# Vector-borne Surveillance Report

**CDC Week 35: Aug 27 - Sep 2, 2023**

***Report Highlights:***

- ***NJDOH is reporting four cases of West Nile virus (WNV) infection in Camden, Bergen (2), and Middlesex counties.***
- ***There are 59 positive WNV pools in Week 35, for a total of 525 this year. The number of positive pools for Week 34 is considerably higher than last year and is above the 5-year average. Bergen County has the highest total number of positive pools, followed by Hudson County. The vector index is highest this week in Hunterdon and Somerset counties.***
- ***Two additional Eastern Equine Encephalitis (EEE) mosquito pools were detected, for a total of 5 this year in Atlantic, Burlington, Camden, and Cumberland counties. The number of positive pools in week 34 was at the 5-year average. The cumulative minimum infection rate is highest in Camden County. There are no human or animal EEE cases in 2023.***
- ***Two additional Jamestown Canyon Virus (JCV) mosquito pools were detected, for a total of 3 this year in Cumberland, Salem, and Sussex counties. This equals the total positive pools in 2022. There are no human cases of JCV in 2023.***
- ***The number of tick-related emergency department visits remains below the 5-year average.***
- ***The number of Lyme disease cases continues to decline and is slightly lower than this week last year.***
- ***N.J. vector-borne disease data is available online: https://dashboards.doh.nj.gov/views/public_dashboard/Intro and can be accessed on the "Fight the Bite N.J." webpage: https://www.nj.gov/health/cd/topics/vectorborne.shtml.***

## Vector-borne Disease Case Summary

N.J.A.C.8:57 mandates public health reporting of communicable diseases. 2023 data reflect cases that have been approved by NJDOH and do not include cases under investigation. Due to the time needed for public health investigation, the number of tickborne diseases (with the exception of Lyme disease) may be significantly lower than actual counts and should be interpreted with caution. All 2023 numbers are preliminary and subject to change. "Presumptive positive" cases are pending additional testing. Case counts for 2022 reflect the annual total for that year.

| Mosquito-borne diseases | | | Tickborne Diseases/Conditions | | |
|---|---|---|---|---|---|
| | **2023** | 2022 | | **2023** | 2022 |
| Chikungunya | **8** | 2 | Alpha-gal syndrome | **105** | 234 |
| Dengue | **22** | 35 | Anaplasmosis | **120** | 125 |
| Eastern equine encephalitis | **-** | - | Babesiosis | **263** | 292 |
| Jamestown Canyon | **-** | - | *Borrelia miyamotoi* | **2** | 6 |
| Malaria | **44** | 86 | Ehrlichiosis (*chaffeensis, ewingii*) | **75** | 115 |
| West Nile | **4** | 20 | Lyme disease* | **5,276** | 5,897 |
| Zika | **-** | - | Powassan | **-** | 2 |
| | | | Spotted fever group rickettsioses | **18** | 35 |
| | | | Tularemia | **2** | 1 |

* Lyme disease surveillance transitioned to laboratory-based surveillance in 2022.

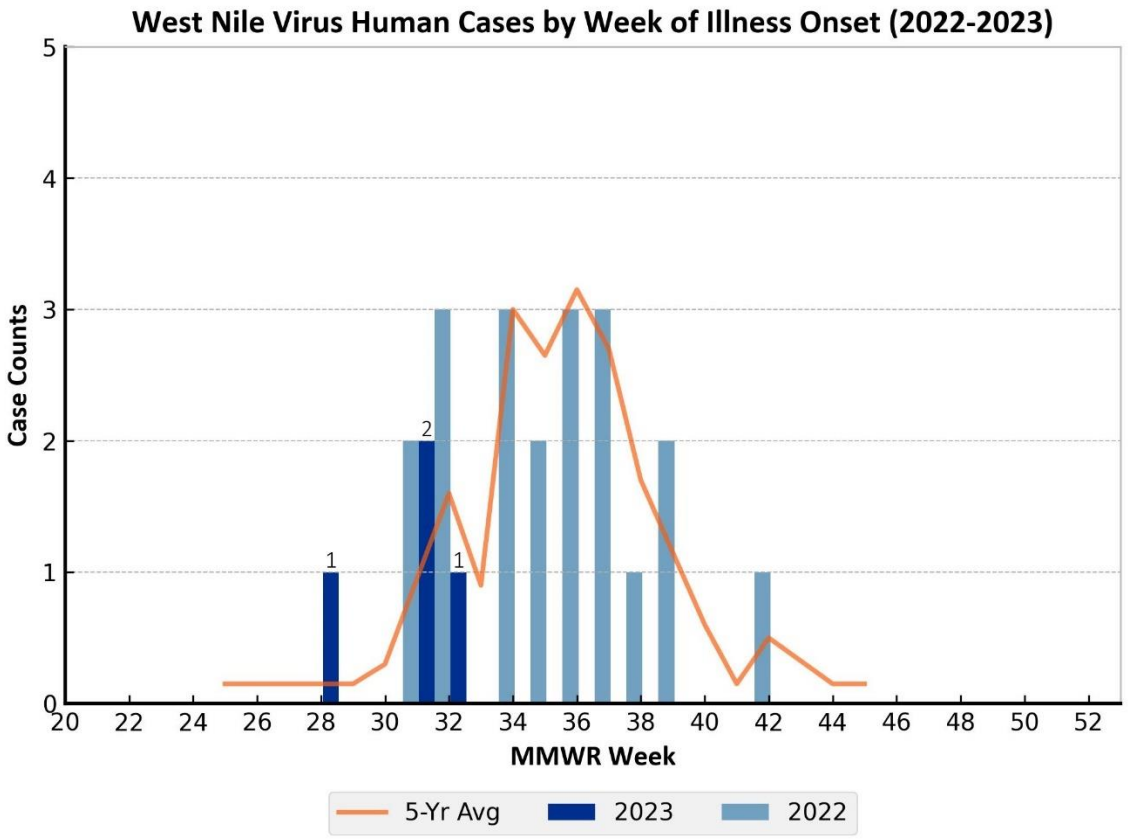
## Mosquito-borne Disease Activity

The New Jersey Department of Health Public Health and Environmental Laboratories (PHEL) and the Cape May County Department of Mosquito Control Bio-safety Level 3 Laboratory (CMBSL3) perform arboviral testing on mosquito pools collected by county mosquito control agencies throughout New Jersey.*

