



Vector Borne Disease 2019 Surveillance Report

Summit County Public Health



Report Weeks 15 and 16 (September 1 to September 14, 2019)
MMWR Weeks 36 and 37

Public Health
Prevent. Promote. Protect.

This report will be issued from June through October of each year (or later if West Nile Virus disease is still a concern). Surveillance will include human and veterinary cases and testing of mosquito pools in Summit County. It will also include updates from Ohio and around the nation for all reportable diseases that are transmitted insect vectors.

SUMMIT COUNTY SURVEILLANCE

Table 1: West Nile virus (WNV) tests ordered in Summit County hospitals

Week(s)	# of WNV tests ordered this period	# of positive WNV tests this period	Cumulative # of tests ordered this season	Cumulative # of positive tests this season	Percentage of positive tests
Weeks 1 & 2: 5/26 to 6/8	2	1	2	1	50.0%
Weeks 3 & 4: 6/9 to 6/22	5	0	7	1	14.3%
Weeks 5 & 6: 6/23 to 7/6	4	0	11	1	9.1%
Weeks 7 & 8: 7/7 to 7/20	6	1	17	2	11.8%
Weeks 9 & 10: 7/21 to 8/3	9	1	26	3	11.5%
Weeks 11 & 12: 8/4 to 8/17	10	0	36	3	8.3%
Weeks 13 & 14: 8/18 to 8/30	14	1	50	4	8.0%
Weeks 15 & 16: 9/1 to 9/14	12	1	62	5	8.1%
Weeks 17 & 18: 9/15 to 9/28					
Weeks 19 & 20: 9/29 to 10/12					
Weeks 21 & 22: 10/13 to 10/26					

Note: Reporting may not be completed each week. Numbers will be updated when reports are received

West Nile virus testing (Table 1): During surveillance period Weeks 15 and 16, there were 12 tests for West Nile virus (stand alone or part of an arbovirus panel) ordered by Summit County hospitals. So far this season, there have been 5 positive results, all of which were likely to be indication of immunity due to a past exposure and were not active infections (Table 1).

Lyme disease testing (Table 2): There were 64 diagnostic test series performed for Lyme disease during Weeks 15 and 16, 5 of which were positive. The CDC currently recommends a two-step process when testing blood for evidence of antibodies against the Lyme disease bacteria (*Borrelia burgdorferi*). Both steps can be done using the same blood sample. The first step uses a testing procedure called “EIA” (enzyme immunoassay) or rarely, an “IFA” (indirect immunofluorescence assay). If this first step is negative, no further testing of the specimen is recommended. If the first step is positive or indeterminate (sometimes called “equivocal”), then the second step should be performed. The second step uses a test called an immunoblot test, commonly, a “Western blot” test. Results are considered positive only if the EIA/IFA and the immunoblot are both positive.

Week(s)	# of Lyme tests ordered this period	# of positive Lyme tests this period	Cumulative # of tests ordered this season	Cumulative # of positive tests this season	Percentage of positive tests
Weeks 1 & 2: 5/26 to 6/8	55	2	55	2	3.6%
Weeks 3 & 4: 6/9 to 6/22	79	10	134	12	9.0%
Weeks 5 & 6: 6/23 to 7/6	59	6	193	18	9.3%
Weeks 7 & 8: 7/7 to 7/20	80	5	273	23	8.4%
Weeks 9 & 10: 7/21 to 8/3	82	12	355	35	9.9%
Weeks 11 & 12: 8/4 to 8/17	69	6	424	41	9.7%
Weeks 13 & 14: 8/18 to 8/30	65	8	489	49	10.0%
Weeks 15 & 16: 9/1 to 9/14	64	5	553	54	9.8%
Weeks 17 & 18: 9/15 to 9/28					
Weeks 19 & 20: 9/29 to 10/12					
Weeks 21 & 22: 10/13 to 10/26					

Note: Reporting may not be completed each week. Numbers will be updated when reports are received

Reported Vector-borne diseases in 2019 (Table 3): As of September 14, there were 21 reported cases of Lyme disease; 7 were confirmed by laboratory testing and 14 were suspected cases. Two confirmed cases of malaria, two cases of Rocky Mountain spotted fever, and two cases of ehrlichiosis were also reported.

