

# NH Infectious Disease State Update

NHICEP  
May 19, 2023

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# Overview

- COVID-19 PHE ending
- Electronic Disease Surveillance System Transition
- Infectious Disease Reporting QA
- Vectorborne Disease

# COVID-19 Public Health Emergency End

## THIS IS AN OFFICIAL NH DHHS HEALTH ALERT

Distributed by the NH Health Alert Network  
[DHHS\\_Health\\_Alert@dhhs.nh.gov](mailto:DHHS_Health_Alert@dhhs.nh.gov)  
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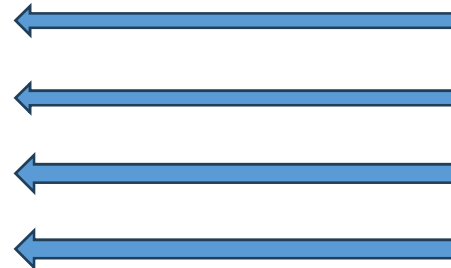


### COVID-19, Update #70 Ending of U.S. Public Health Emergency & Guidance Updates

#### Key Points and Recommendations:

- The federal [Public Health Emergency \(PHE\) ends](#) on May 11<sup>th</sup>, after which NH facilities, laboratories, and providers:
  - No longer need to submit positive COVID-19 case reports or Electronic Laboratory Reports (ELR), but the NH Division of Public Health Services (DPHS) will maintain established automated connections with facilities sending SARS-CoV-2 laboratory test results.
  - Continue to report any pediatric or maternal deaths due to COVID-19, or patients with suspected or confirmed Multisystem Inflammatory Syndrome in children (MIS-C) or adults (MIS-A) using this [Case Report Form](#) (securely fax forms to 603-696-3154).
  - Continue to report suspected and confirmed SARS-CoV-2 outbreaks (i.e., multiple cases with evidence of in-facility transmission), consistent with how any outbreak must be reported.
  - Hospitals are asked to continue to voluntarily submit data on persons hospitalized for COVID-19 to NH DPHS using the existing [electronic reporting tool](#) in order to maintain surveillance for disease severity in different patient populations, especially for pediatric and pregnant persons.

- Review CDC's updated [COVID-19 Infection Prevention and Control Recommendations for Healthcare Personnel](#).
- Review CDC's updated [Interim Clinical Considerations for Use of COVID-19 Vaccines](#).
  - Incorporate guidance into routine clinical practice and routinely consult the *Interim Clinical Considerations* for current COVID-19 vaccination schedules and guidance, which are expected to undergo additional updates in the future.
  - CDC will conduct a provider webinar on **Thursday, May 11<sup>th</sup> from 2:00 – 3:00 pm** on "*Updated Recommendations for COVID-19 Vaccine Use*" which can be accessed at: [https://emergency.cdc.gov/coca/calls/2023/callinfo\\_051123.asp](https://emergency.cdc.gov/coca/calls/2023/callinfo_051123.asp) (a recording of the webinar is also available to view after the scheduled date/time).



[han-covid-19-update70.pdf \(nh.gov\)](#)



# Electronic Disease Surveillance System Replacement

- Our current systems—NHEDSS, TB PAM, and PRISM—have been used since the early 2000s.
- They generally served us well, but COVID really highlighted the need for a modernized platform with updated functionality and performance.
- We have gone through a long competitive bid and selection process and are happy to have a new vendor in place!

# Electronic Disease Surveillance System Replacement

- Expected new system go-live is March 2024
- A key new feature that we plan to implement is electronic case reporting (eCR), reducing or eliminating the need for faxed case reports
- We will update you when we know of any expected impacts

# Annual QA process

- Every year, we confirm our final case counts for reportable conditions with CDC.
- As a first step in this process, we do an internal QA that checks the following:
  - Case definition is properly applied (eg. case is confirmed, probable, etc.)
    - Not for all conditions in all years-especially during COVID
  - Investigation status
  - Demographic information (address, sex, race, ethnicity, & date of birth)
- We may reach out to you to request information during internal QA

# Data Quality Review

- 2021: Out of 2,932 cases of reportable conditions, 298 had missing information.

Type of missing information	Count (n=298)	Percentage
Race and/or ethnicity only	239	80%
Address - Lyme	52	17%
Address - Other Conditions	2	1%
Other issues	5	2%

- 2022: Ongoing. We will contact you with any questions during QA and report back when we have the final tally.

