



Vector Borne Disease 2021 Surveillance Report

Summit County Public Health



Public Health
Prevent. Promote. Protect.

Report Weeks 17 and 18 (September 12 to 25, 2021)
MMWR Weeks 37 and 38

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	4	0	34	0	0.0%
Weeks 15 & 16: 8/29 to 9/11	15	0	49	0	0.0%
Weeks 17 & 18: 9/12 to 9/25	4	0	53	0	0.0%
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 17 and 18, there were 4 tests for West Nile virus ordered by Summit County hospitals, none of which were positive.

Lyme disease testing (Table 2): There were 55 diagnostic test series performed for Lyme disease during Weeks 17 and 18, 11 tests were positive and 1 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.

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	68	9	623	127	20.4%
Weeks 15 & 16: 8/29 to 9/11	58	7	681	134	19.7%
Weeks 17 & 18: 9/12 to 9/25	55	11	736	145	19.7%
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 September 25, there were 72 reported cases of Lyme disease; 25 were confirmed, 1 was probable and 46 were suspected status. There were also one probable 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 confirmed case of anaplasmosis, one suspected case of babesiosis, and two confirmed cases of malaria, and one probable case of West Nile virus disease among Summit County residents.

	Confirmed or Probable	Suspected	Notes
Tick-borne diseases:			
Babesiosis	0	1	
Ehrlichiosis / anaplasmosis	1	1	
Lyme disease	26	46	
Powassan virus disease	0	0	
Spotted fever rickettsiosis	1	0	
Mosquito-borne diseases:			
Chikungunya	0	0	
Dengue	0	0	
Eastern equine encephalitis	0	0	
LaCrosse virus disease	1	1	
Malaria	2	0	Cases were associated with international travel
St. Louis encephalitis virus disease	0	0	
Zika virus infection	0	0	
West Nile virus infection	1	0	Exposure was likely outside of Ohio

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

Species name	Diseases associated	Summit County	Ohio
Mosquito species			
<i>Aedes albopictus</i>	Chikungunya, dengue fever, yellow fever	5	3,732
<i>Aedes triseriatus</i>	La Crosse encephalitis	626	2,535
<i>Coquilleltidia perturbans</i>	Eastern equine encephalitis, West Nile virus	162	837
Tick species			
<i>Amblyomma americanum</i>	Ehrlichiosis, tularemia, red meat allergy	0	562
<i>Dermacentor variabilis</i>	Rocky Mountain spotted fever, tularemia	31	1398
<i>Ixodes scapularis</i>	Lyme disease, babesiosis, anaplasmosis	1	312
<i>Haemaphysalis longicornis</i>	New invasive species, livestock infestations	0	5

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

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	0	1
Weeks 15 & 16: 8/29 to 9/11	0	1
Weeks 17 & 18: 9/12 to 9/25	0	1
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 17 and 18. 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.

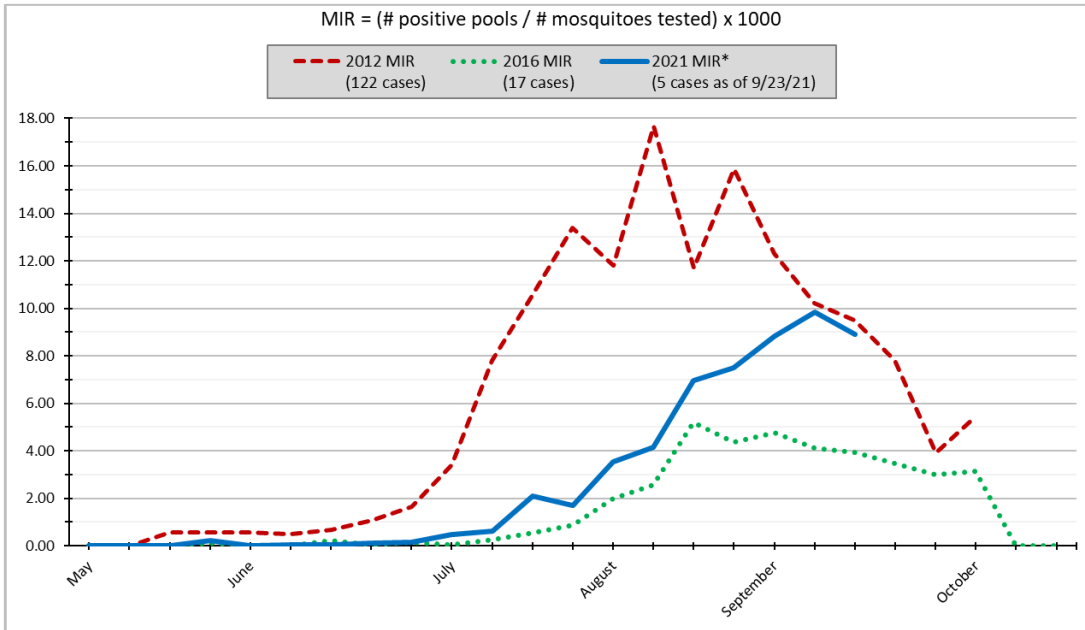
Mosquito testing by the Ohio Department of Health (Table 6): Based on the ODH mosquito testing summary released on September 23, 2021, 53,471 mosquitoes have been collected in 2021 throughout Summit County. These mosquitoes were identified, and 42,663 *Culex spp.* mosquitos were submitted for testing to ODH as 1,449 pooled samples. 35 pools were positive for the West Nile virus, 5 pooled samples are pending.

