Vector-borne Surveillance Report

CDC Week 41: Oct 8-14, 2023

Report Highlights:

- ***NJDOH is reporting 13 cases, 1 death, and 3 presumptive viremic blood donors (PVD) associated with West Nile Virus (WNV) infection in Atlantic, Bergen, Burlington, Camden, Middlesex, Monmouth, Morris, and Passaic counties.***
- ***Two mosquito pools tested positive for WNV so far in Week 41 in Hudson and Mercer counties, for a total of 837 this year. The number of positive pools continues to decline (additional tests pending for this week).***
- ***Three additional Eastern Equine Encephalitis (EEE) mosquito pools were detected, for a total of 18 this year in Atlantic, Burlington, Camden, Cape May, Cumberland, Hunterdon, Morris, Somerset, and Sussex counties. EEE activity is detected each year in southern New Jersey, but northern detections are less common. One horse tested positive for EEE in Gloucester County in week 37. There are no human cases of EEE in 2023.***
- ***One additional mosquito pool tested positive for Jamestown Canyon virus in Sussex County, for a total of 5 positive pools in Cumberland, Gloucester, Salem, and Sussex counties.***
- ***La Crosse Encephalitis (LAC) virus was detected in a mosquito pool in week 38 in Sussex County. This is the first LAC positive mosquito pool in New Jersey since 2019 (Passaic County) and only the 4th identification in at least 20 years. There have been no human cases of LAC reported in New Jersey for at least the past 20 years.***
- ***The number of chikungunya and dengue virus cases has exceeded 2022 totals. All cases have been travel-associated.***
- ***All of the tickborne diseases transmitted by blacklegged ticks, with the exception of Powassan, have exceeded 2022 totals.***
- ***In Week 41, the number of tick-related Emergency Department visits is consistent with historical trends and is expected to increase over the next month when adult deer ticks are active.***

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	**173**	234
Dengue	**48**	35	Anaplasmosis	**148**	125
Eastern equine encephalitis	**-**	-	Babesiosis	**320**	292
Jamestown Canyon	**-**	-	*Borrelia miyamotoi*	**9**	6
Malaria	**59**	86	Ehrlichiosis (*chaffeensis, ewingii*)	**92**	115
West Nile	**13**	20	Lyme disease*	**6,013**	5,897
Zika	**-**	-	Powassan	**-**	2
			Spotted fever group rickettsioses	**20**	35
			Tularemia	**2**	1

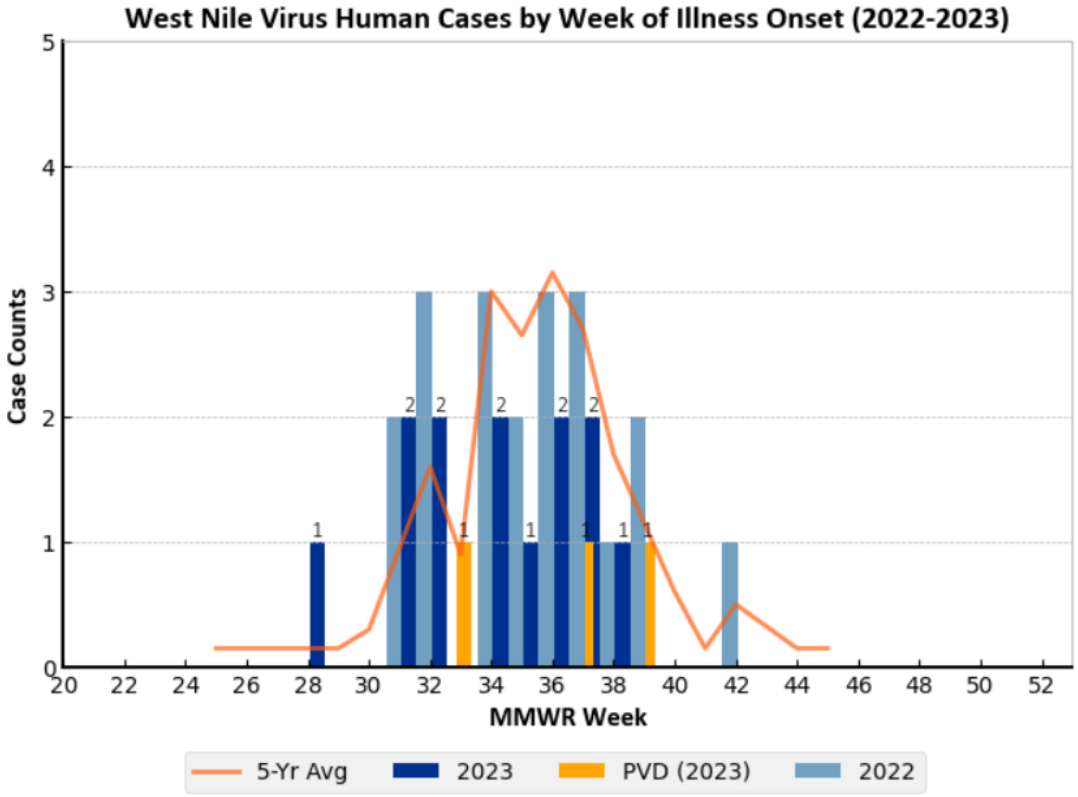
* Lyme disease surveillance transitioned to laboratory-based surveillance in 2022.