# Vectorborne Diseases

## Tickborne:

- Lyme Disease
- Anaplasmosis
- Babesiosis
- *Borrelia miyamotoi*
- Powassan



## Mosquito-borne:

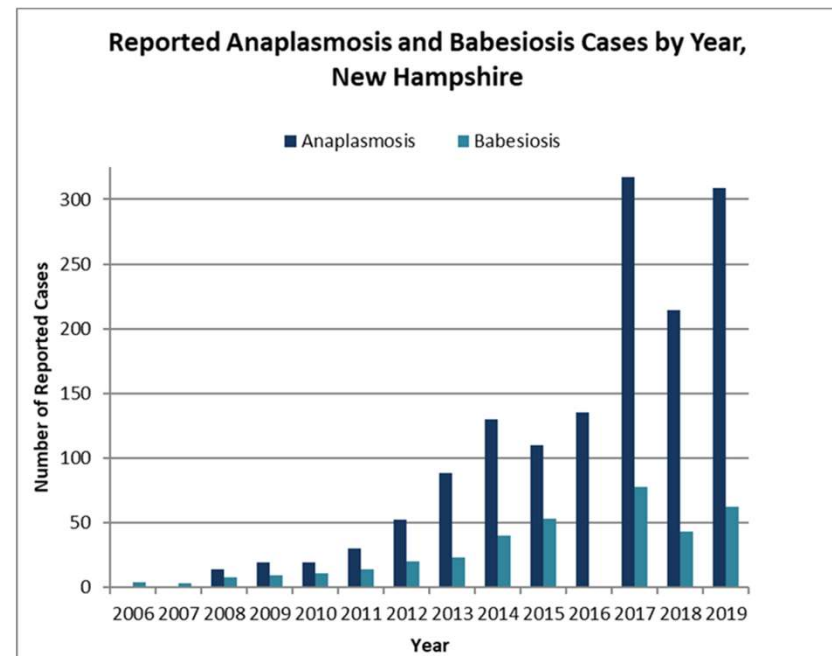
- Eastern Equine Encephalitis
- West Nile
- Jamestown Canyon





# Tickborne Diseases

- Lyme Disease is NH's most reported vectorborne disease.
- The burden of Anaplasmosis and Babesiosis has continued to increase over the last 10 years.
- Two novel pathogens detected in our state in the last 10 years:
  - 2013: Powassan
  - 2018: *Borrelia miyamotoi*



# Seasonality of Tickborne Diseases

Lyme Disease – Cases by Month of Disease Onset, United States, 2008-2020

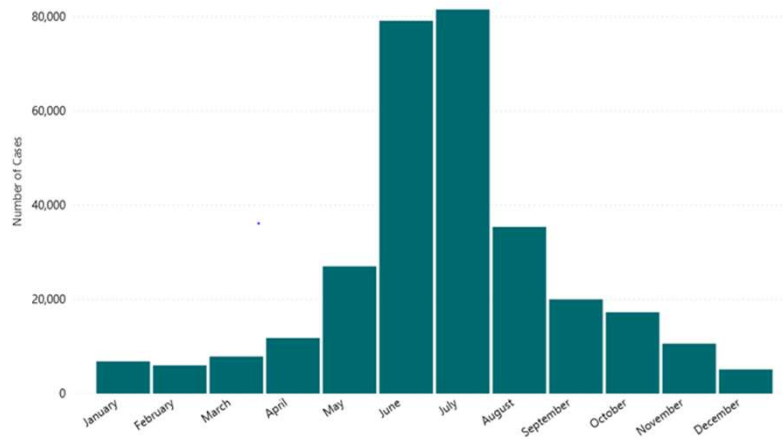
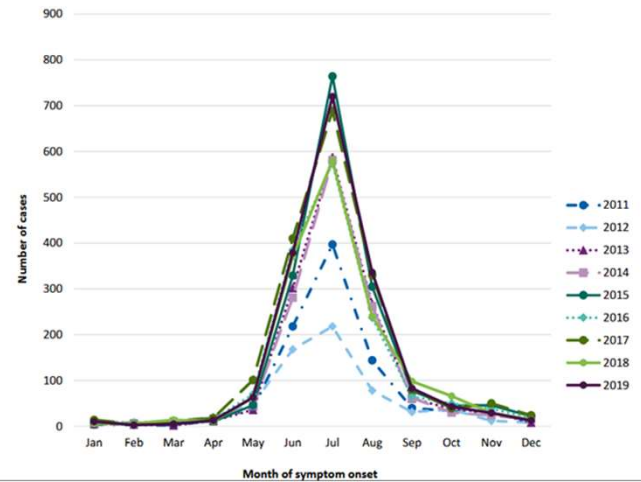
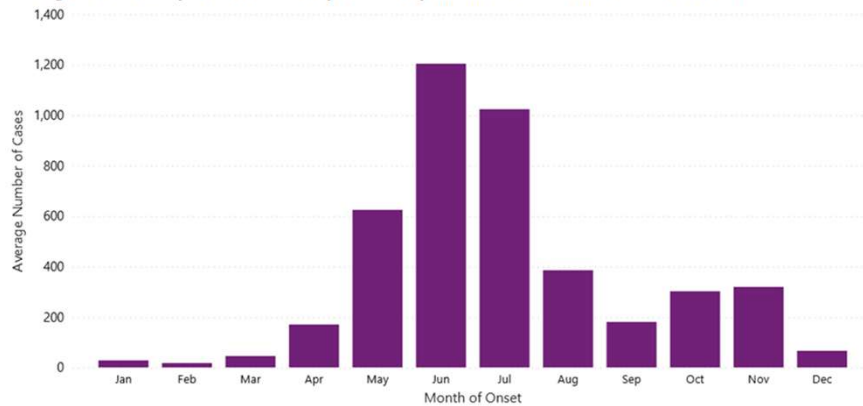


