

**2019 Season highlight:**

- **Three cases of Powassan have been reported in Sussex County.**
- **Eastern equine encephalitis (EEE) has been detected in 18 mosquito pools in 7 counties. This is the highest number of positive pools reported at this point in the season in the past 7 years.**
- **Two equine cases of EEE have been reported in Ocean County in week 30. There have been no human EEE cases reported in 2019.**
- **One case of West Nile virus was reported in Hunterdon County. WNV has been detected in mosquito pools in 16 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<sup>a</sup>**

Mosquito-borne diseases			Tickborne Diseases		
	2019 <sup>b</sup>	2018		2019 <sup>b</sup>	2018
Chikungunya	4	16	Anaplasmosis	64	118
Dengue	12	20	Babesiosis	113	249
Eastern equine encephalitis	-	-	<i>Borrelia miyamotoi</i>	11	8
Jamestown Canyon	-	-	Ehrlichiosis	55	94
Malaria	55	93	Lyme disease	1525	4000
West Nile	1	61	Powassan	3	1
Zika	4	10	Spotted fever group rickettsioses	89	147

<sup>a</sup> 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.

<sup>b</sup> Cumulative through week 31 (week ending August 3, 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):**

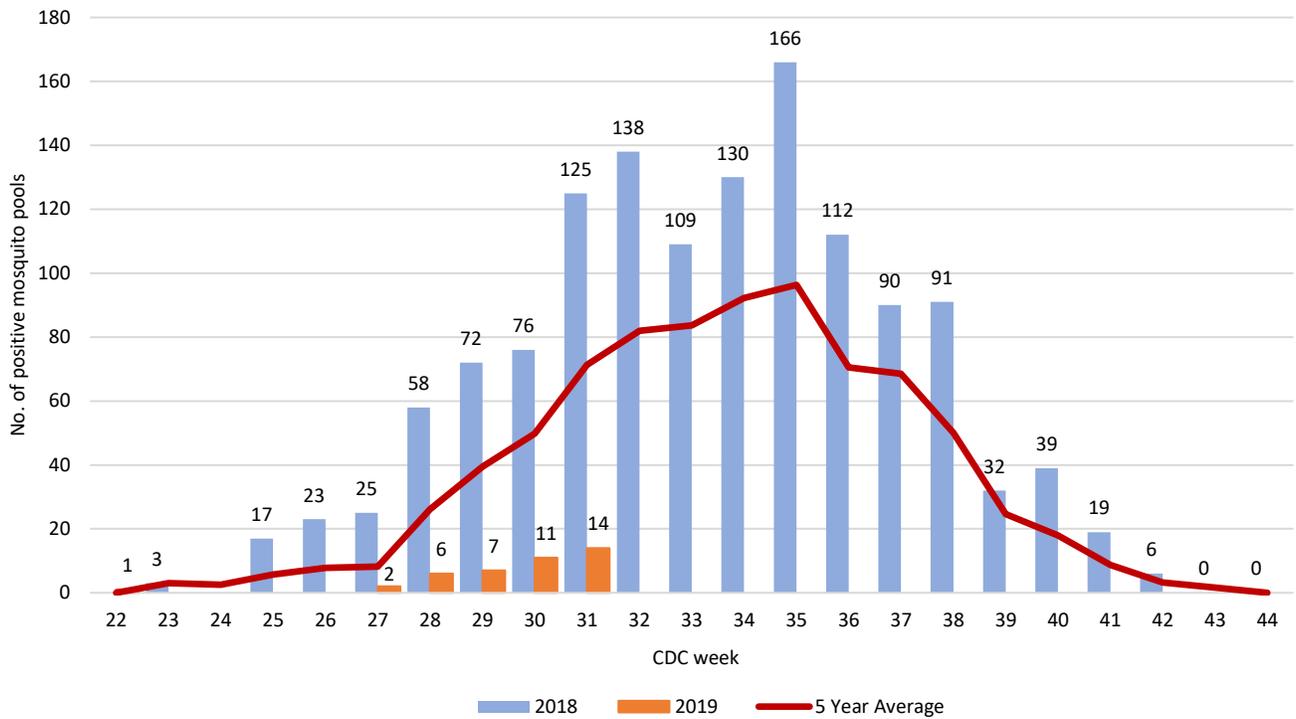
- A total of 4831 mosquito pools have been tested for WNV; 41 mosquito pools from 16 counties were positive for WNV with the highest number reported from Burlington County.
- The first positive pool was detected in week 22 (Passaic county). In 2018 the first WNV positive mosquito pool was identified 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 cantator*, *Aedes japonicus*, *Aedes triseriatus*, *Culex pipiens*, *Culex spp* and *Culiseta melanura* species.