Mosquito-borne Disease Activity*

**Test results may be incomplete as counties submit pools for testing on specific weekdays. Data reflects test results downloaded from JerseySurv on October 18, 2023.*

West Nile Virus

- There are 13 human WNV cases with dates of illness onset ranging from week 28 (week ending 7/15/23) to week 38 (week ending 9/21/23).
- WNV cases have been reported in Bergen (4 cases, 1 death), Middlesex (3 cases), Camden (2 cases and 2 presumptive viremic blood donor (PVD)), Atlantic (1 case), Monmouth (1 case), Morris (1 case), and Passaic (1 case) counties and an additional PVD in Burlington County.
- There have been no animal cases of WNV reported in New Jersey in 2023.
- 9,636 pools from 21 counties have been tested for WNV. 2 pools tested positive in Week 40 in 2 counties and a total of 837 mosquito pools have tested positive for WNV so far this year. The positive pools were found in: *Aedes albopictus, Aedes japonicus, Aedes taeniorhynchus, Aedes triseriatus, Anopheles punctipennis, Culex, Culex erraticus, Culex pipiens, Culex pipiens/restuans/salinarius, Culex restuans, Culiseta melanura,* and *Psorophora ferox.*

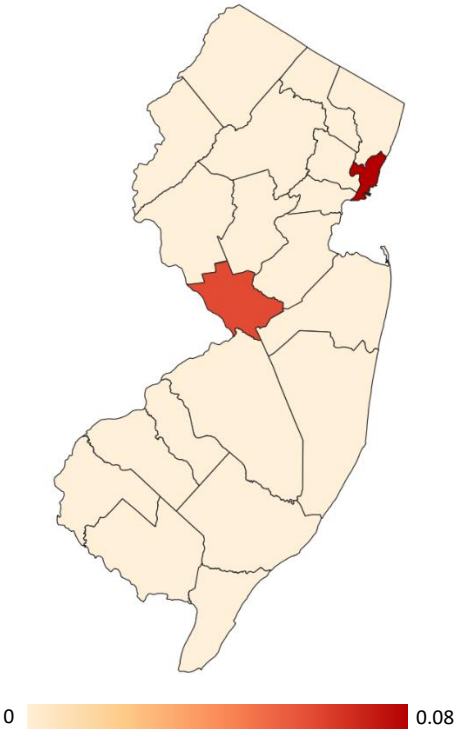


WNV Mosquito Pool Testing

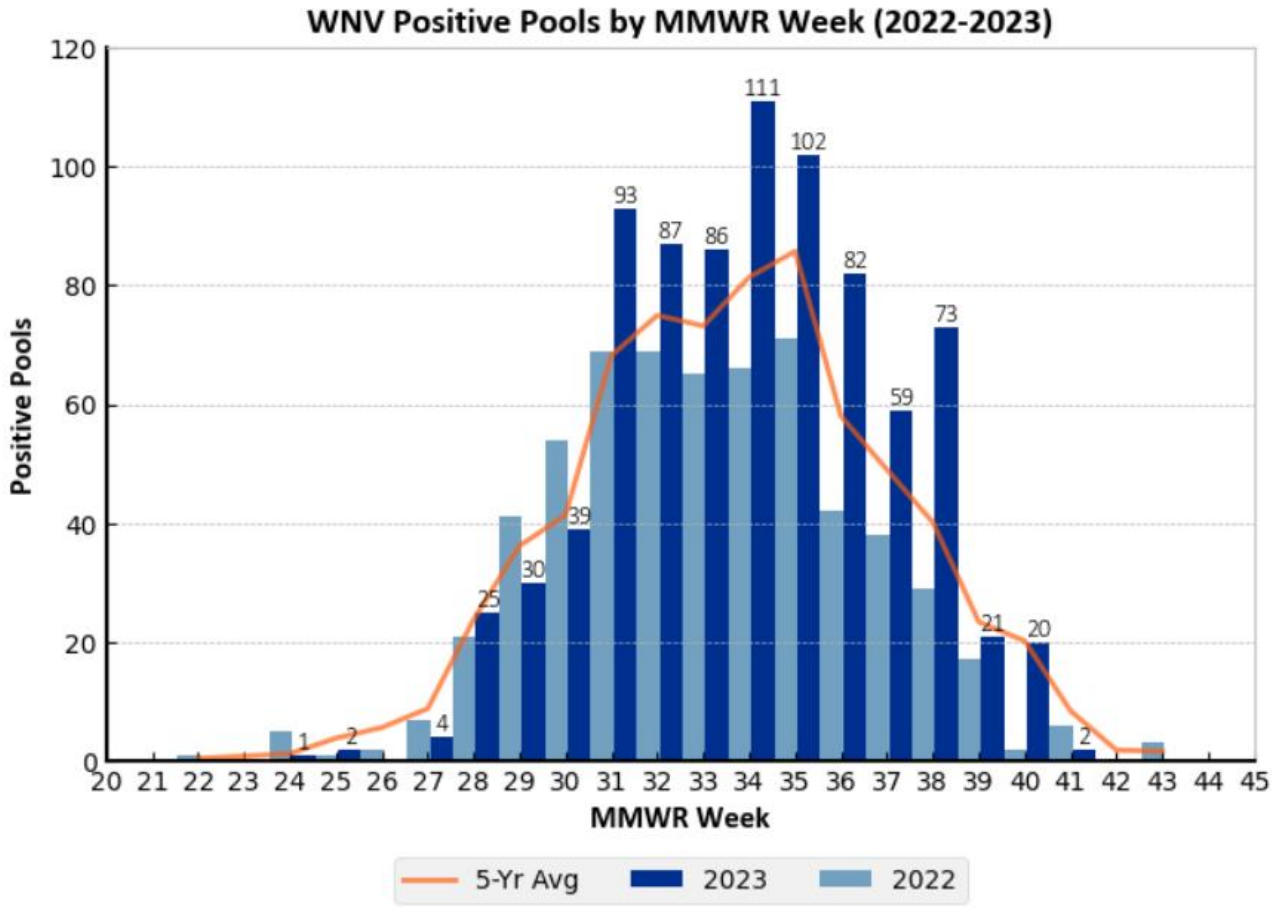
	WEEK 41 Positive Pools		Cumulative Pos. Total* (WEEK 41)		# Pools Tested*	WEEK 41 Vector Index	
County	**2023**	2022	**2023**	2022	**2023**	**2023[t]**	
Bergen		1	116	97	1556	0.00	(–)
Hudson	1		81	86	750	0.08	(↑)
Middlesex			67	67	707	0.00	(–)
Hunterdon			64	15	468	0.00	(–)
Somerset			61	29	466	0.00	(–)
Union			57	44	451	0.00	(–)
Mercer	1	1	54	34	433	0.06	(↑)
Gloucester			44	29	433	0.00	(–)
Morris		1	41	19	420	0.00	(–)
Monmouth			33	34	415	0.00	(–)
Sussex			30	8	403	0.00	(–)
Warren			29	8	401	0.00	(–)
Atlantic			27	31	371	0.00	(–)
Burlington		3	27	6	335	0.00	(↓)
Passaic			26	49	333	0.00	(–)
Cape May			26	2	326	0.00	(–)
Ocean			20	10	317	0.00	(–)
Camden			20	24	298	0.00	(↓)
Salem			7	11	289	0.00	(–)
Essex			6	2	246	0.00	(–)
Cumberland			1	1	218	0.00	(–)
Total	**2**	**6**	**837**	**606**	**9636**	-	