Figure 4. Number of reported cases of babesiosis, by month of symptom onset\* and year, 2011–2019†

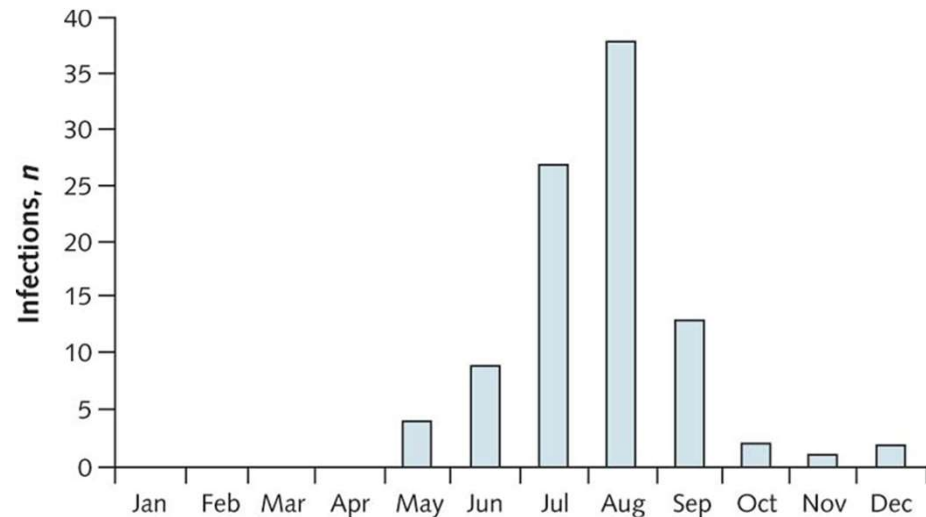


Average number of reported cases of anaplasmosis, by month of onset—United States, 2015–2019



# *Borrelia miyamotoi*

- Not a nationally notifiable condition.
- NH does request reporting of cases under the “unusual occurrence of communicable disease” section of its reporting guidance.
- There is evidence of **vertical transmission** from adult ticks to offspring.
- Larval ticks may play a role in its transmission



Molloy, P. et al. 2015

# Powassan

- **Geographic Distribution:** Northeast & Great Lakes region.
- **Seasonality:** Most cases are reported in the late spring, early summer and mid-fall
- **Phylogeny:**
  - Lineage 1 – Powassan virus
  - Lineage 2 – Deer Tick Virus (DTV)
- **Vector:** *Ixodid* ticks.
- **Maintenance:** Vertical and Horizontal transmission.
- **Reservoirs:** Small mammals.

