

West Nile Virus Surveillance Overview of Activities – 2018

Winnebago County Health Department
Center for Environmental Health

November 16, 2018

(Updated November 19, 2019)

(This page intentionally left blank.)

Introduction

West Nile virus (WNV) was first detected in the United States in the fall of 1999 in the New York metropolitan area.¹ It has since spread across the United States and was first detected in Illinois in September of 2001.¹ In 2002, Illinois recorded WNV activity in 100 of its 102 counties, as well as recording the most human cases (884) and deaths (64) in the country.¹

WNV is a disease that is most commonly spread by mosquito bites.² Mosquito season starts in summer and continues through fall.² Mosquitos become a carrier for the virus when they feed on birds that are infected with WNV.³ The infected mosquitos then bite other animals or humans and the disease is spread.³ Although mosquito bites are by far the most common method of transmission, WNV has been known to spread in a small number of cases by exposure in a laboratory setting, blood transfusion or organ transplant, as well as from mother to baby during pregnancy, childbirth, or breastfeeding.³ Transmission of WNV is not known to occur from the cough, sneeze, or touch of a person who is infected with WNV.³ WNV is also not spread by touching live animals or dead birds that have been infected.³ It is advised to not touch dead animals directly with bare hands, but use gloves or a double plastic bag when handling a dead bird to dispose of it.³ WNV cannot be spread through eating properly cooked animals.³

Of people who become infected with WNV, 8 out of 10 show no symptoms.⁴ About 1 in 5 people infected will develop fever along with other symptoms such as headache, body ache, joint pain, vomiting, diarrhea, or rash.⁴ Most people that develop these set of symptoms recover, however, weakness and fatigue may last for weeks to months.⁴ Serious illness that affects the central nervous system, such as encephalitis and meningitis, occurs in about 1 and 150 people infected with WNV.⁴ Symptoms include high fever, headache, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, vision loss, numbness, and paralysis.⁴ Recovery from severe illness caused by WNV may take weeks or months, while some effects to the central nervous system may be permanent.⁴ Of the people that develop illness that affects the central nervous system, around 1 in 10 die.⁴

If you or a family member develop any of the symptoms listed above and see a healthcare provider, tests can be ordered that will test for WNV infection.⁴ There are no specific vaccinations or antiviral medications for WNV.⁴ Fever and some symptoms can be helped with the use of over the counter pain relievers.⁴ Severe cases may require hospitalization to receive supportive treatment.⁴

For 2018, Winnebago County had 19 separate locations where mosquito pool testing indicated WNV activity. Only one bird was confirmed to be positive for WNV by the Illinois Department of Public Health (IDPH). However, six birds total tested positive for WNV using the RAMP testing method at the Winnebago County Health Department (WCHD). WNV activity was detected in ZIP codes 61011, 61016, 61024, 61063, 61072, 61073, 61080, 61088, 61101, 61102, 61103, 61104, 61107, 61108, 61109, 61111, and 61115. A decrease in human cases was observed for Winnebago County in 2018 with only one reported, down from three in 2017.⁵

Data reported by the IDPH for 2018 shows an increase in human cases of WNV and deaths caused by WNV compared to 2017. In 2018, IDPH reported 176 human cases of WNV, up from 90 human cases in 2017.^{6,7} IDPH has reported 17 deaths caused by WNV for 2018, up from eight in 2017.^{6,7}

Positive WNV tests for both birds and mosquito pools rose statewide in 2018 compared to 2017, with 34 positive birds reported and 3,012 positive mosquito batches in 2018 compared with 25 positive birds and 2,022 positive mosquito batches in 2017.^{6,7}

Table 1 - History of West Nile Virus in Winnebago County

Year	First positive bird	First positive pool	Human WNV cases
2004	May 25	August 6	0
2005	July 28	August 4	2
2006	June 28	June 5	0
2007	August 15	August 23	2
2008	June 24	N/A	0
2009	September 30	N/A	0
2010	August 17	N/A	1
2011	September 23	August 24	1
2012	July 12	August 8	3
2013	August 28	August 20	1
2014	September 2	August 20	0
2015	July 1	August 6	0
2016	June 26	July 14	0
2017	September 7	June 7	3
2018	July 9	July 10	1

Partnerships and Collaboration

The Winnebago County Health Department (WCHD) conducts WNV surveillance throughout Winnebago County for the State of Illinois' Vector Surveillance and Control program. The State grants the WCHD funds in order to carry out the collection and testing of mosquito and bird samples for WNV.