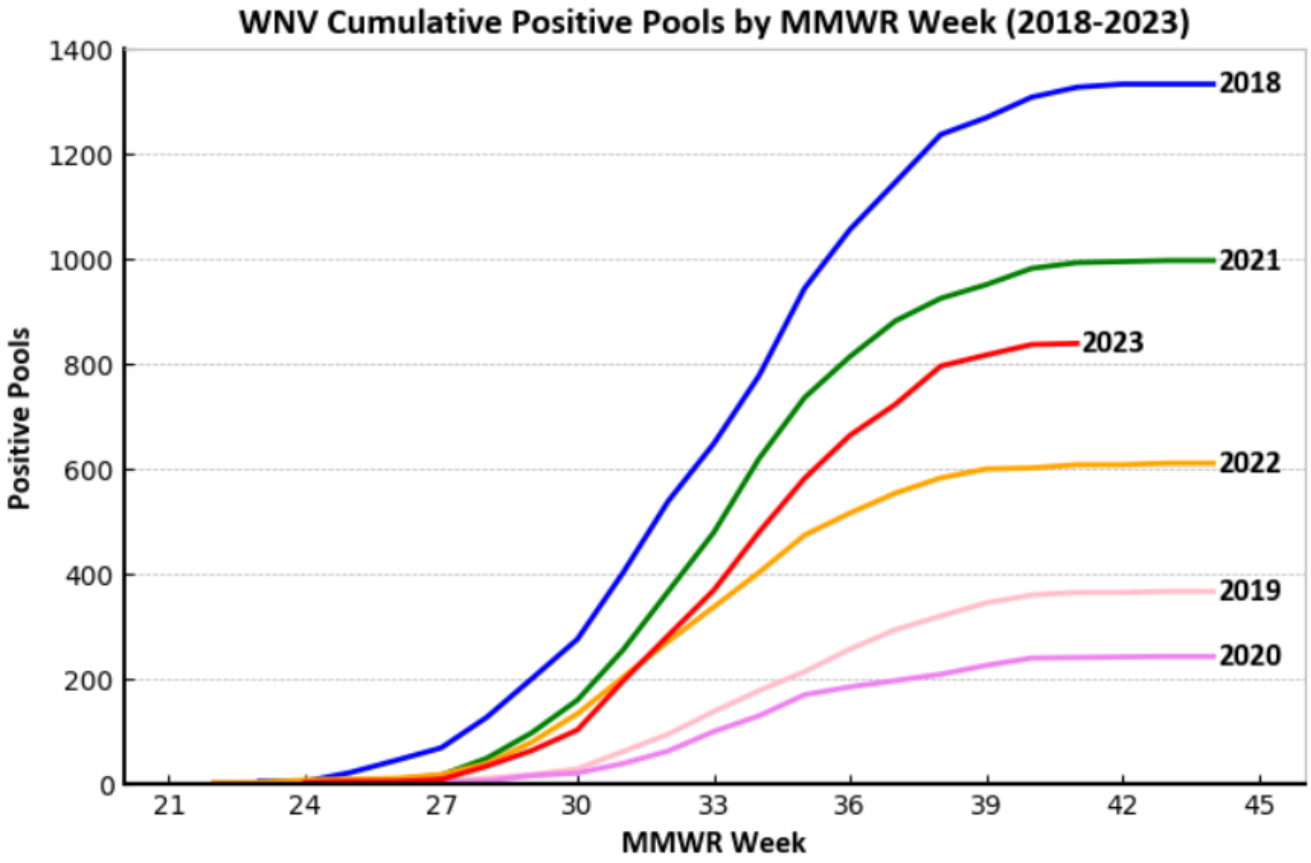
WEEK 41: Oct 9-15, 2022; Oct 8-14, 2023. *The number of pools tested for 9 counties includes early season collections that were specifically targeting JCV: Camden (9), Cape May (15), Cumberland (13), Essex (3), Gloucester (100), Mercer (7), Morris (18), Salem (8), Sussex (92), and Warren (27).

