Vector Borne Disease
2021 Surveillance Report

Summit County Public Health

Report Weeks 11 and 12 (August 1 to August 14, 2021)
MMWR Weeks 31 and 32

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

Reporting 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: 5/23 to 6/5	0	0	0	0	--
Weeks 3 & 4: 6/6 to 6/19	4	0	4	0	0.0%
Weeks 5 & 6: 6/20 to 7/3	2	0	6	0	0.0%
Weeks 7 & 8: 7/4 to 7/17	7	0	13	0	0.0%
Weeks 9 & 10: 7/18 to 7/31	9	0	22	0	0.0%
Weeks 11 & 12: 8/1 to 8/14	8	0	30	0	0.0%
Weeks 13 & 14: 8/15 to 8/28					
Weeks 15 & 16: 8/29 to 9/11					
Weeks 17 & 18: 9/12 to 9/25					
Weeks 19 & 20: 9/26 to 10/9					
Weeks 21 & 22: 10/10 to 10/23					

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

West Nile virus testing (Table 1): During surveillance Weeks 11 and 12, there were 8 tests for West Nile virus ordered by Summit County hospitals, none of which were positive.

Lyme disease testing (Table 2): There were 80 diagnostic test series performed for Lyme disease during Weeks 11 and 12, 18 tests were positive and 0 had indeterminate results. 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.

Table 2. Lyme Disease Tests Ordered in Summit County Hospitals					
Reporting 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: 5/23 to 6/5	**54**	**3**	**54**	**3**	**5.6%**
Weeks 3 & 4: 6/6 to 6/19	**84**	**13**	**138**	**16**	**11.6%**
Weeks 5 & 6: 6/20 to 7/3	**150**	**33**	**288**	**49**	**17.0%**
Weeks 7 & 8: 7/4 to 7/17	**89**	**23**	**377**	**72**	**19.1%**
Weeks 9 & 10: 7/18 to 7/31	**97**	**28**	**475**	**100**	**21.1%**
Weeks 11 & 12: 8/1 to 8/14	**80**	**18**	**555**	**118**	**21.3%**
Weeks 13 & 14: 8/15 to 8/28					
Weeks 15 & 16: 8/29 to 9/11					
Weeks 17 & 18: 9/12 to 9/25					
Weeks 19 & 20: 9/26 to 10/9					
Weeks 21 & 22: 10/10 to 10/23					
Note: Reporting may not be completed each week. Numbers will be updated when reports are received					

Reported vector-borne diseases in 2021 (Table 3): As of August 14, there were 62 reported cases of Lyme disease; 23 were confirmed, 1 was probable and 38 were suspected status. There were also one suspected case of spotted fever rickettsiosis (Rocky Mountain spotted fever), two cases of Lacrosse virus disease (1 confirmed, 1 suspected), one suspected case of ehrlichiosis, one suspected case of babesiosis, and one confirmed case of malaria among Summit County residents.

Table 3: Vector-borne diseases reported in Summit County, 2021 cumulative totals			
	Confirmed or Probable	**Suspected**	**Notes**
Tick-borne diseases:			
Babesiosis	0	**1**	
Erhlichiosis / anaplasmosis	0	**1**	
Lyme disease	**24**	**38**	
Powassan virus disease	0	0	
Spotted fever rickettsiosis	0	**1**	
Mosquito-borne diseases:			
Chikungunya	0	0	
Dengue	0	0	
Eastern equine encephalitis	0	0	
LaCrosse virus disease	**1**	**1**	
Malaria	**1**	0	Case was associated with international travel
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.			

Table 4. Notable mosquito and tick species identifications in Summit County (as of August 19, 2021)			
Species name	**Diseases associated**	**Summit County**	**Ohio**
Mosquito species			
Aedes albopictus	Chikungunya, dengue fever, yellow fever	1	2,021
Aedes triseriatus	La Crosse encephalitis	502	2,011
Coquillettidia perturbans	Eastern equine encephalitis, West Nile virus	100	432
Tick species			
Amblyomma americanum	Ehrlichiosis, tularemia, red meat allergy	0	90
Dermacentor variabilis	Rocky Mountain spotted fever, tularemia	31	1385
Ixodes scapularis	Lyme disease, babesiosis, anaplasmosis	1	312
Source: Ohio Department of Health (Identification via mailed specimens, emailed photos and iNaturalist observations)			

