

2019 Season highlight:

- One human case of Eastern equine encephalitis (EEE) has been reported in Somerset County.
- Six equine cases of EEE have been reported in Monmouth (1), Morris (1), Ocean (3) and Salem (1) counties. One alpaca case of EEE was reported from Camden County.
- EEE has been detected in 48 mosquito pools in 11 counties. This is the highest number of positive pools reported at this point in the season in the past 7 years.
- One case of West Nile virus was reported in Hunterdon County. WNV has been detected in mosquito pools in 19 counties. The number of WNV positive pools is significantly lower than historical averages.

1. Human Testing

New Jersey Administrative Code (N.J.A.C.) Title 8 Chapter 57 mandates public health reporting of specified vector-borne diseases to prevent further disease spread.

Table 1.1 Human Cases^a

Mosquito-borne diseases			Tickborne Diseases		
	2019 ^b	2018		2019 ^b	2018
Chikungunya	5	16	Anaplasmosis	97	118
Dengue	25	20	Babesiosis	139	249
Eastern equine encephalitis	1	-	<i>Borrelia miyamotoi</i>	13	8
Jamestown Canyon	-	-	Ehrlichiosis	80	94
Malaria	68	93	Lyme disease	1788	4000
West Nile	1	61	Powassan	3	1
Zika	6	10	Spotted fever group rickettsioses	104	147

^a Data for 2019 reflect confirmed and probable cases that have been approved by NJDOH. This does not include cases under investigation. All 2019 numbers are preliminary and are subject to change. 2018 numbers represent total number of cases for the year.

^b Cumulative through week 34 (week ending August 24, 2019).

2. Mosquito Testing

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.

West Nile virus (WNV):

- A total of 6703 mosquito pools have been tested for WNV; 148 mosquito pools from 19 counties were positive for WNV with the highest number reported from Burlington County.
- The first positive pool was detected in week 22 (Passaic county). In 2018 the first WNV positive mosquito pool was identified in week 23. The total number of positive mosquito pools detected this season is significantly lower than historical averages (see chart below).
- The positive pools were detected in *Aedes albopictus*, *Aedes cantator*, *Aedes japonicus*, *Aedes triseriatus*, *Anopheles punctipennis*, *Culex pipiens*, *Culex spp* and *Culiseta melanura* species.
- 86% (n=127) of the positive pools were *Culex sp*.

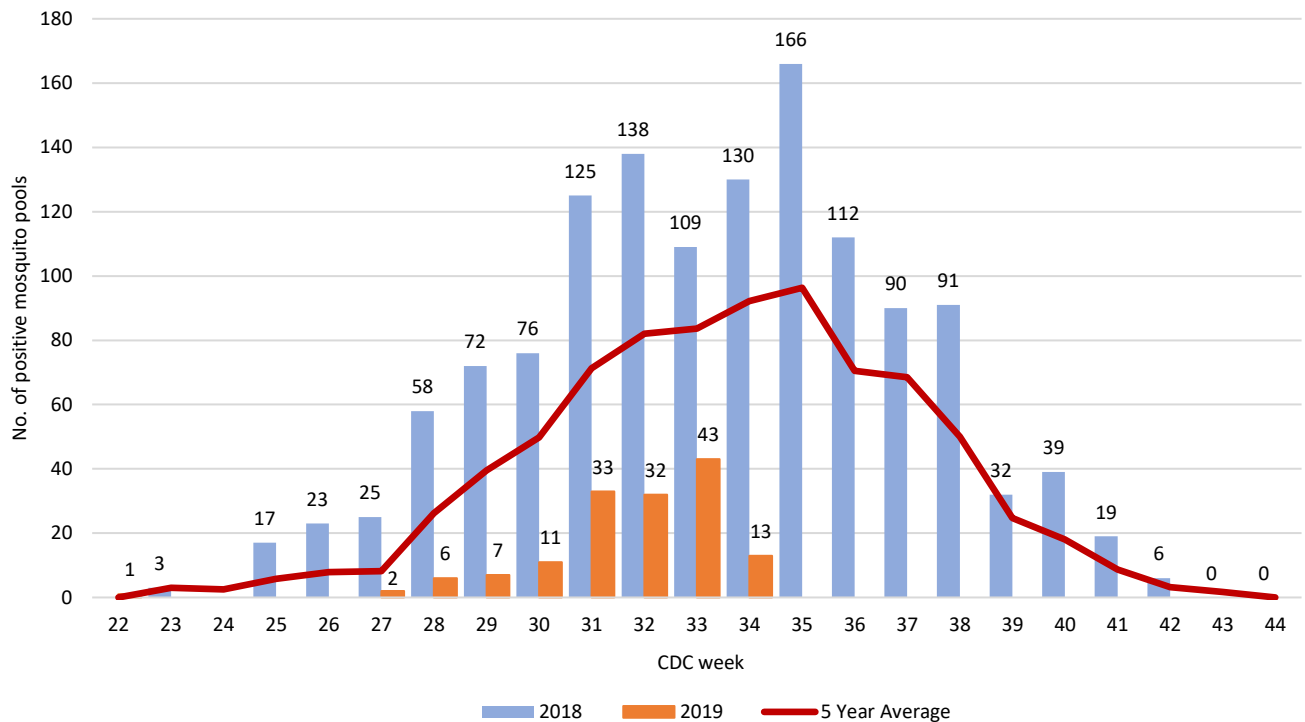
*Test results may be incomplete; Counties submit pools for testing on specific weekdays. Mosquito testing data reflects test results received from PHEL, CMBSL3 and US Army Public Health as of August 29, 2019

