

## The Waxing and Waning of West Nile Virus Activity in Nebraska ... A Tale of Two Seasons

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In 2003, Nebraska experienced a true epidemic with the occurrence of significant disease caused by the West Nile Virus (WNV). The 2003 season started with the first human case being reported in July. Records kept for 2003 by the Nebraska Health and Human Services System (NHHSS) indicate that an unprecedented number of humans, sentinel chickens, mosquito pools, and wild birds tested positive for WNV (see **Table 1** for 2003 and 2004 data). Antibody testing for WNV IgM was performed at the Nebraska Public Health Laboratory (NPHL), on 10,887 specimens obtained between August 1 and October 31, 2003. Of the specimens tested, 2,177 (20%) were determined to be positive. During this time frame, 29 human deaths were reported resulting in the 3<sup>rd</sup> highest number of deaths, following only Colorado (61) and Texas (37), both states with much higher populations.

In 2004 the first case was again identified in July, however, WNV activity was markedly decreased in all areas of the state in comparison with 2003 as indicated by surveillance testing and the reporting of human cases. As of November 2004, the NPHL had tested over 2,200 patients for WNV IgM antibody, with approximately 120 patients being IgM positive. Additionally, several hospital laboratories in Nebraska offered WNV IgM testing. Epidemiologists at NHHSS have confirmed 49 human cases occurring statewide (see **Figure 1** from the NHHSS) as being attributed to recent WNV infection.

The waxing and waning of WNV activity that Nebraska has experienced over the last two years has been reported throughout the country as affected states pass through their second and third seasons. One explanation given for the decreased activity was the average temperature coupled with a cooler, wetter summer occurring throughout the state. It is also possible that immunity of the bird, and human populations has also increased. In comparison, the states of Arizona and California encountered significant WNV activity in 2004.

It is expected that WNV activity will not be as high in 2005 as it was in 2003, however, if hot, dry conditions were to occur, the state might experience an increase in WNV activity. Time will reveal the answer. Questions about WNV testing at the NPHL can be directed to Tony Sambol, 402-559-3032.

**Table 1**

Comparison of WNV Activity in Nebraska						
Category	2003			2004*		
Human Deaths	29			0		
Positive Blood Donors	189			3		
	Tested	Positive	Positivity Rate	Tested	Positive	Positivity Rate
Human Cases	10,887	2,177	20%	**	49, 1 SLE	N/A
Mosquito Pools	2,699	936	35%	3,299	128	3.8%
Sentinel Chickens	100	81	81%	116	48, 1 SLE	42%
Dead Birds	1,030	576	56%	372	92	25%
* Data from NHHSS website, through 11/16/04						
** Refer to article for the number tested						