Table 5. Reported Aseptic/Viral Meningitis Cases in Summit County in 2021 (confirmed & probable)		
Reporting Week(s)	**Cases reported this period**	**Cumulative cases for the season**
Aseptic meningitis cases reported prior to season (1/1 to 5/22/2021)	**4**	**-**
Weeks 1 & 2: 5/23 to 6/5	**0**	**0**
Weeks 3 & 4: 6/6 to 6/19	**0**	**0**
Weeks 5 & 6: 6/20 to 7/3	**0**	**0**
Weeks 7 & 8: 7/4 to 7/17	**0**	**0**
Weeks 9 & 10: 7/18 to 7/31	**1**	**1**
Weeks 11 & 12: 8/1 to 8/14	**0**	**1**
Weeks 13 & 14: 8/15 to 8/28		
Weeks 15 & 16: 8/29 to 9/11		
Weeks 17 & 18: 9/12 to 9/25		
Weeks 19 & 20: 9/26 to 10/9		
Weeks 21 & 22: 10/10 to 10/23		
Source: Ohio Disease Reporting System (ODRS)		

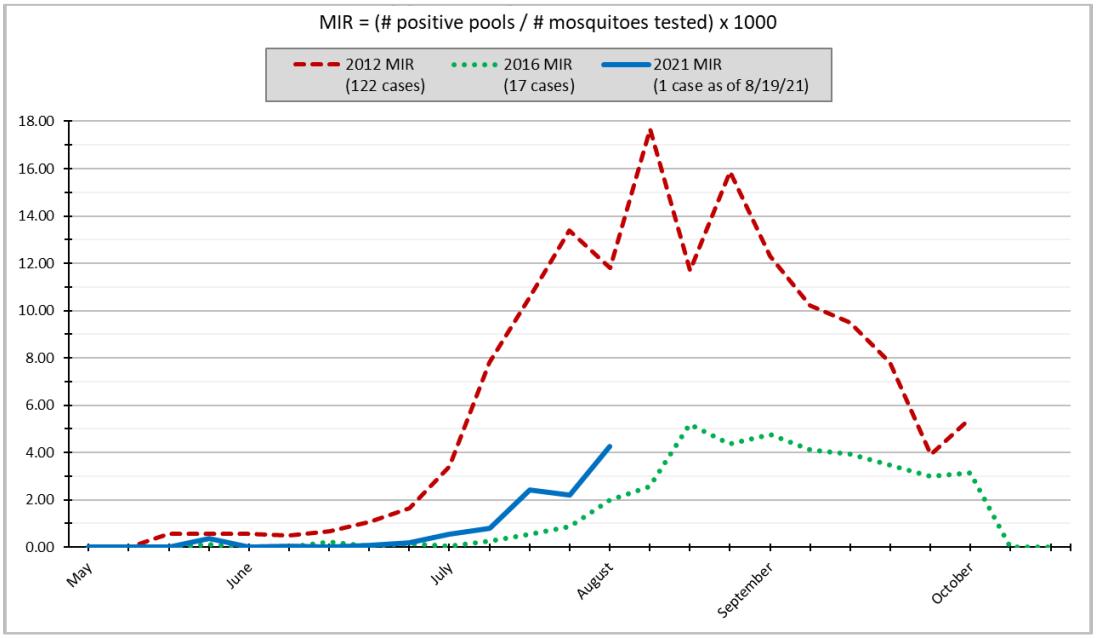
Reported aseptic/viral meningitis cases (Table 5): Prior to the reporting season, there were 4 reported cases of aseptic meningitis, and zero cases were reported during Weeks 11 and 12. Aseptic/viral meningitis is the most common type of meningitis and occurs predominately in the summer and fall. While most aseptic/viral meningitis cases are due to gastrointestinal or respiratory viruses, similar symptoms may be present with arthropod-borne diseases.

Mosquito testing by the Ohio Department of Health (Table 6): Based on the ODH mosquito testing summary released on August 19, 2021, 41,123 mosquitoes have been collected in 2021 throughout Summit County. These mosquitos were identified, and 34,116 *Culex spp*. mosquitos were submitted for testing to ODH as 1,132 pooled samples. All pooled samples were tested, and 12 pools were positive for the West Nile virus.