**Test results may be incomplete as counties submit pools for testing on specific weekdays. Data reflects test results downloaded from JerseySurv on September 6, 2023*

### West Nile Virus

- There are four human WNV cases, 1 from week 28 in Camden County, 2 from week 31 in Bergen and Middlesex Counties, and 1 from week 33 in Bergen County. There have been no animal cases of WNV reported in New Jersey in 2023.
- 6,802 pools from 21 counties have been tested for WNV. 59 pools tested positive in Week 35 in 8 counties and a total of 525 mosquito pools have tested positive for WNV so far this year. The positive pools were found in: *Aedes albopictus (7), Aedes japonicus (4), Aedes taeniorhynchus (1), Aedes triseriatus (2), Anopheles punctipennis (1), Culex (57), Culex erraticus (2), Culex pipiens (15), Culex pipiens/quinquefasciatus/restuans (10), Culex pipiens/restuans/salinarius (420), Culex restuans (2), Culiseta melanura (3), Psorophora ferox (1).*
- The first WNV positive mosquito pool (*Culex pipiens/restuans/salinarius)* was detected in week 24 from Bergen County. In 2022, the first WNV positive pool was detected in Week 22 from Burlington County.

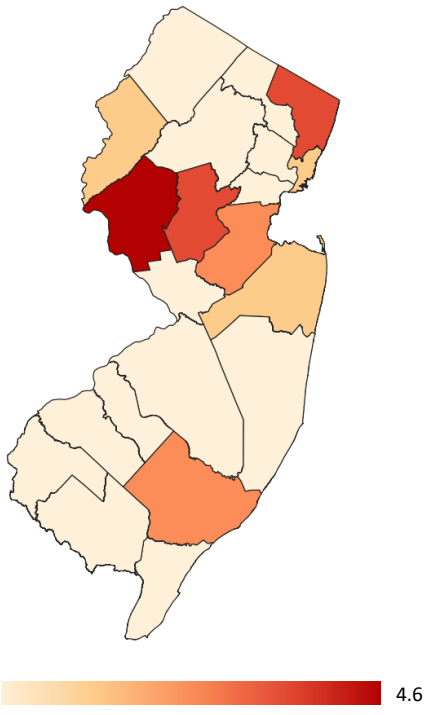



**WNV Mosquito Pool Testing**

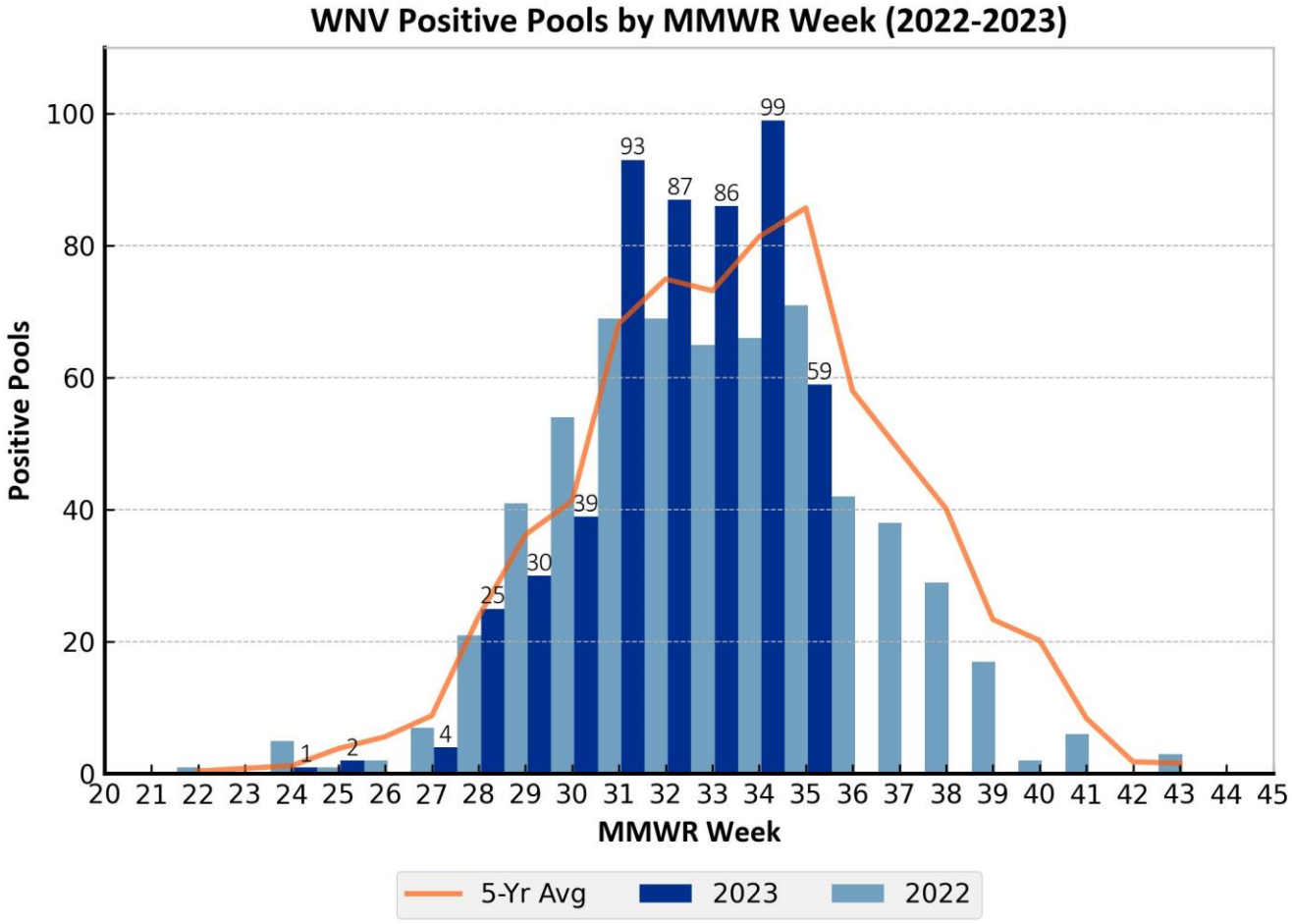
| | WEEK 35 Positive Pools | | Cumulative Pos. Total* (WEEK 35) | | # Pools Tested* | WEEK 35 Vector Index | |
|---|---|---|---|---|---|---|---|
| **County** | **2023** | 2022 | **2023** | 2022 | **2023** | **2023[t]** | |
| Bergen | 13 | 9 | 89 | 82 | 258 | 2.86 | (↑) |
| Hudson | 8 | 9 | 64 | 76 | 205 | 0.87 | (↓) |
| Middlesex | 12 | 5 | 52 | 43 | 252 | 1.64 | (↑) |
| Somerset | 4 | 7 | 39 | 23 | 224 | 3.56 | (↓) |
| Hunterdon | 10 | 2 | 34 | 10 | 304 | 4.62 | (↑) |
| Union | | 6 | 34 | 41 | 152 | 0 | (↓) |
| Mercer | | 4 | 29 | 24 | 298 | 0 | (↓) |
| Gloucester | | 3 | 23 | 18 | 583 | 0 | (↓) |
| Warren | 1 | 1 | 21 | 5 | 354 | 0.08 | (↓) |
| Burlington | | 4 | 20 | 24 | 198 | 0 | (–) |
| Morris | | | 19 | 22 | 318 | 0 | (–) |
| Atlantic | 4 | 1 | 18 | 4 | 283 | 1.34 | (↑) |
| Cape May | | | 18 | | 1013 | 0 | (–) |
| Monmouth | 7 | 3 | 17 | 21 | 330 | 0.17 | (↓) |
| Ocean | | 2 | 15 | 9 | 284 | 0 | (↓) |
| Passaic | | 6 | 11 | 33 | 169 | 0 | (–) |
| Sussex | | 1 | 11 | 5 | 534 | 0 | (–) |
| Camden | | 6 | 7 | 20 | 247 | 0 | (↓) |
| Salem | | | 3 | 1 | 329 | 0 | (–) |
| Essex | | 2 | 1 | 11 | 194 | 0 | (↓) |
| Cumberland | | | | | 273 | 0 | (–) |
| **Total** | **59** | **71** | **525** | **472** | **6802** | - | |

