Vector-borne Surveillance Report

2024 Summary Report

Mosquito-borne Disease Activity

N.J.A.C.8:57 mandates public health reporting of communicable diseases. 2024 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 2024 numbers are preliminary and subject to change.

2024 West Nile Virus

Human Cases

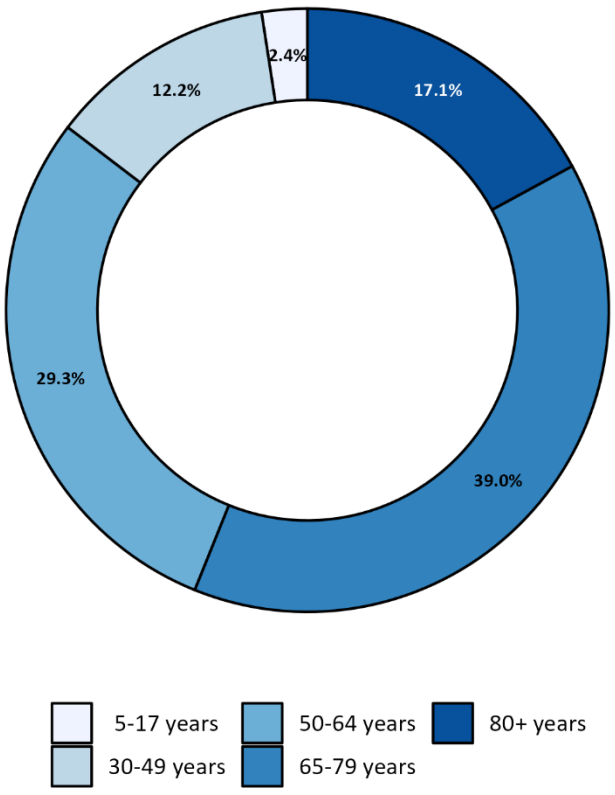
- There were 41 human West Nile Virus (WNV) cases reported in N.J. in 2024 with 8 deaths. There were 6 positive viremic donors (PVD) reported, with one PVD developing symptoms and being classified as a case.
- 31 cases (76%) WNV cases were classified as having neuroinvasive disease, meaning they presented with meningitis, encephalitis, acute flaccid paralysis, or other acute signs of central or peripheral neurologic dysfunction.
- 38 cases (93%) were hospitalized for an average length of stay of 16 days, with a range of 3 to 68 days; 18 hospitalized cases (47%) required additional medical care after hospitalization in a long-term care/rehabilitation facility.
- The age of onset ranged from 11 to 89 years, and 76% of cases were male.
- The date of illness onset ranged from CDC week 27 (week ending 7/6/24) to CDC week 49 (week ending 12/7/24). Week 49 is the latest onset week recorded in N.J.

