

Report Highlight:

- To date, there have been 36 WNV human cases (no change from last week) reported in 12 counties, which is the 3rd highest number of annual cases after 2018 (61 cases) and 2012 (48 cases). In a typical year, there are 8 reported WNV cases. Five WNV cases have resulted in fatalities in 4 counties.
- Half of the human WNV cases developed symptoms between the weeks ending on September 11th and September 25th. The last illness onset date occurred during the week ending October 23rd.
- West Nile virus (WNV) has not been detected in mosquito pools this week. 993 pools have tested positive in 2021, with the highest numbers in Bergen and Union counties. This is the 2nd highest number of WNV positive pools after 2018 (1,331 pools) over the past twenty years. Activity has been decreasing since week 35. Mosquito pool submissions end on November 12, 2021.
- No other new arboviral activity was reported in people, mosquitoes, or animals this week.
- Consistent with historical patterns, the number of tick-related visits to emergency departments is increasing, coinciding with when adult deer ticks emerge. A higher than usual number of Anaplasmosis cases has been reported this year, while other tickborne diseases are at either consistent or lower levels than historical averages.
- This will be the last weekly surveillance report for 2021 unless there are events that warrant additional updates. A season summary report will be posted online in the next few months.

1. Human Testing

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

Table 1.1 Human Cases ^a

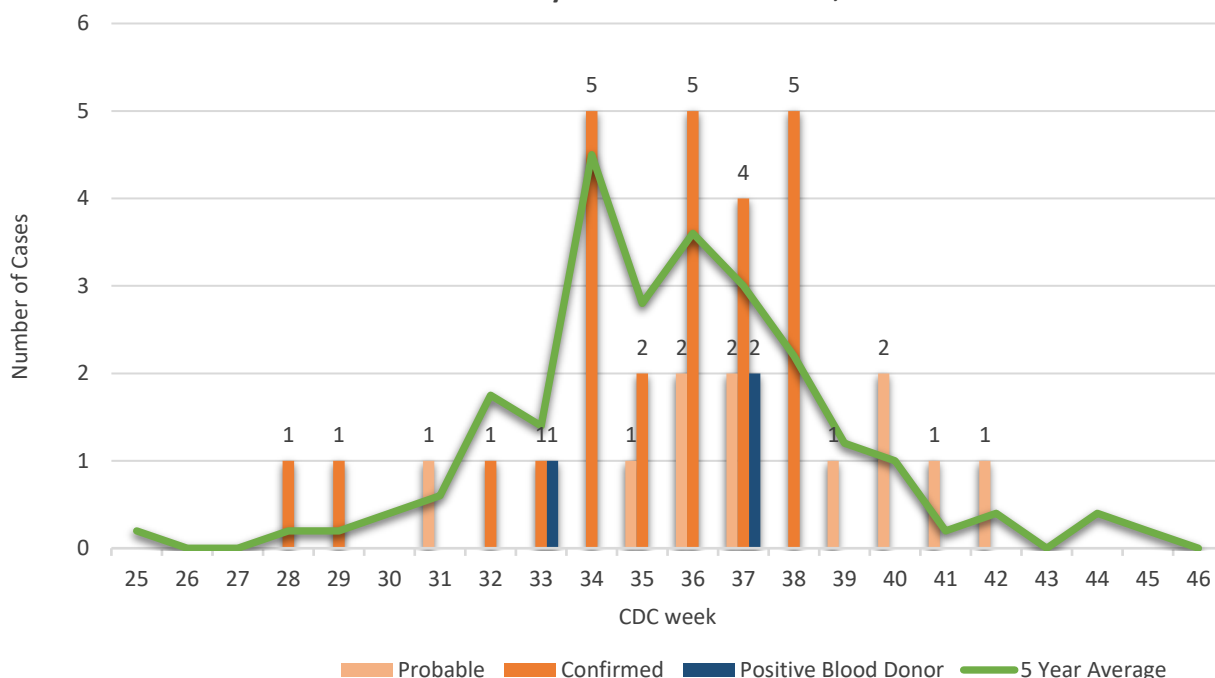
Mosquito-borne diseases			Tickborne Diseases		
	2021 ^b	2020		2021 ^b	2020
Chikungunya	1	3	Anaplasmosis	152	115
Dengue	8	2	Babesiosis	181	238
Eastern equine encephalitis	-	-	<i>Borrelia miyamotoi</i>	14	9
Jamestown Canyon	1	-	Ehrlichiosis	41	78
Malaria	39	24	Lyme disease	2173	2572
West Nile	36	3	Powassan	-	1
Zika	-	3	Spotted fever group rickettsioses	24	35