WNV Vector Index, WEEK 41[t]



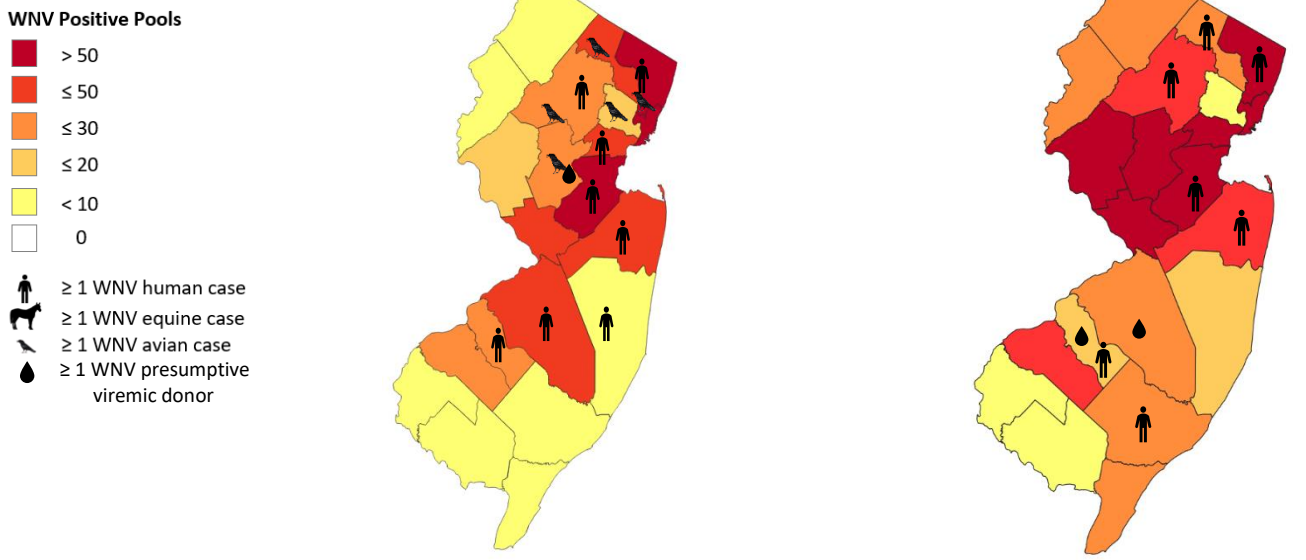
[t] Vector Index is calculated based on *Ae. taeniorhynchus, An. quadrimaculatus,* and all *Culex* species caught in gravid traps only.


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
111
102
82
59
73
21
20
2


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

2022 WNV Activity

Cumulative WNV Activity, 2023



Eastern Equine Encephalitis

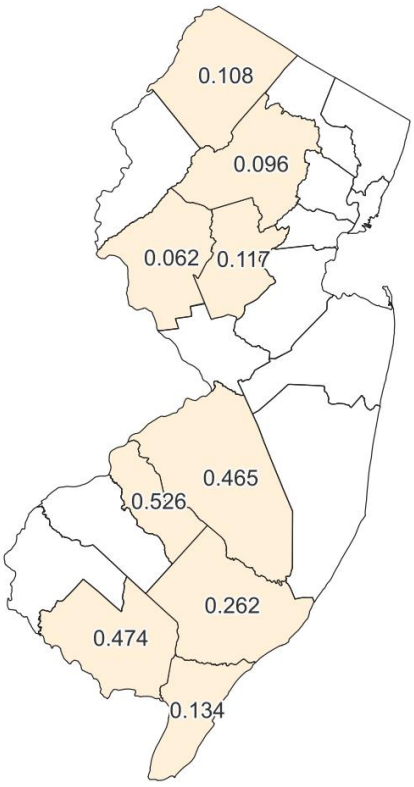
- There have been no human cases of EEE in New Jersey in 2023. EEE human cases were last reported in 2019 (4 cases).
- New Jersey Department of Agriculture reported 1 equine case of EEE in Gloucester County in week 37. The case had been vaccinated in the past for EEE, but their vaccination was not up to date.
- A total of 9,325 mosquito pools have been tested for EEE with 18 pools positive in Atlantic, Burlington, Camden, Cape May, Cumberland, Hunterdon, Morris, Somerset, and Sussex counties. EEE activity is detected each year in southern New Jersey, but northern detections are less common. Positive pools were found in: *Culex* and *Culiseta melanura* mosquitoes.