	Confirmed or Probable	Suspected	Notes
Tick-borne diseases:			
Babesiosis	0	0	
Ehrlichiosis / anaplasmosis	0	2	
Lyme disease	7	14	
Powassan virus disease	0	0	
Rocky Mountain spotted fever	1	1	
Mosquito-borne diseases:			
Chikungunya	0	0	
Dengue	0	0	
Eastern equine encephalitis	0	0	
LaCrosse virus disease	0	0	
Malaria	2	0	Cases were international travel-related
St. Louis encephalitis virus disease	0	0	
Zika virus infection	0	0	
West Nile virus infection	0	0	

Source: Ohio Disease Reporting System (ODRS); only confirmed, probable, and suspected cases are included.

Species name	Diseases associated	# identified
Mosquito species		
<i>Aedes albopictus</i>	Chikungunya, dengue fever, yellow fever	3
<i>Aedes triseriatus</i>	La Crosse encephalitis	527
Tick species		
<i>Ixodes scapularis</i>	Lyme disease, babesiosis, anaplasmosis	81

Source: Ohio Department of Health (Identification via mailed specimens, emailed photos and iNaturalist observations)

Table 5. Reported Aseptic/viral Meningitis Cases in Summit County (confirmed & probable), as of September 14, 2019

Week(s)	Cases reported this period	Cumulative cases for the season
Aseptic meningitis cases reported prior to season (1/1 to 5/25/2019)	3	-
Weeks 1 & 2: 5/26 to 6/8	1	1
Weeks 3 & 4: 6/9 to 6/22	2	3
Weeks 5 & 6: 6/23 to 7/6	2	5
Weeks 7 & 8: 7/7 to 7/20	3	8
Weeks 9 & 10: 7/21 to 8/3	2	10
Weeks 11 & 12: 8/4 to 8/17	3	13
Weeks 13 & 14: 8/18 to 8/30	0	13
Weeks 15 & 16: 9/1 to 9/14	0	13
Weeks 17 & 18: 9/15 to 9/28		
Weeks 19 & 20: 9/29 to 10/12		
Weeks 21 & 22: 10/13 to 10/26		

Source: Ohio Disease Reporting System (ODRS)

Reported aseptic/viral meningitis cases (Table 5): Prior to the reporting season, there were 3 reported cases of aseptic meningitis, and no cases were reported during Weeks 15 and 16, keeping the season total at 13. Aseptic/viral meningitis is the most common type of meningitis and occurs predominately in the summer and fall. While most aseptic/viral meningitis cases are due to gastrointestinal or respiratory viruses, similar symptoms may be present with arthropod-borne diseases.