Mosquitoes identified	53,471
Pooled samples tested	1,449
Positive WNV pooled samples	35

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 9/23/2021



The West Nile virus minimum infection rate was 8.91 in the third week of September (MMWR 37), with a seasonal average of 2.30 (Figure 1). As of September 23, 1,219 mosquito pools in Ohio tested positive for West Nile virus, including 35 pools in Summit County. At this time in 2020, Summit County had 2 mosquito pools that tested positive for West Nile virus.

Ohio Mosquito-borne diseases (as of 9/23/2021)

529,488 *Culex spp.* from **60** agencies in **49** counties

Pooled into **15,106** samples!

1,219 West Nile Virus Positive Mosquito Samples

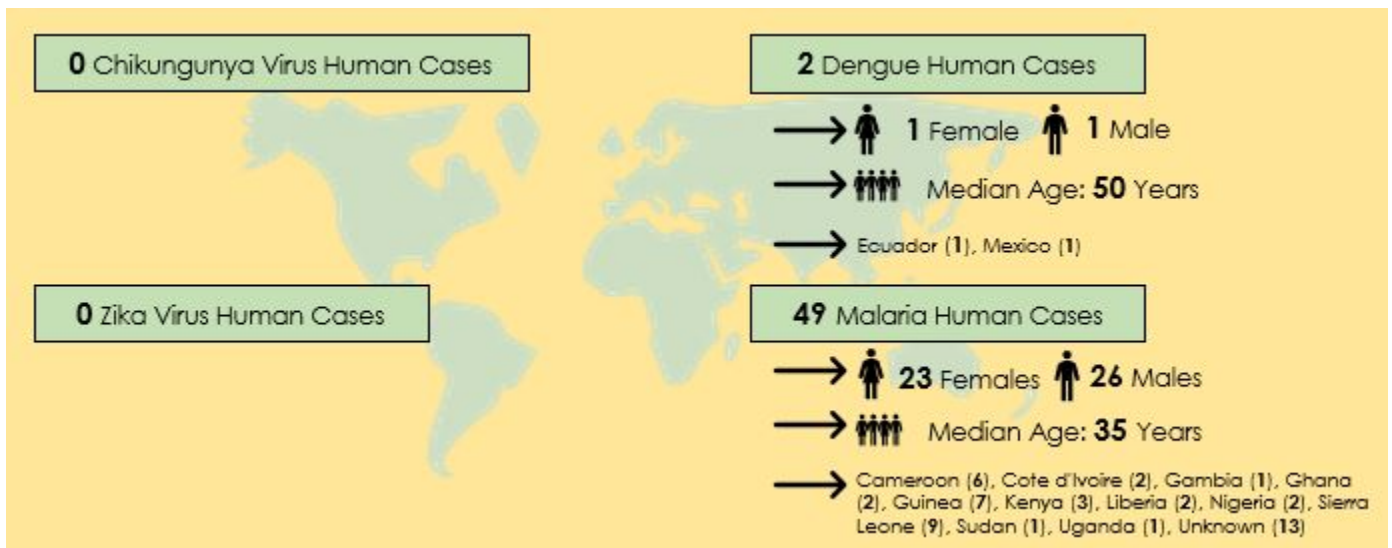
6 West Nile Virus Human Cases

- 3 Females
- 3 Males
- Median Age: 57 Years
- Clark (2), Jefferson (1), Mahoning (1), Montgomery (1), Summit (1) counties