WNV Positive Mosquito Pools

County	Week 34		Cumulative Total (week 34)	
	2019*	2018	2019*	2018
Burlington	2	4	33	23
Bergen		11	21	103
Union		7	20	45
Hudson		8	17	49
Middlesex		3	8	41
Monmouth	1	8	8	43
Somerset	1	5	7	48
Hunterdon	4	16	6	72
Camden	2	3	5	26
Atlantic		4	3	15
Cape May		2	3	12
Mercer		4	3	40
Morris		21	3	101
Ocean	2	4	3	17
Warren	1	3	3	33
Gloucester		23	2	71
Cumberland		1	1	5
Passaic		2	1	7
Sussex			1	7
Essex				12
Salem		1		6
Total	13	130	148	776

Week 34: August 19-25, 2018; August 18-24, 2019

West Nile Virus Positive Mosquito Pools, NJ (2018 - 2019)



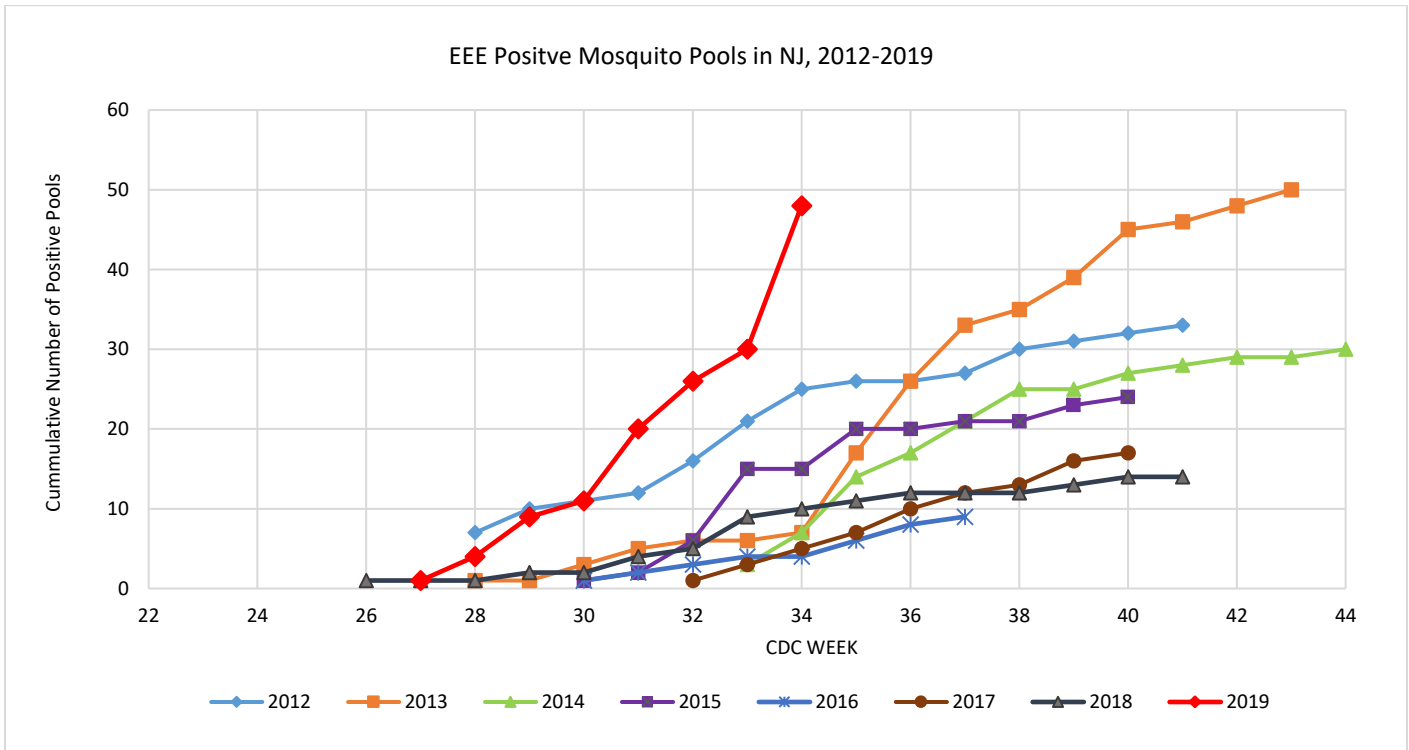
Eastern equine encephalitis virus (EEE)

- A total of 6025 mosquito pools have been tested for EEE; 48 mosquito pools from 11 counties were positive for EEE. This is the highest number of pools reported at week 34 in the past 7 years (see chart below) and exceeds the total number of EEE positive mosquito pools in 2018 ($n=14$).
- As of week 34, 3 northern counties (Morris, Sussex and Warren) have detected EEE positive pools. These are the first EEE positive pools detected in the northern part of the state in at least 7 years.
- The highest number of positive pools was reported in Morris County.
- The first positive pool was detected in week 27 (Monmouth county). In 2018, the first EEE mosquito pool was reported in week 26.