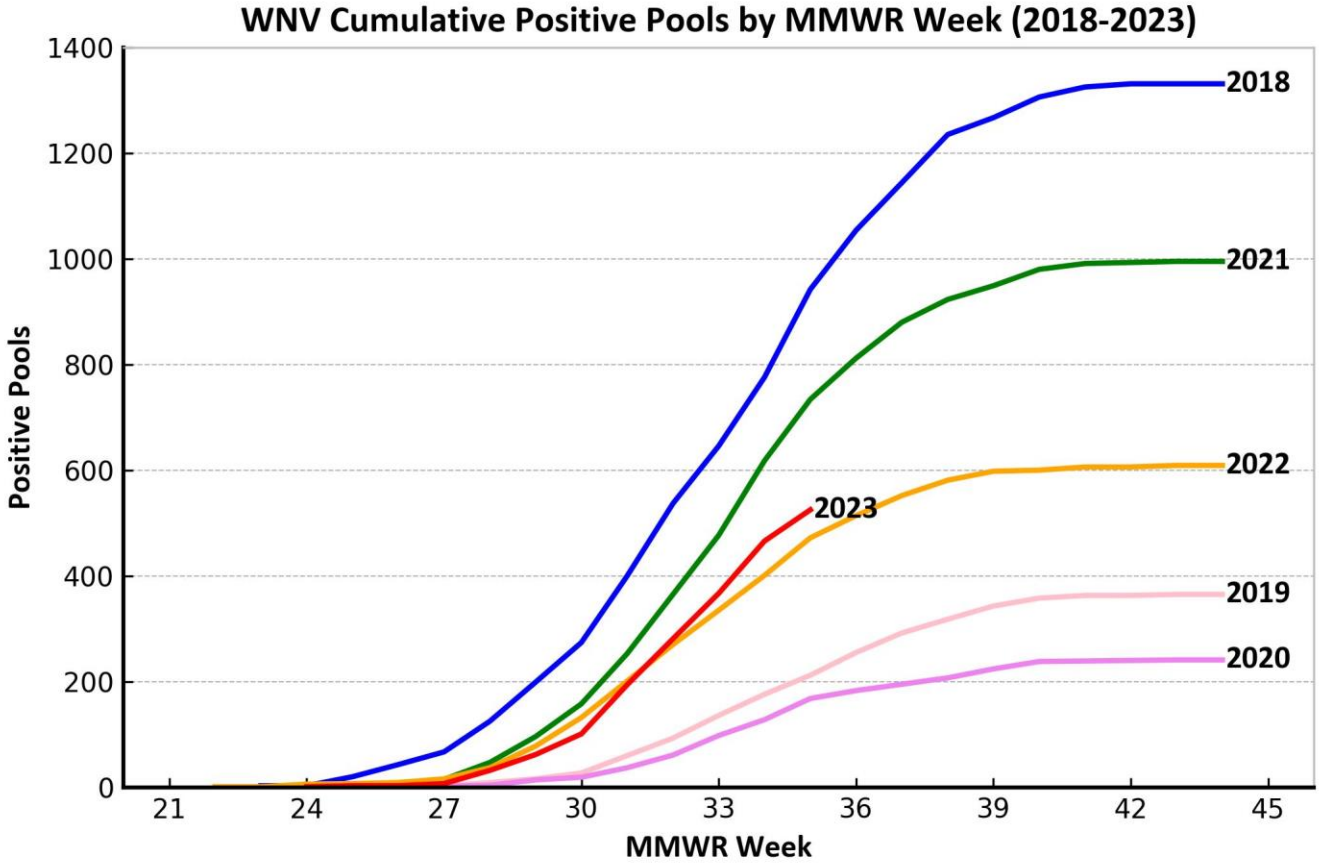
WEEK 35: Aug 28 - Sep 3, 2022; Aug 27 - Sep 2, 2023. *The number of pools tested for 9 counties includes early season collections that were specifically targeting JCV: Camden (9), Cape May (15), Cumberland (13), Essex (3), Gloucester (100), Mercer (7), Morris (18), Salem (8), Sussex (92), and Warren (27).