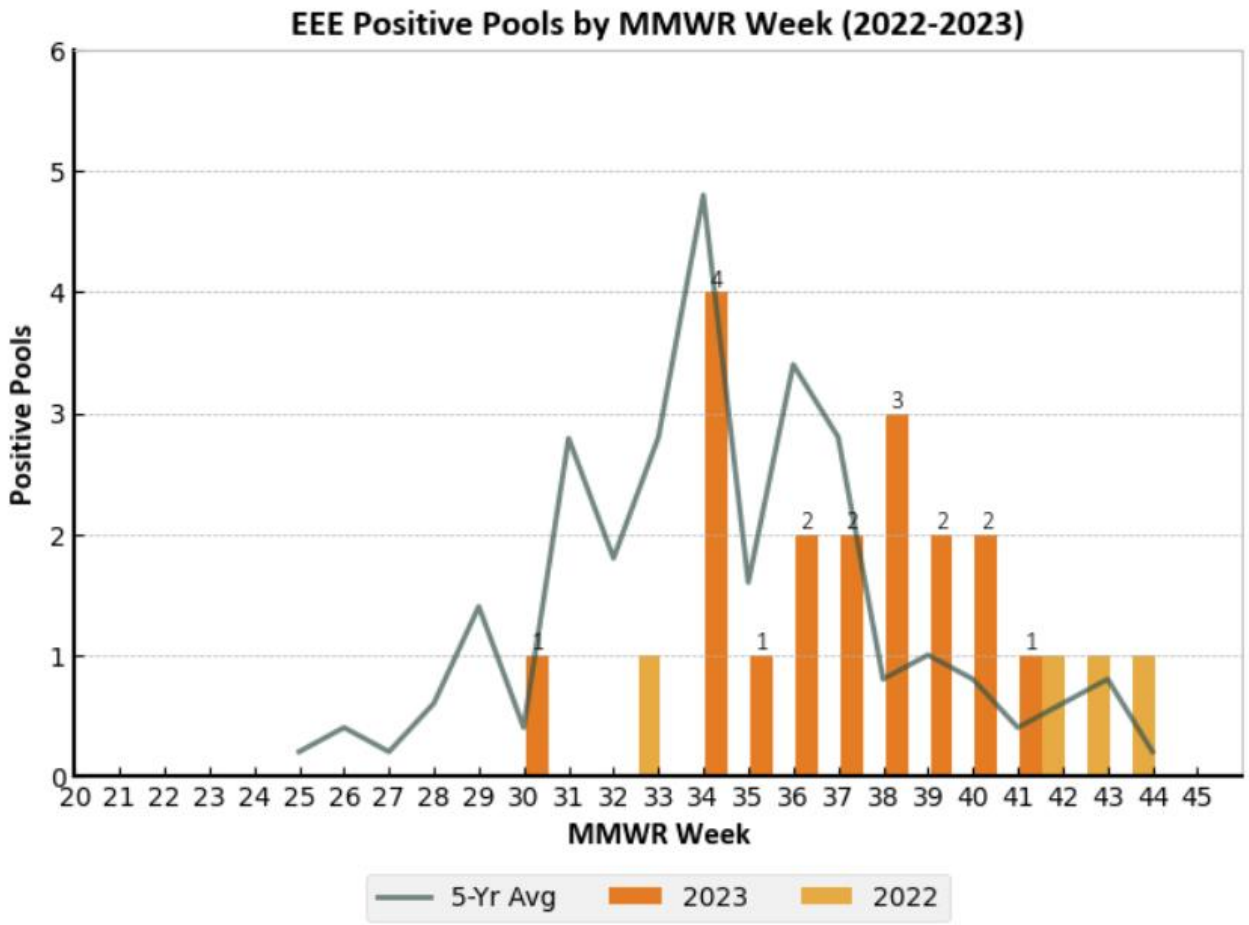
EEE Mosquito Pool Testing

	WEEK 41 Positive Pools		Cumulative Pos. Total* (WEEK 41)		# Pools Tested	Cumulative MFIR
County	**2023**	2022	**2023**	2022	**2023**	**2023**
Atlantic			3		420	**0.262**
Burlington			3		325	**0.465**
Cumberland			3		415	**0.474**
Camden			2		318	**0.526**
Cape May	1		2		1485	**0.134**
Sussex			2		632	**0.108**
Hunterdon			1		400	**0.062**
Morris			1	1	468	**0.096**
Somerset			1		298	**0.117**
Bergen					371	
Essex					317	
Gloucester					744	
Hudson					289	
Mercer					420	
Middlesex					335	
Monmouth					466	
Ocean					395	
Passaic					246	
Salem					410	
Union					218	
Warren					422	
Total	**1**	**0**	**18**	**1**	**9394**	-

WEEK 41: Oct 9-15, 2022; Oct 8-14, 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).