Table 2 - History of West Nile Virus in Winnebago County

Fiscal Year	Maximum Funding Amount
FY 2015 (April 1, 2014 – March 31, 2015)	\$68,094.00
FY 2016 (April 1, 2015 – March 31, 2016)	\$51,489.00
FY 2017 (April 1, 2016 – March 31, 2017)	\$34,136.00
FY 2018 (July 1, 2017 – June 30, 2018)	\$34,159.00

For Fiscal Year 2018 (July 1, 2017 – June 30, 2018), the WCHD was granted up to \$34,159.00, a relatively similar amount that was granted for the previous year. Funding for Fiscal Year 2019 (which began July 1, 2018) had not been established at the time of this report. With this level of funding, the WCHD is unable to hire a seasonal West Nile virus specialist, who in years past was

responsible for performing most sample collection and testing, as well as reporting and conducting community education. Instead, all surveillance activities and laboratory testing has been assigned to existing WCHD staff; educational and outreach activities still remain less active than they had been in previous years.

The WCHD's WNV program partnered again with the WCHD's Neighborhood Code Enforcement program. This program consists of three staff members who are responsible for enforcing the correction of housing code violations in Winnebago County. Because of their frequent presence in the community, the Code Enforcement staff was able to carry out sample collection, larvicide application, and educational information to the public.

Additionally, the WNV program relied on the WCHD's Creating Lead Safe Rockford (CLSR) grant program to carry out additional outreach and educational activities. The CLSR program is funded by the U.S. Department of Housing and Urban Development to identify and correct lead-based paint hazards in qualified households. This program frequently performs community outreach and was able to include WNV program materials at some of their events.

One of the first activities the WCHD WNV program conducted was to host a major training session for public works employees representing municipalities throughout the county. This training, which took place on April 20, 2018, was presented by WCHD staff who are licensed to apply mosquito larvicide. The training covered mosquito control techniques specific for public works employees and proper use of the larvicide product used by the WCHD. After completing this training, these municipal employees became authorized to apply this larvicide themselves. The names of the trainees were sent to the Illinois Department of Public Health to document this training.

The WCHD's West Nile program continued to utilize community members and resources more directly. The program reached out to Neighborhood Networks, an organization who coordinates many of the Rockford-area's local neighborhood organizations to help get the word out about WNV surveillance and education. The WCHD sought community members within these groups to act as 'Mosquito Captains,' or individuals who could act as their neighborhood's point-of-contact with the WCHD. This person would help disseminate WNV educational material, and report back to the WCHD on areas of stagnant water. As was the case in previous years, the WCHD was unable to recruit any 'Mosquito Captains' this year.

Personal Protection Index

For the fourth year, the WCHD published a Personal Protection Index (PPI) on the WNV program page on its website. The PPI was adapted from the DuPage County Health Department and the CDC as an additional tool to help residents protect themselves against WNV.¹⁰ This tool informs residents of the amount of WNV activity in the county as well as prevention steps that are recommended.

The PPI provides residents with a current snapshot of WNV activity, ranging from 0 to 3, with 0 representing no activity during the WNV off-season and 3 representing an increased chance for human infection because of high numbers of infected mosquitoes.

When activated, residents should follow the “4 Ds” of prevention that coincide with the PPI risk level:

- **Drain** standing water on your property so mosquitoes won’t breed
- **Defend** against mosquito bites using repellants containing DEET
- Stay indoors at **Dusk & Dawn** when mosquitoes are most active
- **Dress** in long sleeves and pants and spray repellant on your clothes





Risk Level*	Definitions	Recommended Actions
 0 NONE	Off season. Climate conditions not favorable for <i>Culex</i> species.	None required
 1 LOW	Localized abundance of active mosquitoes. Climate conditions favorable for development of virus.	Drain Defend
 2 MODERATE	Virus indicated in the area with a moderate number of infected mosquitoes detected. Climate conditions favorable.	Drain Defend Dawn & Dusk Dress
 3 HIGH	High numbers of infected mosquitoes. Climate conditions extremely favorable. Increased chance of human infection.	Drain Defend Dawn & Dusk Dress

Figure 1 – Personal Protection Index as shown on wchd.org

Publicity

As with most previous years, press releases were published for program milestones. On May 10th, 2018, a release was issued noting the beginning of the surveillance season. This release reminded residents about the risks posed by mosquito-borne disease, as well as promoting the free recycling tire drive that was held on June 9th, 2018.¹³

A second press release was put out on June 9th, 2018 reporting the success of the tire drive. The press release also gave information on why it is important to recycle unused tires and not let water collect in them and become breeding grounds for mosquitos that can spread WNV.¹⁴

On July 18th, 2018 the WCHD issued a news release indicating the first mosquito pool to test positive for WNV. The pool was found in ZIP code 61073 (Roscoe, Illinois).¹⁵ On July 26th, 2018

the WCHD issued another press release to report another positive mosquito pool and the first WNV positive bird for 2018 in Winnebago County that was confirmed by the IDPH.¹⁶

These press releases were picked up by local media, with many local newspapers and television stations publishing or covering the releases. Additionally, WCHD staff provided interviews for five televised pieces 2018 season.