**WNV Positive Mosquito Pools**

County	Week 31		Cumulative Total (week 31)	
	2019*	2018	2019*	2018
Burlington	5	1	12	12
Hudson		9	5	28
Union		3	5	3
Middlesex	4	2	4	25
Gloucester		8	2	34
Monmouth	2	6	2	18
Somerset	1	13	2	31
Atlantic		1	1	6
Bergen		16	1	67
Camden	1	2	1	16
Cape May		3	1	7
Cumberland			1	4
Mercer		11	1	32
Ocean		3	1	8
Passaic		4	1	4
Warren	1	12	1	26
Essex		2		6
Hunterdon		13		32
Morris		16		37
Salem				1
Sussex				2
<b>Total</b>	<b>14</b>	<b>125</b>	<b>41</b>	<b>399</b>

\*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 7, 2019

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



### Eastern equine encephalitis virus (EEE)

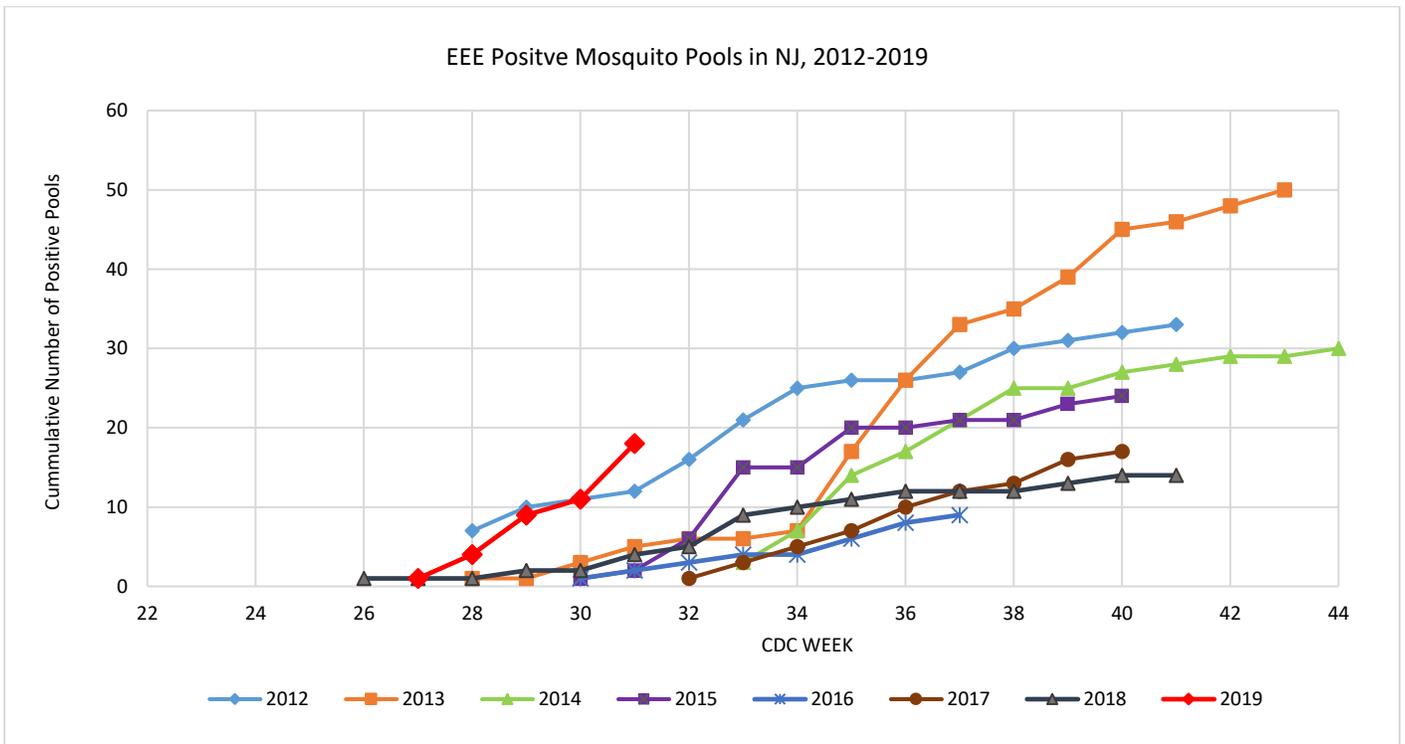
- A total of 4360 mosquito pools have been tested for EEE; 18 mosquito pools from 7 counties were positive for EEE. The highest number of positive pools was reported in Gloucester County.
- The first positive pool was detected in week 27 (Monmouth county). In 2018, the first EEE mosquito pool was reported in week 26 (see chart below).
- 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 31 in the past 7 years.
- The positive pools were detected in *Culiseta melanura* (Atlantic, Burlington, Camden, Gloucester, Monmouth, Ocean and Salem county), *Culex* spp (Camden County) and *Aedes albopictus* (Ocean County).

