



**Cook County Bureau of Health Services**

# West Nile Virus Surveillance Summary 2006

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Protecting the health and environment of suburban Cook County  
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## 2006 West Nile Virus Surveillance Summary

### Background

In August, 2002, the first human case of West Nile disease (WND) was reported in Illinois. By the end of the year, Illinois had recorded more human cases (884) and deaths (67) than any other state in the nation (IDPH Website, 2006). In 2003, there were a total of 54 human cases and 1 death; in 2004 there were a total of 60 human cases and 4 deaths; in 2005 there were a total of 252 human cases and 12 deaths.

### Surveillance Overview

The Cook County Department of Public Health (CCDPH) is responsible for monitoring human West Nile Virus (WNV) activity throughout suburban Cook County, excluding jurisdictions with their own certified local health departments, i.e., Evanston, Oak Park, Skokie, and Stickney Township. In conjunction with the Illinois Department of Public Health (IDPH) and the four suburban Mosquito Abatement Districts (MADs), CCDPH also conducts surveillance for birds and mosquitoes infected with WNV.

### Human Disease

In the 2006 WNV season, which lasted from May 15 through October 31, there were 50 cases of WNV reported and 2 deaths in the CCDPH region. The incidence rate for WNV for the year was 2.2 cases per 100,000 population. Among the 2 deaths, 1 was diagnosed with encephalitis and 1 was not classified. Both deaths occurred in females over the age of 80 years.

Table 1 shows the characteristics of the human WNV cases. Among human cases, 22 (44%) had West Nile Fever, 14 (28%) had encephalitis, 9 (18%) had meningitis, and 5 (10%) were not classified. Twenty-seven (54%) of the cases were male and 23 (46%) were female. The median age for all cases was 58 years (range; 13 to 90 years). The greatest number of cases (13) occurred in individuals age 50-59 years. The highest incidence rate (6.5 per 100,000 population) occurred in individuals age 70-79 years.

Table 2 shows diagnoses and deaths by gender and age. There were no observable associations between gender and disease severity. In residents age 60 years and older, WNV disease was 1.9 (CI: 1.0-3.5) times more likely than among 40-59 year olds and 8.8 (CI: 3.9-19.8) times more likely than in those under 40 years. In residents age 40-59 years, WNV disease was 4.6 (CI: 2.0-10.5) times more likely than in those under 40 years.

Geographically, the greatest number of cases (23) was seen in the Northern suburbs, representing 47% of the total cases. CCDPH's Southwest District had the highest incidence rate (3.1 per 100,000). This was followed by the North District, with a rate of 2.5 per 100,000, the West District at 1.8 per 100,000, and finally the South District at 1.5 per 100,000. Table 3 shows WNV cases reported by town. Figure 1 shows the geographic distribution of cases within CCDPH jurisdiction by month of illness onset.

During the 2006 WNV surveillance season, the first reported onset of illness occurred on July 21 and the last onset date was October 6. The number of human cases peaked during Week 33 (August 13-August 19). Figure 2 shows the number of cases by week of onset.

### **Mosquitoes**

In 2006, there were approximately 139 locations within the CCDPH region from which samples of mosquitoes were collected. The schedule for collection and testing varied depending on the trap type, location, and agency collecting the samples. Mosquito pools collected from traps were tested using either a VEC or RAMP test. The state conducted confirmatory PCR testing on mosquito pools.

In 2006, a total of 5,110 mosquito pools were collected. Of these, 4,547 (89%) were tested, and 1,247 (24%) tested positive via the VEC, RAMP, or PCR test. The majority of pools testing positive consisted of *Culex* mosquitoes (88%). The remaining 12% consisted of other unclassified genera. Figure 2 shows the percent of positive pools (pools with a positive VEC, RAMP, or PCR test) collected each week. Note that the peak in the percent of positive mosquito pools (Week 31; July 30-August 5) correlates with a subsequent peak two weeks later in the number of human cases.