During outreach and media releases, the WNV program stresses the “3 Rs – reduce, repel, and report” message because it is a convenient and easy way to remember the actions that everyone can take to fight West Nile virus. It states:

1. **Reduce** areas of standing water around your home. Eave troughs, bird baths, children’s toys, swimming pools with and without covers, bottles, pails, jars, tires – anywhere that water is allowed to collect and become stagnant will become a breeding place for mosquitoes. If you need it, empty it and make sure it stays empty. If you don’t need it, throw it away!
2. **Repel.** If you are planning to spend time outdoors, use a mosquito repellent before you go out. Use commercial repellent with a 20 to 30% mix of DEET (N, N Diethyl-meta toluamide) found in well-known brands such as Cutters, Off, etc. DEET-based repellants should not be used on infants. Children ages 2 to 6 should use no more than a 10% DEET solution. Care must be taken to avoid the eyes when administering repellants.

Proper clothing can go a long way to providing protection. Make sure that you and your children wear long sleeves and pants during the primary mosquito biting times from sunset to midnight. Also check your window and door screens. Have them repaired to keep you safe inside while mosquitoes stay outside.

3. **Report.** Dead birds should be reported to the Winnebago County Health Department’s dead bird hotline at (815)720-4245 or by visiting www.wchd.org and using the online dead bird reporting tool. Additionally, residents should call to report areas of stagnant water, such as abandoned pools or poorly draining ditches for larvicide treatment by WNV program staff.

Reporting Dead Birds

Winnebago County Health Department encourages residents to report dead birds to WNV program staff for collection and testing, as birds are often an early indicator of WNV presence in a community. The WCHD utilized its long-running dead bird hotline and for a third year and utilized its online dead bird reporting tool so that area residents could assist with vector surveillance.

The instructions for the hotline and online tool were very thorough, and described all the conditions necessary for a bird to be suitable for testing. These tools are an immediate indicator of WNV activity and can serve as an indicator for increased WNV prevalence in humans.

Data collected from residents reporting dead birds was utilized in a variety of ways, including:

1. Indicate locations to pick up birds for WNV testing.
2. Determine if there are areas of high WNV activity or a surge in activity.
3. Identify potential placement of Gravid traps.
4. Detect new and former “hot spots” for surveillance.
5. Make informed decisions about appropriate control measures.
6. Pin point the best media avenue when increasing public awareness of specific ZIP codes that have WNV activity.

The dead bird hotline and on-line reporting tool received a combined total of 156 referrals this season. As a result, 32 birds were tested, 6 were suspected to be WNV positive, but only 1 was confirmed by IDPH to be positive for WNV.

Testing Methods

WNV testing is carried out at the Winnebago County Health Department using a test method known as the Rapid Analyte Measurement Platform (RAMP) method. The RAMP method is used as a pre-screening test for birds before they are sent to the University of Illinois College of Veterinary Medicine laboratory for confirmation testing. This test method is used due to the easy set-up for the test, quick test results that can be gathered, and easy interpretation of results. The analyzer is also easy to operate and maintenance is minimal.

The second test method that was employed for WNV surveillance was Immunohistochemistry (IHC). This test was used for confirmatory testing of the birds sent to the University of Illinois College of Veterinary Medicine laboratory after the bird had tested positive using the RAMP method. This test is more technically demanding and the turnaround time for results is longer. However, IHC is a more sensitive test than the RAMP method for WNV.

Results from RAMP testing of dead birds indicated six positives. Only three of these birds were sent to the state laboratory for confirmation testing. Of the three birds sent to the State lab, only one was confirmed positive for WNV. False positives using the RAMP method are known to happen and have been studied.¹¹ Limits for cut-off values, the result when a sample is considered a positive test, used for the RAMP method vary around the country. At the WCHD, the cutoff values used for the RAMP method are 100 units for mosquito pools and, in most cases, >640 units for birds. Some possible reasons for false positives occurring when birds are sent for confirmation at the state laboratory when they are at the maximum reading of >640 units may be improper sample preparation, RAMP testing, storage, or shipping.¹¹

Avian Surveillance Data

Eight birds tested positive via RAMP testing for the 2018 WNV season in Winnebago County, three of which were sent to the IDPH laboratory for confirmative testing. Of these three birds, only one was confirmed to be positive for WNV. The bird was confirmed positive was found in ZIP code 61108 (Rockford).