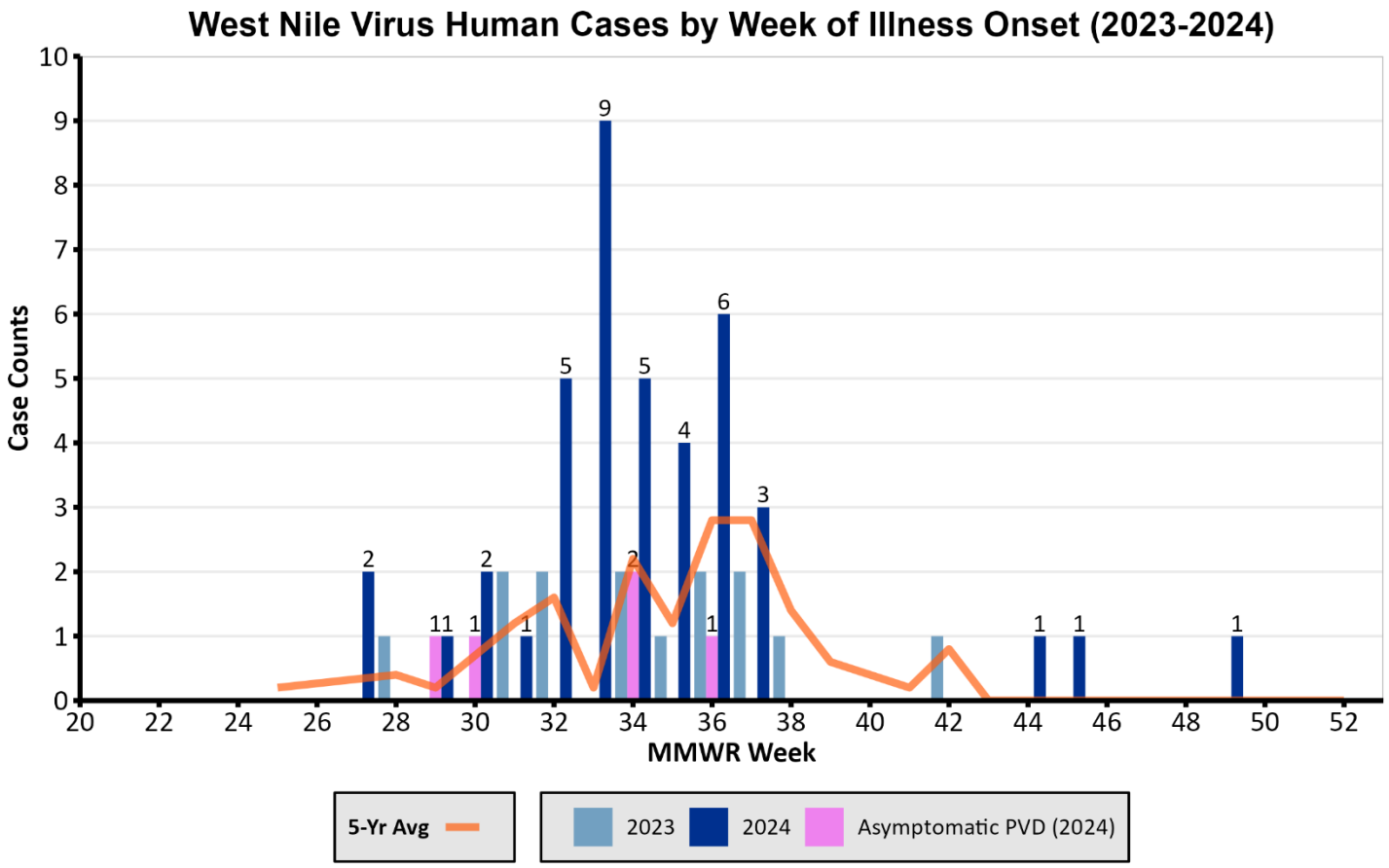
WNV Human Activity

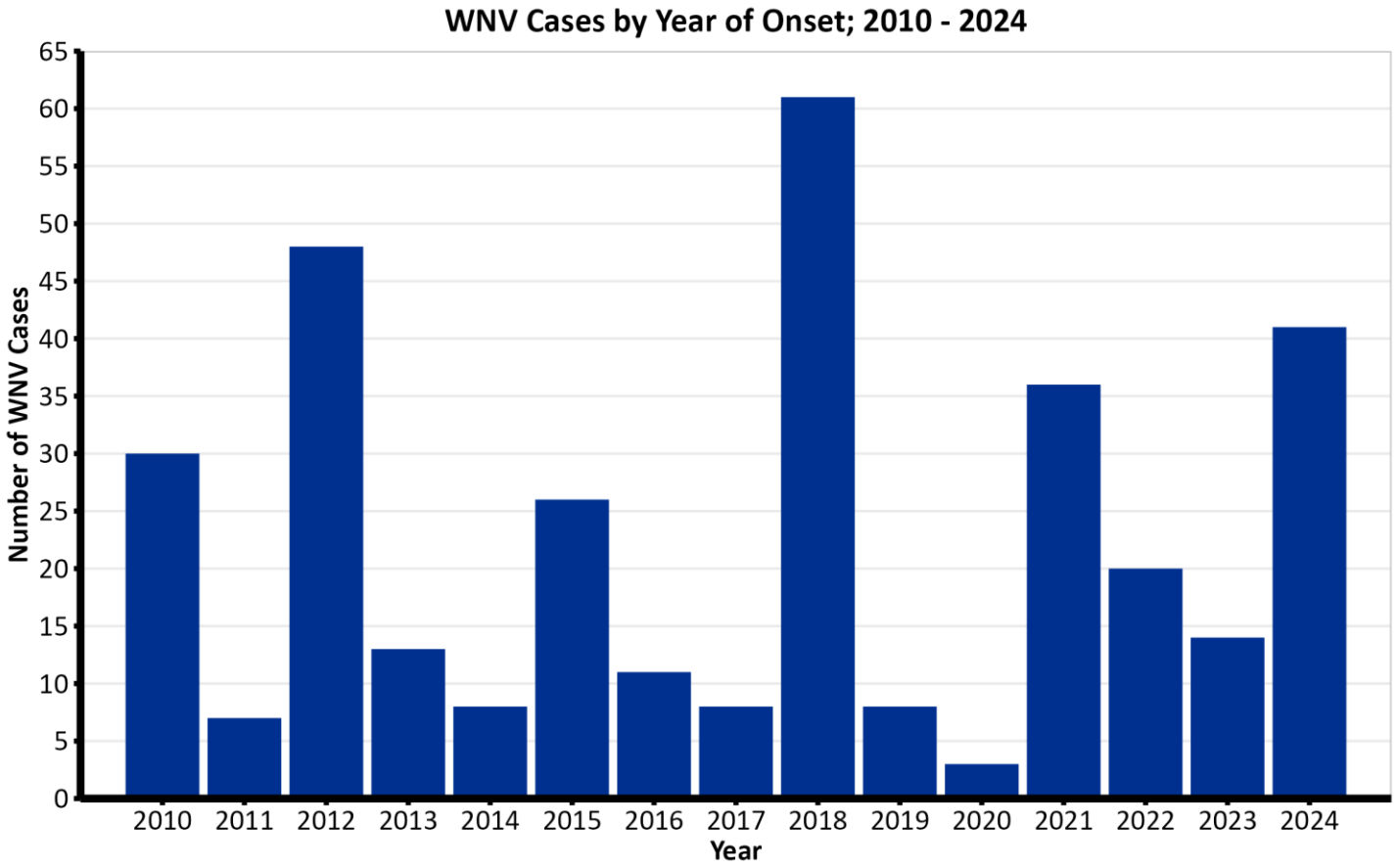
	Human Cases		PVD	
County	**2024**	**2023**	**2024**	**2023**
Bergen	6	4	1	
Camden	5	2	2*	2
Monmouth	4	1		
Essex	3		1	
Mercer	3			1
Middlesex	3	3		
Ocean	3			
Burlington	2	1		1
Cumberland	2			
Union	2			
Warren	2			
Cape May	1			
Hudson	1			
Hunterdon	1			
Passaic	1	1	1	
Salem	1			
Somerset	1		1	
Atlantic		1		
Gloucester				
Morris		1		
Sussex				
Total	**41**	**14**	**6**	**4**

*1 PVD was symptomatic and classified as a case.

WNV Cases by Age Group, 2024




West Nile Virus Human Cases by Week of Illness Onset (2023-2024)
Case Counts
MMWR Week
5-Yr Avg
2023
2024
Asymptomatic PVD (2024)


WNV Cases by Year of Onset; 2010 - 2024
Number of WNV Cases
Year

Non-Human Activity

- In 2024, 12,759 pools from 21 counties were tested for WNV and 995 (7.8%) mosquito pools tested positive for WNV. The number of pools tested is 23% higher compared to 2023, largely due to an increase in testing from Cape May County.
- 820 out of 995 WNV positive mosquito pools (97%) were detected in *Culex pipiens* or other combinations of *Culex* species mosquitos.
- The highest number of WNV positive pools was detected between weeks 29 to 33. Bergen, Hudson, and Middlesex counties reported the most positive pools in 2024.
- One positive pool was detected in week 45 in Bergen County, the latest detection New Jersey has recorded.
- Compared with the previous 7 years, 2024 along with 2021 was the second most active season for WNV detection in mosquitos.
- Five birds tested positive for WNV in 2024: 3 red-tailed hawks in week 28 from Essex and Morris counties, 1 emu in week 36 from Monmouth County, and 1 barred owl in week 39 from Cape May County.

WNV Mosquito Pool Testing

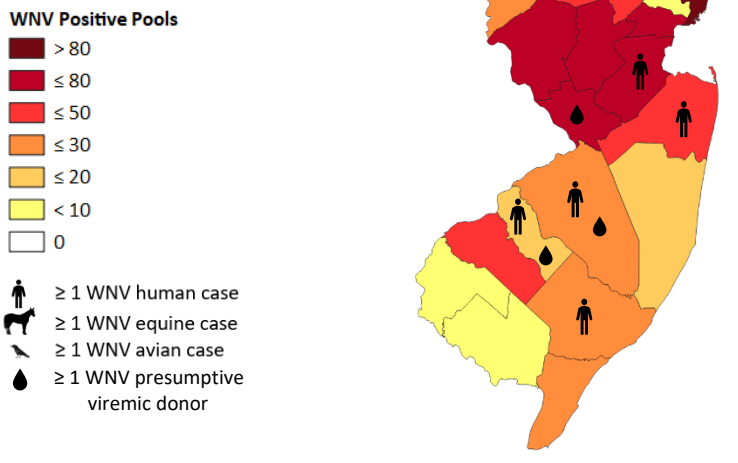
	Cumulative Pos. Total		# Pools Tested
County	**2024**	2023	**2024**
Bergen	129	118	444
Hudson	96	81	360
Middlesex	95	67	404
Union	86	57	291
Somerset	62	65	325
Hunterdon	61	64	385
Cape May	58	27	3,742
Morris	52	41	449
Passaic	51	26	285
Monmouth	48	33	572
Mercer	40	54	502
Essex	36	7	504
Gloucester	36	47	830
Sussex	33	30	462
Warren	28	29	485
Burlington	26	27	324
Atlantic	25	27	484
Camden	13	20	360
Ocean	11	20	456
Salem	7	6	656
Cumberland	2	1	439
Total	**995**	**847**	**12,759**

