

2019 Season highlight:

- One human case of Eastern equine encephalitis (EEE) has been reported in Somerset County. NJ last reported EEE cases in 2003 and 2016.
- Four equine cases of EEE have been reported in Monmouth (1) and Ocean (3) counties. One alpaca case of EEE was reported from Camden County.
- EEE has been detected in 30 mosquito pools in 8 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	20	20	Babesiosis	127	249
Eastern equine encephalitis	1	-	<i>Borrelia miyamotoi</i>	12	8
Jamestown Canyon	-	-	Ehrlichiosis	81	94
Malaria	66	93	Lyme disease	1741	4000
West Nile	1	61	Powassan	3	1
Zika	5	10	Spotted fever group rickettsioses	94	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 33 (week ending August 17, 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):

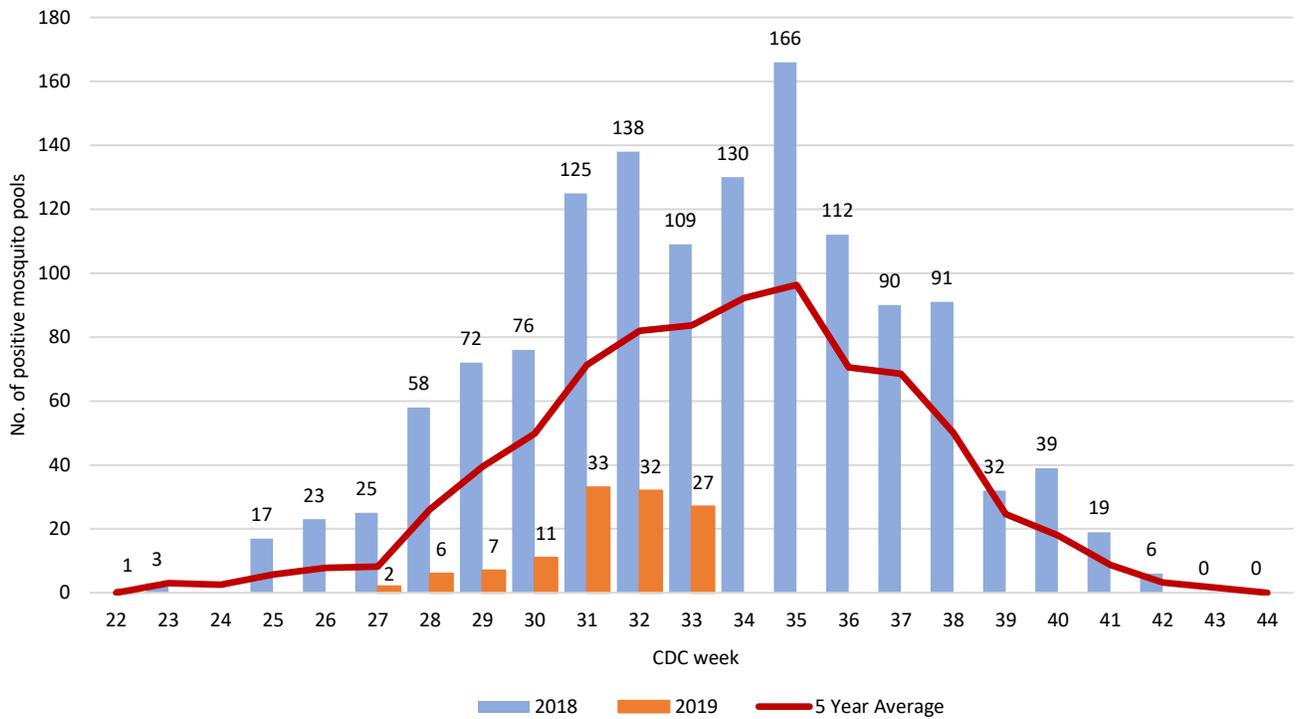
- A total of 6100 mosquito pools have been tested for WNV; 119 mosquito pools from 19 counties were positive for WNV with the highest number reported from Burlington County.
- The first positive pool was detected in week 22 (Passaic county). In 2018 the first WNV positive mosquito pool was identified 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.
- 85% (n=101) 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 21, 2019

WNV Positive Mosquito Pools

County	Week 33		Cumulative Total (week 33)	
	2019*	2018	2019*	2018
Burlington	10	3	31	19
Union		18	18	38
Bergen	2	8	15	92
Hudson		4	13	41
Middlesex	1	10	8	38
Monmouth	4	9	7	35
Somerset	1		4	43
Camden	2	2	3	23
Mercer	1	2	3	36
Morris	2	20	3	80
Atlantic	1	2	2	11
Cape May		1	2	10
Gloucester			2	48
Hunterdon	1	14	2	56
Warren	1	4	2	30
Cumberland			1	4
Ocean		3	1	13
Passaic			1	5
Sussex	1	2	1	7
Essex		5		12
Salem		2		5
Total	27	109	119	646