Table 6. Mosquito Testing in Summit County (*samples processed by noon on 8/19/2021*)	
Mosquitoes identified	41,123
Pooled samples tested	1,132
Positive WNV pooled samples	12
Note: All mosquitoes pools tested were *Culex spp.*	

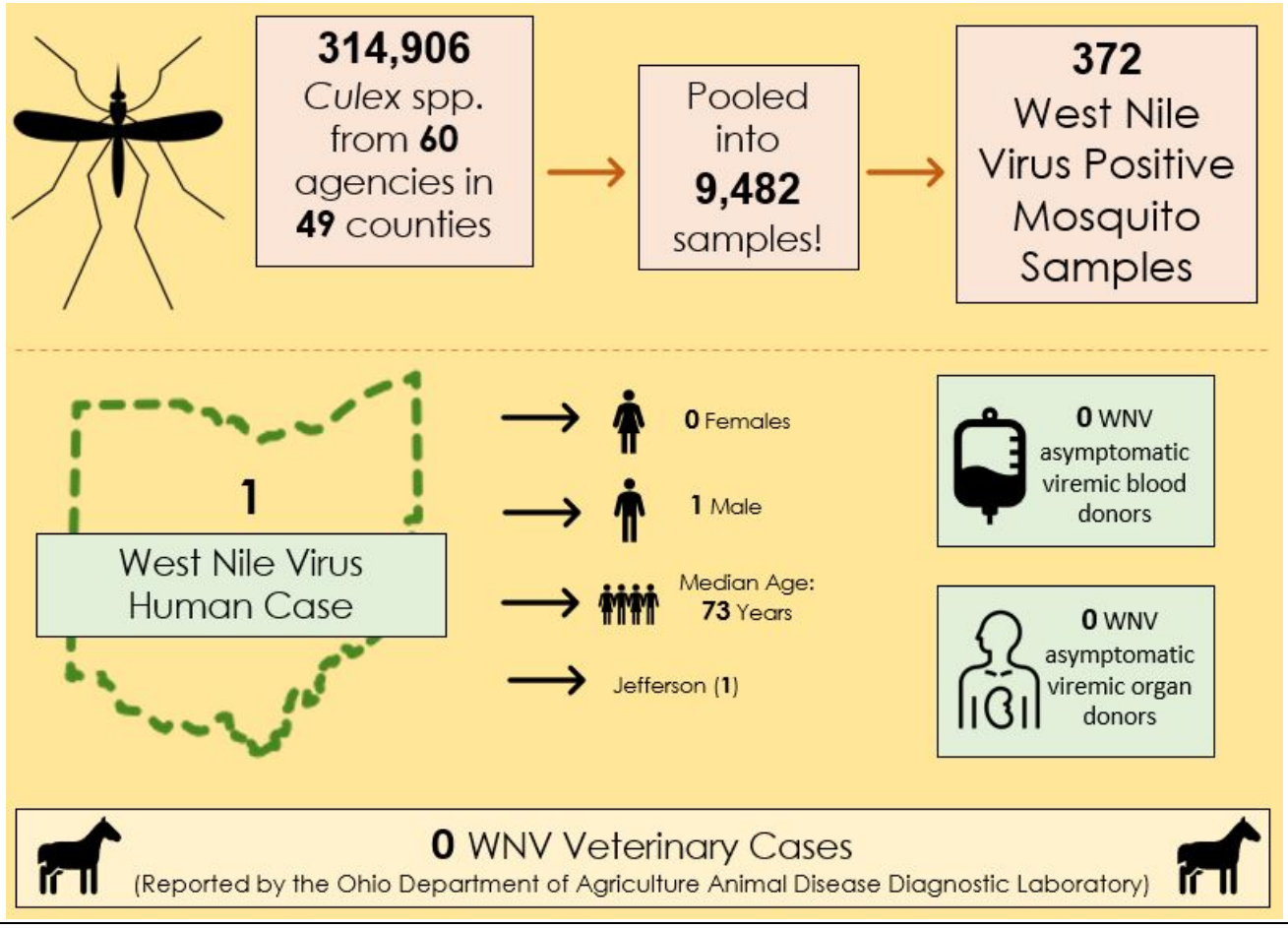
OHIO SURVEILLANCE

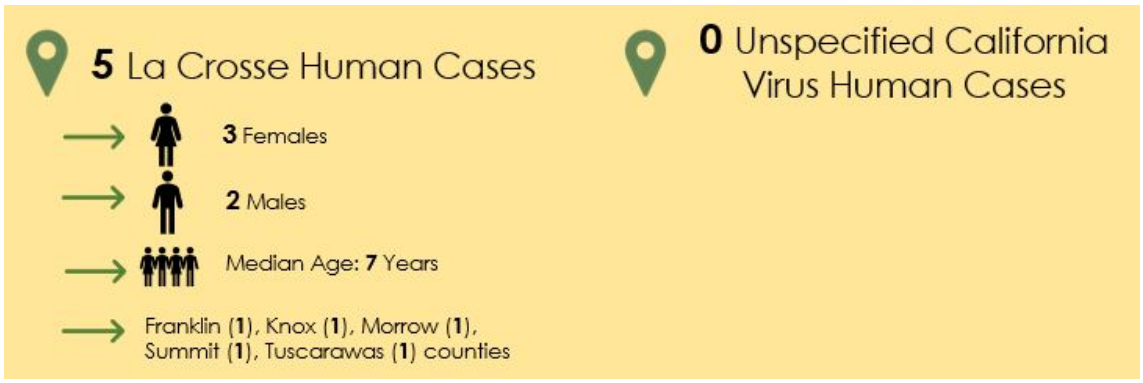
Figure 1. Minimum infection rate (MIR) of West Nile Virus in *Culex spp.* collected in Ohio as of 8/19/2021