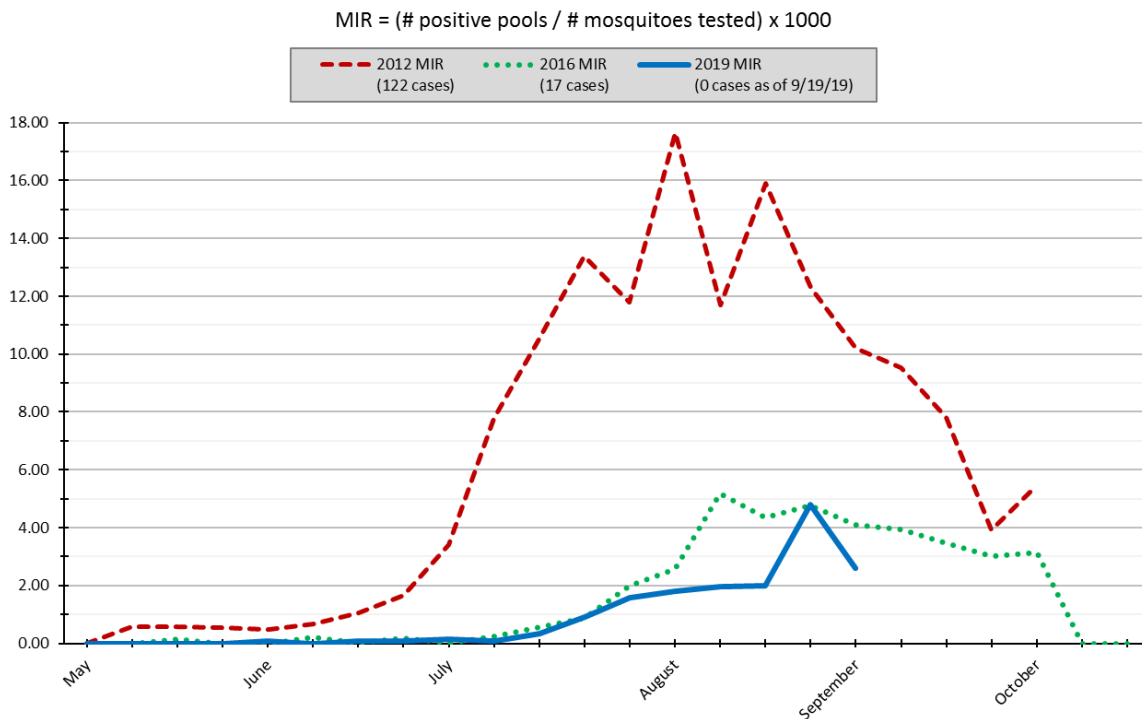
Mosquito testing (Table 6): Based on the ODH mosquito testing summary released on September 19, over 90,861 mosquitoes were collected as 2,317 pooled samples throughout Summit County. 36 of the pooled samples tested positive for West Nile virus.

Mosquitoes identified	90,861
Pooled samples tested	2,317
Positive WNV pooled samples	36

