



Vector Borne Disease 2019 Surveillance Report

Summit County Public Health



Public Health
Prevent. Promote. Protect.

Report Weeks 11 and 12 (August 4 to August 17, 2019)
MMWR Weeks 32 and 33

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. It will include vector-borne diseases besides West Nile Virus.

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					
Weeks 15 & 16: 9/1 to 9/14					
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 11 and 12, there were 10 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 three positive results, all of which were likely to be due to a past exposure and were not active infections (Table 1).

Lyme disease testing (Table 2): There were 69 diagnostic test series performed for Lyme disease during Weeks 11 and 12, 6 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					
Weeks 15 & 16: 9/1 to 9/14					
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 August 17, there were 18 reported cases of Lyme disease; 6 were confirmed by laboratory testing and 12 were suspected cases. Two confirmed cases of malaria and two cases of Rocky Mountain spotted fever were also reported.

	Confirmed	Suspected or Probable	Notes
Tick-borne diseases:			
Babesiosis	0	0	
Ehrlichiosis / anaplasmosis	0	0	
Lyme disease	6	12	
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	482
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 August 3, 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		
Weeks 15 & 16: 9/1 to 9/14		
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 3 cases were reported during Weeks 11 and 12. 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 August 23, over 87,592 mosquitoes were collected as 2,184 pooled samples throughout Summit County. 35 of the pooled samples tested positive for West Nile virus.

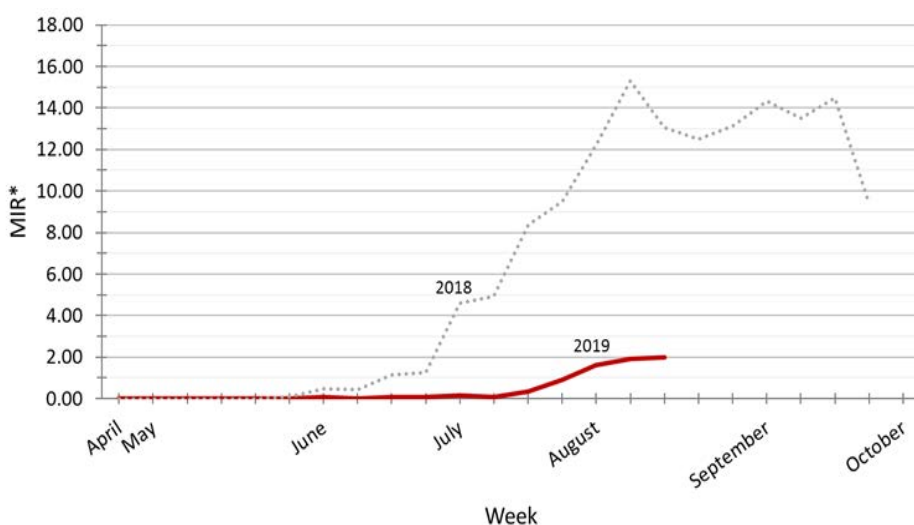
Table 6. Mosquito Testing in Summit County (samples processed by noon on 8/23/2019)

Mosquitoes identified	87,592
Pooled samples tested	2,184
Positive WNV pooled samples	35