^a Data for 2021 reflect confirmed and probable cases that have been reviewed/approved by the NJDOH. This does not include cases under investigation. All 2021 numbers are preliminary and are subject to change. ^b Cumulative through Week 44: October 31-November 6, 2021

Table 1.2 WNV Human Cases ^b

County	Cases	Deaths	Positive Blood Donor
Burlington	8		1
Camden	6	2	
Monmouth	5	1	2
Bergen	4		
Essex	4		
Mercer	2	1	
Somerset	2		
Atlantic	1		
Cumberland	1		
Gloucester	1	1	
Middlesex	1		
Ocean	1		
Total	36	5	3

West Nile Virus Cases by Week of Illness Onset, 2021



*Positive blood donor based on specimen collection date

1. 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 8828 mosquito pools have been tested for WNV.
- 993 pools tested positive for WNV this year.
- The positive pools were detected in *Culex pipiens/restuans/salinarius* species mix (927), *Cx. erraticus* (2), *Aedes trivittatus* (1), *Ae. taeniorhynchus* (1), *Ae. triseriatus* (3), *Ae. albopictus* (30), *Ae. japonicus* (5), *Ae. vexans* (3), *Anopheles bradleyi* (1), *An. punctipennis* (3), *An. quadrimaculatus* s.l. (1), *Coquillettidia perturbans* (2), *Culiseta melanura* (12), *Psorophora ciliata* (1), and *Ps. ferox* (1).
- The first WNV positive pool was detected in Week 23 from Somerset County. In 2020, the first WNV positive mosquito pool was identified in Week 27 from Mercer and Monmouth counties.

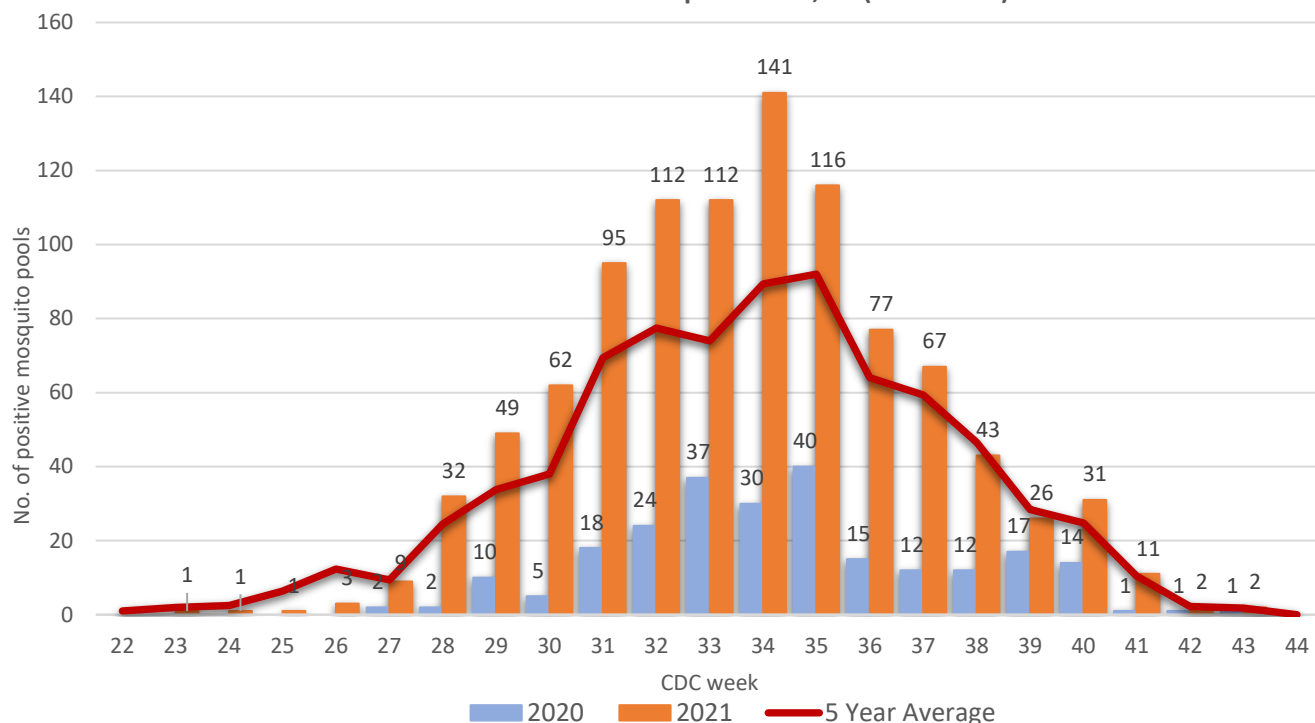
*Test results may be incomplete; counties submit pools for testing on specific weekdays. Mosquito testing data reflects test results received from PHEL as of November 10, 2021