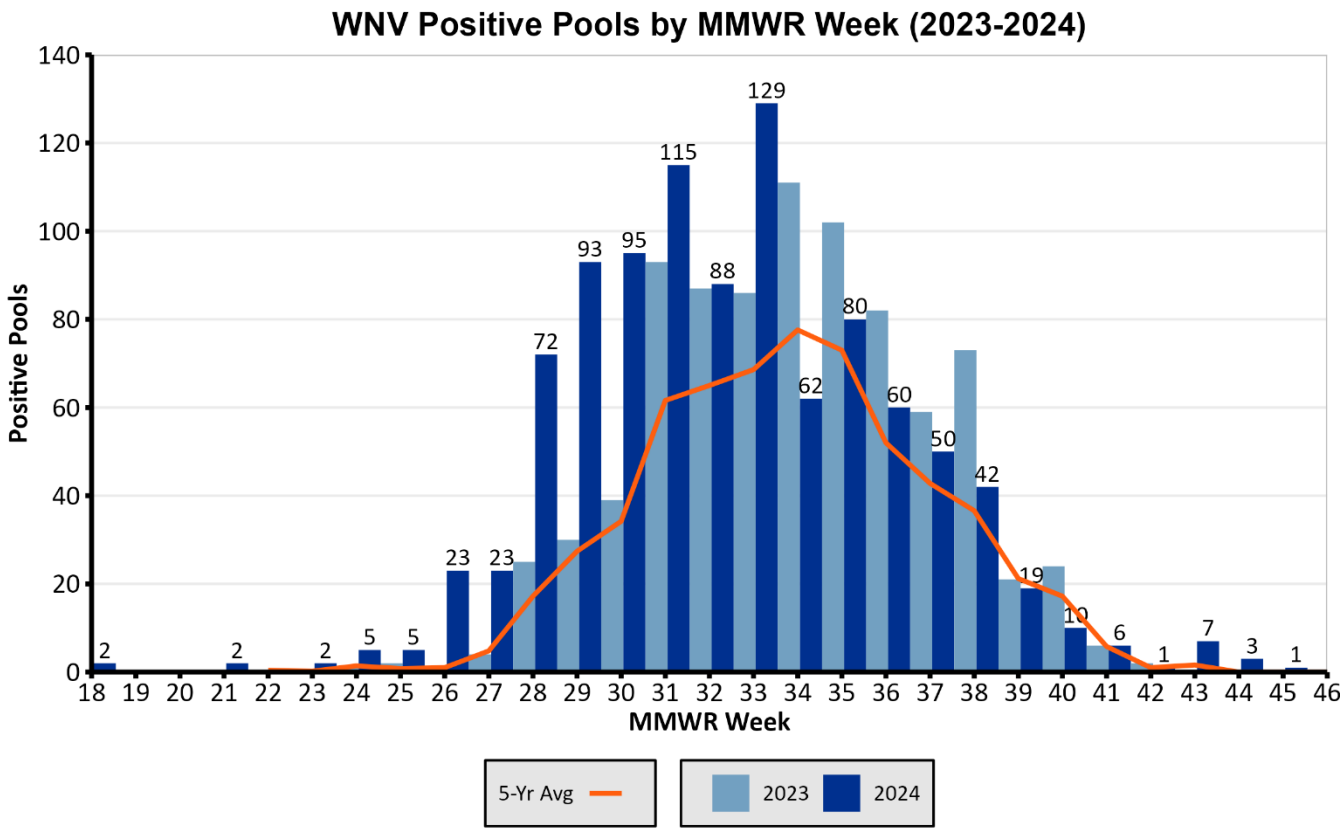
WNV Positive Mosquito Species

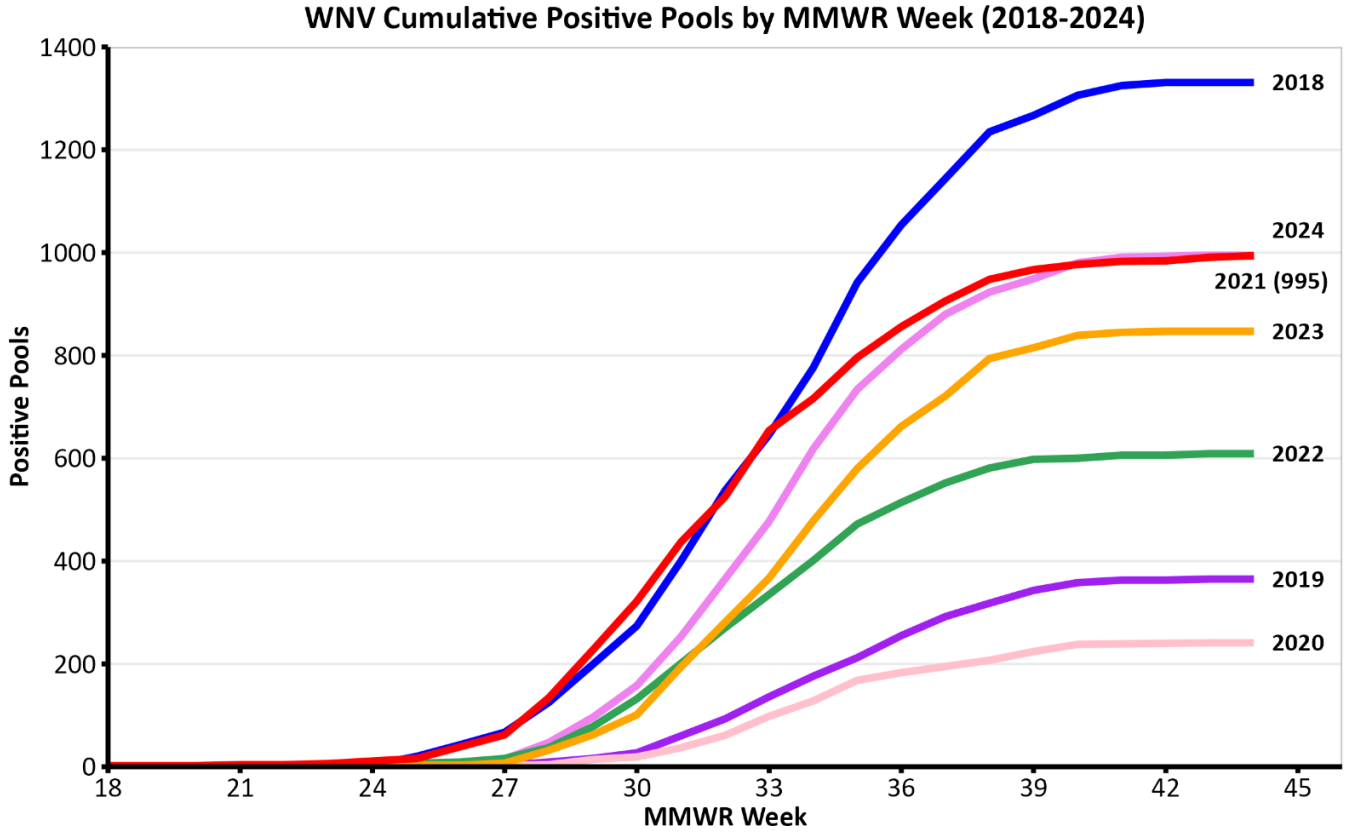
Species	Positive pools
Culex pipiens/restuans/salinarius	840
Culex pipiens	63
Aedes albopictus	41
Aedes japonicus	15
Culex restuans	11
Culiseta melanura	10
Aedes triseriatus	4
Aedes vexans	4
Anopheles punctipennis	2
Culex erraticus	2
Culex salinarius	2
Coquillettidia perturbans	1
Total	**995**