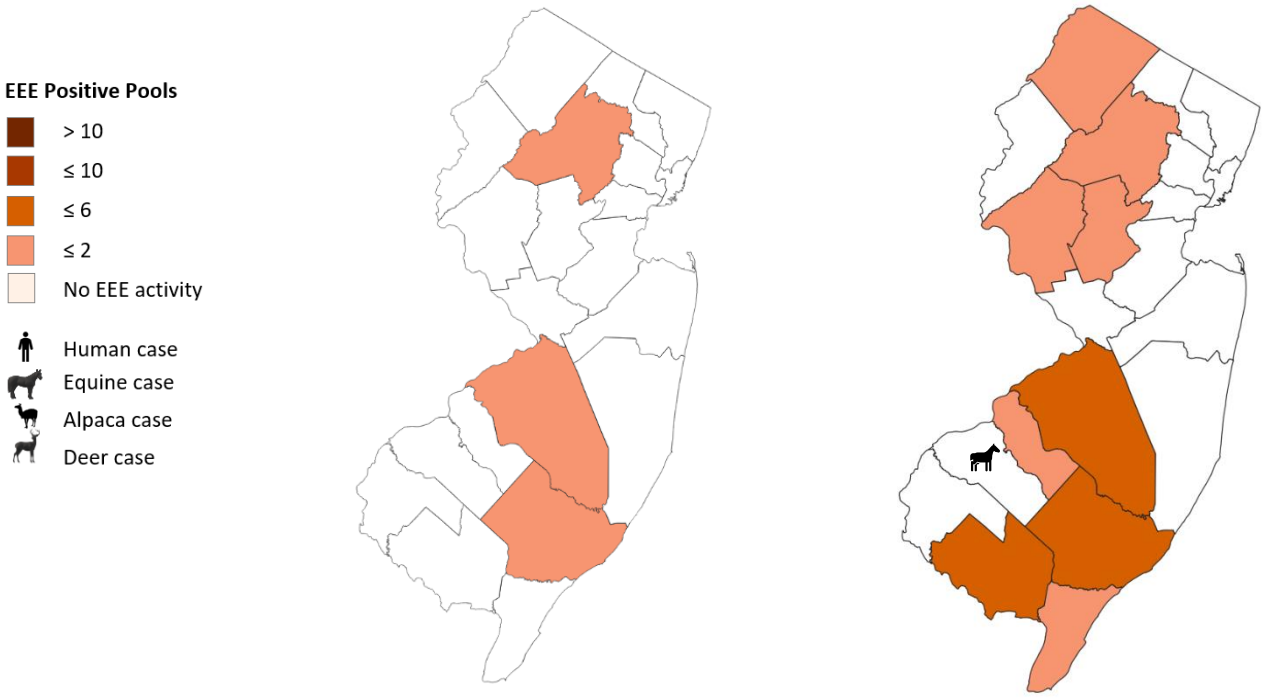
Cumulative EEE MFIR, 2023





2022 EEE Activity

Cumulative EEE Activity, 2023



Jamestown Canyon Virus

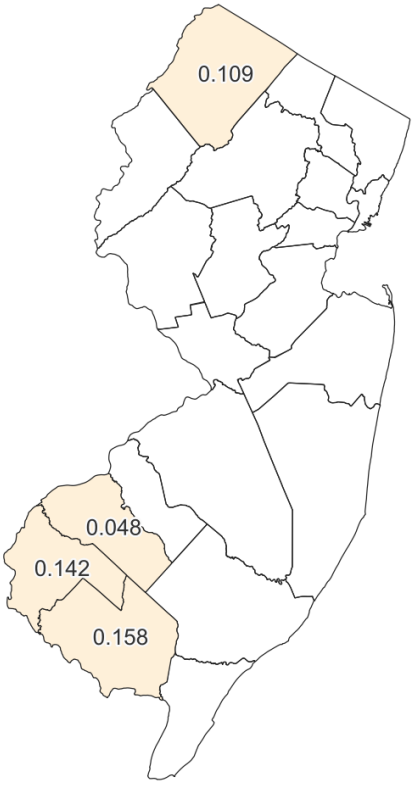
- There have been no human cases of JCV in New Jersey in 2023.
- 8,326 mosquito pools from 21 counties have been tested for JCV with 5 pools testing positive in Cumberland, Gloucester, Salem, and Sussex counties. The positive pools were found in: *Anopheles quadrimaculatus s.l. (1), Anopheles punctipennis (3),* and *Coquillettidia perturbans (1).* The first positive JCV pool was identified in Cumberland County in week 25.
- 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.

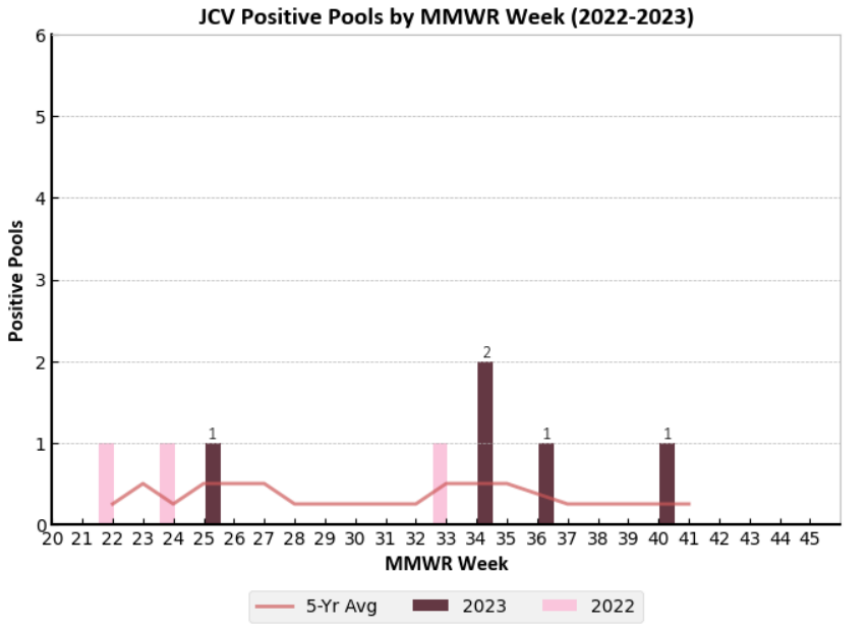
JCV Mosquito Pool Testing

	WEEK 41 Positive Pools		Cumulative Pos. Total* (WEEK 41)		# Pools Tested	Cumulative MFIR
County	**2023**	2022	**2023**	2022	**2023**	**2023**
Sussex			2	1	632	**0.109**
Salem			1		395	**0.142**
Gloucester			1		708	**0.048**
Cumberland			1		415	**0.158**
Atlantic					420	
Bergen				2	371	
Burlington					325	
Camden					285	
Cape May					541	
Essex					317	
Hudson					289	
Hunterdon					400	
Mercer					420	
Middlesex					335	
Monmouth					426	
Morris					468	
Ocean					395	
Passaic					246	
Somerset					298	
Union					218	
Warren					422	
Total	**0**	**0**	**5**	**3**	**8326**	**-**

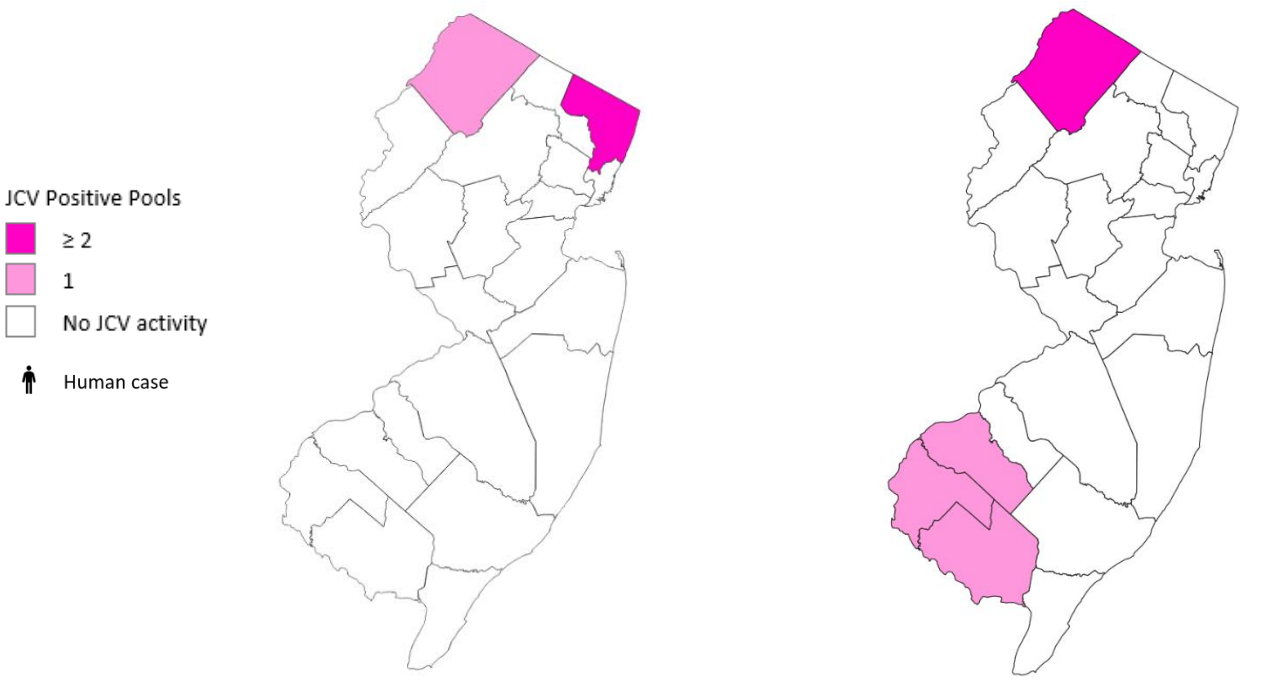
WEEK 41: Oct 9-15, 2022; Oct 8-14, 2023 *includes early season pools from 9 counties