WNV Positive Mosquito Pools

County	Week 44		Cumulative Total (Week 44)	
	2021*	2020	2021*	2020
Bergen			109	39
Union			104	28
Camden			93	5
Middlesex			93	15
Somerset			88	10
Burlington			79	34
Morris			63	5
Hunterdon			59	7
Monmouth			45	26
Hudson			44	37
Atlantic			39	1
Gloucester			33	4
Cape May			26	19
Mercer			25	2
Warren			25	
Ocean			23	1
Passaic			20	7
Sussex			18	
Essex			4	
Cumberland			3	
Salem				1
Total	-	-	993	241

Week 44: October 25-31, 2020; October 31-November 6, 2021

West Nile Virus Positive Mosquito Pools, NJ (2020-2021)



*Positive blood donor based on specimen collection date

Eastern equine encephalitis virus (EEE)

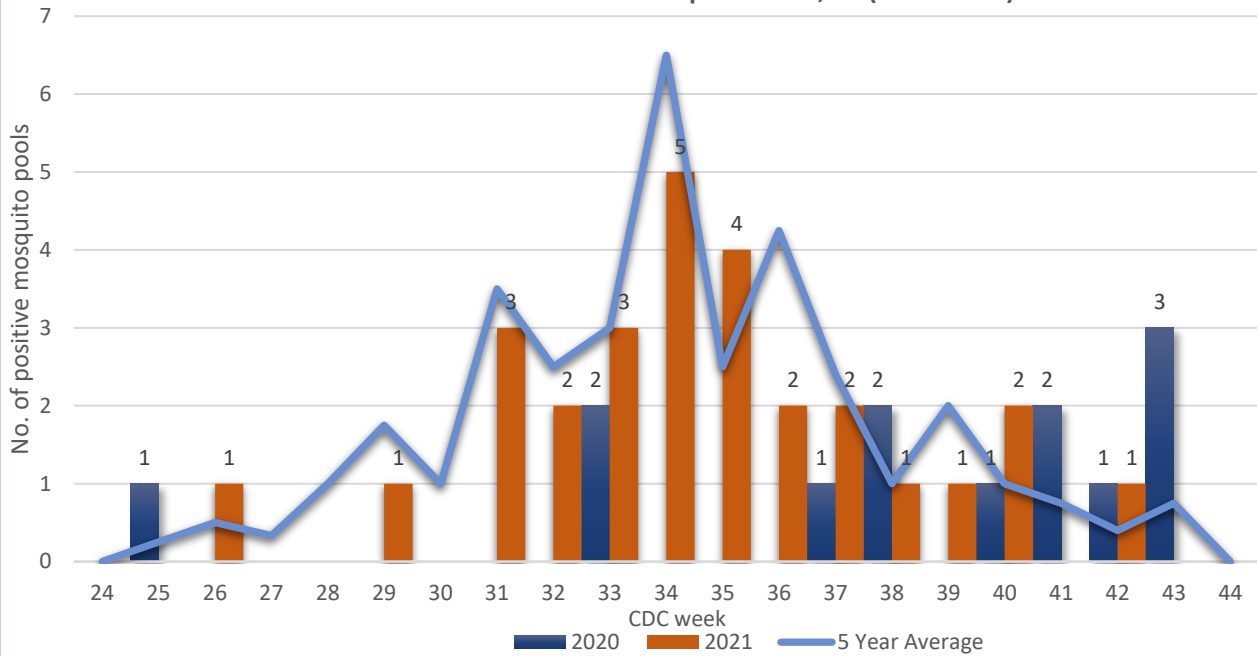
- A total of 7993 mosquito pools have been tested for EEE.
- 28 pools tested positive for EEE this year in *Cs. melanura* (20), *Ae. taeniorhynchus* (1), *Ae. triseriatus* (1), *Cx. pipiens/restuans/salinarius* (4), and *Cx. erraticus* (2).
- All positive pools have been in southern N.J.
- The first positive mosquito pool was detected in Week 26 from Gloucester County. In 2020, the first EEE mosquito pool was reported from Atlantic County in Week 25.