2023 WNV Activity

2024 WNV Activity




WNV Positive Pools by MMWR Week (2023-2024)
Positive Pools
MMWR Week
5-Yr Avg
2023
2024


WNV Cumulative Positive Pools by MMWR Week (2018-2024)
Positive Pools
MMWR Week
2018
2024
2021 (995)
2023
2022
2019
2020

Eastern Equine Encephalitis

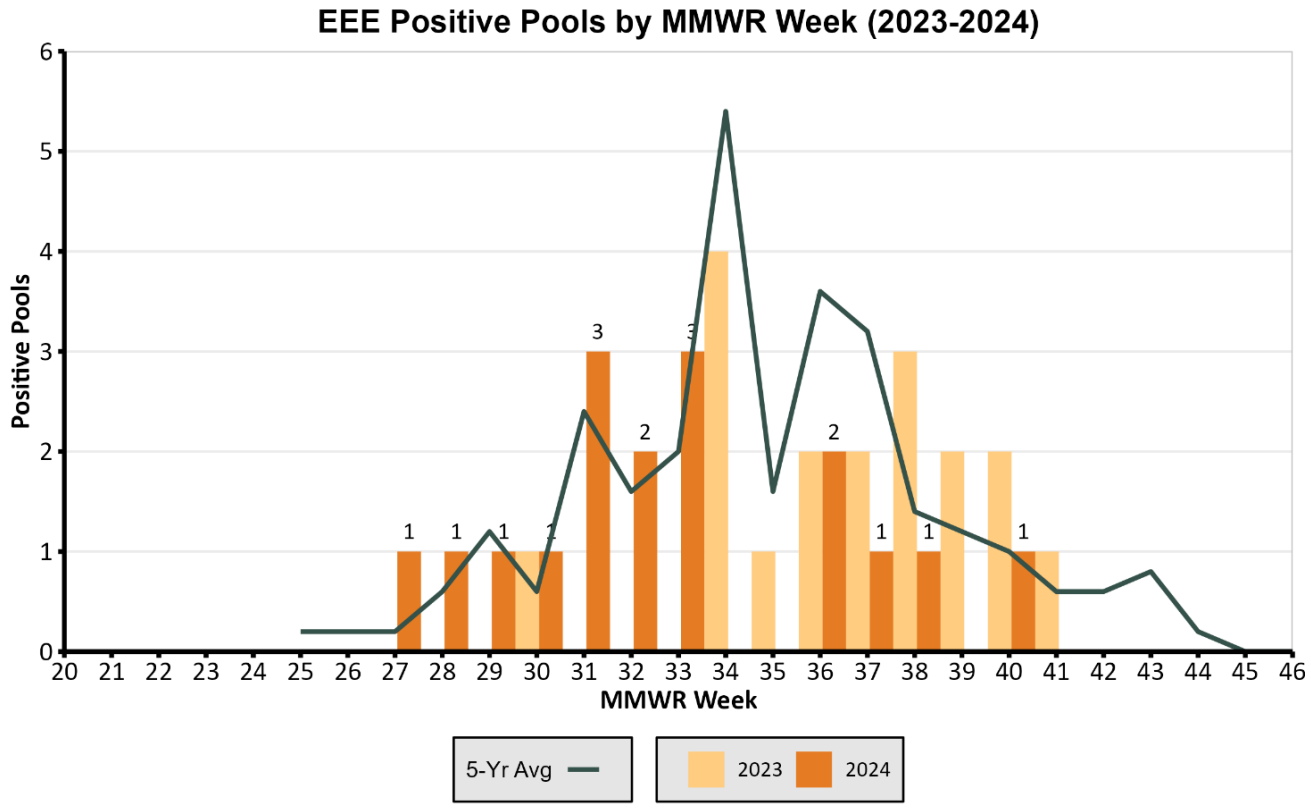
- There were 2 human cases of Eastern Equine Encephalitis (EEE) reported in New Jersey in 2024. Both cases presented with neuroinvasive disease and had onset in week 27 (Atlantic County) and week 39 (Sussex County). EEE human cases were last reported in 2019 (4 cases).
- Four equine cases of EEE were reported in 2024; one in Atlantic County in week 31; two in Ocean County in week 33; and one in Cumberland County in week 36. None of the horses were up to date with EEE vaccination and all were euthanized.
- In 2024, 12,664 mosquito pools were tested for EEE and 17 pools (<1%) were positive.
- EEE activity is detected each year in southern New Jersey; northern detections have historically been rare but have been increasing in frequency. EEE-positive pools were found in *Coquillettidia, Culiseta,* and *Culex* mosquitoes.

EEE Positive Mosquito Species

Species	Positive pools
Culiseta melanura	9
Culex pipiens/restuans/salinarius	5
Coquillettidia perturbans	1
Culex restuans	1
Culiseta morsitans	1
Total	**17**