### **Animals**

There were a total of 1587 reports of dead animals. A total of 80 dead birds were tested for WNV by the IDPH laboratory. Among those tested, 19 were robins, 15 were grackles, 9 were crows, and 37 were other birds. Eleven (14%) birds submitted for testing were positive for WNV. Of the positive birds, 7 were crows, 2 were hawks, 1 was a blue jay, and 1 was a grackle.

## Tables and Figures

WNV Incidence per 100,000 Population Cook County Department of Public Health, 2006		
	#	Rate*
<b>Diagnosis</b>		
Encephalitis	14	0.6
Meningitis	9	0.4
West Nile Fever	22	0.9
Other	5	0.2
<b>Gender</b>		
Male	27	2.4
Female	23	2.0
<b>Age (Years)</b>		
0-9	0	*
10-19	2	*
20-29	3	*
30-39	3	*
40-49	8	2.2
50-59	13	4.5
60-69	9	5.0
70-79	8	6.5
80+	4	*
<b>District</b>		
North	23	2.5
West	9	1.8
Southwest	11	3.1
South	7	1.5
<b>Total Human Cases</b>	50	2.2
<b>Total Deaths</b>	2	*

\*Rates are not calculated if the number of cases is less than 5

Table 1.

Incidence of West Nile Virus-Related Diagnoses per 100,000 Population Cook County Department of Public Health, 2006								
	Encephalitis		Meningitis		West Nile Fever		Other	
	n	Rate	n	Rate	n	Rate	n	Rate
<b>Gender</b>								
Males	6	0.6	4	0.4	15	1.4	2	0.2
Females	8	0.7	5	0.4	7	0.6	3	0.3
<b>Age (Years)</b>								
Under 40	0	0.0	2	0.2	5	0.4	1	0.1
40-59	4	0.6	5	0.8	10	1.5	2	0.3
60+	10	2.8	2	0.6	7	1.9	2	0.6
<b>Total</b>	14	0.6	9	0.4	22	1.0	5	0.2

Table 2.

**West Nile Virus Incidence by City**  
**Cook County Department of Public Health, 2006**

<b>City</b>	<b>#</b>	<b>City</b>	<b>#</b>	<b>City</b>	<b>#</b>
Alsip	1	Hanover Park	0	Orland Hills	0
Arlington Heights	3	Harvey	0	Orland Park	4
Barrington	0	Harwood Heights	0	Palatine	3
Barrington Hills	0	Hazel Crest	0	Palos Heights	0
Bartlett	1	Hickory Hills	0	Palos Hills	0
Bedford Park	0	Hillside	0	Palos Park	0
Bellwood	0	Hinsdale	0	Park Forest	0
Berkely	0	Hodgkins	0	Park Ridge	0
Berwyn	0	Hoffman Estates	2	Phoenix	2
Blue Island	1	Hometown	0	Posen	0
Bridgeview	0	Homewood	0	Prospect Heights	1
Broadview	0	Indian Head Park	0	Richton Park	0
Brookfield	0	Inverness	0	River Forest	0
Buffalo Grove	0	Justice	1	River Grove	0
Burnham	0	Kenilworth	0	Riverdale	1
Burr Ridge	0	La Grange	1	Riverside	0
Calumet City	0	La Grange Park	0	Robbins	0
Calumet Park	0	Lansing	0	Rolling Meadows	0
Chicago Heights	2	Lemont	2	Roselle	0
Chicago Ridge	0	Lincolnwood	1	Rosemont	1
Cicero	1	Lynwood	0	Sauk Village	0
Country Club Hills	0	Lyons	0	Schaumburg	2
Countryside	2	Markham	0	Schiller Park	1
Crestwood	0	Matteson	0	South Barrington	0
Des Plaines	1	Maywood	0	South Chicago Heights	0
Dixmoor	0	McCook	0	South Holland	0
Dolton	0	Melrose Park	1	Steger	1
East Hazel Crest	0	Merrionette Park	0	Stone Park	0
Elgin	0	Midlothian	0	Streamwood	1
Elk Grove Village	0	Morton Grove	0	Summit	0
Elmwood Park	1	Mount Prospect	2	Thornton	0
Evergreen Park	1	Niles	0	Tinley Park	0
Flossmoor	0	Norridge	0	Westchester	0
Ford Heights	1	North Riverside	0	Western Springs	0
Forest Park	1	Northbrook	2	Wheeling	0
Franklin Park	0	Northfield	0	Willow Springs	1
Glencoe	0	Northlake	0	Wilmette	2
Glenview	1	Oak Forest	0	Winnetka	1
Glenwood	0	Oak Lawn	0	Worth	0
Golf	0	Olympia Fields	0		