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



Eastern equine encephalitis virus (EEE)

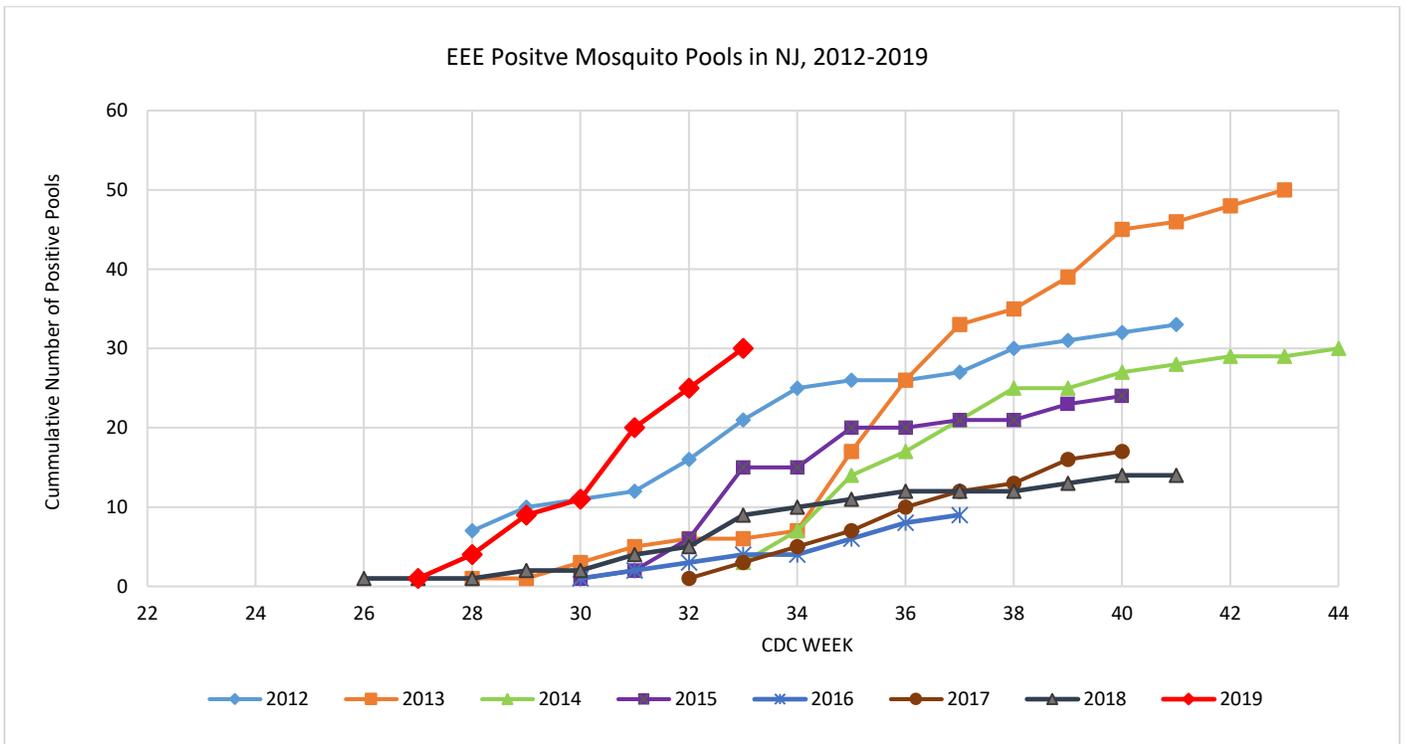
- A total of 5504 mosquito pools have been tested for EEE; 30 mosquito pools from 8 counties were positive for EEE. The highest number of positive pools was reported in Burlington County.
- The first positive pool was detected in week 27 (Monmouth county). In 2018, the first EEE mosquito pool was reported in week 26.
- Morris County reported EEE positive pools in weeks 32 and 33. This was the first EEE positive pools detected in the northern part of the state in at least 7 years.
- The number of EEE positive pools exceeds the total number of EEE positive mosquito pools in 2018 (n=14) and is the highest number of pools reported at week 33 in the past 7 years (see chart below).
- 83% (n=25) of the positive pools were *Culiseta melanura*. *Culiseta melanura* species was detected in all counties reporting positives.
- Other positive species detected were *Aedes albopictus* (Atlantic and Ocean), *Aedes triseriatus* (Morris) and *Culex* spp (Ocean and Camden).