EEE Positive Mosquito Pools

County	Week 44		Cumulative Total (Week 44)	
	2021*	2020	2021*	2020
Atlantic			9	7
Gloucester			6	1
Camden			6	3
Burlington			3	1
Cape May			2	
Ocean			1	
Cumberland			1	
Bergen				
Essex				
Hudson				
Hunterdon				
Mercer				
Middlesex				
Monmouth				
Morris				
Passaic				
Salem				1
Somerset				
Sussex				
Union				
Warren				
Total	-	-	28	13

Week 44: October 25-31, 2020; October 31-November 6, 2021

EEE Virus Positive Mosquito Pools, NJ (2020-2021)



Other viruses:

Mosquito pools from 21 counties have been tested for other arboviruses. Eight pools have tested positive for JCV.

Cumulative 2021 Mosquito Pool Testing (Other Viruses ^a)

County	CHIKV		DENV		JCV		LACV		SLEV		ZIKV	
	Pools	Pos	Pools	Pos	Pools	Pos	Pools	Pos	Pools	Pos	Pools	Pos
Atlantic	12		12		529	1			529		12	
Bergen	1		1		397				399		1	
Burlington	1		1		513		12		547		1	
Camden					366	3			366			
Cape May	1		1		523				540		1	
Cumberland					420				475			
Essex					94	1			105			
Gloucester					513	2			563			
Hudson					298				304			
Hunterdon					315				355			
Mercer	2		2		463		16		518		2	
Middlesex	2		2		302				339		2	
Monmouth					537				590			
Morris	2		2		395				439		2	
Ocean					344				357			
Passaic					270		3		293			
Salem					544		16		580			
Somerset					282				282			
Sussex					576	1	13		576			
Union					231				231			
Warren					394		4		394			
Total	21		21		8306	8	64		8782		21	

^a Chikungunya virus (CHIKV), Dengue virus (DENV), Jamestown Canyon Virus (JCV), La Crosse encephalitis virus (LAC), St. Louis encephalitis virus (SLE), Zika Virus (ZIKV)
 Numbers in white columns represent the number of pools tested to date in 2021
 Numbers in blue shaded columns represent positive pools in 2021

Jamestown Canyon virus (JCV):

- NJ reported its 2nd ever human case of Jamestown Canyon virus this year in Week 18 in a Sussex County resident. The first case was reported in 2015 in a Sussex County resident.
- Eight positive Jamestown Canyon virus pools were reported in Atlantic County (week 38), Sussex County (week 27), Camden County (week 33, week 35, and Week 41), Essex County (week 34) and Gloucester County (week 35 and week 39).
- In 2020, six mosquito pools from 4 counties tested positive for Jamestown Canyon virus. The positive pools were identified in Bergen (week 23 and week 25), Cumberland (week 28 and week 33), Middlesex (week 31) and Monmouth (week 29).