Cumulative JCV MFIR, 2023





2022 JCV Activity **Cumulative JCV Activity, 2023**



Other Mosquito-borne Viruses

- There was 1 positive pool of LAC in Sussex County in week 38. The positive pool was in *Ae. triseriatus*. The last positive LAC pool in New Jersey was in week 22 of 2019 in Passaic County.

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

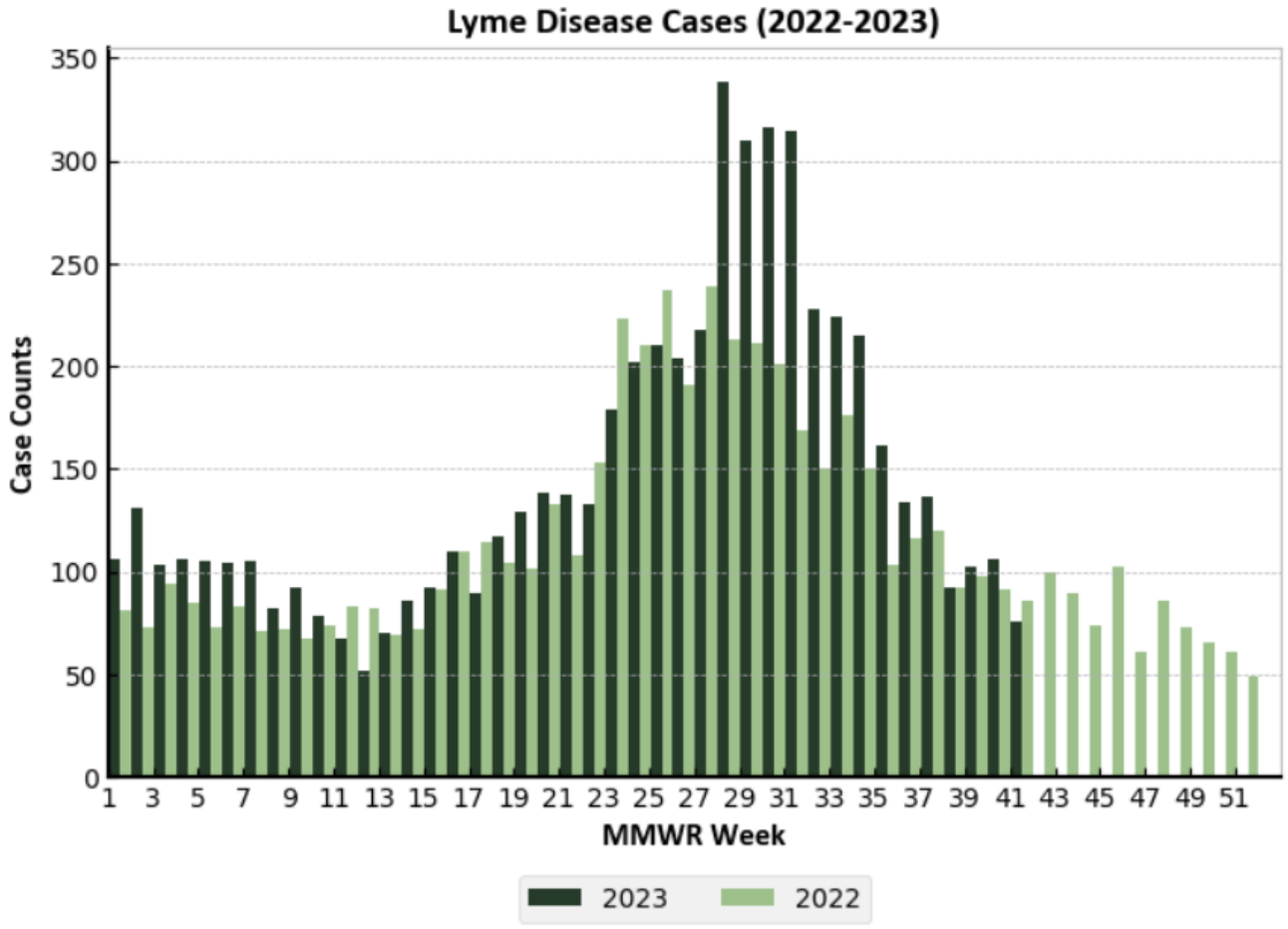
	SLE		LAC		CHIKV		DENV		ZIKV	
County	Pools	Pos	Pools	Pos	Pools	Pos	Pools	Pos	Pools	Pos
Atlantic	420		4		5		5		5	
Bergen	371		6		5		5		5	
Burlington	325		8		2		2		2	
Camden	311		11		4		4		4	
Cape May	1385		32		212				212	
Cumberland	415									
Essex	317						7			
Gloucester	714		5				2			
Hudson	289									
Hunterdon	400		3							
Mercer	420		13		11		11		11	
Middlesex	335				2		2		2	
Monmouth	426				2		2		2	
Morris	468				10		10		10	
Ocean	395		6		2		2		2	
Passaic	246		12		3		3		3	
Salem	407		23		1		1		1	
Somerset	298									
Sussex	632		77	1						
Union	218									
Warren	422		30		3		3		3	
Total	**9214**	**-**	**230**	**1**	**271**	**-**	**59**	**-**	**271**	**-**