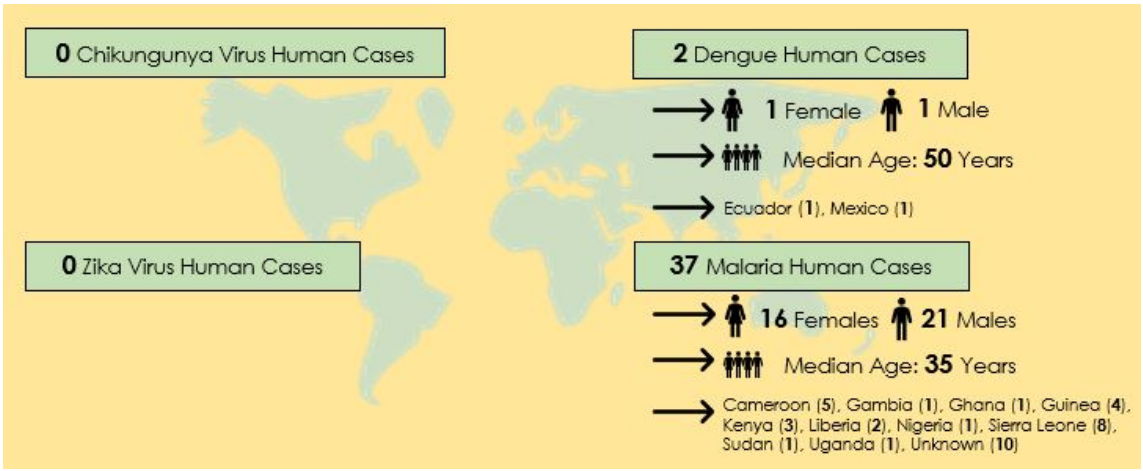


The West Nile virus minimum infection rate was 4.25 in the first week of August, with a season average of 1.18 (Figure 1). As of August 19, 372 mosquito pools in Ohio tested positive for West Nile virus, including 12 pools in Summit County. At this time in 2020, Summit County had 0 mosquito pools that tested positive for West Nile virus.

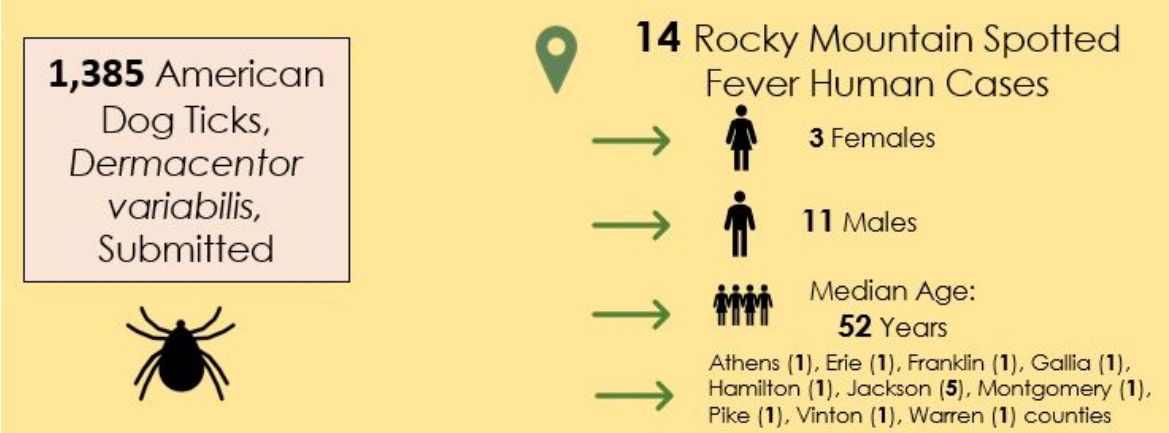
Ohio Mosquito-borne diseases (as of 8/19/2021)

