



# Arbovirus Surveillance Report

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## West Nile Virus 2021 End of Season Summary

### Overall Assessment

The risk of West Nile virus infection in Chicago for the 2021 season was low. The number of reported (as of November 2<sup>nd</sup>, 2021) human cases was 13, which is an increase over the reported cases in 2020 (11 cases) and 2019 (4), but still continuing the trend of lower infections in recent years (2018 had 57 cases). On a state wide level, Illinois has seen 55 total case with 2 fatalities, which is an increase over the observed cases in 2020 (29 cases and 4 deaths).

On a Regional and National scale, West Nile numbers saw an increase of nearly double the cases, with 1334 cases and 88 deaths in 2021 against 664 cases and 52 deaths the year prior. While the case numbers represent a substantial increase, they still fall below peak levels experienced between 2012-2018, where the cases exceeded 2,000 every year. Only three states in 2021 topped triple digits with Arizona (480), Colorado (162) and Nebraska (100).

### Geography and Population

The Chicago Department of Public Health comprises 234 square miles and approximately 2.7 million residents in an urban environment. Most of the medically significant breeding occurs in backyard containers and catch basins.

### Mosquito Abatement Actions

As in prior seasons, pre-season larviciding was conducted in areas that have greater historic prevalence of disease. Pre-season larviciding was a cooperative venture between the Department of Public Health, our sister agencies, and Vector Disease Control International. In total, just over 50,000 catch basins were treated with residual 105 day Metalarv® XRP. Metalarv® XRP is a sustained release chemical designed to curtail mosquito breeding in treated basins for 105 days. The active ingredient, Methoprene, is an insect growth regulator that blocks immatures from metamorphosing into adults.

To evaluate the effectiveness of these efforts, a total of 763 catch basins were sampled: 183 out of 373 (49%) sampled in July, 155 out of 390 (40%) returned samples with larvae. Out of those collected, 189 out of 763 (25%) had larvae or pupae emerge into adults.

In addition, adulticiding occurred in late August to mitigate WNV transmission covering 14.7 linear road miles, using Zenivex®.

## Environmental Surveillance for WNV

Seventy-five gravid traps were placed throughout the city and mosquitoes were collected on a twice-weekly basis from June – September. All mosquito species that were collected were identified and recorded, and female mosquitoes of the *Culex* genus were tested for both West Nile virus (WNV) and St. Louis encephalitis (SLE). The total number of female *Culex* mosquitoes collected was 29,027. Of these, a total of 1,614 mosquito pools were prepared and tested, of which 188 (11.6%) were positive for WNV (none were positive for SLE). In comparison, 20,842 female mosquitoes were collected during the same period in 2020. Of these, a total of 1,775 mosquito pools were prepared and tested, of which 102 (5.7 %) were positive for WNV (none were positive for SLE). In addition to mosquito surveillance in 2021, 9 birds were submitted and tested, with 8 confirmed negative as negative and one 1 unable to test.

In addition to WNV surveillance, BG-sentinel traps were placed to monitor for the presence of *Aedes* species mosquitoes, potential vectors for the Zika virus as well as multiple tropical diseases. In total, 1,655 *Aedes albopictus* were collected (1,278 females and 377 males). This number represents a significant downturn in *albopictus* trapped from last year, with 3,277 *albopictus* – 2,410 females and 867 males – observed. .

<b>Cumulative Mosquito Testing for WNV from Gravid Traps</b>	
Number of Female <i>Culex</i> Trapped and Tested	29,027
Total Number of Mosquito Pools Tested	1,614
Number of Mosquito Pools Positive	188
Number of Community Areas with Positive Mosquitoes*	36
<b>Cumulative Bird Testing for WNV</b>	
Total Number of Birds Submitted	9
Number of Birds Tested	8
Number of Birds Positive	0
<b>Cumulative Mosquito Collections from all trap types</b>	
Total Number of <i>Aedes albopictus</i>	1,655

## **Human Surveillance for WNV and Regional trends**

WNV trends did see an increase from last year in human cases but a decrease in the percentage of positive mosquito pools tested. Across the Midwest region, WNV surveillance saw an uptick following two mild years in 2019 and 2020.

13 human cases were reported in 2021 for the City, in comparison to 11 cases in 2020 and 4 cases in 2019