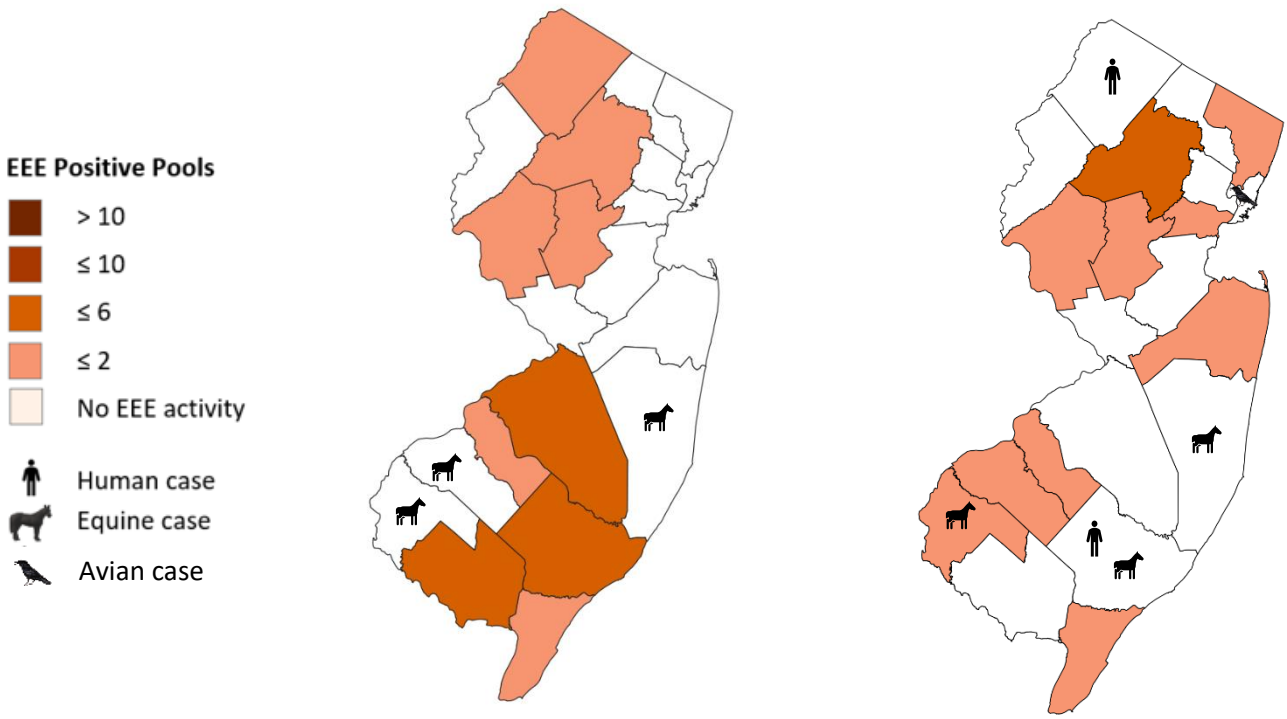
EEE Mosquito Pool Testing

	Cumulative Pos. Total		# Pools Tested
County	**2024**	2023	**2024**
Morris	4	1	449
Cape May	2	2	3,742
Gloucester	2		830
Monmouth	2		572
Union	2		291
Bergen	1		444
Camden	1	2	351
Hunterdon	1	1	400
Salem	1		656
Somerset	1	1	325
Atlantic		3	484
Burlington		3	321
Cumberland		3	439
Essex			504
Hudson			360
Mercer			500
Middlesex			398
Ocean			454
Passaic			285
Sussex		2	418
Warren			449
Total	**17**	**18**	**12,664**



2023 EEE Activity

2024 EEE Activity



Jamestown Canyon Virus

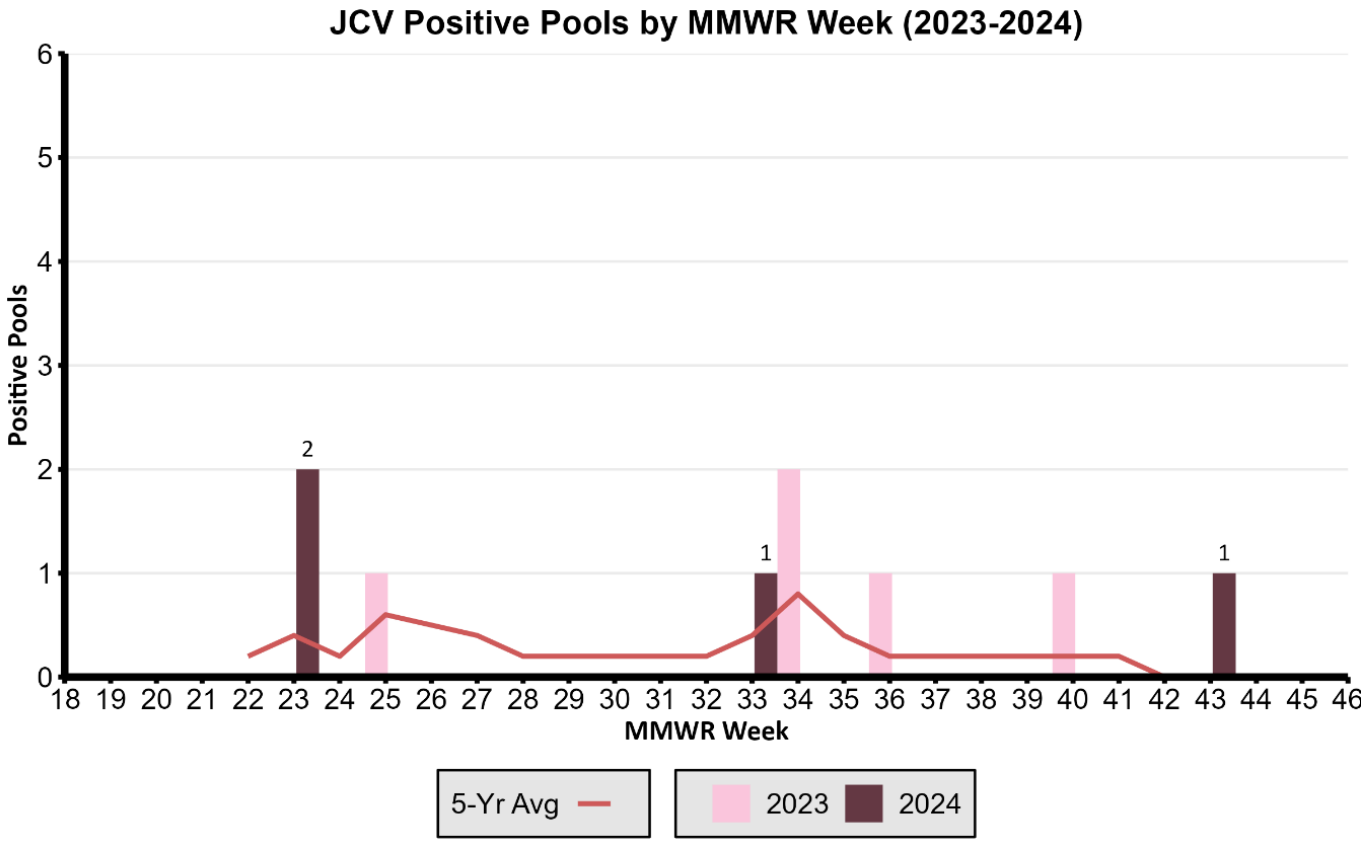
- There was one human case of Jamestown Canyon Virus (JCV) reported in 2024 in Sussex County. The case presented with neuroinvasive disease, with an illness onset in CDC week 19.
- 12,664 mosquito pools from 21 counties were tested for JCV in 2024 and 4 pools were positive in Cumberland and Monmouth counties. The first positive JCV pools were identified in Cumberland County in week 23.
- JCV was detected in *Aedes cantator, Anopheles punctipennis, Culex salinarius, and Psorophora columbiae* mosquitoes and were detected between CDC weeks 23-43.