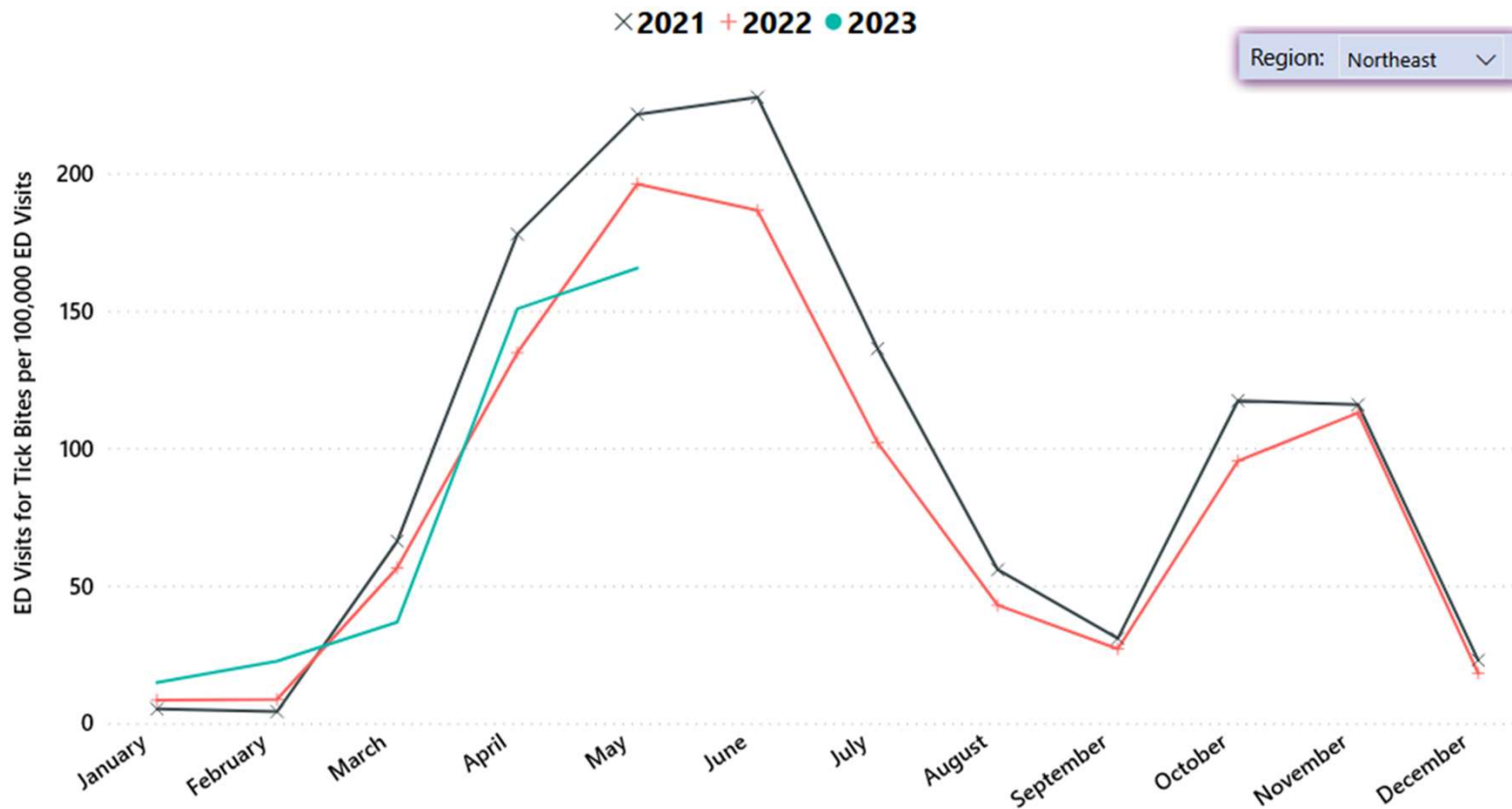


## In New Hampshire:

- 6 cases reported to date
- First case in 2013
- Last case in 2021

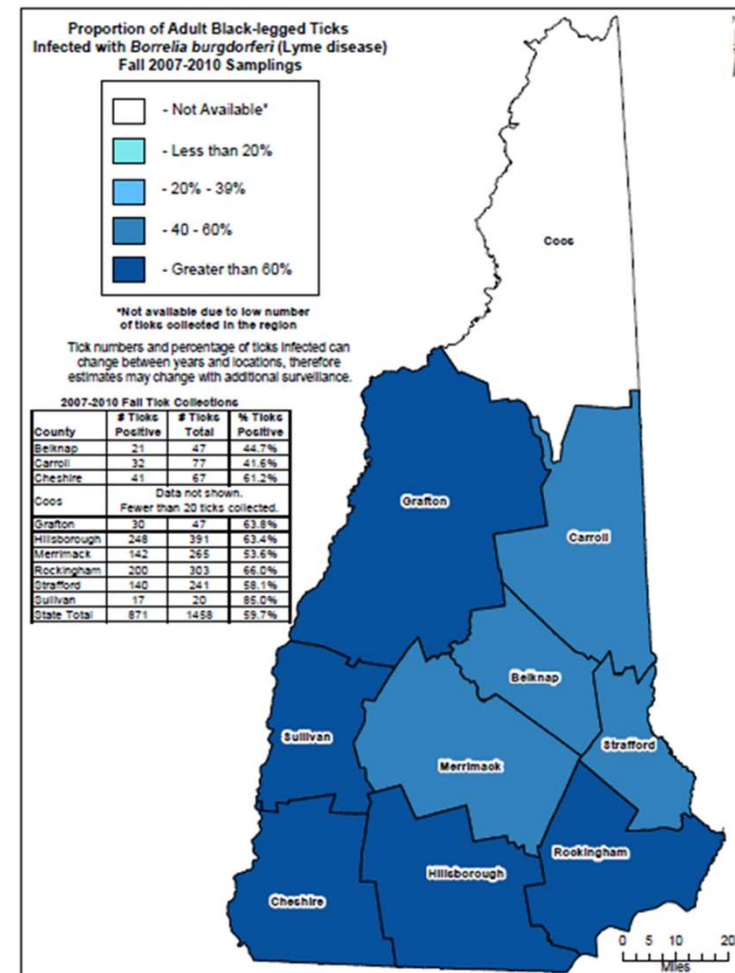
# Tickborne Diseases

Emergency Department (ED) Visits for Tick Bites by Month, United States, 2021-2023



# Statewide Tick and Tickborne Diseases Survey!

- Contracted with MaineHealth to collect ticks from each county during nymph and adult tick seasons.
- Specimen are sent to CDC and tested for:
  - *Borrelia burgdorferi s.s.*
  - *Borrelia mayonii*
  - *Borrelia miyamotoi*
  - *Babesia microti*
  - *Anaplasma phagocytophilum*



# Tickborne Disease Reporting

- **Lyme disease:**
  - Laboratory reporting only!
  - Please work with your labs to make sure that any testing done in-house is reported.
- **Tickborne Rickettsial Diseases (e.g. Anaplasmosis):**
  - Laboratory and clinical information are requested.
  - [https://www.cdc.gov/ticks/forms/Tick\\_TBRD\\_FILL\\_508.pdf](https://www.cdc.gov/ticks/forms/Tick_TBRD_FILL_508.pdf)
- **Babesia:**
  - Laboratory and clinical information are requested.
  - <https://www.cdc.gov/parasites/babesiosis/resources/50.153.pdf>
- **Powassan virus:**
  - Laboratory and clinical information are requested.
  - <https://www.dhhs.nh.gov/sites/g/files/ehbemt476/files/inline-documents/sonh/arboreportform.pdf>
- **All other Tick-borne diseases:**
  - Laboratory and clinical information are requested.
  - <https://www.dhhs.nh.gov/sites/g/files/ehbemt476/files/inline-documents/sonh/infectiousdiseasereport.pdf>