**WNV Vector Index, WEEK 35[t]**



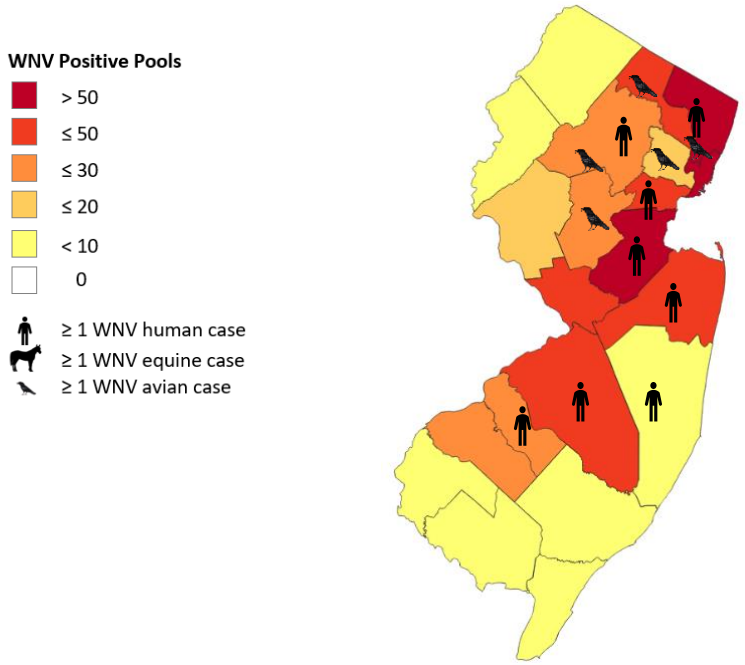

[t] Vector Index is calculated based on *Ae. taeniorhynchus, An. quadrimaculatus,* and all *Culex* species caught in gravid traps only.


WNV Positive Pools by MMWR Week (2022-2023)
Positive Pools
MMWR Week
5-Yr Avg
2023
2022
1
2
4
25
30
39
93
87
86
99
59


WNV Cumulative Positive Pools by MMWR Week (2018-2023)
Positive Pools
MMWR Week
2018
2021
2022
2023
2019
2020

**2022 WNV Activity**

**Cumulative WNV Activity, 2023**



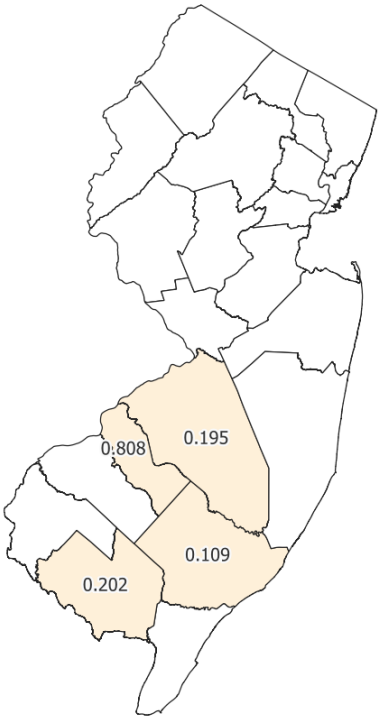

## Eastern Equine Encephalitis

- There have been no human or animal cases of EEE in New Jersey in 2023. EEE human cases were last reported in 2019 (4 cases).
- A total of 6,638 mosquito pools from 21 counties have been tested for EEE with five pools testing positive in Atlantic, Burlington, Camden, and Cumberland counties. The positive pools were found in: *Culiseta melanura (4), Culex sp. (1)*. The first positive EEE pool *(Culiseta melanura)* was identified in Cumberland County in week 30. In 2022, the first EEE positive pool was detected in Week 34 from Morris County.