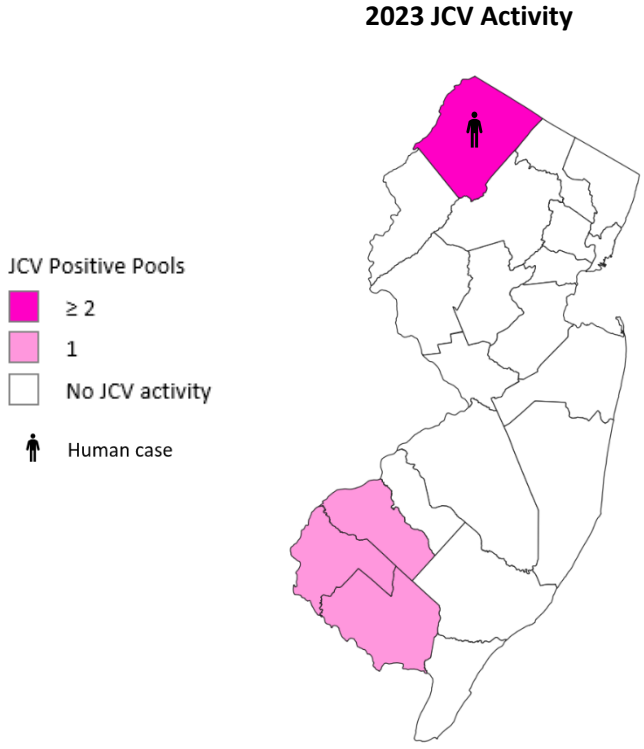
JCV Positive Mosquito Species

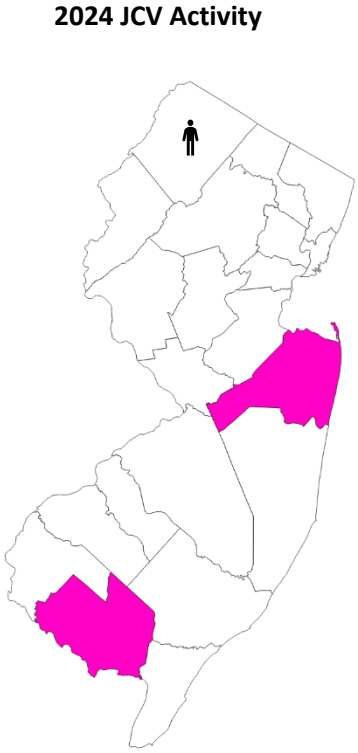
Species	Positive pools
Aedes cantator	1
Anopheles punctipennis	1
Culex salinarius	1
Psorophora columbiae	1
Total	**4**

JCV Mosquito Pool Testing

	Cumulative Pos. Total		# Pools Tested
County	**2024**	2023	**2024**
Cumberland	2	1	439
Monmouth	2		572
Atlantic			484
Bergen			444
Burlington			321
Camden			351
Cape May			3,742
Essex			504
Gloucester		1	830
Hudson			360
Hunterdon			382
Mercer			500
Middlesex			398
Morris			449
Ocean			454
Passaic			285
Salem		1	656
Somerset			325
Sussex		2	418
Union			291
Warren			459
Total	**4**	**5**	**12,664**


JCV Positive Pools by MMWR Week (2023-2024)
Positive Pools
0
1
2
3
4
5
6
2
1
1
18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46
MMWR Week
5-Yr Avg
2023
2024


2023 JCV Activity
JCV Positive Pools
≥ 2
1
No JCV activity
Human case


2024 JCV Activity

Other Mosquito-borne Viruses

- Mosquito pools were tested for other arboviruses with no positive results.

Cumulative 2024 Mosquito Pool Testing (Other Viruses[a])

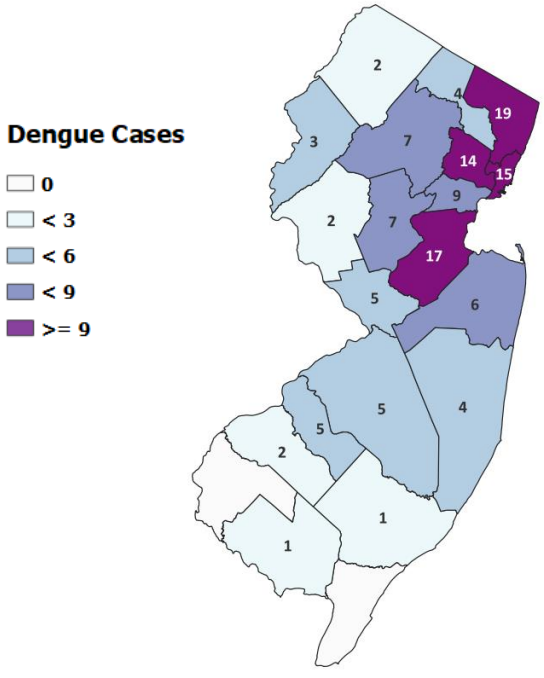
	SLE		LAC		CHIKV		DENV		ZIKV	
County	Pools	Pos	Pools	Pos	Pools	Pos	Pools	Pos	Pools	Pos
Atlantic	484				5		5		5	
Bergen	444		9		12		12		12	
Burlington	321		3							
Camden	351		9		5		5		5	
Cape May	3742		217		242		242		242	
Cumberland	439									
Essex	504				3		3		3	
Gloucester	830				7		7		7	
Hudson	360									
Hunterdon	382		3		3		3		3	
Mercer	500		2		3		3		3	
Middlesex	398		6		5		5		5	
Monmouth	572									
Morris	449				6		6		6	
Ocean	454		2		1		1		1	
Passaic	285		3							
Salem	656		19							
Somerset	325									
Sussex	418		44							
Union	291									
Warren	459		26		3		3		3	
Total	**12664**	**-**	**343**		**295**	**-**	**295**	**-**	**295**	**-**

