



Nebraska Department of Health and Human Services



HEALTH ALERT NETWORK Update



DATE: June 27, 2014

TO: Nebraska Healthcare Providers, Laboratories, Public Health

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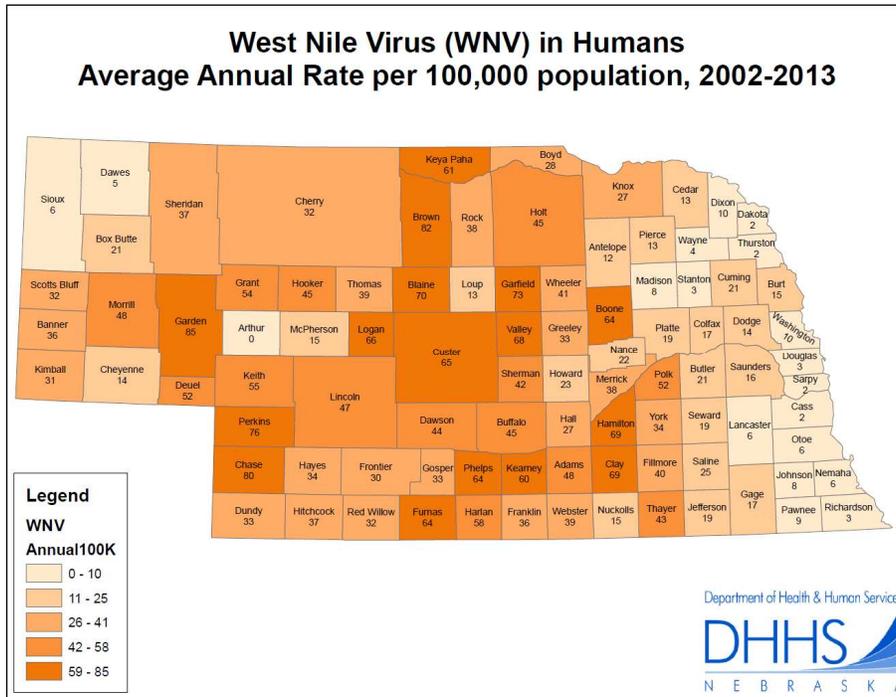
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RE: **Summertime Infectious Disease Update: West Nile Virus & Influenza**

DATE: June 27, 2014

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 3,754 persons with WNV, placing our state's rate in the top five nationally. *Culex* species mosquitoes are an excellent WNV vector and are well-established as a resident mosquito throughout our state. Since 2001, Nebraska has tracked WNV in the *Culex* mosquito population through a well-established protocol of trapping and testing mosquito pools. Since its inception, a total of 30,448 *Culex* mosquito pools have been tested, of which 2,757 (9.1 %) were positive. Surveillance begins after the Memorial Day holiday and goes through the end of September. One mosquito pool has tested positive from Cherry County as of the date of this advisory.



Human WNV infections follow in the wake of positive mosquito pools, beginning in mid-July, peaking around Labor Day, and disappearing around mid-September. The majority of WNV-infected persons (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 person's 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 will be performed at the Nebraska Public Health Lab (NPHL) at our 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 completed NPHL requisition http://dhhs.ne.gov/publichealth/Pages/pub_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.**
- Testing of serum specimens without a concurrent or prior CSF specimen requires 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 A H3N2v (related to exposure to pigs)

In 2012, public health officials reported 309 cases of H3N2v infection in 12 states. This dropped to 19 cases in 5 states in 2013. This virus is different from “human seasonal” H3N2 virus which was the predominant circulating strain during the 2012-13 influenza season. While Influenza A 2009 H1N1 was the predominant strain during the 2013-14 season, an increased number of H3N2 cases (human seasonal) occurred in March and April of 2014. Although the majority of H3N2v cases have been in children, some adults have been infected, and linked to recent direct or indirect exposure to pigs. The H3N2v cases in 2013 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 but none have been reported since. CDC guidance for clinicians regarding human infections with H3N2v is here: <http://www.cdc.gov/flu/swineflu/h3n2v-clinician.htm>. Other guidance documents for persons associated with fairs and schools are here: <http://www.cdc.gov/flu/swineflu/h3n2v-other-guidance.htm>. Please consider influenza as a diagnosis in patients with both swine exposure and influenza-like illness. For these patients, contact your local or state health department to discuss lab testing. This can be arranged at public health expense using the NPHL requisition for influenza testing found here: <http://dhhs.ne.gov/publichealth/Documents/Influenza%20Requisition.pdf>.

Table 1. Case Count: Detected U.S. Human Infections with H3N2v by State since August 2011

States Reporting H3N2v Cases	Cases in 2011	Cases in 2012	Cases in 2013
Hawaii		1	
Illinois		4	1
Indiana	2	138	14
Iowa	3	1	1
Maine	2		
Maryland		12	
Michigan		6	2
Minnesota		5	
Ohio		107	1
Pennsylvania	3	11	
Utah		1*	
West Virginia	2	3	
Wisconsin		20	
Total	12	309	19

* Case in Utah occurred in April 2012.

This chart indicates the number of CDC-reported infections with H3N2v variant influenza A viruses since August 2011 and is current as of October 18, 2013. This case count will be updated each Friday as new cases are reported.