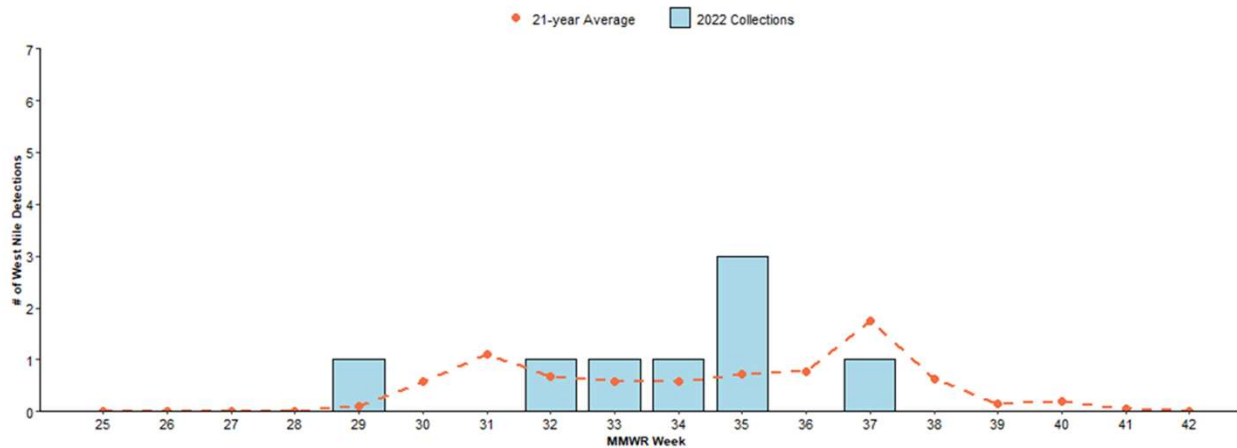
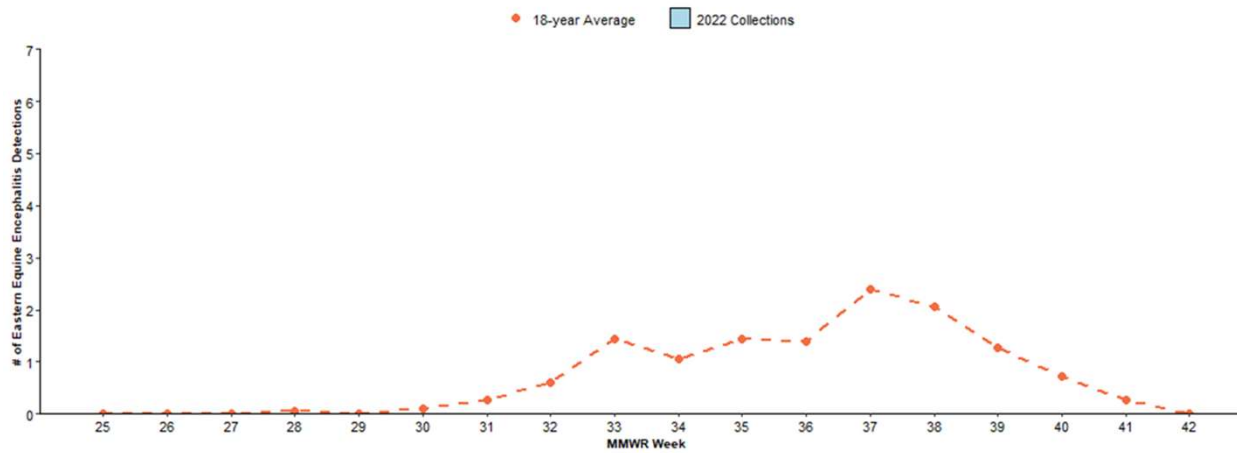
# Additional Useful Links:

- 2023 Tickborne HAN
  - <https://www.dhhs.nh.gov/sites/g/files/ehbemt476/files/documents2/han-tickborne-disease-update-2023.pdf>
- 2022 Lyme Disease County Report
  - <https://www.dhhs.nh.gov/sites/g/files/ehbemt476/files/documents2/lymecounty-2017-2021.pdf>
- NH Tickborne Disease Prevention Plan
  - <https://www.dhhs.nh.gov/sites/g/files/ehbemt476/files/documents/2021-11/tbdpreventionplan.pdf>





# Seasonality of EEEV and WNV in NH



# Jamestown Canyon Virus

## Overview:

- Not incorporated in our historical arboviral surveillance and response plan
- Human cases have been detected in 8 of 10 counties in NH

## Questions:

- How do we incorporate this pathogen in our existing surveillance and response plan?
- How do we convey risks for areas that do not have historical vector surveillance?

COUNTY	# of JCV Human Cases
Belknap	1
Carroll	1
Cheshire	1
Coos	0
Grafton	3
Hillsborough	2
Merrimack	7
Rockingham	2
Strafford	0
Sullivan	2