Note: All mosquitoes pools tested were *Culex sp.*

OHIO SURVEILLANCE

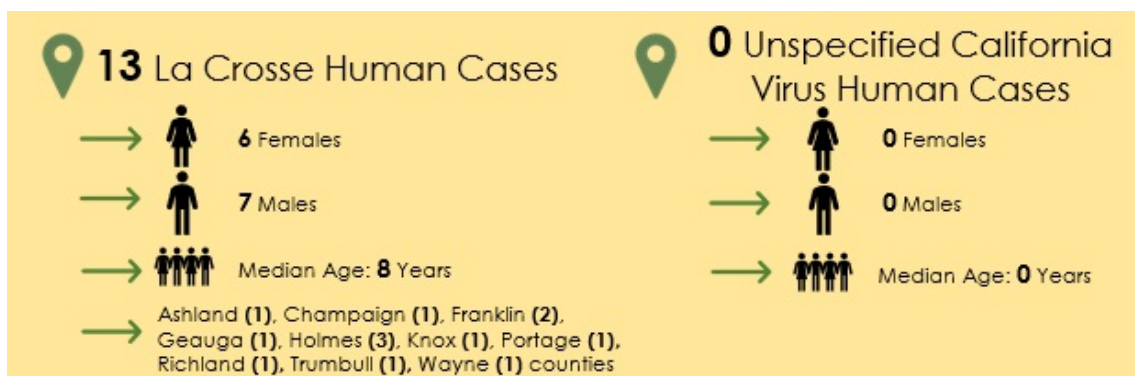
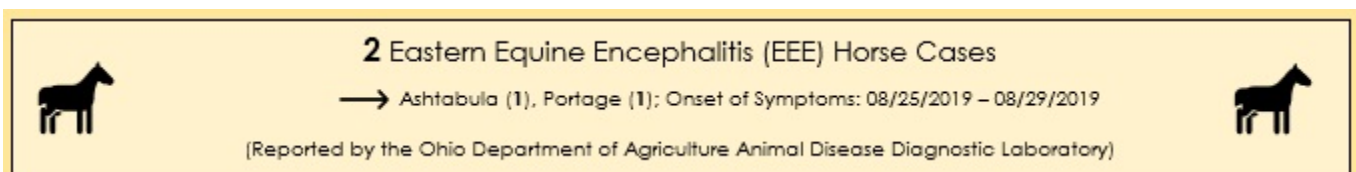
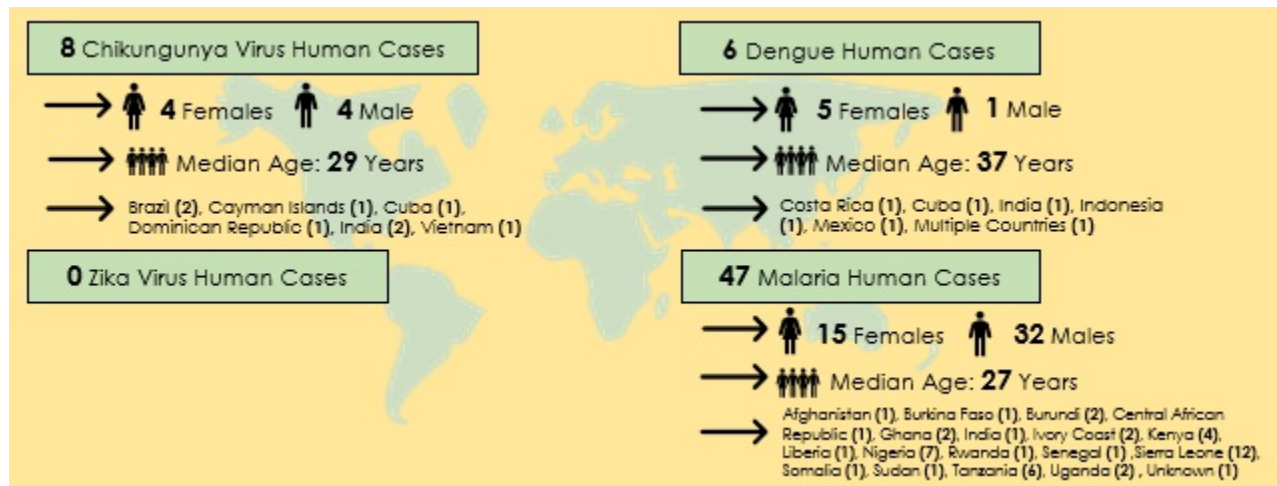
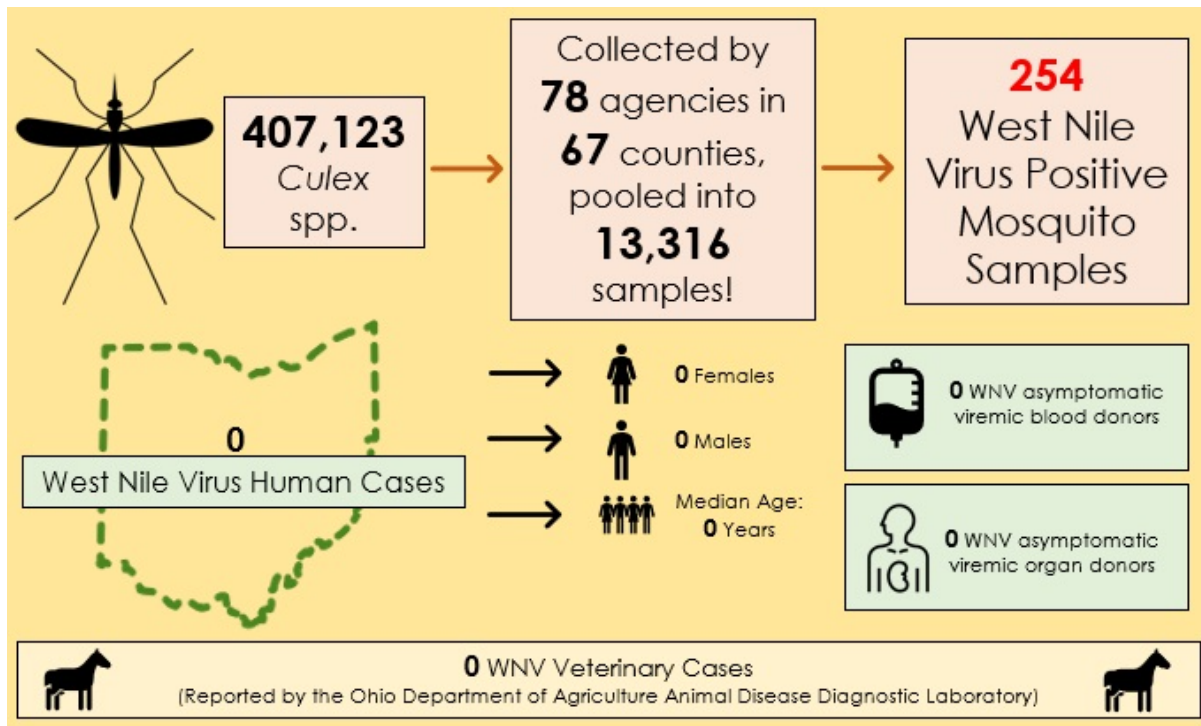
Figure 1. Minimum infection rate (MIR) of West Nile Virus in *Culex spp.* collected in Ohio as of 9/19/2019