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

OHIO SURVEILLANCE

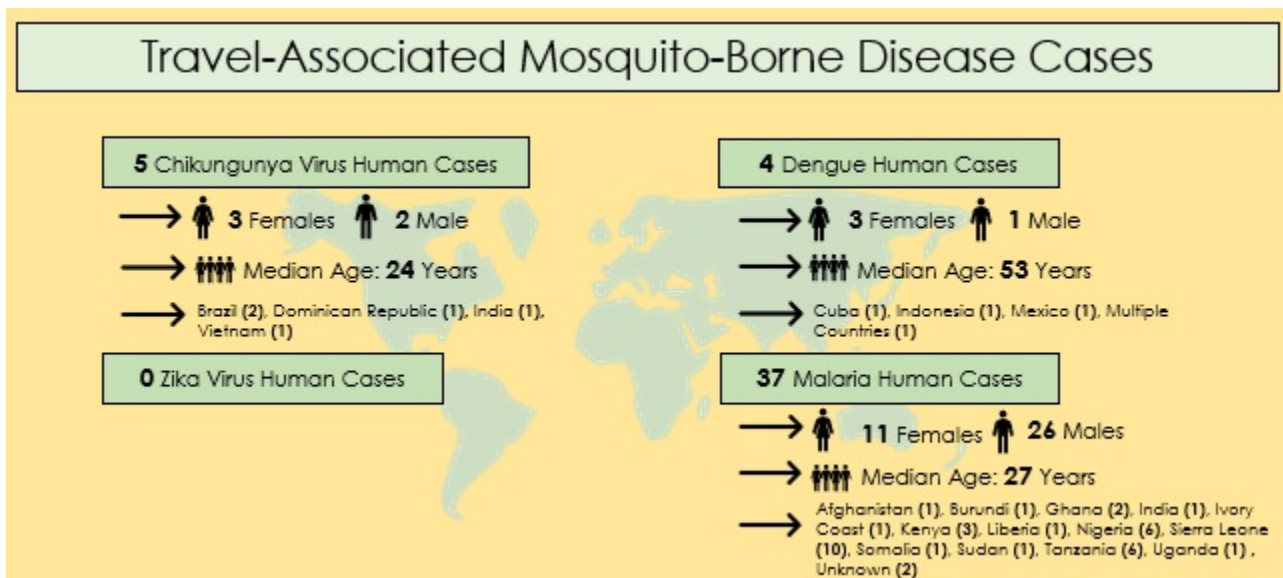
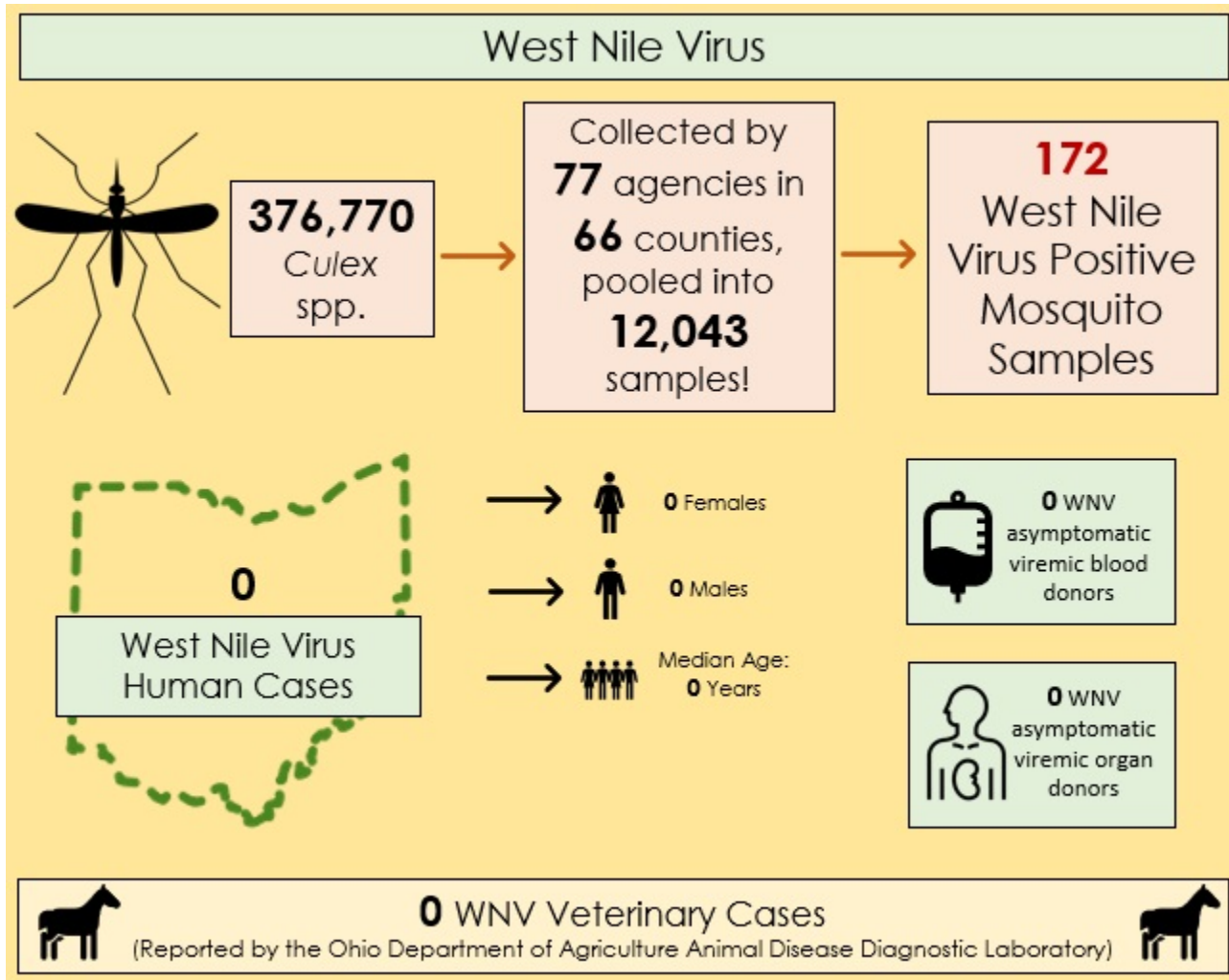
Figure 1. Minimum infection rate (MIR) of West Nile Virus in *Culex spp.* collected in Ohio as of 8/23/2019