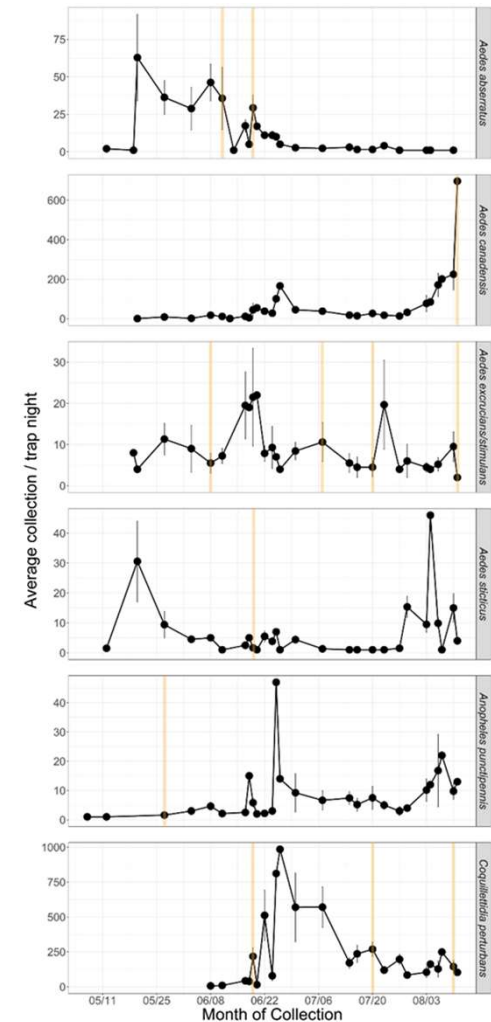
# Incorporating JCV in our Surveillance and Response Plan

- Collaborative project with the Northeast Regional Center for Excellence in Vectorborne Diseases (NEVBD) and contractors that submit species to the PHL during the regular arboviral season.
  - Target JCV vectors from May 1<sup>st</sup> to the end of the testing season (October 15<sup>th</sup>).
  - Explored feeding preferences for possible vector-species
- Complete the development of an assay that permits the PHL to test for all three pathogens at once

# Evaluating our existing arboviral and surveillance response plan

## Takeaways:

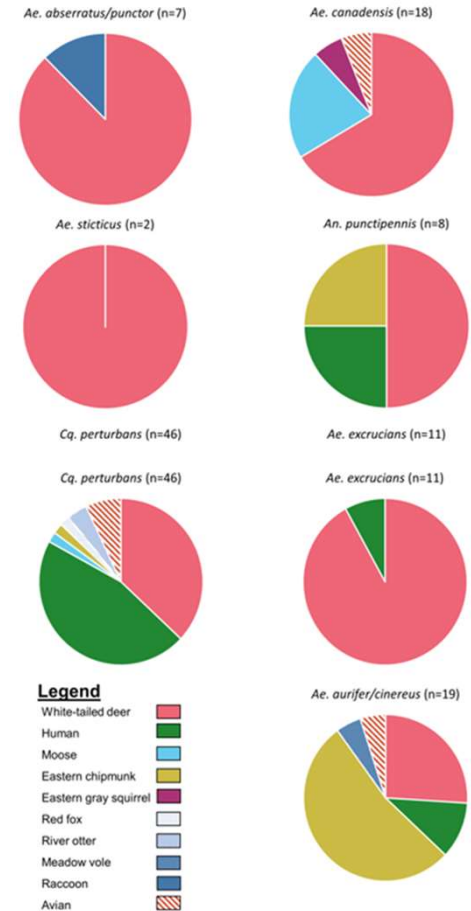
- Target mosquito-vectors are most commonly collected in May and June and may become rare by the start of July.
- 6/12 (50%) of the JCV detections in mosquito-vectors were from samples collected before July 1<sup>st</sup>.



# Evaluating our existing arboviral and surveillance response plan

## Takeaways:

- We validated the possibility of vectors supporting the amplification of JCV via blood-meal analysis.
- Validated that exposure to reservoir occurred locally, via game-cameras.



# Outcomes of collaboration & novel changes to the arboviral surveillance plan

- Collected sufficient specimen to continue and complete the validation of the new multiplex, which tests for EEE, WNV and JCV in mosquito-vectors.
  - Replaced the prior EEE/WNV as the standard test used by the NH PHL as of July 1<sup>st</sup>, 2023
- All mosquito specimen submitted to the NH PHL are now tested for all three arboviruses
- Expanded our arboviral testing season (for vectors) from July 1<sup>st</sup> – October 15<sup>th</sup> to June 1<sup>st</sup> – October 15<sup>th</sup>.
- Municipalities may now submit additional species that are useful for monitoring JCV activity



# Conveying risk in regions without vector-surveillance

Serosurvey of the reservoir population!