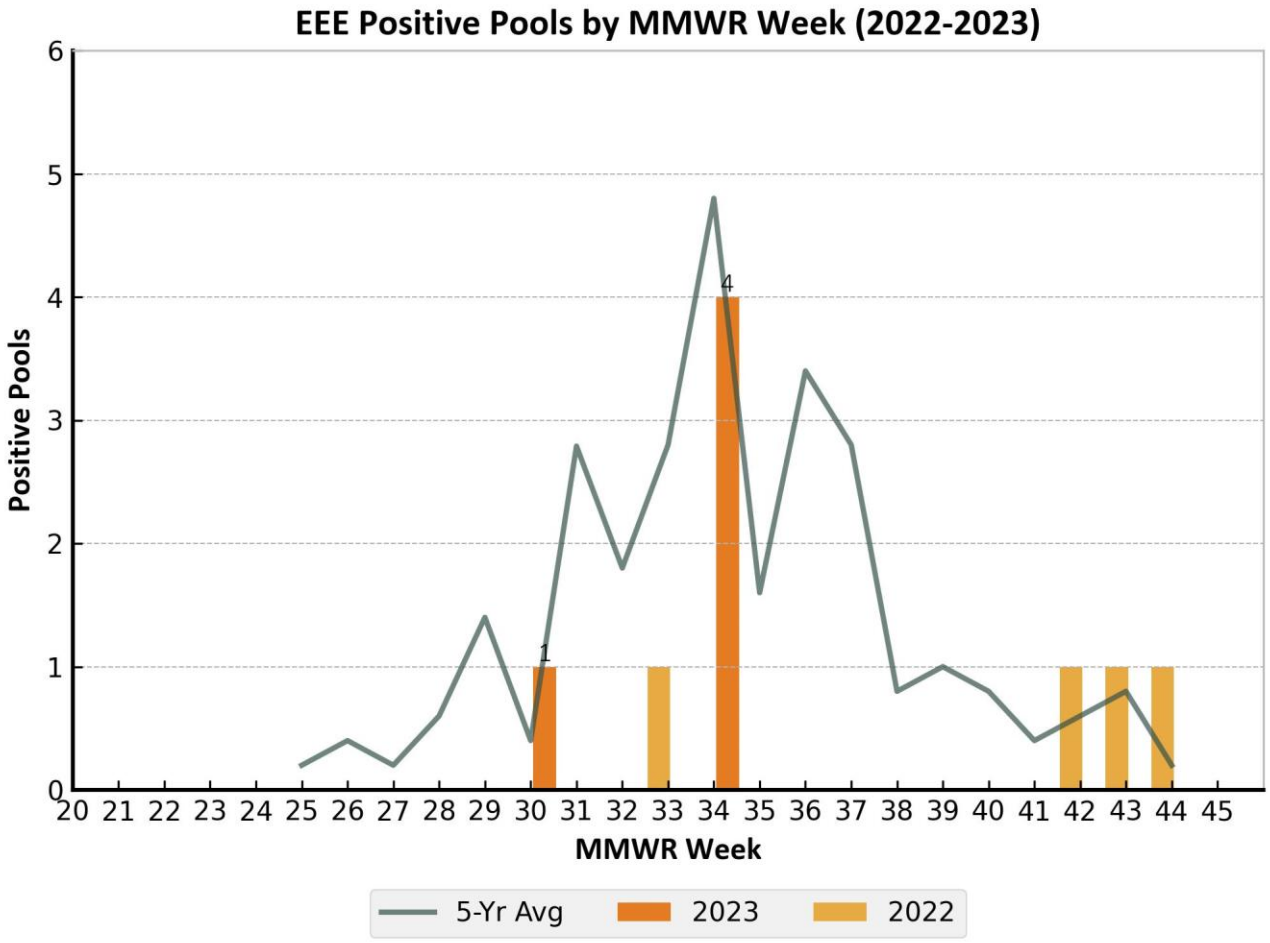
**EEE Mosquito Pool Testing**

| | WEEK 35 Positive Pools | | Cumulative Pos. Total* (WEEK 35) | | # Pools Tested | Cumulative MFIR |
|---|---|---|---|---|---|---|
| **County** | **2023** | 2022 | **2023** | 2022 | **2023** | **2023** |
| Camden | | | 2 | | 240 | **0.808** |
| Atlantic | | | 1 | | 283 | **0.109** |
| Burlington | | | 1 | | 193 | **0.195** |
| Cumberland | | | 1 | | 273 | **0.202** |
| Bergen | | | | | 258 | |
| Cape May | | | | | 939 | |
| Essex | | | | | 194 | |
| Gloucester | | | | | 577 | |
| Hudson | | | | | 205 | |
| Hunterdon | | | | | 301 | |
| Mercer | | | | | 286 | |
| Middlesex | | | | | 252 | |
| Monmouth | | | | | 330 | |
| Morris | | | | 1 | 318 | |
| Ocean | | | | | 278 | |
| Passaic | | | | | 169 | |
| Salem | | | | | 308 | |
| Somerset | | | | | 224 | |
| Sussex | | | | | 524 | |
| Union | | | | | 152 | |
| Warren | | | | | 334 | |
| **Total** | | **0** | **5** | **1** | **6638** | - |

**Cumulative EEE MFIR, 2023**

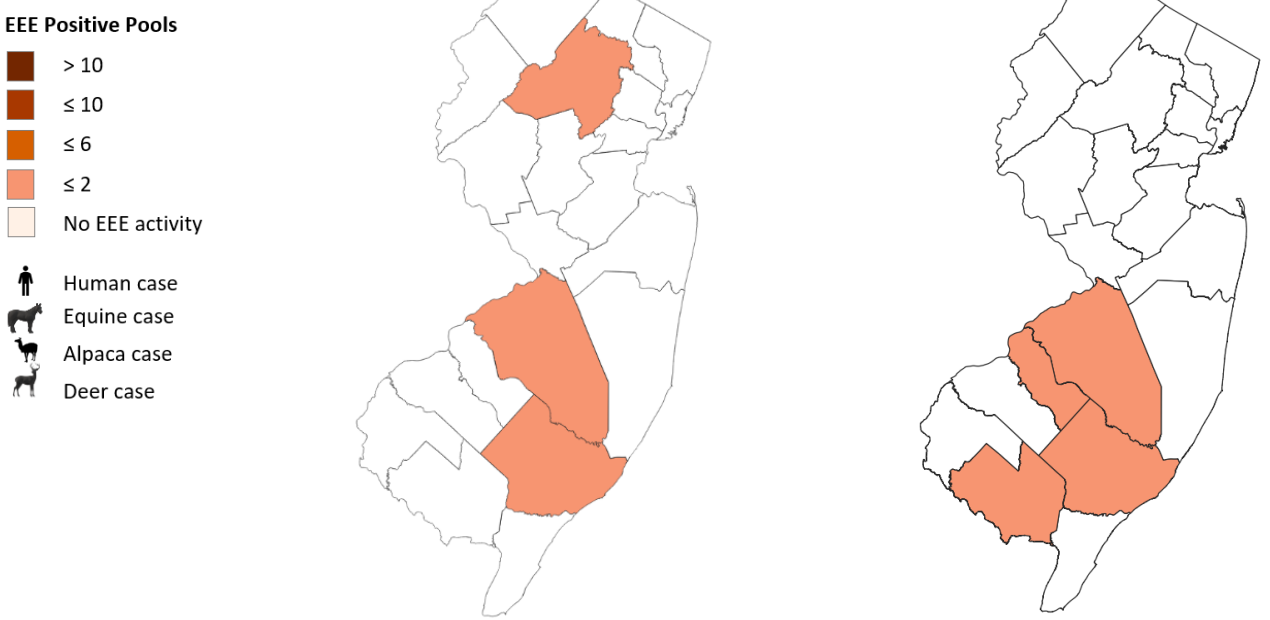



WEEK 35: Aug 28 - Sep 3, 2022; Aug 27 - Sep 2, 2023 *includes early season pools from 9 counties: Camden (9), Cape May (15), Cumberland (13), Essex (3), Gloucester (100), Mercer (7), Morris (18), Salem (8), Sussex (92), and Warren (27).




**2022 EEE Activity**

**Cumulative EEE Activity, 2023**



## Jamestown Canyon Virus

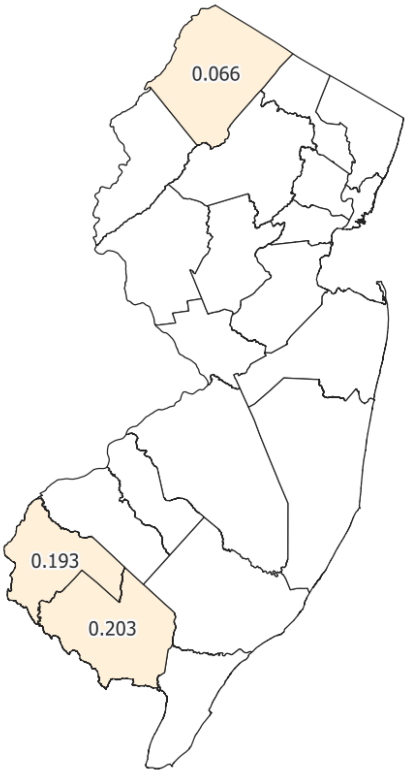
- There have been no human cases of JCV in New Jersey in 2023.
- 6,045 mosquito pools from 21 counties have been tested for JCV with three pools testing positive in Bergen and Cumberland counties. The positive pools were found in: *Anopheles quadrimaculatus s.l. (1), Anopheles punctipennis (1),* and *Coquillettidia perturbans (1).* The first positive JCV pool was identified in Cumberland County in week 25. In 2022, the first JCV positive pool was detected in Week 22 (Bergen County).
- JCV can be detected in early-season mosquitoes. Nine counties submitted early season mosquito pools for JCV testing, with collection dates starting the 1st week of April. These are Camden (9), Cape May (15), Cumberland (13), Essex (3), Gloucester (100), Mercer (7), Morris (18), Salem (8), Sussex (92), and Warren (27). None of the early-season pools was positive for JCV.