[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

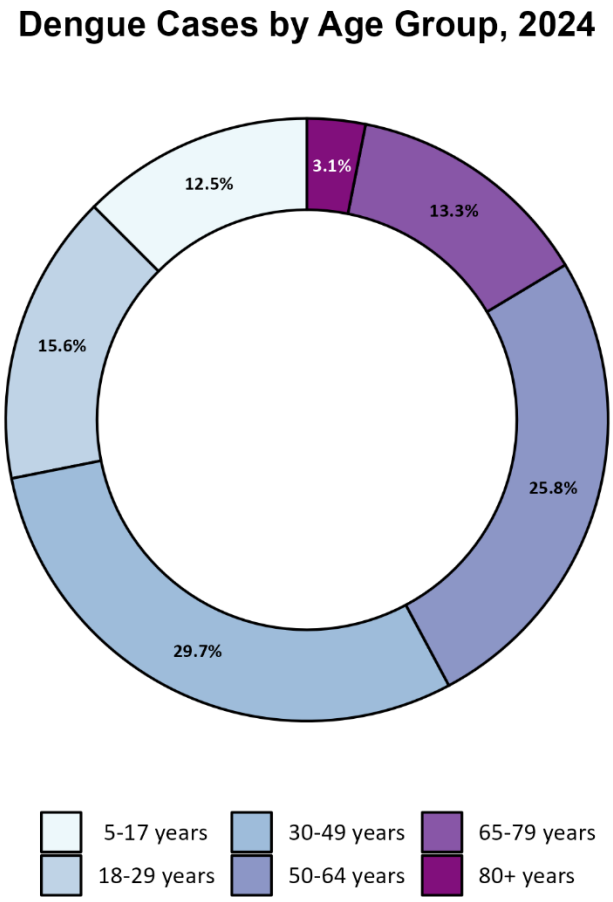
Travel-Associated Diseases

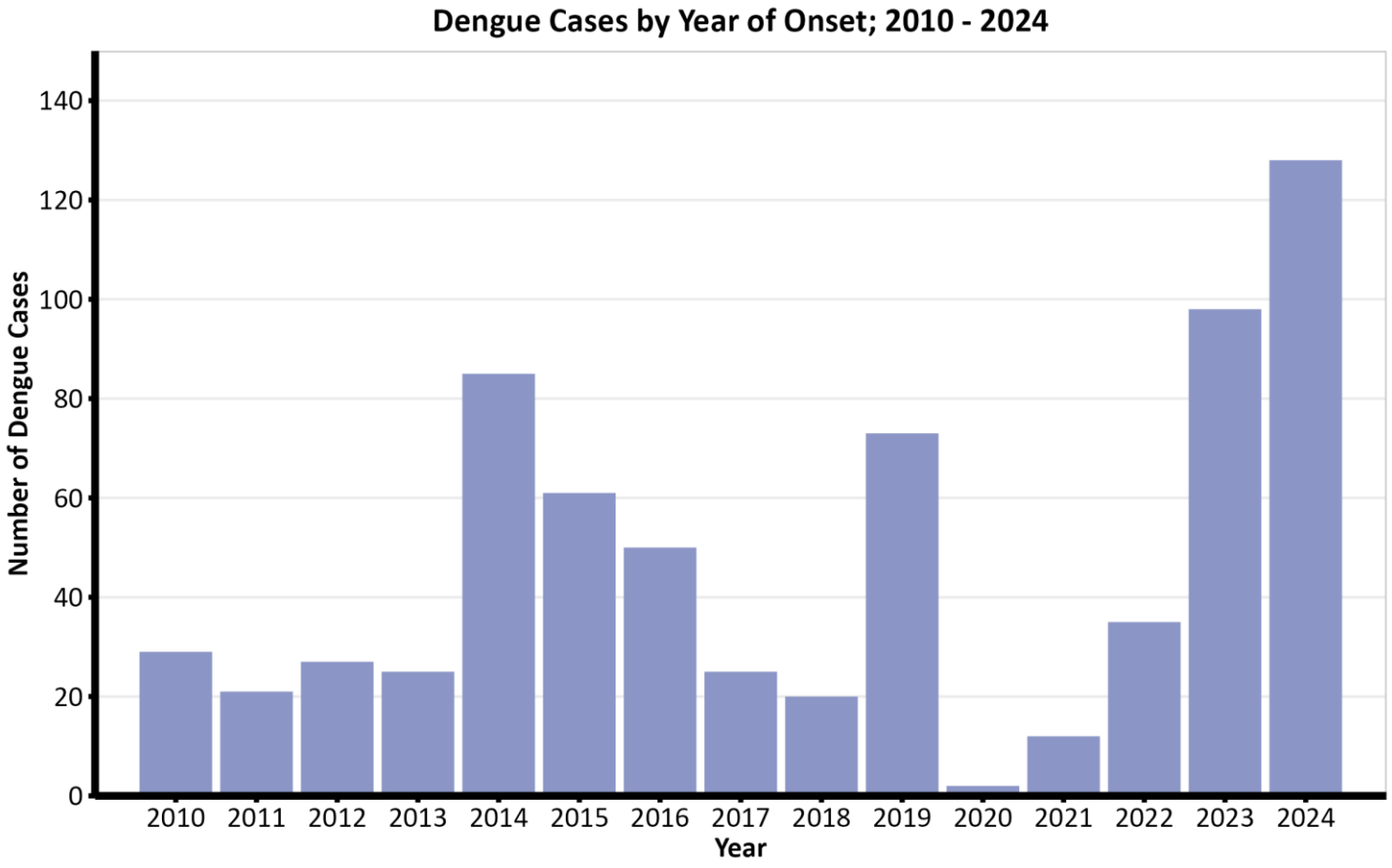
Dengue Virus

- There were 128 human cases of dengue virus reported in 2024, the highest number reported in NJ. All were associated with international travel. A significant outbreak of dengue was reported in many Latin American countries in 2024.
- NJ cases were concentrated in the northeastern part of the state, with the largest number reported in Bergen and Middlesex counties.
- Half (52%) of the cases were male. 34% of cases were between the ages of 30 and 49.
- Five cases met the public health surveillance classification of "severe dengue."
    - Symptoms included impaired level of consciousness, severe bleeding, elevated liver enzymes, pancreatitis, and cholecystitis.
- 63 cases (49%) were hospitalized, with no deaths reported.
- The travel destinations most often associated with 2024 dengue cases were Puerto Rico, the Dominican Republic, India, and Mexico.



Travel Destination(s) of Dengue Cases	
Country/U.S. Territory of Travel	**Count**
Puerto Rico	16
Dominican Republic	15
India	13
Mexico	12
Guatemala	10
Colombia	9
Trinidad & Tobago	8
Brazil	7
El Salvador	6
U.S. Virgin Islands	5
Ecuador	3
Aruba	2
Costa Rica	2
Cuba	2
Grenada	3
Guyana	2
Martinique	2
Peru	2
Antigua and Barbuda	1
Indonesia	1
Malaysia	1
Paraguay	1
Philippines	1
St. Vincent and the Grenadines	1