EEE Positive Mosquito Pools

County	Week 31		Cumulative Total (week 31)	
	2019*	2018	2019*	2018
Gloucester	1		4	
Atlantic	2		3	
Monmouth	1		3	
Ocean	1		3	
Burlington			2	
Camden	2	2	2	3
Salem			1	1
Bergen				
Cape May				
Cumberland				
Essex				
Hudson				
Hunterdon				
Mercer				
Middlesex				
Morris				
Passaic				
Somerset				
Sussex				
Union				
Warren				
<b>Total</b>	<b>7</b>	<b>2</b>	<b>18</b>	<b>4</b>

Week 31: July 29-August 4, 2018; July 28-August 3, 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 31<sup>st</sup> (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 <sup>a</sup>)**

County	SLE		JCV		LAC		CHIKV		DENV		ZIKV	
	Pools	Pos	Pools	Pos	Pools	Pos	Pools	Pos	Pools	Pos	Pools	Pos
Atlantic	223		223				29		29		29	
Bergen	144		144	1	17							
Burlington	176		176	1	16							
Camden	45		37									
Cape May	1183		25		128		248				248	
Cumberland	116		116									
Essex	68		68		1							
Gloucester	203		196									
Hudson	114		114		8							
Hunterdon	146		146		3							
Mercer	186		186		18							
Middlesex	139		139		4		10		10		10	
Monmouth	251		251		19							
Morris	221		221									
Ocean	198		198									
Passaic	132		132		18	1						
Salem	281		275		16							
Somerset	127		127									
Sussex	146		146	1	13							
Union	74		74		10							
Warren	187		187									
<b>Total</b>	<b>4360</b>	<b>-</b>	<b>3181</b>	<b>3</b>	<b>271</b>	<b>1</b>	<b>287</b>		<b>39</b>	<b>-</b>	<b>287</b>	<b>-</b>

<sup>a</sup> 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.

- Two equine cases of EEE have been reported from Ocean County in week 30. This is the earliest report of equine cases in the state since 2012.
  - The first case was a 12-year-old mare (onset July 23<sup>rd</sup>, euthanized July 23<sup>rd</sup>). The mare was vaccinated in 2019.
  - Then second case was a 20-year-old gelding with unknown vaccination status (onset July 29<sup>th</sup>, euthanized July 29<sup>th</sup>).
- Routine avian testing has been discontinued but is available upon request at PHEL.

#### WNV/EEE Positive Test Results

	Week 31		Cum. Total (Year)	
	2019	2018	2019	2018
Equine (EEE)	2	-	2	-
Equine (WNV)				
Avian (WNV)				
Other				

Week 31: July 29-August 4, 2018; July 28-August 3, 2019

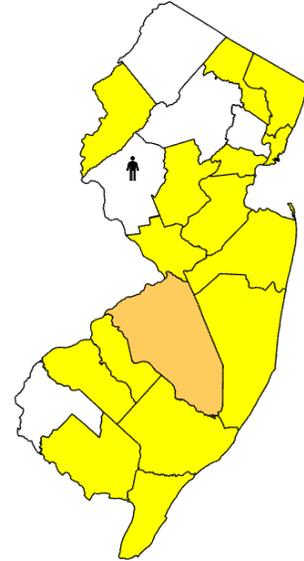
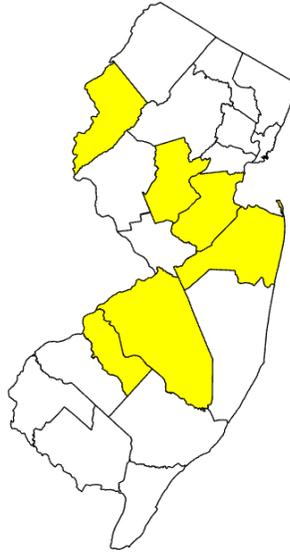
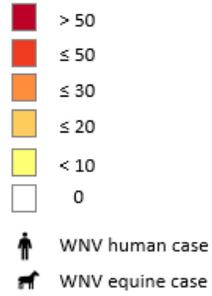
## 4. Surveillance Maps