- 80% ($n=38$) of the positive pools were *Culiseta melanura*. *Culiseta melanura* species was detected in 10 counties reporting positives.
- Other positive species detected were *Aedes albopictus* (Atlantic and Ocean), *Aedes canadensis* (Morris), *Aedes triseriatus* (Morris) and *Culex* spp (Camden, Morris, Ocean, Sussex and Warren).

EEE Positive Mosquito Pools

County	Week 34		Cumulative Total (week 34)	
	2019*	2018	2019*	2018
Morris	5		8	
Burlington			7	3
Monmouth	2	1	7	1
Atlantic	1		6	
Camden	3		5	4
Gloucester	1		5	
Ocean			3	
Sussex	3		3	
Salem	1		2	2
Cape May	1		1	
Warren	1		1	
Bergen				
Cumberland				
Essex				
Hudson				
Hunterdon				
Mercer				
Middlesex				
Passaic				
Somerset				
Union				
Total	18	1	48	10

Week 34: August 19-25, 2018; August 18-24, 2019



Other viruses:

In 2019, PHEL and Cape May County BLS3 brought on new capacity to test for viruses as a panel. Mosquito pools from all counties have been tested for other arboviruses: St. Louis encephalitis virus (SLE), Jamestown Canyon Virus (JCV), La Crosse encephalitis virus (LAC), Chikungunya virus (CHIKV), Dengue virus (DENV), Zika Virus (ZIKV).

Positive pools for other viruses have been detected in 4 counties (Bergen, Burlington, Passaic and Sussex).