EEE Positive Mosquito Pools

County	Week 33		Cumulative Total (week 33)	
	2019*	2018	2019*	2018
Burlington	3	2	7	3
Atlantic			5	
Monmouth			5	
Gloucester			4	
Morris	1		3	
Ocean			3	
Camden		1	2	4
Salem		1	1	2
Bergen				
Cape May				
Cumberland				
Essex				
Hudson				
Hunterdon				
Mercer				
Middlesex				
Passaic				
Somerset				
Sussex				
Union				
Warren				
Total	4	4	30	9

Week 33: August 12-18, 2018; August 11-17, 2019

EEE Positive Mosquito Pools in NJ, 2012-2019



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										
Atlantic	278		278				41		41		41	
Bergen	175		175	1	21							
Burlington	230		230	1	17							
Camden	67		55				2		2		2	
Cape May	1449		21		163		347				347	
Cumberland	187		187									
Essex	83		83		1							
Gloucester	265		256				17		17		17	
Hudson	143		143		8							
Hunterdon	186		186		3							
Mercer	238		238		20							
Middlesex	189		189		4		10		10		10	
Monmouth	304		304		20							
Morris	282		282									
Ocean	240		240									
Passaic	147		147		18	1						
Salem	329		321		20							
Somerset	167		167									
Sussex	206		206	1	16							
Union	110		110		10							
Warren	227		227									
Total	5502	-	4045	3	321	1	417		70	-	417	-

^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.

- One alpaca case and four equine cases of EEE have been reported this season. 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).

Equine cases:

- Ocean: 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 29th, euthanized July 29th). The third case was a 2-year-old gelding of unknown vaccination status (onset August 15th, euthanized August 16th)

- Monmouth: One-year-old vaccinated colt (onset August 5th, euthanized August 5th)

This is the earliest report of equine cases in the state since 2012.

- Routine avian testing has been discontinued but is available upon request at PHEL.

WNV/EEE Positive Test Results

	Week 33		Cum. Total (Year)	
	2019	2018	2019	2018
Equine (EEE)	1	-	4	-
Equine (WNV)				
Avian (WNV)				
Other:				
Alpaca (EEE)	1	-	1	-

Week 33: August 12-18, 2018; August 11-17, 2019

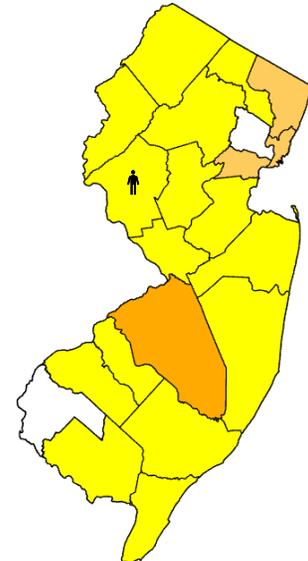
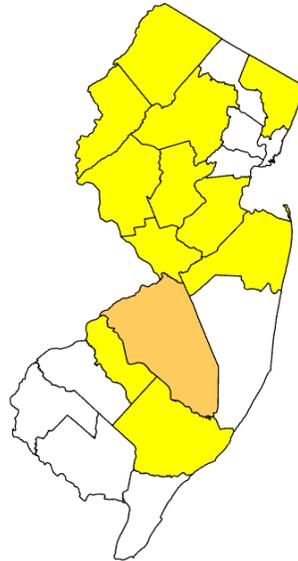
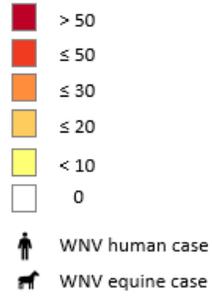
4. Surveillance Maps

West Nile Virus (WNV)

Week 33 WNV Activity (2019)*

Cumulative WNV Activity 2019

WNV Positive Pools

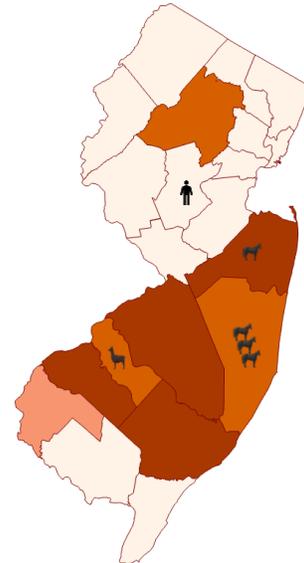
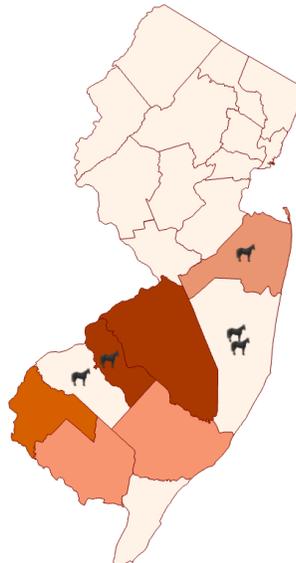
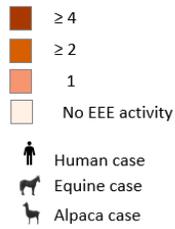