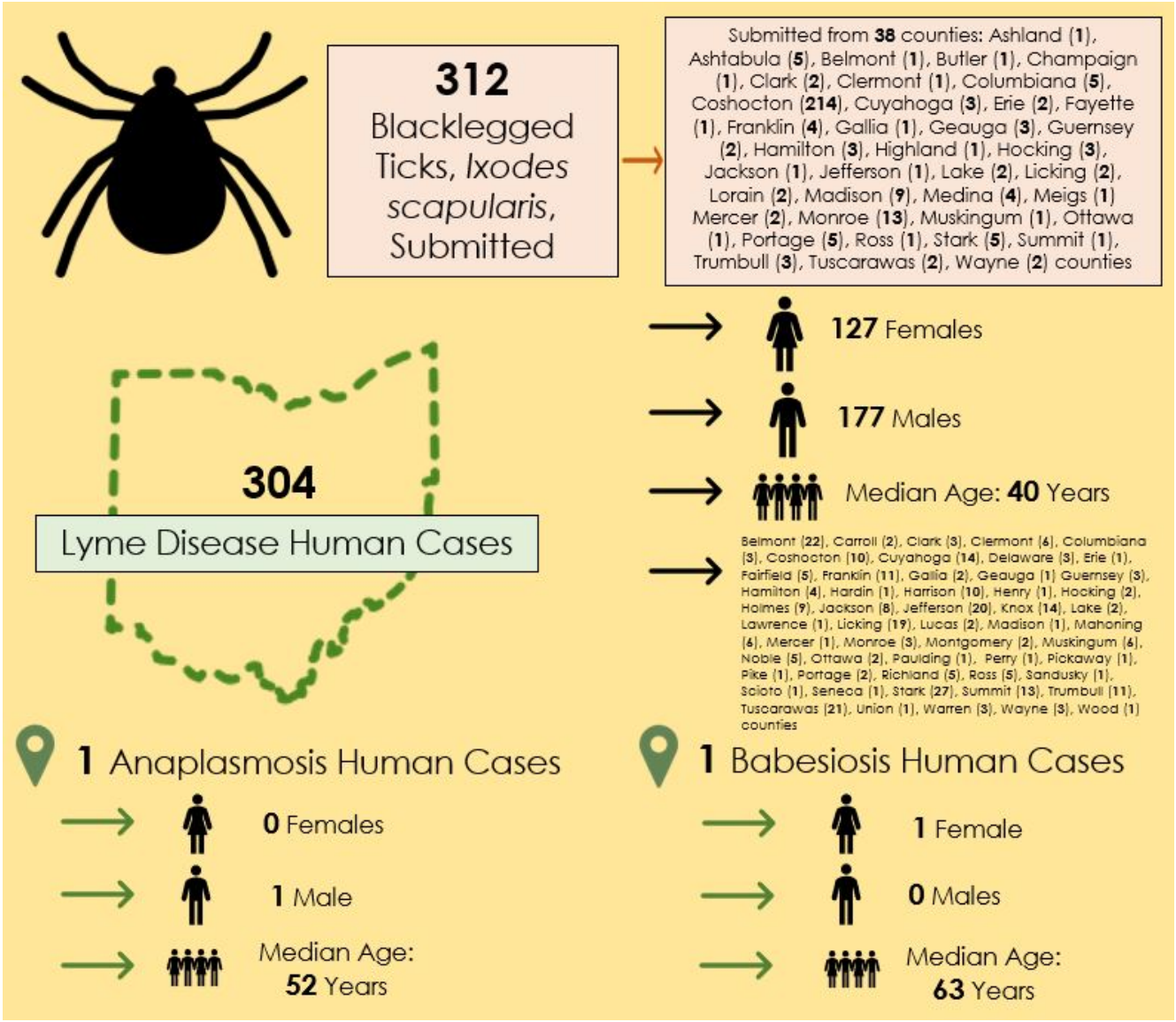






Ohio Tick-borne diseases (as of 8/19/2021):





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 bites. Additional information can be found from the Centers for Disease Control and Prevention (CDC)'s Travelers' Health and Pan-American Health Organization websites.