**JCV Mosquito Pool Testing**

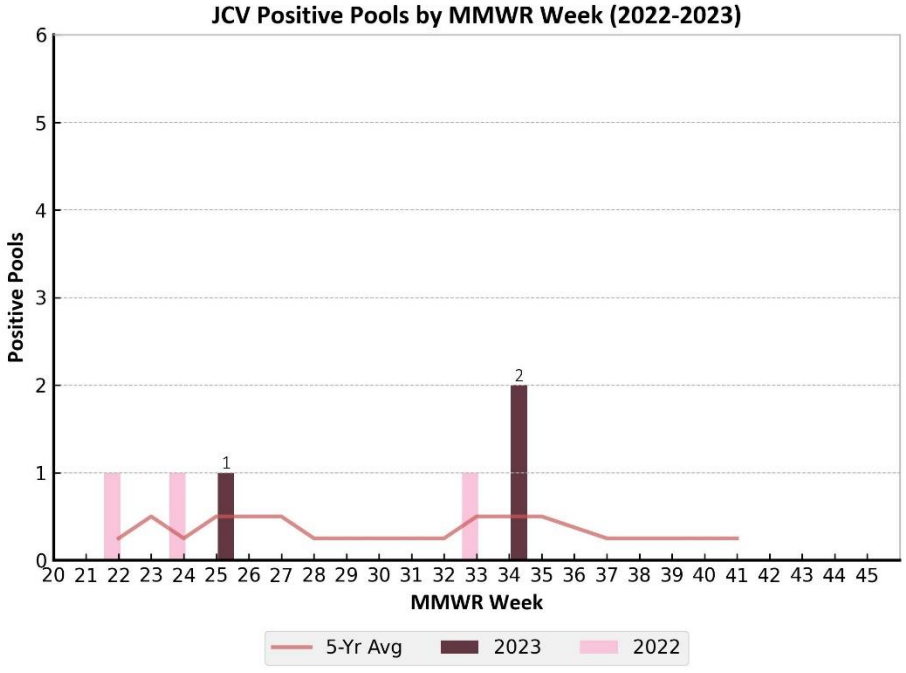
| | WEEK 35 Positive Pools | | Cumulative Pos. Total* (WEEK 35) | | # Pools Tested | Cumulative MFIR |
|---|---|---|---|---|---|---|
| **County** | **2023** | 2022 | **2023** | 2022 | **2023** | **2023** |
| Cumberland | | | 1 | | 273 | **0.203** |
| Salem | | | 1 | | 302 | **0.193** |
| Sussex | | | 1 | 1 | 524 | **0.066** |
| Atlantic | | | | | 283 | |
| Bergen | | | | 2 | 258 | |
| Burlington | | | | | 193 | |
| Camden | | | | | 218 | |
| Cape May | | | | | 375 | |
| Essex | | | | | 194 | |
| Gloucester | | | | | 576 | |
| Hudson | | | | | 205 | |
| Hunterdon | | | | | 301 | |
| Mercer | | | | | 286 | |
| Middlesex | | | | | 252 | |
| Monmouth | | | | | 330 | |
| Morris | | | | | 318 | |
| Ocean | | | | | 278 | |
| Passaic | | | | | 169 | |
| Somerset | | | | | 224 | |
| Union | | | | | 152 | |
| Warren | | | | | 334 | |
| **Total** | - | - | **3** | **3** | **6045** | - |

WEEK 35: Aug 28 - Sep 3, 2022; Aug 27 - Sep 2, 2023 *includes early season pools from 9 counties

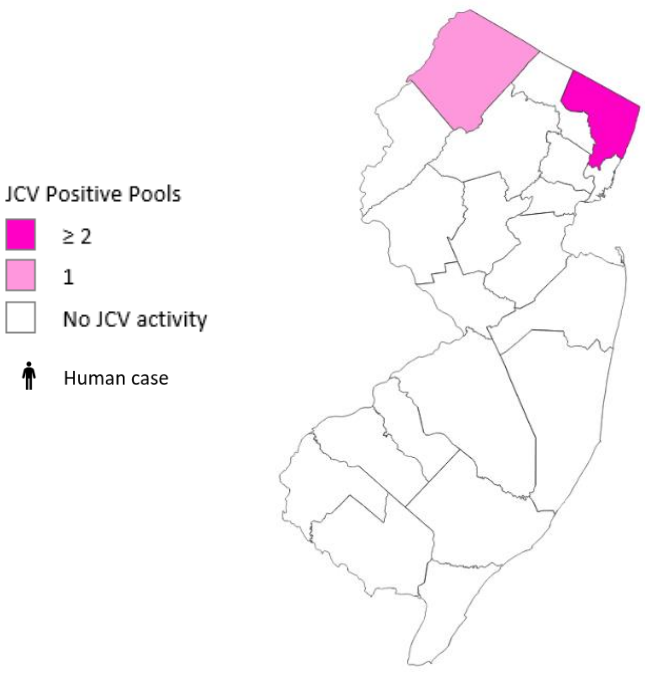
**Cumulative JCV MFIR, 2023**



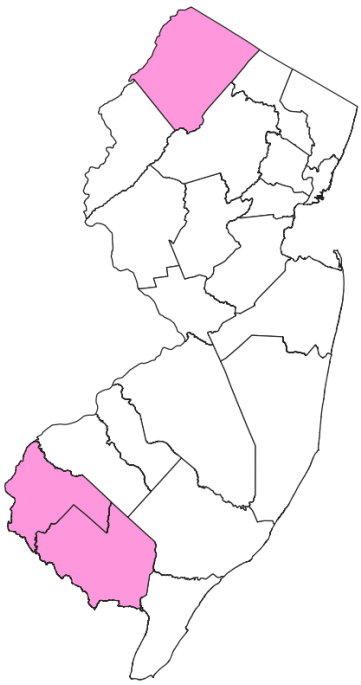

**JCV Positive Pools by MMWR Week (2022-2023)**



**2022 JCV Activity**




**Cumulative JCV Activity, 2023**



## Other Mosquito-borne Viruses

- Mosquito pools from 21 counties have been tested for other arboviruses with no positive results.