Table 3 - Summary of Dead Birds tested for WNV

RAMP #	DATE	ZIP	TYPE OF BIRD	RESULTS
1	6/8/2018	61107	Robin	<10.0
2	6/8/2018	61108	Crow	<10.0
3	6/8/2018	61111	Unknown	<10.0
4	6/8/2018	61108	Unknown	*
5	6/8/2018	61108	Unknown	*
6	6/8/2018	61108	Unknown	<10.0
7	6/12/2018	61107	Robin	<10.0
8	6/13/2018	61109	Blackbird	<10.0
9	7/9/2018	61072	Dove	<10.0
10	7/9/2018	61108	Crow	>640
11	7/9/2018	61111	Sparrow	15.5
12	7/9/2018	61111	Mourning Dove	*
13	7/10/2018	61108	Robin	<10.0
14	7/20/2018	61107	Sparrow	Low Signal
15	7/20/2018	61109	Warbler	<10.0
16	7/26/2018	61108	Robin	<10.0
17	7/26/2018	61109	Crow	<10.0
18	7/27/2018	61108	Robin	<10.0
19	7/27/2018	61016	Robin	<10.0
20	8/8/2018	61072	Sparrow	<10.0
21	8/8/2018	61088	Robin	*
22	8/8/2018	61073	Finch	<10.0
23	8/15/2018	61114	Sparrow	<10.0
24	8/15/2018	61011	Chickadee	>640
25	8/15/2018	61111	Robin	<10.0
26	8/15/2018	61104	Crow	157.5
27	8/15/2018	61108	Sparrow	<10.0
28	8/24/2018	61102	Crow	>640
29	8/24/2018	61080	Crow	>640
30	9/4/2018	61011	Crow	*
31	9/4/2018	61107	Crow	>640
32	9/10/2018	61063	Crow	>640
33	9/12/2018	61073	Crow	103.7
34	9/20/2018	61103	Thrush	<10.0
35	9/20/2018	61104	Thrush	<10.0
36	9/20/2018	61073	Thrush	<10.0
37	9/28/2018	61107	Thrush	<10.0

Orange highlighted rows indicate birds that were confirmed WNV positive by IDPH. Yellow highlighted rows indicate birds that tested positive for WNV via RAMP, but not confirmed by IDPH.

*Birds were assigned a RAMP number but were not tested due to a deteriorated state.

Mosquito Surveillance Data

The *Culex* Mosquito

WNV is most likely to spread during the warm weather months when mosquitoes are most active. The season usually begins in the spring and continues until there are several consecutive mornings with hard frost.

In all local mosquito species, both the male and female adults acquire nutrition from nectar for energy. However, only the females need a blood meal for egg maturation. For this reason, adult female mosquitoes are most likely to carry the West Nile virus. In order to maximize the number of adult females tested for WNV, the WCHD uses as many as 16 gravid traps in the field at a time throughout the season. These traps are specifically designed to capture female *Culex* mosquitoes. *Culex* mosquitoes are primary vectors for WNV in North America.¹²

The gravid trap (**Figure 2**) consists of a plastic basin filled with water containing organic material, typically prepared with alfalfa pellets. This attracts female *Culex* mosquitoes, and when they lay their eggs, a battery-powered fan draws the mosquitoes into a net. WCHD staff collect these nets every 2 to 3 days.



Figure 2 – Gravid Trap

Positive Data for Mosquito Pools

The WCHD Neighborhood Code Enforcement staff assisted with mosquito surveillance by collecting mosquitoes from 166 pools across 30 different locations throughout the season. 158 of these pools were suitable for testing, and 25 tested positive (15.8%). These 25 positive pools were located in ZIP codes 61016, 61024, 61063, 61072, 61073, 61080, 61088, 61101, 61102, 61103, 61104, 61107, 61108, 61109, 61111, and 61115.

Locations

Mosquito samples were taken from locations throughout Winnebago County that were determined to be high-risk areas. These areas were selected based on the following criteria:

1. Location had a positive sample recorded for previous WNV seasons
2. Location had a higher than average density of dead bird reports
3. Location is in a high density urban area
4. Location was likely to be an excellent habitat for mosquitoes and birds, and is frequented by humans (parks, forest preserves, etc.)