Although the high amounts of rainfall in early summer have resulted in increased mosquito breeding, West Nile virus infection rates remain low in Ohio (Figure 1). A small increase in the MIR occurred in late July, but it remains well below the MIR at this time in 2018. 172 mosquito pools in Ohio tested positive for West Nile virus, including 35 pools in Summit County. At this time in 2018, Summit County had 214 mosquito pools that were positive for West Nile virus.

Source: <https://u.osu.edu/zika/category/mosquitos/>

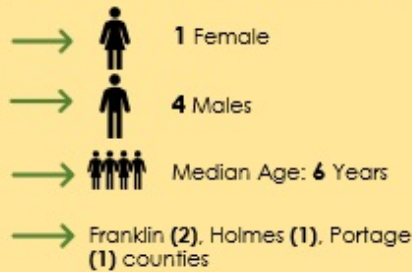
Ohio Mosquito-borne diseases (as of 8/23/2019):



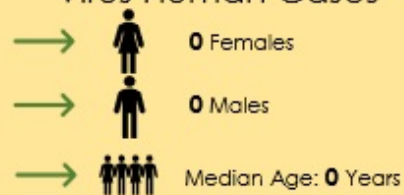
Special note for travelers: Ohioans traveling to areas where local transmission is occurring should be aware of the ongoing situation and make every effort to avoid mosquito and tick bites. Additional information can be found from the [Centers for Disease Control and Prevention \(CDC\)'s Travelers' Health](#)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

La Crosse/Unspecified California Encephalitis Virus

5 La Crosse Human Cases



0 Unspecified California Virus Human Cases



Ohio Tick-borne diseases (as of 8/23/2019):

Lyme Disease, Anaplasmosis, Babesiosis



438
Blacklegged
Ticks, *Ixodes*
scapularis,
Identified*

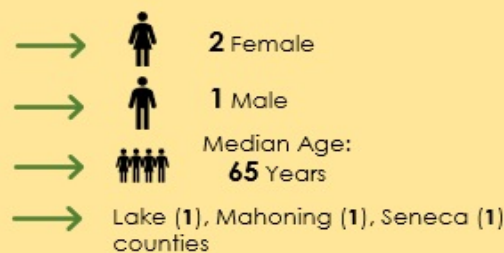
Identified from **42** counties: Ashland (14), Ashtabula (7), Belmont (60), Butler (1), Clark (2), Columbiana (27), Coshocton (1), Cuyahoga (2), Erie (2), Fayette (2), Franklin (1), Gallia (3), Geauga (1), Greene (1), Highland (3), Hocking (2), Holmes (1), Huron (2), Jefferson (52), Knox (12), Lake (2), Lawrence (9), Licking (2), Lucas (2), Madison (1), Medina (6), Monroe (9), Morgan (30), Muskingum (7), Noble (1), Perry (14), Pike (18), Portage (5), Richland (8), Ross (1), Scioto (6), Stark (34), Summit (81), Trumbull (1), Warren (1), Washington (1), Wood (2), Unknown (1) counties