La Crosse encephalitis virus (LAC):

- No positive La Crosse virus pools have been identified in 2021.
- Prior to the current year, a mosquito pool collected in Passaic County tested positive for La Crosse virus at PHEL in 2019.
- There has not been any human La Crosse virus cases reported in at least the past 20 years.

2. 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.

- In Week 34, two unvaccinated horses tested positive for EEE from Atlantic County (8-year-old mare; onset Aug 28; euthanized Aug 29) and Camden County (onset Aug 26; euthanized Aug 27). One unvaccinated horse (7-year-old mare) from Cumberland County tested positive for EEE in Week 33 (onset Aug 18; euthanized Aug 19).
- One Peregrine falcon from Atlantic County tested positive for WNV in Week 35.
- Three Cooper's hawks from Union County and one from Middlesex County tested positive for WNV in Week 30.
- One American crow from Burlington County tested positive for WNV on Week 27.
- In 2020, one horse from Atlantic County tested positive for EEE in Week 37 (4-year-old mare; euthanized 09/08)
- Routine avian testing has been discontinued but is available upon request at PHEL.

WNV/EEE Positive Test Results

	Week 44		Cum. Total (Year)	
	2021*	2020	2021*	2020
Equine (EEE)			3	1
Equine (WNV)				
Avian (WNV)			6	
Other				

Week 44: October 25-31, 2020; October 31-November 6, 2021

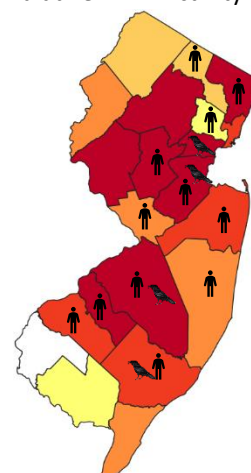
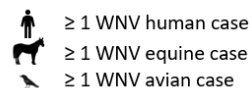
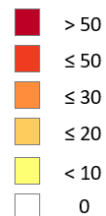
3. Surveillance Maps

West Nile Virus (WNV)

Week 44 WNV Activity (2021) *

Cumulative WNV Activity 2021

WNV Positive Pools

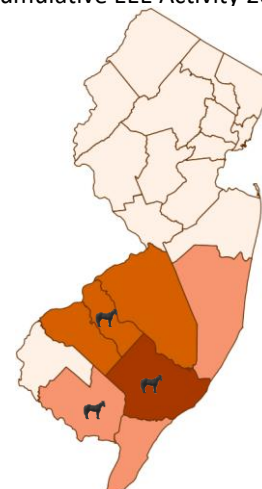
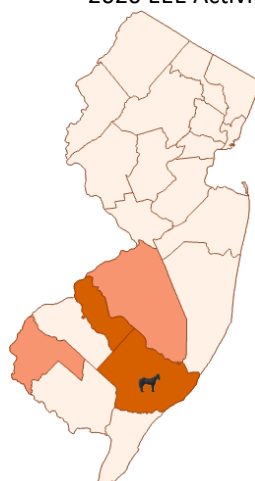
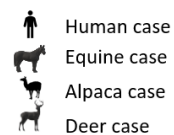
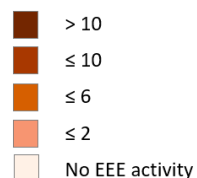


Eastern equine encephalitis (EEE)

2020 EEE Activity

Cumulative EEE Activity 2021

EEE Positive Pools

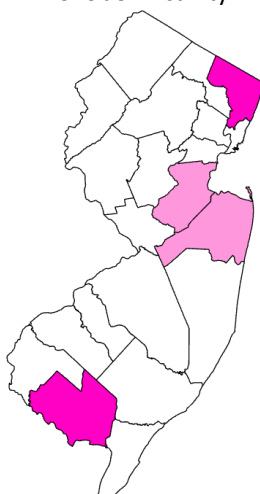
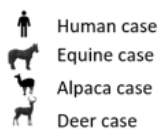
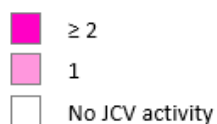


