of H3N2v cases have been in children, although some adults have been infected, and linked to recent direct or indirect exposure to pigs. To date, almost all of the H3N2v cases in 2012 were epidemiologically linked to agricultural fairs, either through exhibiting pigs or walking through a swine barn. Limited, non-sustained human-to-human transmission of H3N2v virus has been noted. Some H3N2v case-patients have been hospitalized, including previously healthy people and persons with chronic underlying conditions. One death was reported in 2012.

Please consider influenza as a diagnosis in patients who are seen with influenza-like illness and have had recent exposure to swine. For these patients, please contact your LPHD to discuss submission of a specimen to the NPHL for further confirmatory testing, requisition can be found here:

<http://dhhs.ne.gov/publichealth/Documents/Influenza%20Requisition%202012-13.pdf>.

Additional Conditions of Public Health Concern in Travelers

Clinicians should consider 1) **influenza H7N9**, a new avian flu, in persons who present with flu-like illness along with a **travel history to China**, and 2) **MERS-CoV**, a corona virus respiratory infection in persons with a **travel history to the mid-East/Saudi Arabia**. Contact your state or local public health department if these scenarios present.