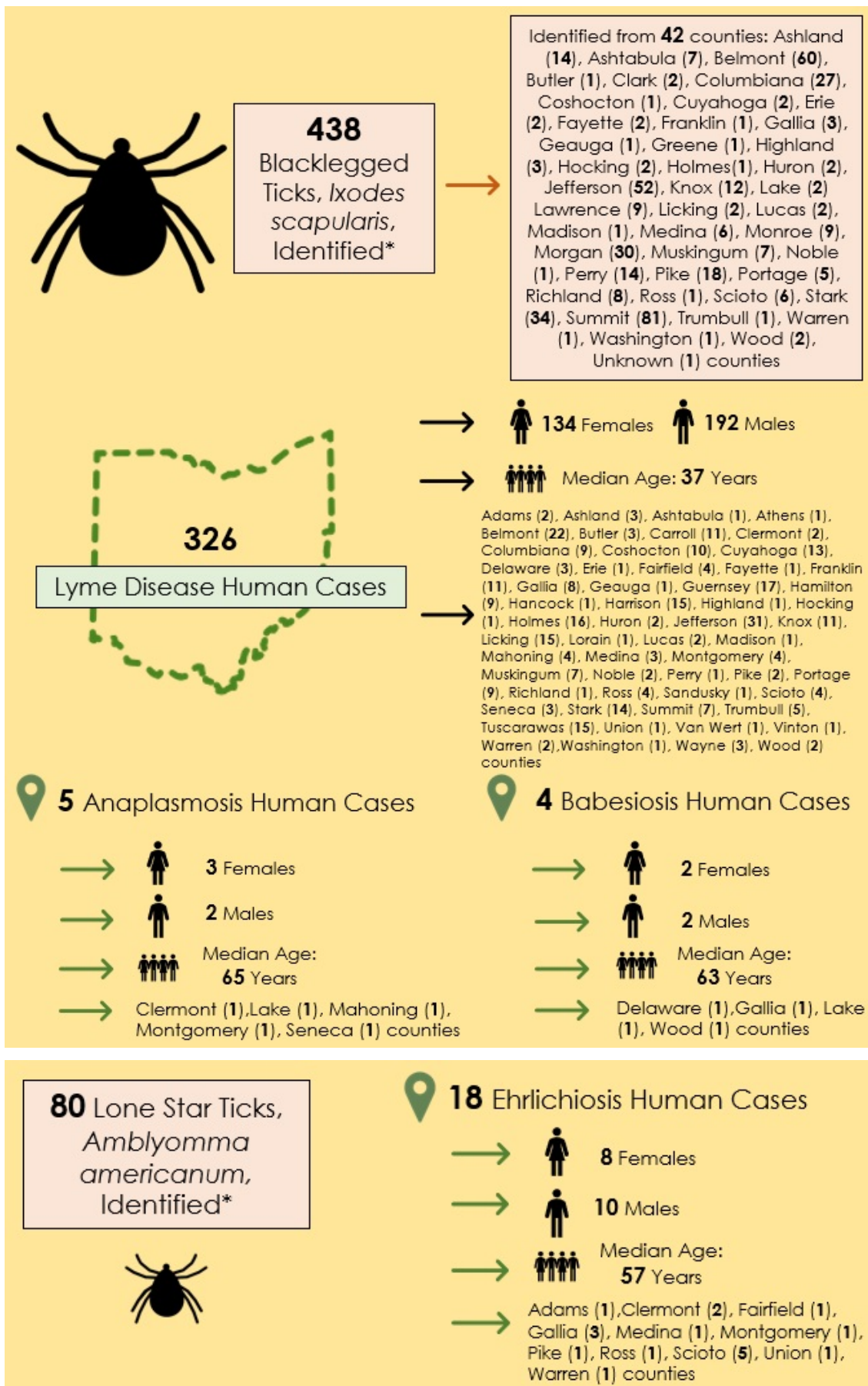
West Nile virus infection rates peaked at 4.81 in late August, but remained below average in Ohio (Figure 1). 254 mosquito pools in Ohio tested positive for West Nile virus, including 36 pools in Summit County. At this time in 2018, Summit County had 629 mosquito pools that tested positive for West Nile virus.