Information about each pool collected (such as the location, mosquito count, and test results for each pool) were promptly entered into the IDPH database. Entering this information in a timely

fashion allows for statewide data to be compiled in real-time as the season progressed, rather than in a bulk report after the season has ended. This information is crucial for determining the potential risk to humans during an active season.

Table 4 - Summary of Mosquito Pools tested for WNV

<u>RAMP #</u>	<u>Zip Code</u>	<u>Collection Date</u>	<u>Results</u>
1	61104	5/14/2018	17.0
2	61115	5/14/2018	54.5
3	61101	NA	Low Signal
4	61101	NA	449.1
5	61063	NA	>640
6	61107	5/18/2018	<10.0
7	61088	5/18/2018	<10.0
8	61109	5/18/2018	<10.0
9	61104	5/18/2018	<10.0
10	61109	5/25/2018	<10.0
11	61107	5/25/2018	Low Signal
12	61115	5/25/2018	NA
13	61072	5/25/2018	146.1
14	61107	5/29/2018	<10.0
15	61088	5/29/2018	19.2
16	61072	5/29/2018	11.9
17	61115	5/29/2018	<10.0
18	61109	5/30/2018	<10.0
19	61102	5/30/2018	<10.0
20	61104	5/30/2018	<10.0
21	61104	6/1/2018	10.9
22	61109	6/1/2018	35.5
23	61088	6/1/2018	NA
24	61107	6/1/2018	<10.0
25	61107	6/4/2018	NA
26	61072	6/6/2018	NA
27	61115	6/6/2018	17.1
28	61101	6/6/2018	51.5
29	61115	6/8/2018	<10.0

30	61072	6/8/2018	<10.0
31	61107	6/8/2018	<10.0
32	61088	6/8/2018	NA
33	61101	6/8/2018	<10.0
34	61109	6/8/2018	<10.0
35	61104	6/8/2018	<10.0
36	61101	6/11/2018	<10.0
37	61107	6/11/2018	<10.0
38	61088	6/11/2018	<10.0
39	61115	6/14/2018	10.4
40	61072	6/14/2018	20.1
41	61107	6/15/2018	<10.0
42	61101	6/15/2018	<10.0
43	61088	6/15/2018	<10.0
44	61107	6/18/2018	<10.0
45	61101	6/18/2018	<10.0
46	61115	6/20/2018	<10.0
47	61109	6/26/2018	<10.0
48	61102	6/26/2018	<10.0
49	61115	6/28/2018	<10.0
50	61073	6/28/2018	<10.0
51	611009	6/28/2018	<10.0
52	61103	6/28/2018	<10.0
53	61103	7/2/2018	<10.0
54	61108	7/2/2018	<10.0
55	61107	7/2/2018	<10.0
56	61073	7/2/2018	<10.0
57	61080	7/3/2018	<10.0
58	61104	7/5/2018	20.7
59	61109	7/5/2018	10.2
60	61108	7/6/2018	29.2
61	61016	7/6/2018	10.0
62	61103	7/6/2018	<10.0

63	61088	7/6/2018	11.4
64	61101	7/6/2018	<10.0
65	61107	7/6/2018	11.3
66	61104	7/9/2018	<10.0
67	61108	7/9/2018	<10.0
68	61016	7/9/2018	<10.0
69	61101	7/9/2018	<10.0
70	61103	7/9/2018	>640
71	61088	7/10/2018	NA
72	61101	7/10/2018	<10.0
73	61107	7/10/2018	<10.0
74	61109	7/10/2018	<10.0
75	61104	7/11/2018	<10.0
76	61108	7/11/2018	12.8
77	61016	7/11/2018	<10.0
78	61101	7/11/2018	<10.0
79	61024	7/11/2018	<10.0
80	61103	7/11/2018	567.4
81	61088	7/13/2018	NA
82	61101	7/13/2018	<10.0
83	61107	7/13/2018	<10.0
84	61109	7/13/2018	<10.0
85	61104	7/13/2018	<10.0
86	61073	7/13/2018	<10.0
87	61115	7/13/2018	31.0
88	61109	7/16/2018	14.6
89	61104	7/16/2018	<10.0
90	61108	7/16/2018	>640
91	61016	7/16/2018	<10.0
92	61103	7/16/2018	245.3
93	61103	7/17/2018	Low Signal
94	61104	7/18/2018	<10.0
95	61108	7/18/2018	<10.0