[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

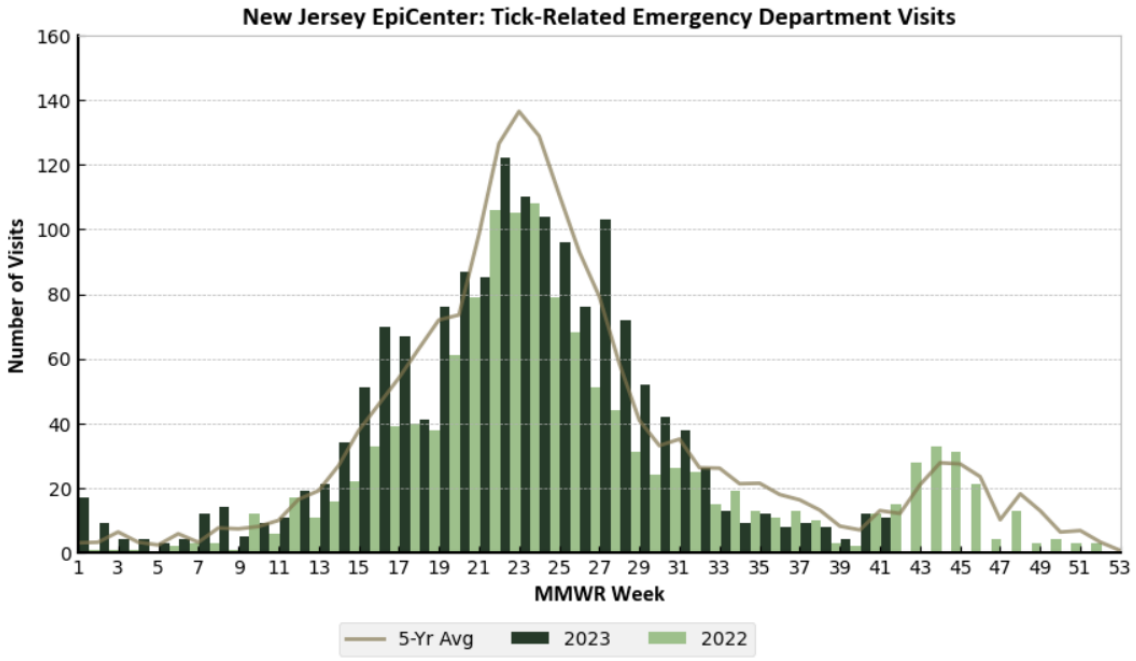
- There have been 6,013 cases of Lyme disease reported in New Jersey in 2023 in 21 counties.
- The number of cases in Week 41 is consistent with last week and this period last year.

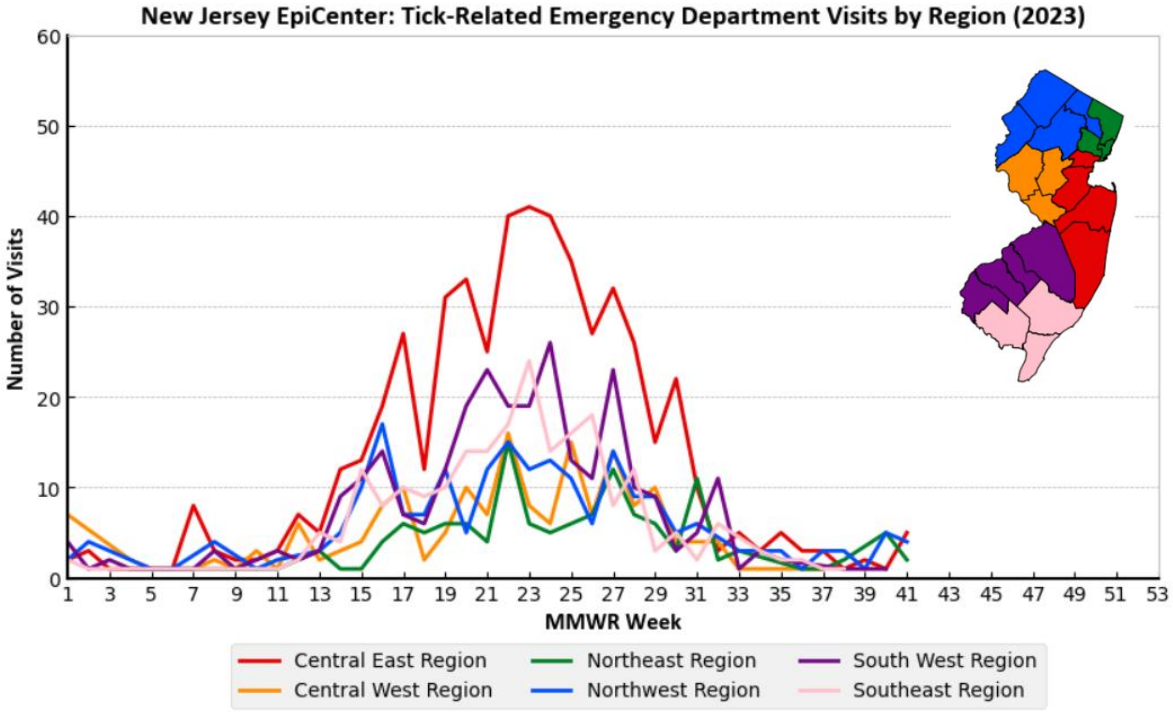


Tick-related Emergency Department Visits

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 41, the number of tick-related ED visits is consistent with historical trends and is expected to increase over the next month when adult deer ticks are active.





Data reflects ED visits downloaded from EpiCenter as of October 18, 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/