**Cumulative 2023 Mosquito Pool Testing (Other Viruses[a])**

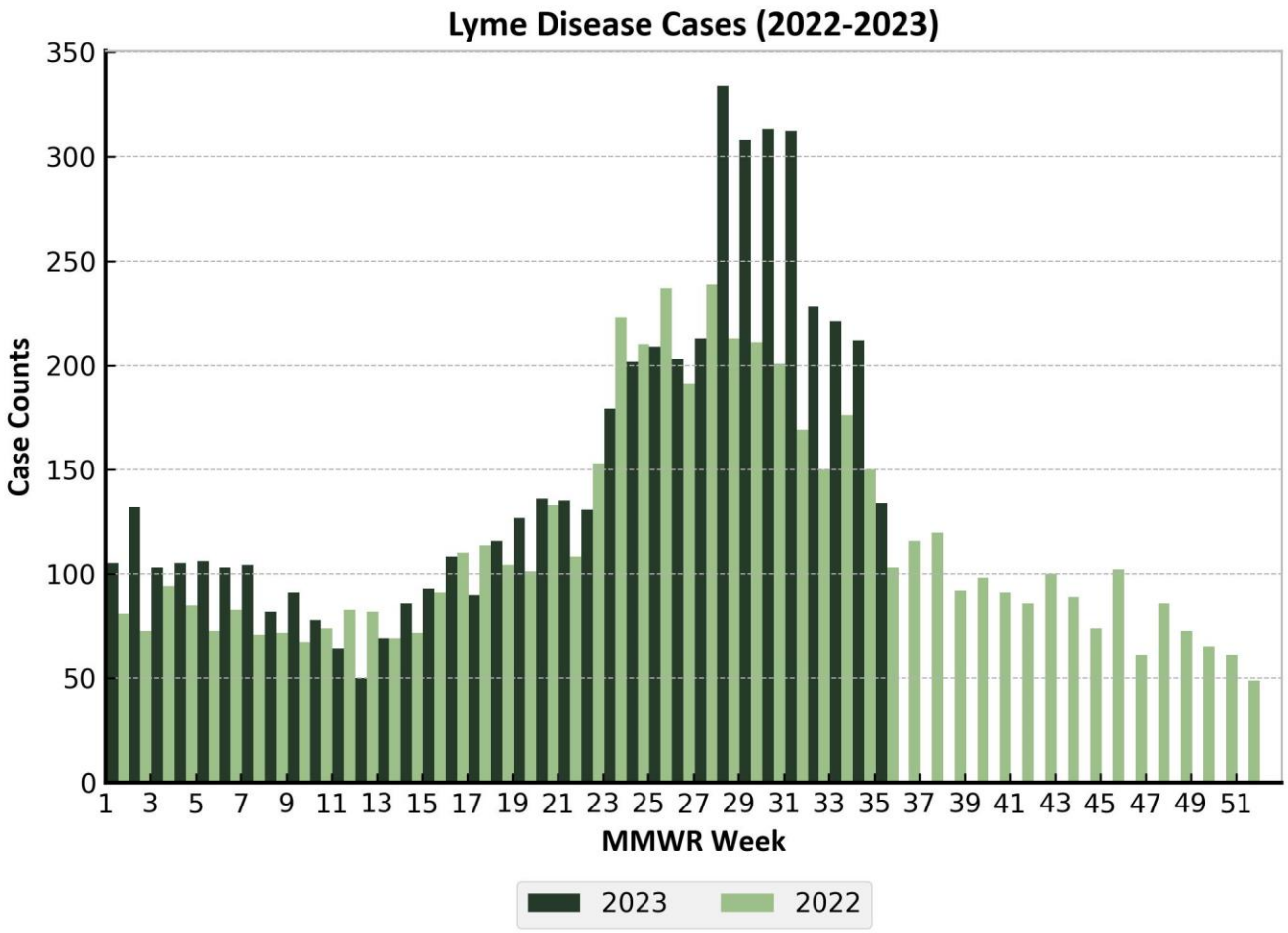
| | SLE | | LAC | | CHIKV | | DENV | | ZIKV | |
|---|---|---|---|---|---|---|---|---|---|---|
| **County** | Pools | Pos | Pools | Pos | Pools | Pos | Pools | Pos | Pools | Pos |
| Atlantic | 283 | | 4 | | 3 | | 3 | | 3 | |
| Bergen | 258 | | | | 2 | | 2 | | 2 | |
| Burlington | 193 | | 5 | | 2 | | 2 | | 2 | |
| Camden | 233 | | 10 | | 3 | | 3 | | 3 | |
| Cape May | 838 | | 22 | | 137 | | | | 137 | |
| Cumberland | 273 | | | | | | | | | |
| Essex | 194 | | | | | | | | | |
| Gloucester | 576 | | 5 | | | | | | | |
| Hudson | 205 | | | | | | | | | |
| Hunterdon | 301 | | 3 | | | | | | | |
| Mercer | 286 | | 12 | | 7 | | 7 | | 7 | |
| Middlesex | 252 | | | | 2 | | 2 | | 2 | |
| Monmouth | 330 | | | | 2 | | 2 | | 2 | |
| Morris | 318 | | | | 3 | | 3 | | 3 | |
| Ocean | 278 | | 6 | | 1 | | 1 | | 1 | |
| Passaic | 169 | | 8 | | | | | | | |
| Salem | 305 | | 21 | | 1 | | 1 | | 1 | |
| Somerset | 224 | | | | | | | | | |
| Sussex | 524 | | 12 | | | | | | | |
| Union | 152 | | | | | | | | | |
| Warren | 334 | | 21 | | | | | | | |
| **Total** | **6526** | **-** | **129** | **-** | **163** | **-** | **26** | **-** | **163** | **-** |

[a] St. Louis virus (SLE), La Crosse encephalitis (LAC), Chikungunya virus (CHIKV), Dengue virus (DENV), Zika Virus (ZIKV)
Numbers in white columns represent number of pools tested to date in 2023
Number in blue shaded columns represent positive pools in 2023