96	61016	7/18/2018	<10.0
97	61101	7/18/2018	21.5
98	61024	7/18/2018	<10.0
99	61073	7/18/2018	<10.0
100	61088	7/18/2018	<10.0
101	61108	7/20/2018	386.0
102	61016	7/20/2018	<10.0
103	61101	7/20/2018	46.9
104	61107	7/20/2018	18.3
105	61009	7/20/2018	<10.0
106	61104	7/23/2018	<10.0
107	61108	7/23/2018	11.6
108	61101	7/23/2018	<10.0
109	61024	7/23/2018	NA
110	61107	7/23/2018	20.3
111	61109	7/24/2018	<10.0
112	61109	7/23/2018	16.1
113	61073	7/24/2018	428.7
114	61108	7/25/2018	<10.0
115	61016	7/25/2018	>640
116	61101	7/25/2018	501.1
117	61024	7/25/2018	21.6
118	61107	7/25/2018	<10.0
119	61088	7/27/2018	NA
120	61107	7/27/2018	>640.0
121	61104	7/27/2018	447.7
122	61016	7/27/2018	12.7
123	61101	7/27/2018	<10.0
124	61024	7/27/2018	60.6
125	61115	7/27/2018	624.2
126	61080	7/30/2018	13.8
127	61115	7/30/2018	>640
128	61102	7/30/2018	150.6

129	61063	7/30/2018	12.9
130	61107	7/30/2018	31.9
131	61111	8/3/2018	136.0
132	61080	8/3/2018	<10.0
133	61101	8/3/2018	13.8
134	61072	8/3/2018	<10.0
135	61088	8/3/2018	74.0
136	61109	8/3/2018	80.5
137	61063	8/3/2018	55.5
138	61063	8/3/2018	406.1
139	61073	8/8/2018	<10.0
140	61080	8/6/2018	>640
141	61109	8/7/2018	<10.0
142	61063	8/7/2018	26.8
143	61107	8/7/2018	<10.0
144	61080	8/8/2018	<10.0
145	61072	8/8/2018	101.9
146	61101	8/8/2018	41.2
147	61088	8/8/2018	>640
148	61063	8/9/2018	27.2
149	61072	8/10/2018	94.0
150	61072	8/14/2018	<10.0
151	61073	8/14/2018	<10.0
152	61072	8/17/2018	<10.0
153	61101	8/20/2018	>640
154	61063	8/21/2018	34.3
155	61109	8/23/2018	22.4
156	61063	8/23/2018	>640
157	61073	8/24/2018	<10.0
158	61024	8/27/2018	<10.0
159	61109	8/27/2018	>640
160	61072	8/28/2018	15.7
161	61072	8/31/2018	<10.0

162	61072	9/4/2018	12.1
163	61024	9/4/2018	147.4
164	61107	9/4/2018	<10.0
165	61107	9/6/2018	<10.0
166	61107	9/10/2018	<10.0

Highlighted rows indicate a positive WNV sample.

Human Cases

The U.S. Centers for Disease Control and Prevention (CDC) had confirmed that there were 49 states and the District of Columbia reporting WNV activity in people, birds, or mosquitoes during the 2018 season.⁸ A total of 2,647 human cases have been reported nationwide.⁸ This is an decrease from years past with 2,097 human cases in 2017 and 2,149 human cases in 2016.⁹

The Illinois Department of Public Health has reported a total of 176 human cases in Illinois, spread across 30 counties, including one in Winnebago County.^{6,8,9} This is a statewide increase from last year, in which 90 human cases were reported.⁷ A decrease in human cases in Winnebago County was reported this year, going from one case to three.