Jamestown Canyon Virus (JCV)

2020 JCV Activity

Cumulative JCV Activity 2021

JCV Positive Pools

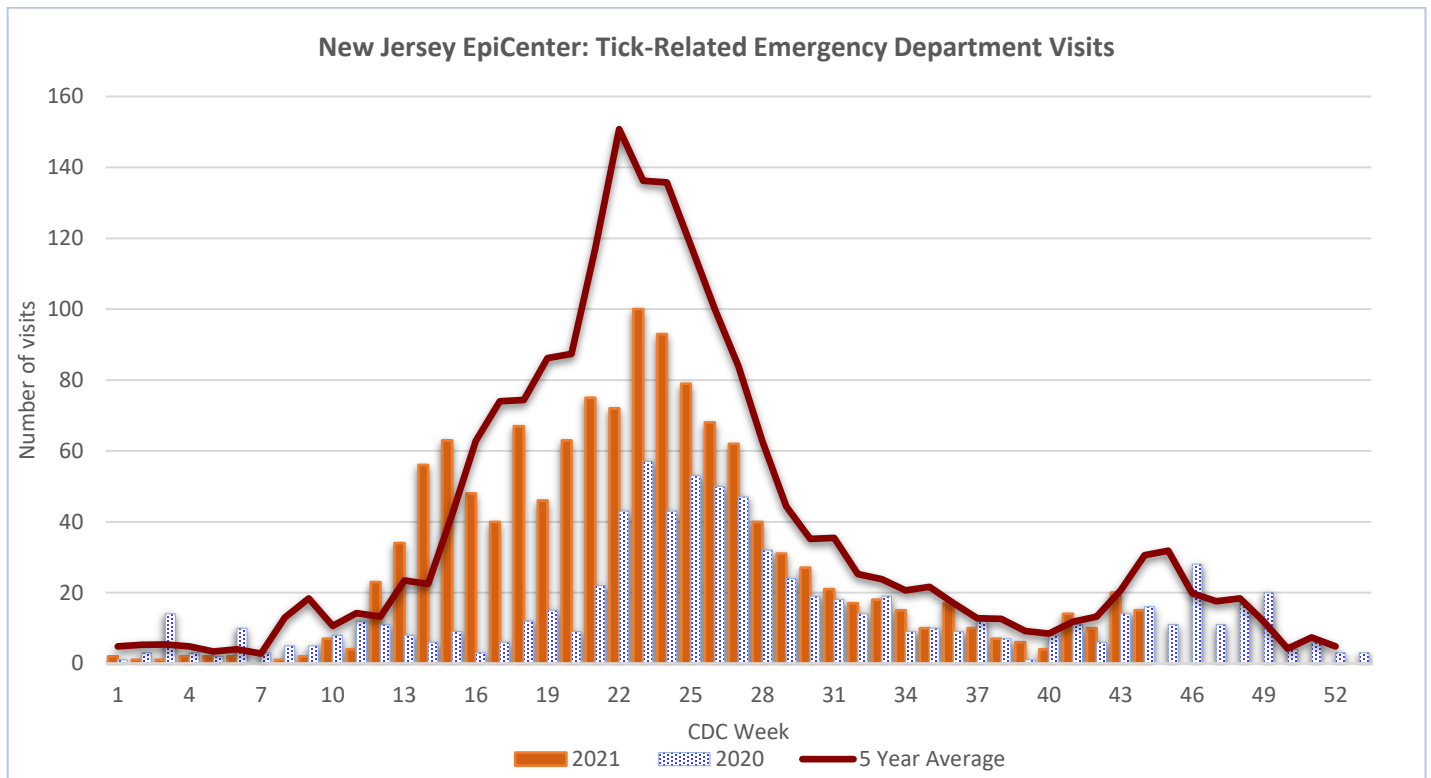


4. Syndromic Surveillance for Tick-related Emergency Department Visits

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 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 44, the overall number of ED visits is lower than the 5-year average. Typically, there is an increase in visits starting in Week 42, which coincides with the emergence of adult deer ticks.



Data reflects ED visits downloaded from EpiCenter as of November 10, 2021