Eastern equine encephalitis (EEE)

2018 EEE Activity

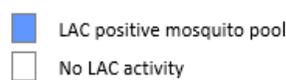
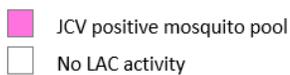
Cumulative EEE Activity 2019

EEE Positive Pools



Jamestown Canyon Virus Activity 2019

La Crosse Virus Activity 2019

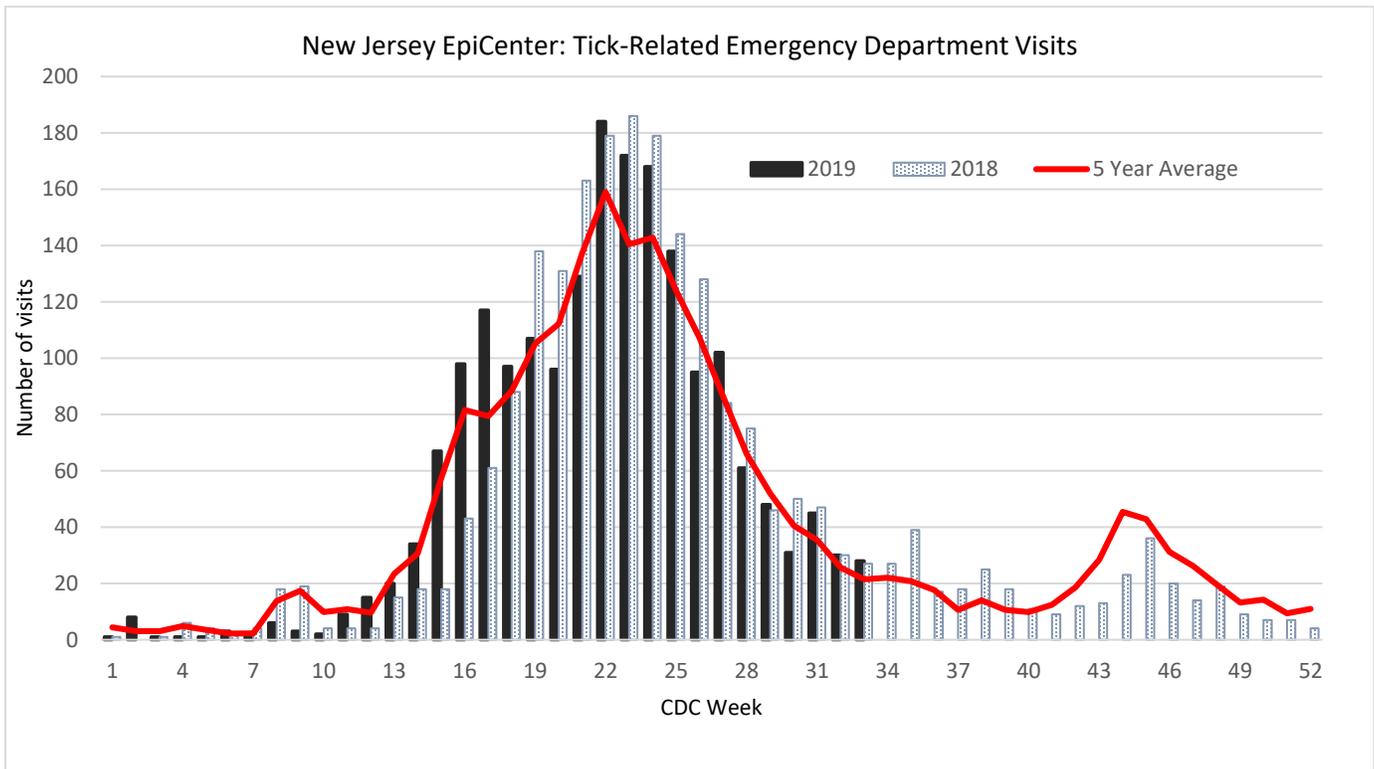


5. Syndromic Surveillance for Tick-related Emergency Department Visits

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 33, 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 20, 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/>