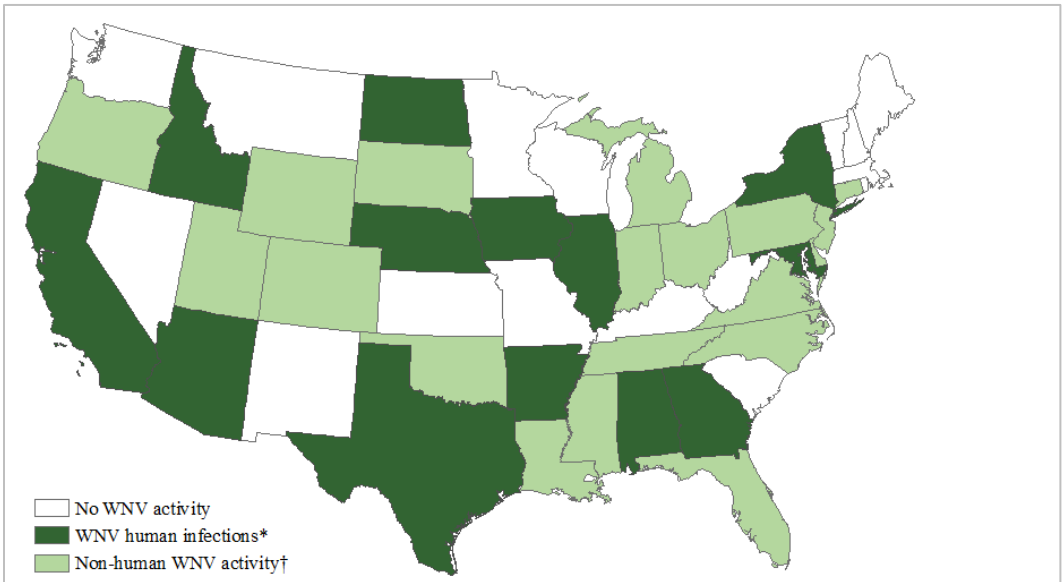
UNITED STATES SURVEILLANCE

Table 7. Reported Vector Borne disease in the United States, 2021

Disease	Weeks 11 and 12 (8/1 to 8/14/2021)	2021 (as of 8/14) Cumulative
Babesiosis	150	1300
Chikungunya	0	5
Dengue (includes dengue-like illness)	0	30
Eastern equine encephalitis	0	1
Erlichiosis / anaplasmosis	218	4203
Jamestown Canyon virus disease	0	4
LaCrosse virus disease	0	8
Lyme Disease	Not reported weekly by CDC	
Malaria	17	505
Powassan virus disease	0	10
Spotted fever rickettsiosis	Not reported weekly by CDC	
St. Louis encephalitis virus disease	0	0
West Nile virus infection	5	55
Zika virus infection, non congenital	0	0
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, 2021 (as of August 10, 2021)



*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.

WNV infections in mosquitoes, birds, sentinel animals, or veterinary animals have been reported to CDC ArboNET from the following states for 2021: Arizona, California, Colorado, Connecticut, Delaware, Florida, Idaho, Illinois, Indiana, Iowa, Nebraska, Louisiana, Maryland, Michigan, Mississippi, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, South Dakota, Tennessee, Texas, Utah, Virginia, and Wyoming.

West Nile virus infections in humans have been reported to CDC ArboNET from the following states: Alabama, Arizona, Arkansas, California, Georgia, Idaho, Illinois, Iowa, Maryland, Nebraska, New York, North Dakota, and Texas.

Source: https://www.cdc.gov/westnile/statsmaps/preliminarymapsdata2020/activitybystate2020.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 the SCPH Communicable Disease Unit (330-375-2662). This report was issued on **August 20, 2021**.