NH DIVISION OF Public Health Services
Improving health, preventing disease, reducing costs *for all*
Department of Health and Human Services

Bureau of Infectious Disease Control
Infectious Disease Surveillance Section

2021 Arboviral Surveillance Summary

Summary

The New Hampshire Department of Health and Human Services (NH DHHS) tested human, veterinary, and mosquito specimens for arboviruses in 2021. Testing performed at, or in coordination with, the NH Public Health Laboratories (PHL) identified:

- West Nile Virus (WNV) in 1[€, £] human (likely acquired out of state) and 6 mosquito batches (group of mosquitoes).
- Jamestown Canyon Virus (JCV) in 5 humans and in 14 mosquito batches.
- Eastern Equine Encephalitis (EEE) virus was not identified.
- Powassan (POW) virus was not identified.

Three of these viruses are transmitted by mosquitoes: West Nile virus (WNV), Eastern Equine Encephalitis virus (EEE), and Jamestown Canyon virus (JCV). Powassan virus (POW) is transmitted by ticks.

Given the extensive arboviral activity detected in NH and our region during the 2021 season (July 1 – October 15), NH DHHS encourages individuals and communities to maintain heightened levels of mosquito-borne disease education, surveillance, and control during 2022.

Table 1: Specimens Tested and Arboviral Test Results by Year, 2017-2021*

Species	Mosquito Batches				Veterinary			Humans				
	Tested	WNV+	EEE+	JCV+	Tested	WNV+	EEE+	Tested	WNV+	EEE+	JCV+¥	POW+¥
2017	4,176	9	0	-	7	0	0	31	1	0	4	1
2018	4,945	32	6	-	13	4	0	30	0	0	1€	0
2019	5,610	1	16	-	19	1	2	35	0	0	3	2
2020	1,988	2	0	-	7	0	0	33	0	0	5	0
2021	8,068	6	0	14	3	0	0	45	1€,£	0	5	0

*Comparison between years must consider variations in surveillance criteria.
¥Testing completed by the Centers for Disease Control and Prevention (CDC).
£Testing performed by commercial laboratory.
€Infection likely acquired out of state.

Human Surveillance

Between January 1 and December 31, 2021, 39 patients were tested for EEE and WNV at the NH PHL.

- No human samples tested positive for WNV at the NH PHL. One (1) human sample tested positive for WNV at a commercial laboratory.
- No human samples tested positive for EEE.

Additionally, between January 1 and December 31, 2021, 45 patients were tested for POW at the CDC. Forty-four (44) of the patients tested for POW were also tested for JCV at the CDC.

- Five human samples tested positive for JCV.
- No human samples tested positive for POW.

Animal Surveillance

Between January 1 and December 31, 2021, 3 veterinary specimens were tested for EEE and WNV at the NH PHL.

- No animals tested positive for EEE or WNV.

Mosquito Surveillance

Between January 1 and December 31, 2021, 5,724 mosquito batches were tested for EEE and WNV at the NH PHL. An additional 2,344 batches were tested for JCV at the NH PHL.

- Six batches tested positive for WNV in the municipalities of Salem (1), Portsmouth (1), Manchester (2), East Kingston (1), and Stratham (1). The species testing positive were *Culex pipiens* (2), *Culex pipiens/restuans* (2), and *Culiseta melanura* (2).
- No batches tested positive for EEE.
- Fourteen batches tested positive for JCV in the municipalities of Bow (1), Canterbury (4), Dunbarton (4), Derry (1), Kingston (1), and Allenstown (3). The species testing positive were *Aedes excrucians* (5), *Aedes abserratus* (2), *Aedes sticticus* (1), *Aedes canadensis* (2), *Anopheles punctipennis* (1), and *Coquillettidia perturbans* (3).
- Mosquito batches were submitted for EEE and WNV testing from Cheshire, Hillsborough, Rockingham, and Strafford Counties. Batches to be tested for JCV were submitted from Merrimack and Rockingham Counties.

Public Health Threat Declaration

A Public Health Threat Declaration was not in effect for the 2021 NH mosquito season.

Regional Risk Levels

- In 2021, the NH DHHS estimated human risk levels for defined "Focal Areas" in the State. "Focal Areas" may incorporate multiple municipalities and are based on integrating mosquito habitat, mosquito abundance, current and historic virus activity, and weather conditions needed to present risk of human disease.
- During the arboviral transmission season, estimated risk levels were announced to the public, local officials, and state partners through email, press releases, postings to the Bureau of Infectious Disease Control (BIDC) and Division of Public Health Services (DPHS) Twitter and Facebook webpages, and postings to the NH DHHS website.
- NH DHHS updated the Risk Map throughout the 2021 season to reflect changes in risk levels. For 2021, risk levels across the state ranged from "Baseline/No Data" to "High" depending on current and historical arbovirus detections.
- For more information on the arboviral test results and to view the final 2021 Risk Map, please visit: http://www.dhhs.nh.gov/dphs/cdcs/arboviral/results.htm.

Report Date: April 4, 2022
Prepared by: Marco Notarangelo, MS
marco.notarangelo@dhhs.nh.gov / 603-271-0273