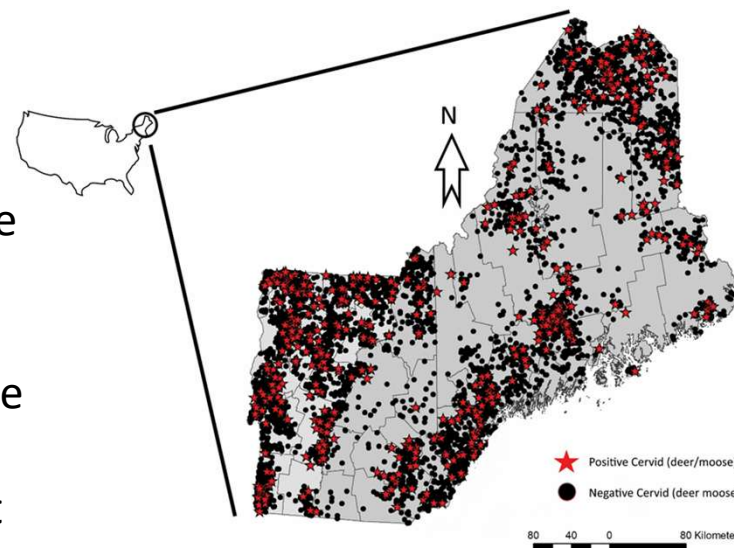
- Collaboration with NH Fish and Game (NH FG) and the United States Department of Agriculture (USDA)
- Collect sera from hunter-harvested cervids at check-stations during the hunting season (October-November).

## Pros:

- Only a handful of days of intensive work
- Representation from all counties
- Does not require an extensive knowledge of NH landscape

## Cons:

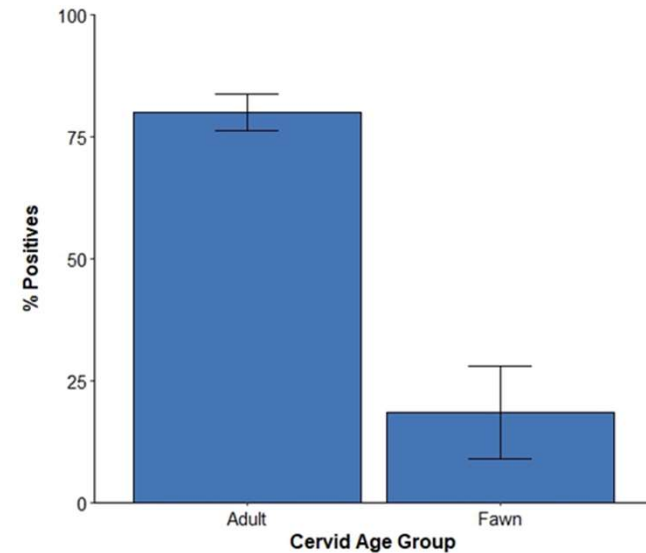
- Data does not capture information on the seasonality of the pathogen
- Does not provide information on current activity





# JCV serosurvey findings

County	# of JCV positives	# of Deer tested	Positivity (%)
BELKNAP	3	5	60
CARROLL	24	29	82.8
CHESHIRE	39	60	65
COOS	20	24	83.3
GRAFTON	69	89	77.5
HILLSBOROUGH	64	89	71.9
MERRIMACK	71	98	72.4
ROCKINGHAM	33	50	66
STRAFFORD	14	25	56
SULLIVAN	27	36	75
<b>TOTAL (STATEWIDE)</b>	<b>364</b>	<b>505</b>	<b>72.1</b>



## Takeaways:

- Exposure to JCV has been detected in each of the 10 counties.
- Lowest positivity based on data from 2021 is 56% (Strafford), highest is 83.3% (Coos).
- No apparent difference in seroprevalence amongst counties (at a county scale)
- Adult deer are more likely to have antibodies against JCV

# Mosquito-Borne Disease Reporting

- NH DHHS requests reporting of diagnoses or suspicion of diagnoses for arboviruses (including EEE, WNV and JCV) within 24 hours.
- Arboviral Disease Reporting Form:
  - <https://www.dhhs.nh.gov/sites/g/files/ehbemt476/files/inline-documents/sonh/arboreportform.pdf>
  - Form should also be completed if testing is requested via the NH PHL or CDC.

# Acknowledgements

## Special thanks to:

- Epidemiology, Case Investigation, Public Health Lab, Immunization, Communication, leadership
- NH Fish and Game, USDA – Animal & Plant Inspection Service, Northeast Regional Center for Excellence in Vectorborne Diseases
- All of you!

NH BDC Email: [NHBIDC@dhhs.nh.gov](mailto:NHBIDC@dhhs.nh.gov)