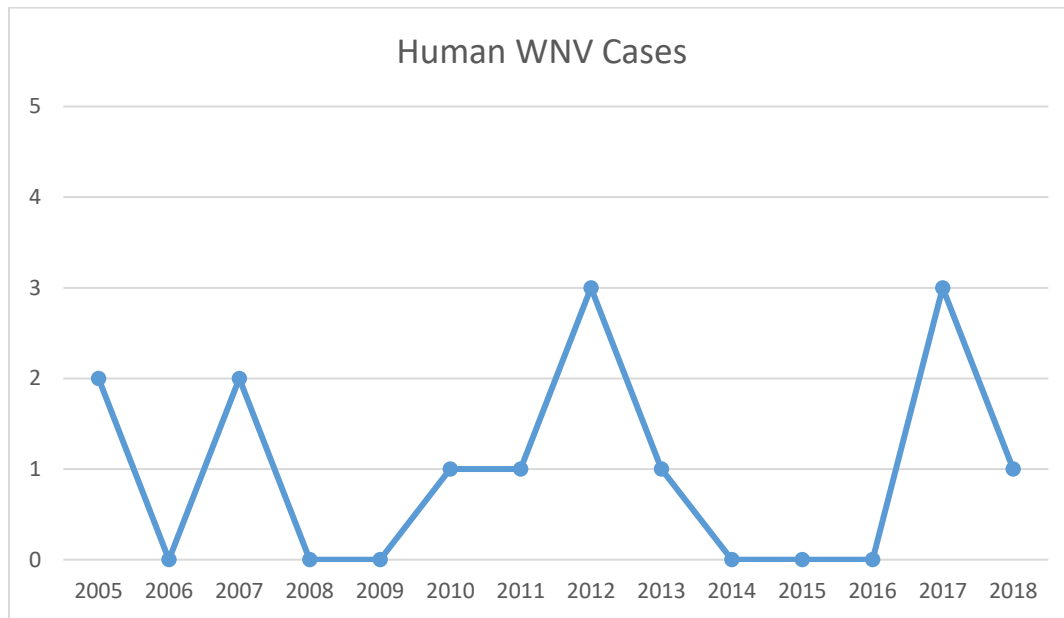


Figure 3 - History of Human WNV in Winnebago County Cases by Year

Only about 1 in 5 persons infected with WNV will develop even mild symptoms and of these, typically only half will seek medical treatment. On average, the disease will progress to serious neurologic symptoms in about 1 in 150 persons, though this ratio increases dramatically with age. Currently, the only treatments for WNV are supportive. While little progress has been made in the treatments for WNV infections which have progressed to encephalitis or meningitis, there have been promising advancements in passive immunization against the disease. This could be especially helpful for people at high risk of developing WNV, as well as those over 60 years of age, who have a greatly increased risk of developing serious symptoms.⁴

Vector Control

The WCHD not only monitored WNV activity through mosquito and bird sampling, it also took an active role in managing the mosquito population. Two WCHD Neighborhood Code Enforcement staff were trained in the application of Altosid XR Larvicide on April 20, 2018. Two other WCHD staff were trained on July 6th, 2018. Additionally, 16 municipal public works employees were also trained on April 20, 2018. All larvicide training was conducted per the Illinois Pesticide Act (415 ILCS 60) by the WCHD Environmental Health Supervisor (Public Applicator License #PA20173182). This training provided much needed assistance in targeting against the larval life stage of mosquitoes.

WCHD treats areas of standing water that have the potential to contain mosquito larvae. This ensures that larvae will not progress into the adult stage of their life cycle. In the 2018 season, program staff responded to a total of 51 specific stagnant water complaints from residents throughout the County in which larvicide was applied. These sites included abandoned swimming pools, exposed outdoor containers, tires, and public locations that were accumulating standing water.

Conclusion

West Nile virus continues to be present in Winnebago County and is unlikely to be completely eradicated. Efforts to monitor the virus and its vectors should be continued at least until a predictable baseline level is reached for several years. Because the number of positive mosquito pools correlates so strongly to the number of human cases expected to occur, this surveillance tool serves an important and concrete purpose.

Because West Nile virus is a potentially life threatening infection, it is important to continue public awareness campaigns about prevention. Wearing insect repellent containing DEET, avoiding the outdoors during dusk and dawn, and eliminating standing water in residential areas are the most effective ways for people to protect themselves from contracting WNV. This combination of public education and epidemiological surveillance provides the best chance of minimizing human cases of West Nile virus.