## Tick-borne Disease Activity

### Lyme Disease

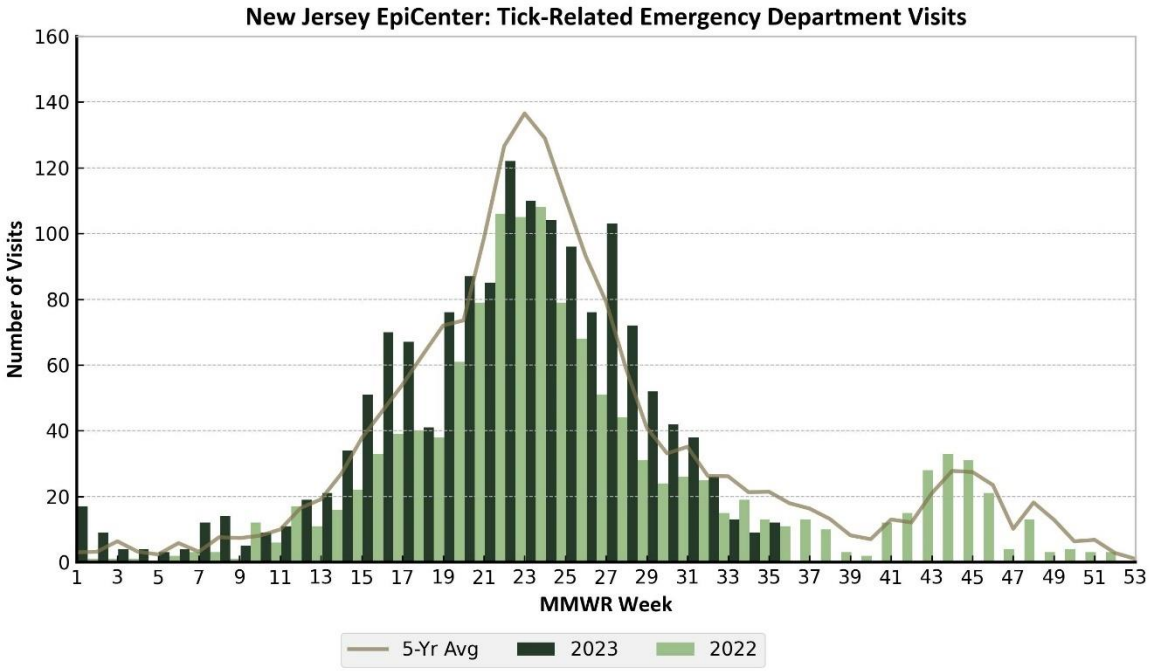
- There have been 5,276 cases of Lyme disease reported in New Jersey in 2023 in 21 counties.
- The number of cases in Week 35 continued to decline and is slightly lower than this week last year.

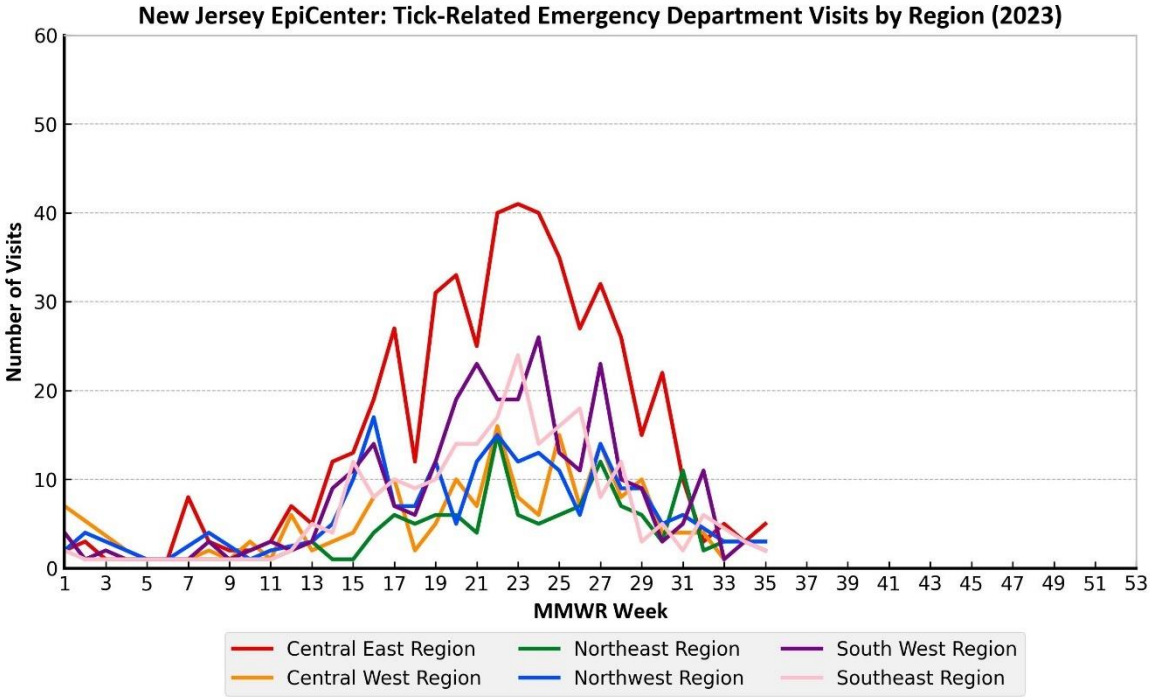



### Tick-related Emergency Department Visits

New Jersey's syndromic surveillance system, known as EpiCenter, receives real time Emergency Department (ED) data from 78 acute care and satellite health (99 percent reporting) facilities statewide. The system collects "chief complaint" information and limited patient registration data from existing ED computer systems. The chart below represents N.J. residents seen at emergency departments statewide with a tick-bite complaint or signs/symptoms associated with a reported tick-bite. Tick-related ED visits occur throughout the year with peak number of visits in the summer months and a smaller peak in the fall weeks when adult Ixodes scapularis (blacklegged ticks) are active.

In Week 35, the number of tick-related ED visits remained at low levels and is below the 5-year average.




*Data reflects ED visits downloaded from EpiCenter as of September 6, 2023*

## For more information

- NJDOH Communicable Disease Service: https://www.nj.gov/health/cd/topics/vectorborne.shtml
- New Jersey Vector-borne Disease Dashboard: https://dashboards.doh.nj.gov/views/public_dashboard/Intro
- New Jersey Arboviral Activity Maps: http://bit.ly/JerseySurv
- NJDEP Office of Mosquito Control Coordination: https://www.nj.gov/dep/mosquito/
- NJDA Division of Animal Health: https://www.nj.gov/agriculture/divisions/ah/