262
Lyme Disease Human Cases

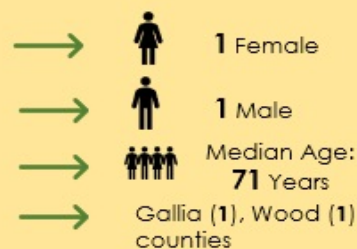


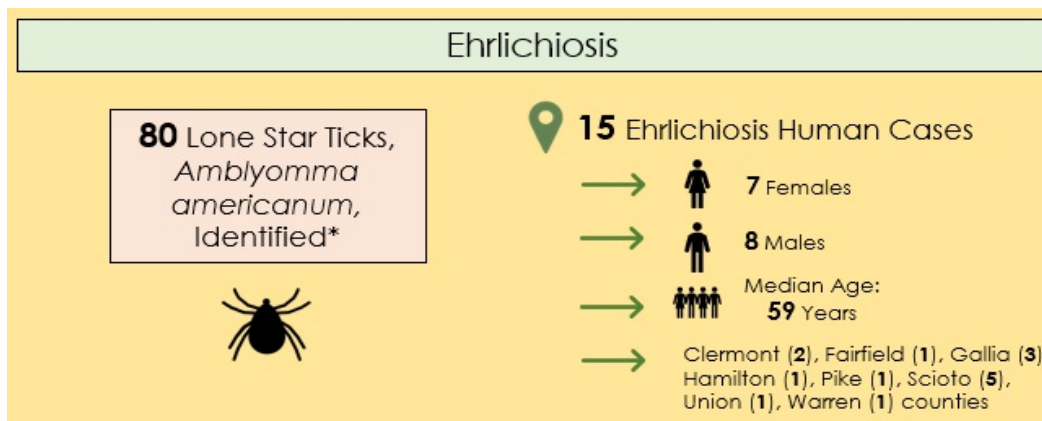
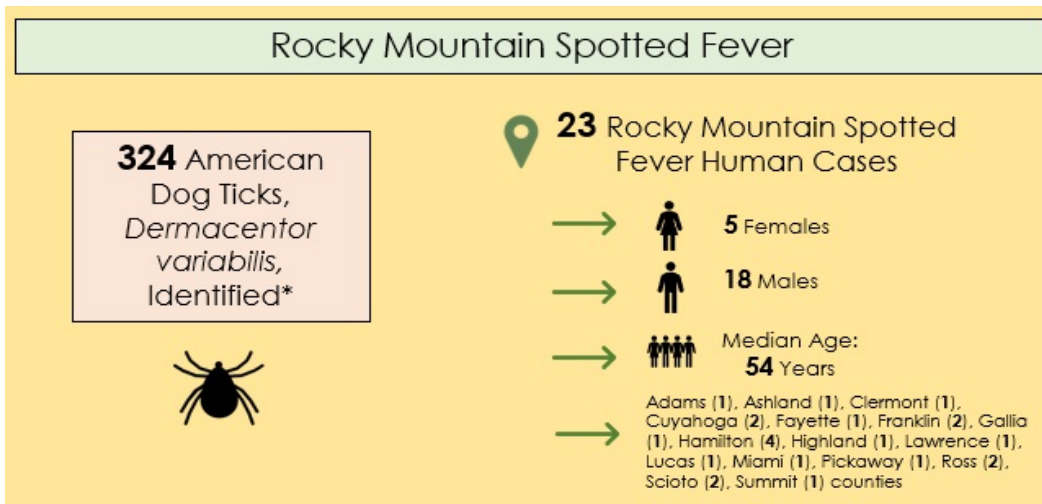
Adams (1), Ashland (3), Athens (1), Belmont (18), Butler (3), Carroll (10), Columbiana (3), Coshocton (10), Cuyahoga (12), Delaware (2), Fairfield (4), Fayette (1), Franklin (8), Gallia (8), Geauga (1), Guernsey (13), Hamilton (8), Hancock (1), Harrison (12), Highland (1), Hocking (1), Holmes (13), Huron (2), Jefferson (21), Knox (9), Licking (13), Lorain (1), Lucas (1), Madison (1), Mahoning (2), Medina (2), Montgomery (3), Muskingum (7), Noble (1), Perry (1), Pike (2), Portage (8), Richland (1), Ross (4), Sandusky (1), Scioto (4), Seneca (3), Stark (11), Summit (6), Trumbull (5), Tuscarawas (10), Union (1), Van Wert (1), Vinton (1), Warren (1), Washington (1), Wayne (2), Wood (2) counties