La Crosse encephalitis virus (LAC):

- A mosquito pool collected on May 31st (week 22) in Passaic County tested positive for La Crosse virus at PHEL. The positive pool was detected in *Aedes triseriatus* species.
- In 2014, 2 mosquito pools collected from the Joint Base MDL (Burlington County) by the Department of the Airforce tested positive for LACV. The virus was detected in both *Ochlerotatus triseriatus* and *Aedes albopictus*.
- There have not been any human La Crosse virus cases reported in at least the past 20 years.

Jamestown Canyon virus (JCV):

- Three mosquito pools have tested positive for Jamestown Canyon virus at PHEL. The first pool was from Sussex County (week 23), second from Bergen County (week 25) and the third from Burlington County (week 27).
- The positive pools were detected in *Aedes abserratus*, *Aedes cantator* and *Anopheles crucians* species.
- NJ reported its first and only human case of Jamestown Canyon virus in 2015 in a Sussex County resident.

Cumulative 2019 Mosquito Pool Testing (Other Viruses ^a)

County	SLE		JCV		LAC		CHIKV		DENV		ZIKV	
	Pools	Pos	Pools	Pos	Pools	Pos	Pools	Pos	Pools	Pos	Pools	Pos
Atlantic	303		303				44		44		44	
Bergen	195		195	1	21							
Burlington	257		257	1	19							
Camden	79		63				2		2		2	
Cape May	1620		21		180		400				400	
Cumberland	207		207		1							
Essex	103		103		1							
Gloucester	299		289				17		17		17	
Hudson	157		157		8							
Hunterdon	206		206		3							
Mercer	265		265		22		1		1		1	
Middlesex	204		204		4		10		10		10	
Monmouth	303		303		20							
Morris	283		283									
Ocean	265		265									
Passaic	149		149		18	1						
Salem	355		346		20							
Somerset	185		185									
Sussex	206		206	1	19							
Union	127		127		10							
Warren	247		247									
Total	6015	-	4381	3	346	1	474		74	-	474	-

^a St. Louis encephalitis virus (SLE), Jamestown Canyon Virus (JCV), La Crosse encephalitis virus (LAC), Chikungunya virus (CHIKV), Dengue virus (DENV), Zika Virus (ZIKV)
 Numbers in white columns represent number of pools tested to date in 2019

Numbers in blue shaded columns represent positive pools in 2019

3. Equine/Avian /Other Animal Testing

Equine testing for WNV and EEE is conducted at the New Jersey Department of Agriculture's Animal Health and Diagnostic Laboratory.

Six equine cases and one alpaca case of EEE have been reported this season. The first cases were reported in week 30. This is the earliest report of equine cases in the state since 2012.

• Equine cases:

- Monmouth: One-year-old vaccinated colt (onset August 5th, euthanized August 5th)
- Morris: 18-year-old gelding of unknown vaccination status (onset August 15th, euthanized August 16th)
- Ocean: 3 cases. The first case was a 12-year-old mare (onset July 23rd, euthanized July 23rd). The mare was not currently vaccinated. The second case was an unvaccinated 20-year-old gelding (onset July 26th, euthanized July 26th). The third case was a 2-year-old gelding of unknown vaccination status (onset August 15th, euthanized August 16th)
- Salem: Four-month-old colt of unknown vaccination status (onset unknown, euthanized August 25th)

WNV/EEE Positive Test Results

	Week 34		Cum. Total (Year)	
	2019	2018	2019	2018
Equine (EEE)	1	1	6	2
Equine (WNV)				
Avian (WNV)				
Other:				
Alpaca (EEE)	1	-	1	-