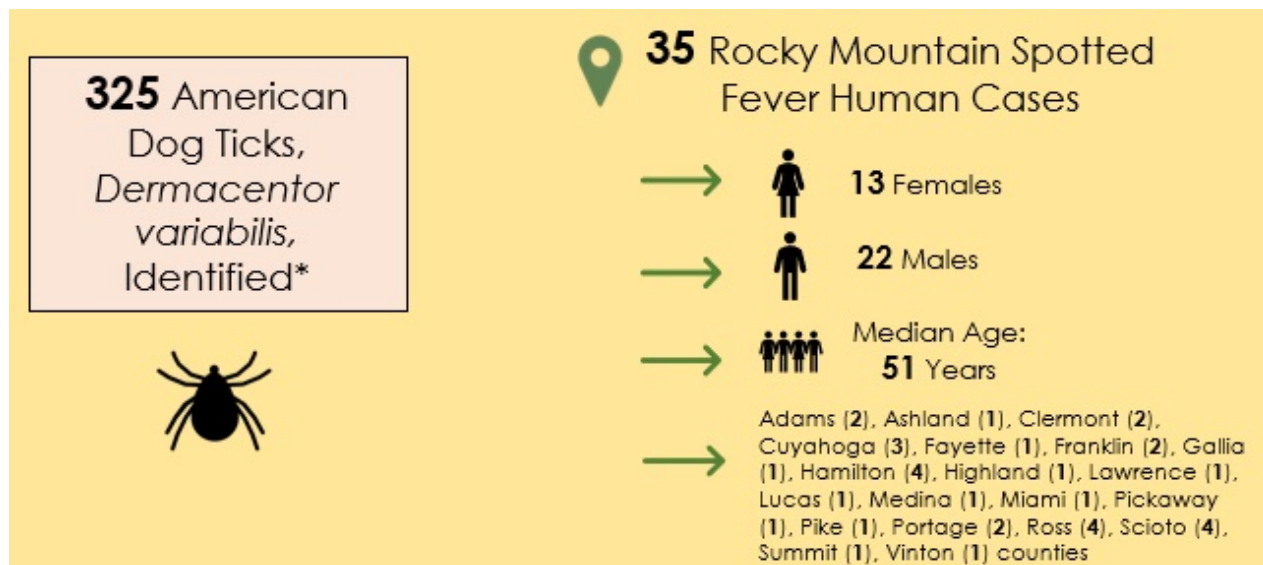
Source: Ohio Department of Health

Ohio Mosquito-borne diseases (as of 9/19/2019):



Ohio Tick-borne diseases (as of 9/19/2019):





Source: [Ohio Department of Health Vector Borne Disease Updates](#)