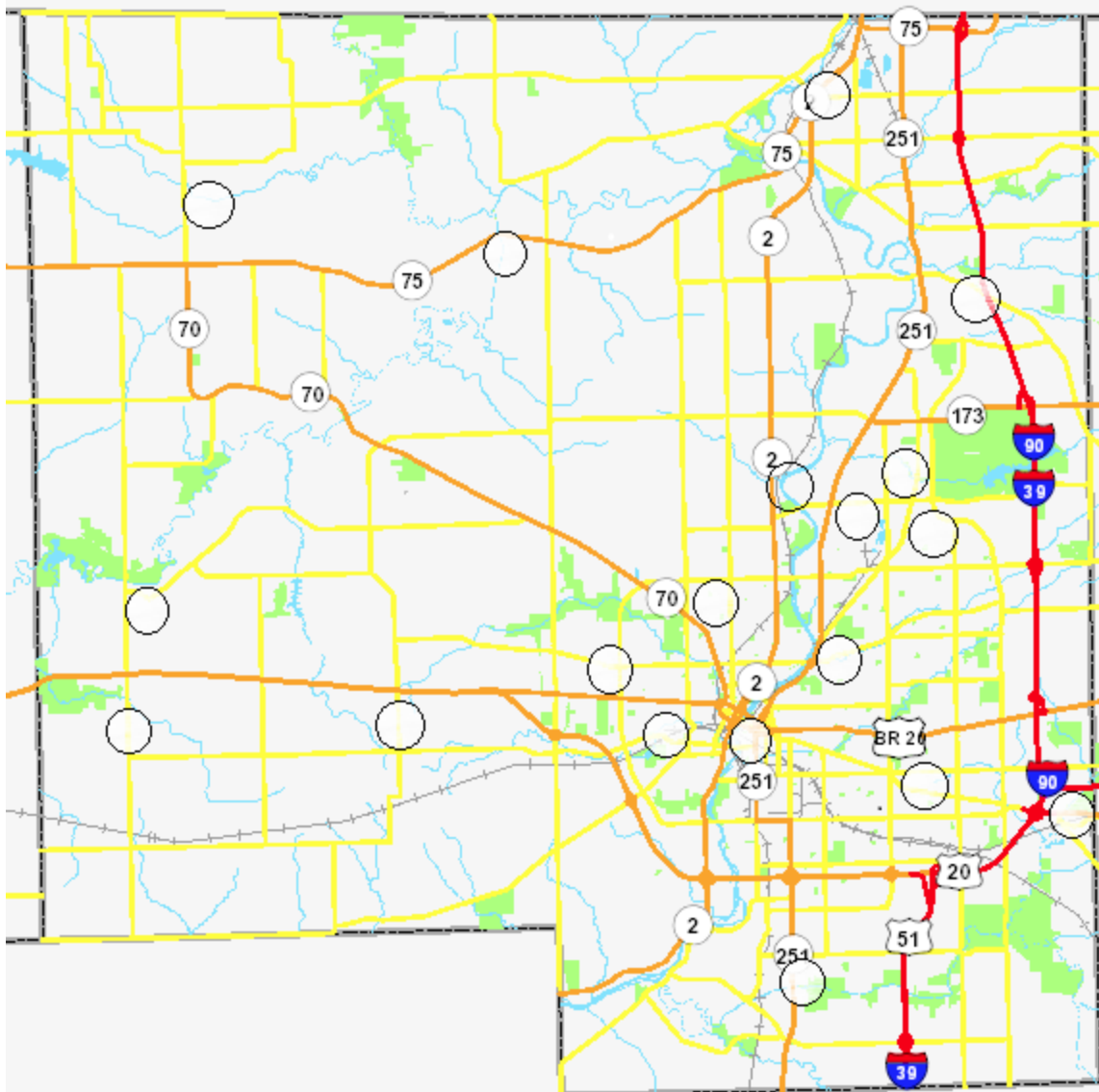


Figure 4 - "Hot Spot" map of positive mosquito pools in Winnebago County, 2018

Sources

1. <http://www.dph.illinois.gov/topics-services/diseases-and-conditions/west-nile-virus> Accessed 10/2/2018
2. <https://www.cdc.gov/westnile/index.html> Accessed 10/2/2018
3. <https://www.cdc.gov/westnile/transmission/index.html> Accessed 10/3/2018
4. <https://www.cdc.gov/westnile/symptoms/index.html> Accessed 10/3/2018
5. https://wwwn.cdc.gov/arbovet/Maps/ADB_Diseases_Map/index.html Accessed 10/3/2018
6. <http://public.dph.illinois.gov/wnvpublic/wnvglance.aspx?year=2018> Accessed 11/19/2019
7. <http://www.idph.state.il.us/envhealth/wnvglance17.htm> Accessed 11/19/2019
8. <https://www.cdc.gov/westnile/statsmaps/preliminarymapsdata2018/index.html> Accessed 11/19/2019
9. <https://www.cdc.gov/westnile/statsmaps/cumMapsData.html> Accessed 11/19/2019
10. <http://www.dupagehealth.org/WestNileVirus/PPI> Accessed 10/5/2018
11. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3414577/> Accessed 10/9/2018
12. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3955846/> Accessed 10/9/2018
13. <https://www.wifr.com/content/news/Health-Department-gives-tips-on-how-to-protect-yourself-from-the-West-Nile-Virus-482338891.html> Accessed 10/11/2018
14. <https://www.wifr.com/content/news/Winnebago-County-Health-Departments-hosts-tire-recycling-drive--485050601.html> Accessed 10/11/2018
15. <http://www.rrstar.com/news/20180718/winnebago-county-health-department-reports-west-nile-virus-positive-mosquito-pool> Accessed 10/11/2018
16. <https://www.wifr.com/content/news/Health-officials-urge-community-to-take-precautions-against-mosquitoes--489292061.html> Accessed 10/11/2018