Week 34: August 19-25, 2018; August 18-24, 2019

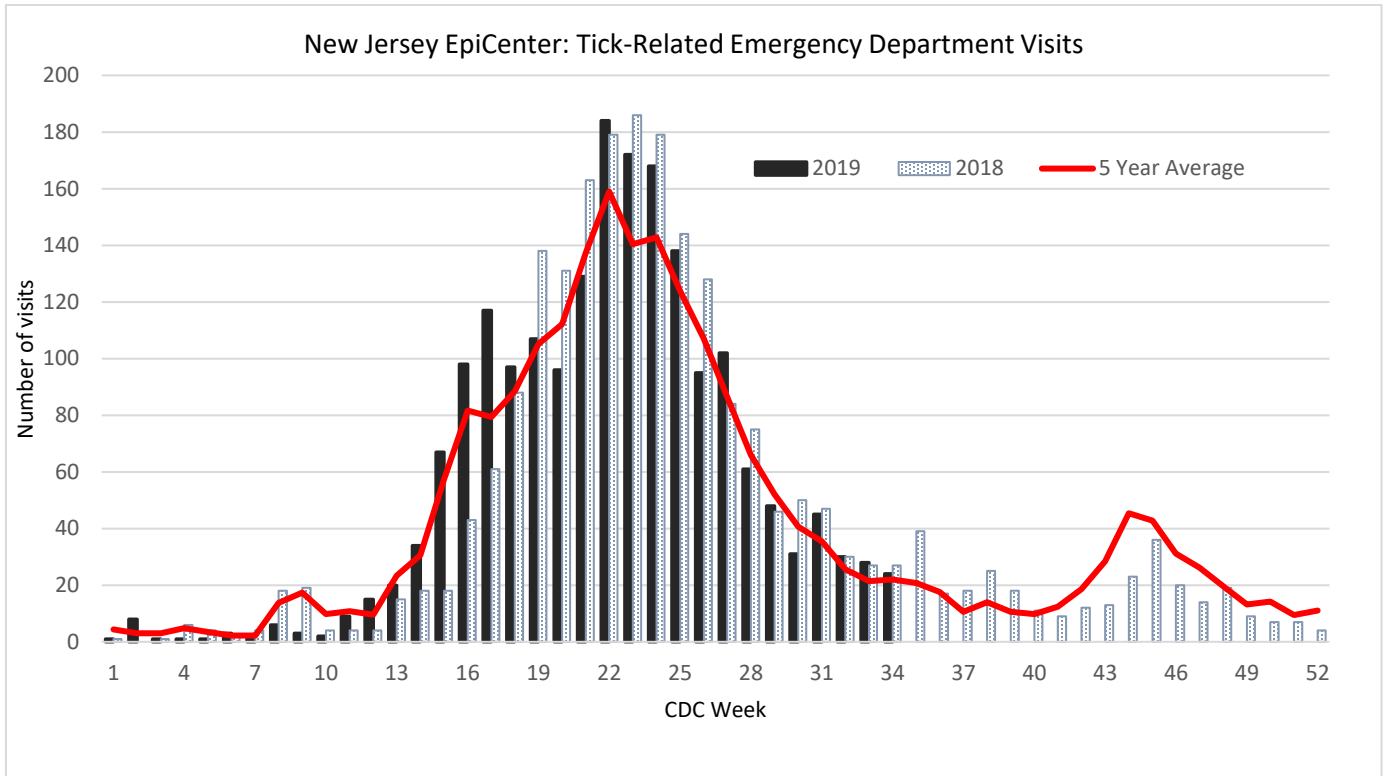
- The alpaca case was reported from Camden County in a 7-year-old male alpaca of unknown vaccination status (onset August 2nd, euthanized August 3rd).
- Routine avian testing has been discontinued but is available upon request at PHEL.

4. Syndromic Surveillance for Tick-related Emergency Department Visits

EpiCenter is a syndromic surveillance system developed and maintained by Health Monitoring Systems, Inc, for monitoring by health departments in the United States. New Jersey's 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 NJ residents seen at emergency departments state wide 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.

As of week 34, the number of tick related ED visits is comparable to trends observed in past 5 years.



Data reflects ED visits downloaded from EpiCenter as of August 28, 2019

For More Information

- NJDOH Communicable Disease Service: <http://nj.gov/health/cd/topics/vectorborne.shtml>
- NJDEP Office of Mosquito Control Coordination: <http://www.nj.gov/dep/mosquito/>
- NJDA Division of Animal Health: <http://www.nj.gov/agriculture/divisions/ah/>
- Rutgers Center for Vector Biology: <http://vectorbio.rutgers.edu/>