OHIO AND UNITED STATES SURVEILLANCE

Table 7. Reported Vector Borne disease in Ohio and the United States, 2019

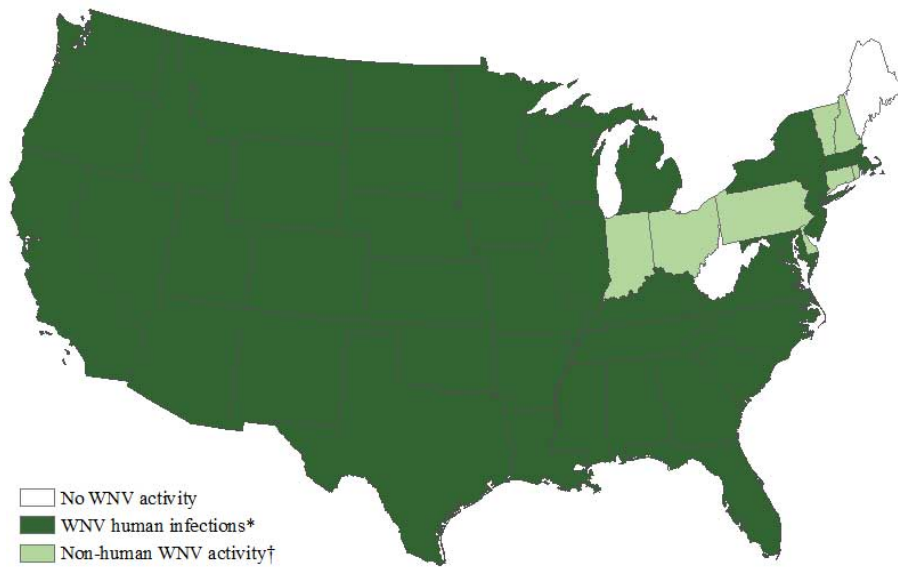
Disease	OHIO	UNITED STATES	
	2019 (as of 9/14) cumulative	Weeks 15 and 16 (9/1 to 9/14)	2019 (as of 9/14) Cumulative
Babesiosis	6	34	1612
Chikungunya	9	0	61
Dengue (includes dengue-like illness)	7	23	551
Eastern equine encephalitis	0	3	18
Erlchiosis / anaplasmosis	25	93	5109
Jamestown Canyon virus disease	0	0	12
LaCrosse virus disease	12	1	24
Lyme Disease	441	Not reported weekly by CDC	
Malaria	44	46	1048
Powassan virus disease	0	0	21
Spotted fever rickettsiosis	63	71	2916
St. Louis encephalitis virus disease	0	0	9
West Nile virus infection	0	8	299
Zika virus infection, non-congenital	0	0	9

Note: Data is provisional and subject to change

Source: https://wonder.cdc.gov/nndss/nndss_weekly_tables_menu.asp

Special note for travelers: Ohioans traveling to areas where local transmission is occurring should be aware of the ongoing situation and make every effort to avoid mosquito and tick bites. Additional information can be found from the [Centers for Disease Control and Prevention \(CDC\)'s Travelers' Health](#) and [Pan-American Health Organization](#) websites.

Figure 2. West Nile virus activity by state – United States, 2019 (as of September 17, 2019)



WNV infections in mosquitoes, birds, sentinel animals, or veterinary animals have been reported to CDC ArboNET from all 48 contiguous states except: Maine and West Virginia.

West Nile virus infections in humans have been reported to CDC ArboNET from all 48 contiguous states except: Connecticut, Delaware, Indiana, Maine, New Hampshire, Ohio, Pennsylvania, Rhode Island, Vermont, and West Virginia.

*WNV human disease cases or presumptive viremic blood donors. Presumptive viremic blood donors have a positive screening test which has not necessarily been confirmed.

†WNV veterinary disease cases, or infections in mosquitoes, birds, or sentinel animals.