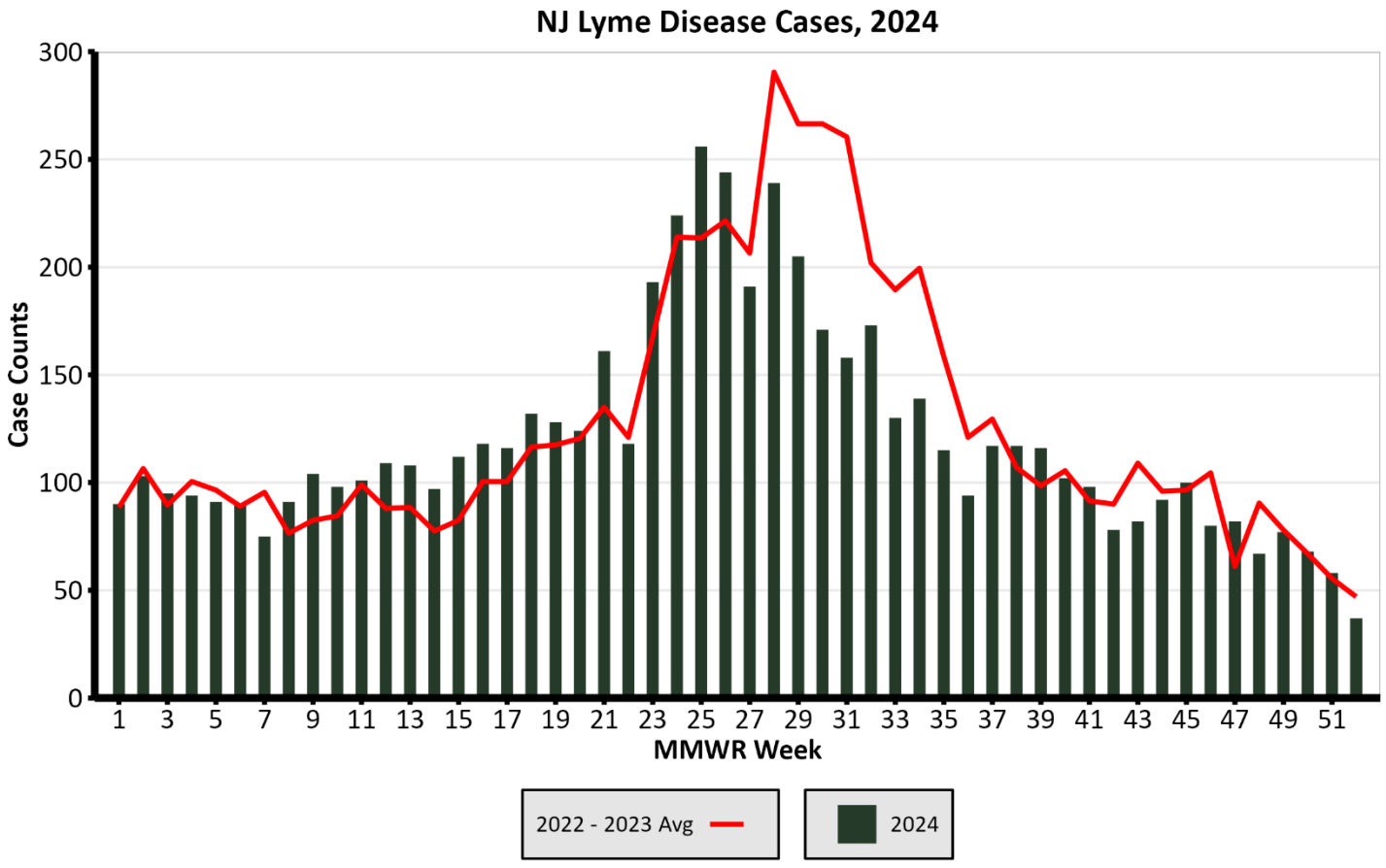
Other Travel-Associated Diseases

- Amid outbreaks in the Americas, NJ reported its first case of Oropouche Virus in week 35 from Hudson County in a returning traveler from Cuba.
- There were 17 cases of Chikungunya virus in NJ in 2024, most reported in Middlesex County. All cases had reported travel to India, where there were outbreaks in the states of Maharashtra and Telangana.
- New Jersey reported 105 travel-associated cases of Malaria in 2024, with the highest number of cases in Essex County. Most cases reported travel to western Africa, predominantly Sierra Leone, Nigeria, and Ghana.

Tickborne Diseases

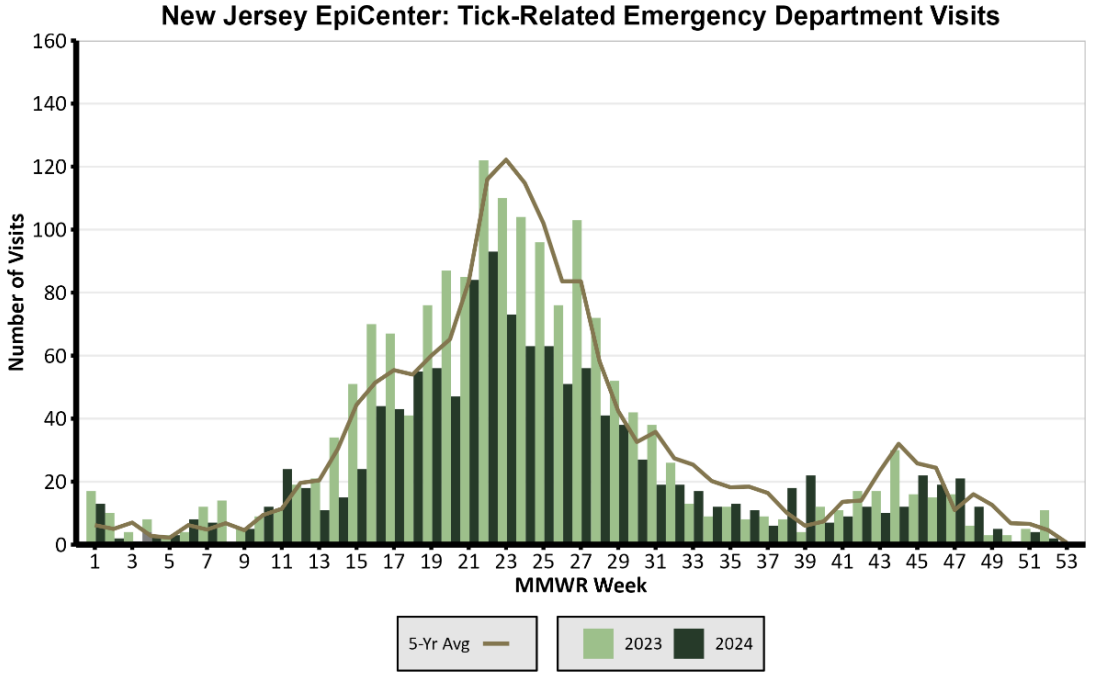
- The number of reported tickborne disease cases in NJ was lower in 2024 than in 2023.
- Two cases of Powassan were reported in Sussex and Morris counties.
- Two cases of tularemia were reported with known tick exposure (one imported from out of state).

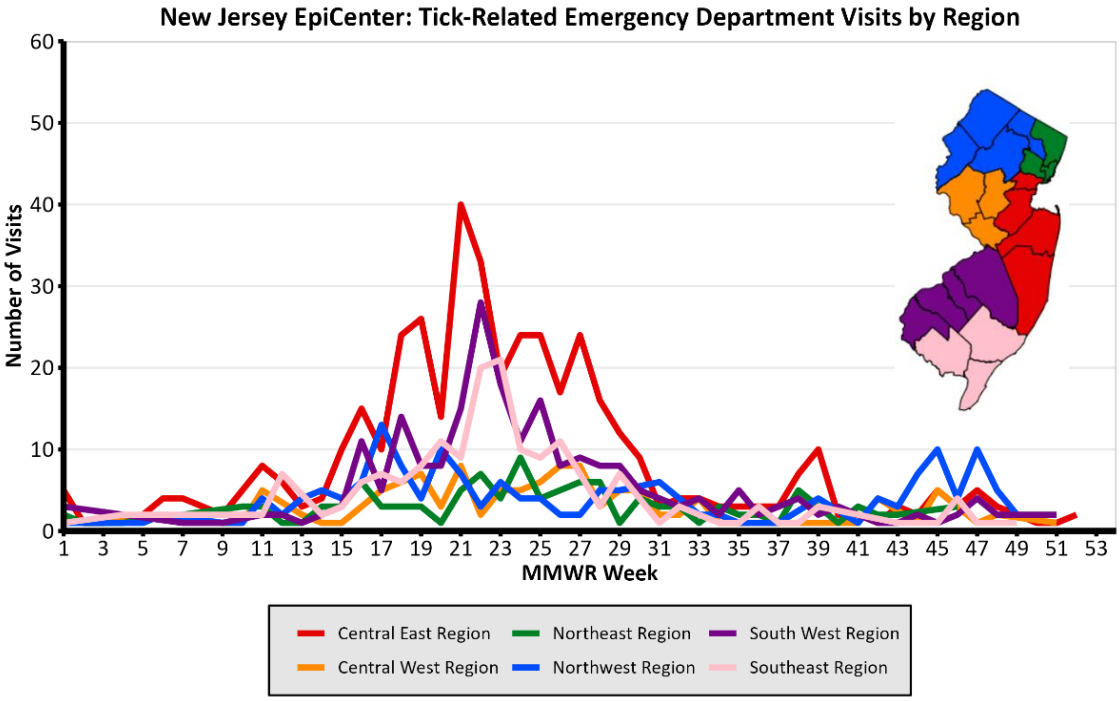
Tickborne Diseases Cases *(preliminary)*		
	2024	2023
Alpha-gal syndrome	**367**	360
Anaplasmosis	**175**	195
Babesiosis	**276**	407
Borrelia miyamotoi	**13**	18
Ehrlichiosis	**78**	109
Lyme disease	**6,253**	7,225
Powassan	**2**	-
Spotted fever group rickettsioses	**26**	24
Tularemia	**2**	2



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 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 in 2024 followed a similar trend compared to 2023 and to the 5-year average, although with a lower number of visits compared to previous years.





Data reflects ED visits downloaded from EpiCenter as of March 2025

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/