### West Nile Virus (WNV)

Week 31 WNV Activity (2019)\*

Cumulative WNV Activity 2019

**WNV Positive Pools**

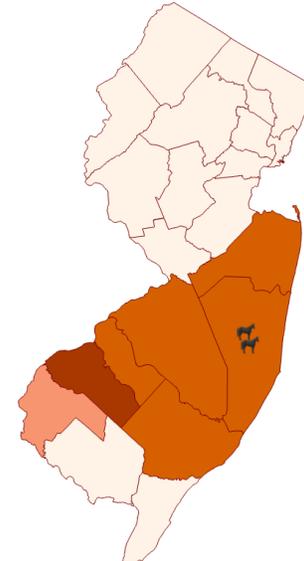
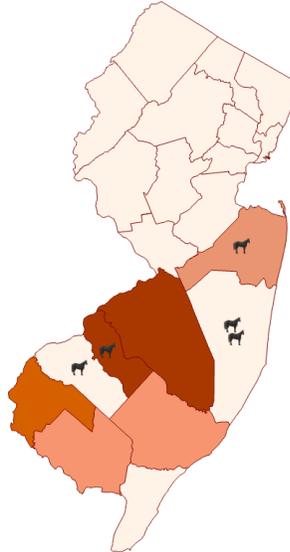
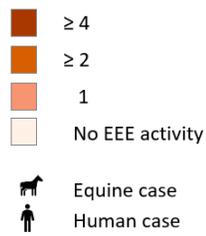


### Eastern equine encephalitis (EEE)

2018 EEE Activity

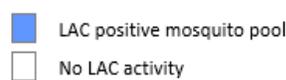
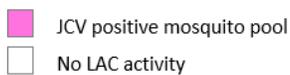
Cumulative EEE Activity 2019

**EEE Positive Pools**



Jamestown Canyon Virus Activity 2019

La Crosse Virus Activity 2019

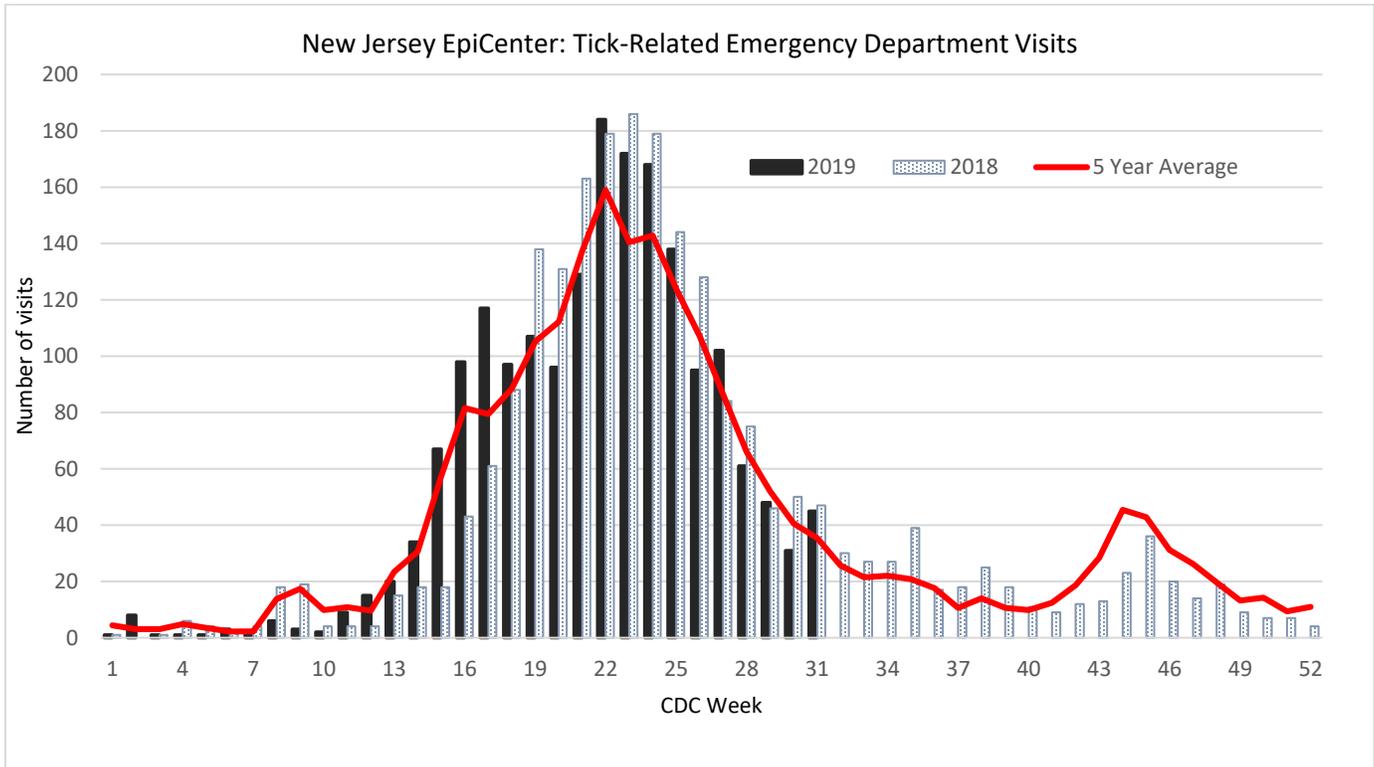


## 5. Syndromic Surveillance for Tick-related Emergency Department Visits

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 31, 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 July 23, 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/>