Source: <https://www.cdc.gov/westnile/statsmaps/preliminarymapsdata2019/activitybystate2019.html>

VECTOR BORNE DISEASE NEWS

Uptick in eastern equine encephalitis activity sickens people in 5 states

Connecticut health officials this week reported the state's first human case of eastern equine encephalitis (EEE) for the year, the fifth state this year to report cases of the rare mosquito-borne disease, according to reports compiled by ProMED Mail, the online reporting system of the International Society for Infectious Diseases. On Sep 16, the Connecticut Department of Public Health (CDPH) said the patient is an adult resident of East Lyme who got sick during the last week of August with encephalitis and remains hospitalized. It said the virus has been found in mosquitoes in 12 towns and in horses in 2 other towns. The case marks only the second EEE case in Connecticut and the first since the fall of 2013. The CDPH said two other states in the region had recorded human EEE cases for the season, Massachusetts (8 cases) and Rhode Island (1).

Also, New Jersey on Aug 16 reported its first human EEE case of the year, involving an elderly Somerset County man who was hospitalized and was discharged for rehabilitation care, according to a statement from the New Jersey Department of Health (NJDH).

Outside of the northeast, Michigan is experiencing its worst year for EEE in more than a decade, according to a Sep 17 statement from the Michigan Department of Health and Human Services (MDHHS). So far it has confirmed seven cases, all with July illness-onset dates, five of them fatal. The patients are from five different counties in the southwestern part of the state: Barry, Cass, Van Buren, Kalamazoo, and Berrien.

According to US Centers for Disease Control and Prevention (CDC), about seven human EEE cases are reported each year. It said transmission is most common in and around freshwater hardwood swamps in Atlantic and Gulf Coast states and in the Great Lakes region.

Source: <http://www.cidrap.umn.edu/news-perspective/2019/09/news-scan-sep-19-2019>

Travelers, take note!

Dengue surges in the Americas as Florida reports more local cases

With about 2.4 million dengue cases reported in the Americas so far, the 2019 total will probably top the number for the last epidemic year, which occurred in 2015, the Pan American Health Organization (PAHO) said its latest update late last week. In August, PAHO said the region is experiencing a new epidemic cycle with a complex situation shaping in Latin America and the Caribbean. Of 2,384,029 cases this year, 949 were fatal. In addition, 44.7% of the illnesses were classified as severe dengue, a proportion that has exceeded levels observed in the previous 4 years.

Of five countries with the highest incidence rates, four are in Central America: Belize, El Salvador, Honduras, and Nicaragua. Brazil is the other main hot spot. All four dengue serotypes are present in the Americas, and Brazil, Guatemala, and Mexico are reporting cocirculation of all four. Children are among hardest-hit groups, with Guatemala, for example, reporting that kids younger than 15 years make up 67% of the country's severe dengue cases. PAHO and the World Health Organization (WHO) urge member countries to take several preparedness and response steps, including ensuring that health workers are properly trained in diagnosis and treatment, with a special focus on age-groups and at-risk groups that have the highest case-fatality rates.

Sep 13 PAHO [dengue update](#)

In other dengue developments, the Florida Department of Health in Miami-Dade County has issued a mosquito-borne illness alert after a fourth local dengue was confirmed in a Miami-Dade resident, according to a Sep 13 news release. It said the four local cases don't appear to be related. Also, Florida health officials reported a fifth dengue case, signifying the first of the year in neighboring Broward County, according to a Sep 13 *Miami Herald* report.

Sep 13 Florida Health Miami-Dade [press release](#)

Sep 13 *Miami Herald* [report](#)

Source: <http://www.cidrap.umn.edu/news-perspective/2019/09/news-scan-sep-16-2019>



Source: <https://www.cdc.gov/chikungunya/fact/index.html>

About this report: Reporting agencies include Summit County hospital laboratories and the Ohio Department of Health. Vector-borne disease case data for Summit County are obtained from the Ohio Disease Reporting System.

Many thanks to all agencies who report vector-borne disease data weekly.

Reporting from participants may not be complete each week. Numbers may change as updated reports are received. For questions, please contact Joan Hall (jhall@schd.org) or Tracy Rodriguez (trodriguez@schd.org), Summit County Public Health Communicable Disease Unit (330-375-2662). This report was issued on **September 20, 2019**.