**Table 3.**

# Human West Nile Virus Cases CCDPH, 2006

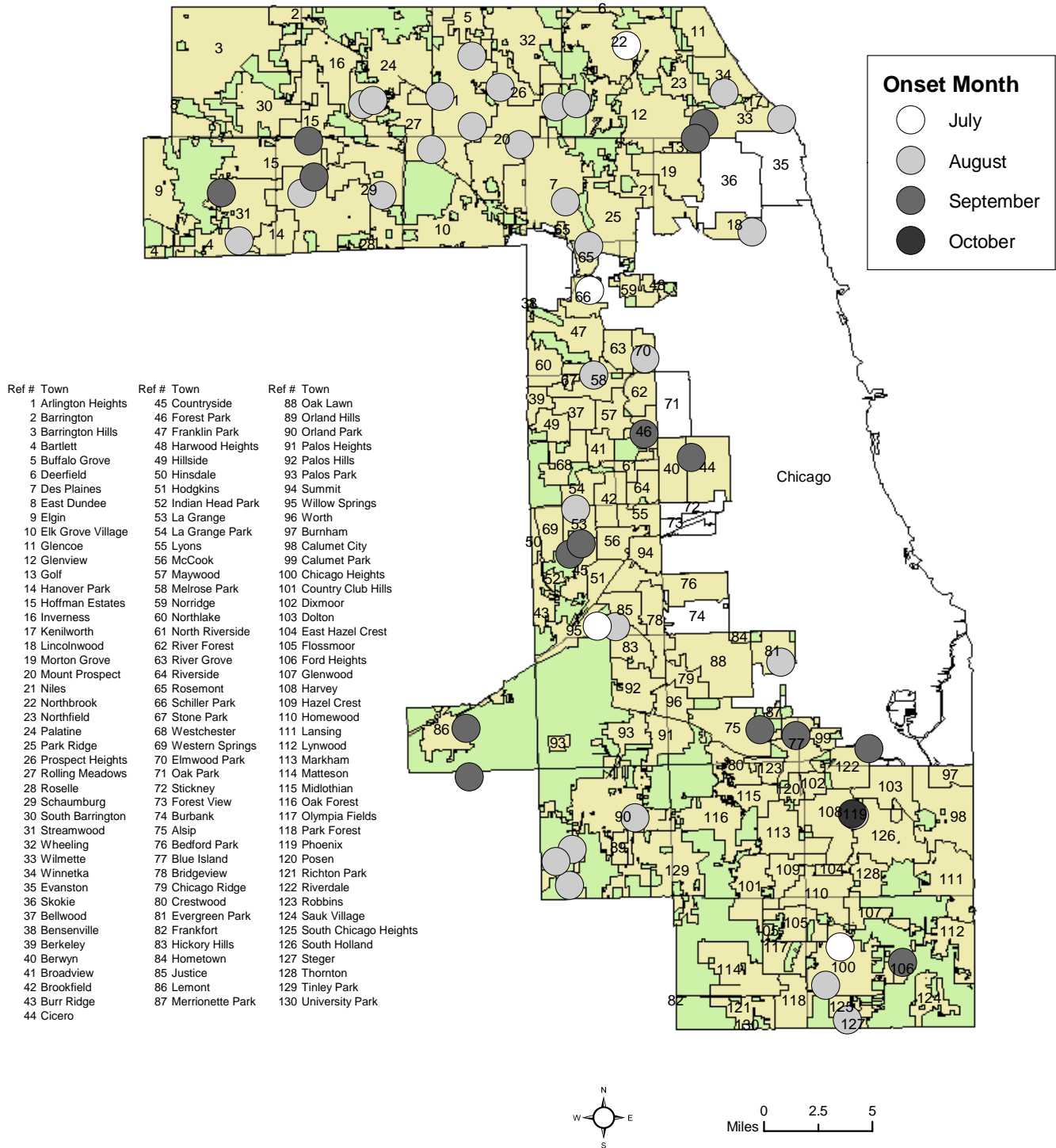
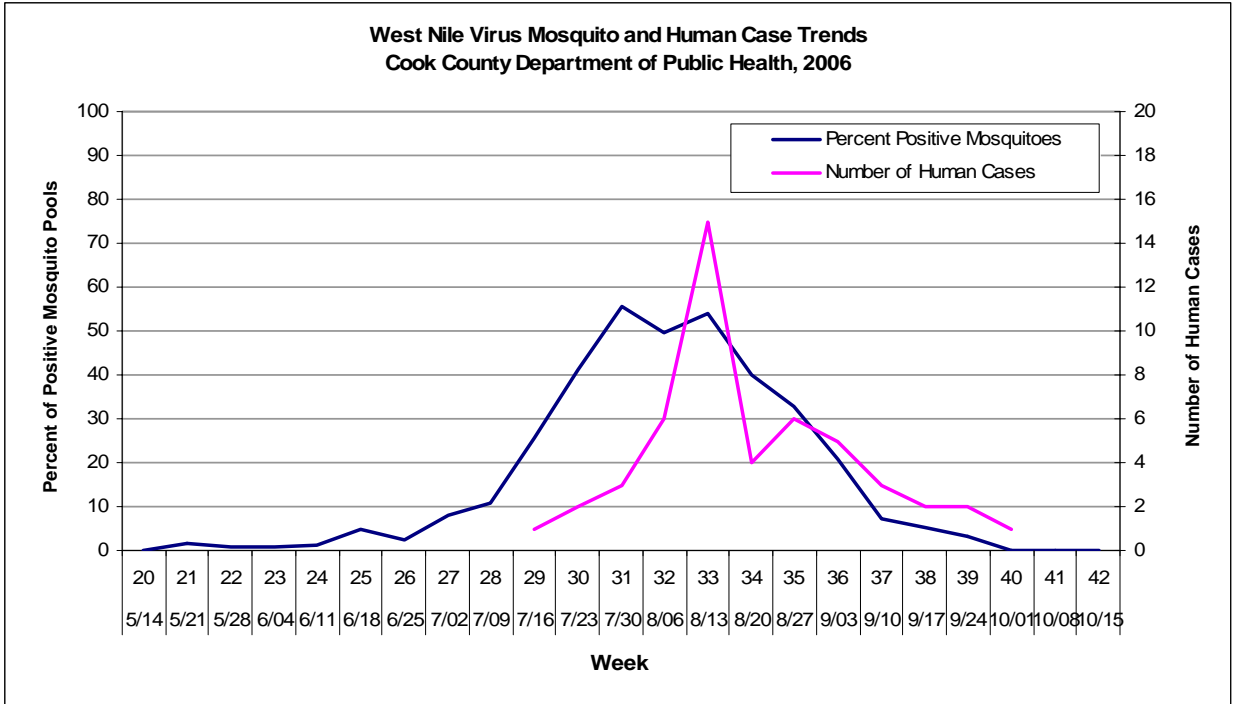


Figure 1. Human West Nile Virus Cases by Month in CCDPH, 2006



**Figure 2. Percent of West Nile Virus Positive Pools Collected and Number of Human West Nile Virus Cases by Week in CCDPH, 2006**