3 Anaplasmosis Human Cases



2 Babesiosis Human Cases





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

OHIO AND UNITED STATES SURVEILLANCE

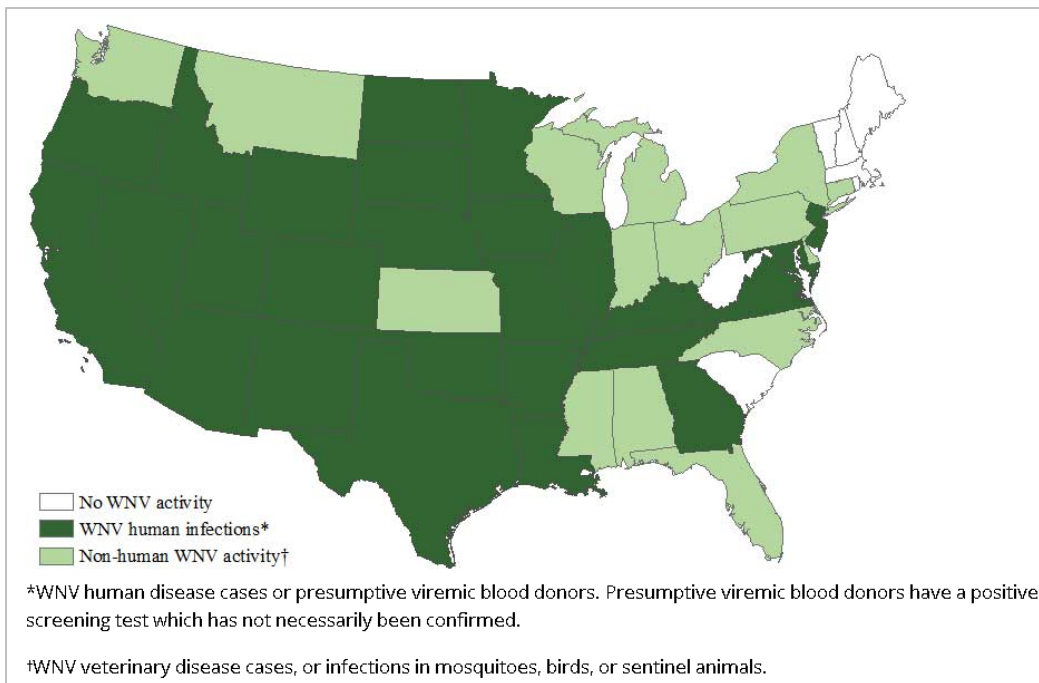
Table 7. Reported Vector Borne disease in Ohio and the United States, 2019

Disease	OHIO	UNITED STATES	
	2019 (as of 8/17) cumulative	Weeks 11 and 12 (8/4 to 8/17)	2019 (as of 8/17) Cumulative
Babesiosis	5	88	1084
Chikungunya	8	1	53
Dengue (includes dengue-like illness)	4	11	310
Eastern equine encephalitis	0	1	4
Ehrlichiosis / anaplasmosis	22	227	4437
Jamestown Canyon virus disease	0	0	7
LaCrosse virus disease	3	2	10
Lyme Disease	485	Not reported weekly by CDC	
Malaria	33	42	829
Powassan virus disease	0	0	15
Spotted fever rickettsiosis	44	83	2336
St. Louis encephalitis virus disease	0	0	4
West Nile virus infection	0	6	145
Zika virus infection, non-congenital	0	0	7

Note: Data is provisional and subject to change

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

Figure 2. West Nile virus activity by state – United States, 2019 (as of August 20, 2019)



WNV infections in mosquitoes, birds, sentinel animals, or veterinary animals have been reported to CDC ArboNET from all 48 contiguous states except: Maine, Vermont, New Hampshire, Massachusetts, Rhode Island, West Virginia and South Carolina.

West Nile virus infections in humans have been reported to CDC ArboNET from the following states: Arizona, Arkansas, California, Colorado, District of Columbia, Georgia, Idaho, Illinois, Iowa, Kentucky, Louisiana, Maryland, Minnesota, Missouri,

Nebraska, Nevada, New Jersey, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Tennessee, Texas, Utah, Virginia, and Wyoming.

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

VECTOR BORNE DISEASE NEWS

FDA gives fast-track designation to Zika vaccine

Yesterday Moderna, Inc., also of Cambridge, announced that the US Food and Drug Administration (FDA) has granted "Fast Track" designation for its investigational Zika vaccine, mRNA-1893, currently being evaluated in a phase 1 study in healthy adults. Fast Track designation helps expedite the review of vaccines and medications for unmet medical needs.

"Protecting against Zika virus transmission, particularly in women during pregnancy, continues to be an area of high unmet need. Fast Track designation supports our belief in the clinical potential of mRNA-1893 and the importance of developing an effective vaccine that can be rapidly developed and deployed," said Tal Zaks, MD, PhD, chief medical officer at Moderna, in a company press release. "Our Zika program is part of Moderna's broader commitment to improving global public health through developing mRNA vaccines to prevent the spread of infectious diseases."

In mouse studies, mRNA-1893 was protective against Zika in pregnancy. It contains an mRNA sequence encoding for the structural proteins of Zika virus and is designed to cause cells to secrete virus-like particles, Moderna said in the release.

Aug 19 Moderna [press release](#)

Source: <http://www.cidrap.umn.edu/news-perspective/2019/08/news-scan-aug-20-2019>

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@sched.org) or Tracy Rodriguez (trodriguez@sched.org), Summit County Public Health Communicable Disease Unit (330-375-2662). This report was issued on **August 26, 2019**.