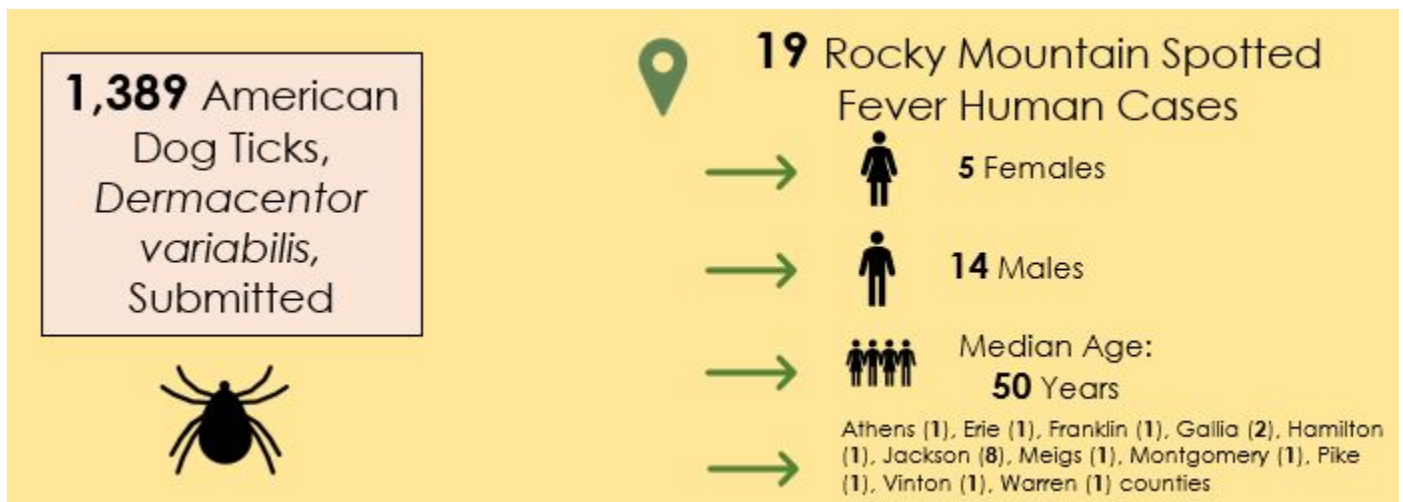
0 WNV asymptomatic viremic blood donors

0 WNV asymptomatic viremic organ donors

0 WNV Veterinary Cases
(Reported by the Ohio Department of Agriculture Animal Disease Diagnostic Laboratory)



Ohio Tick-borne diseases (as of 9/23/2021):




562 Lone Star Ticks, *Amblyomma americanum*, Submitted



7 Ehrlichiosis Human Cases




-  5 Females
-  2 Males
-  Median Age: **49** Years
- Athens (1), Butler (1), Franklin (1), Gallia (1), Hamilton (1), Jackson (2) counties






312 Blacklegged Ticks, *Ixodes scapularis*, Submitted

Submitted from **38** counties: Ashland (1), Ashtabula (5), Belmont (1), Butler (1), Champaign (1), Clark (2), Clermont (1), Columbiana (5), Coshocton (214), Cuyahoga (3), Erie (2), Fayette (1), Franklin (4), Gallia (1), Geauga (3), Guernsey (2), Hamilton (3), Highland (1), Hocking (3), Jackson (1), Jefferson (1), Lake (2), Licking (2), Lorain (2), Madison (9), Medina (4), Meigs (1), Mercer (2), Monroe (13), Muskingum (1), Ottawa (1), Portage (5), Ross (1), Stark (5), Summit (1), Trumbull (3), Tuscarawas (2), Wayne (2) counties




348 Lyme Disease Human Cases

-  140 Females
-  208 Males
-  Median Age: **38** Years
- Belmont (23), Carroll (2), Clark (3), Clermont (4), Columbiana (4), Coshocton (10), Cuyahoga (14), Delaware (5), Erie (1), Fairfield (5), Franklin (15), Gallia (2), Geauga (1), Guernsey (3), Hamilton (4), Hardin (1), Harrison (11), Henry (1), Hocking (3), Holmes (9), Jackson (8), Jefferson (22), Knox (16), Lake (2), Lawrence (1), Licking (22), Lorain (1), Lucas (2), Madison (1), Mahoning (4), Mercer (1), Monroe (3), Montgomery (5), Muskingum (10), Noble (4), Ottawa (2), Paulding (1), Perry (1), Pickaway (1), Pike (2), Portage (9), Richland (5), Ross (5), Sandusky (1), Scioto (1), Seneca (1), Stark (31), Summit (14), Trumbull (11), Tuscarawas (24), Union (1), Warren (3), Wayne (3), Wood (1) counties

1 Anaplasmosis Human Cases

-  0 Females
-  1 Male
-  Median Age: **52** Years

3 Babesiosis Human Cases

-  3 Females
-  0 Males
-  Median Age: **63** Years
- Cuyahoga (1), Medina (1), Scioto (1) counties

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.

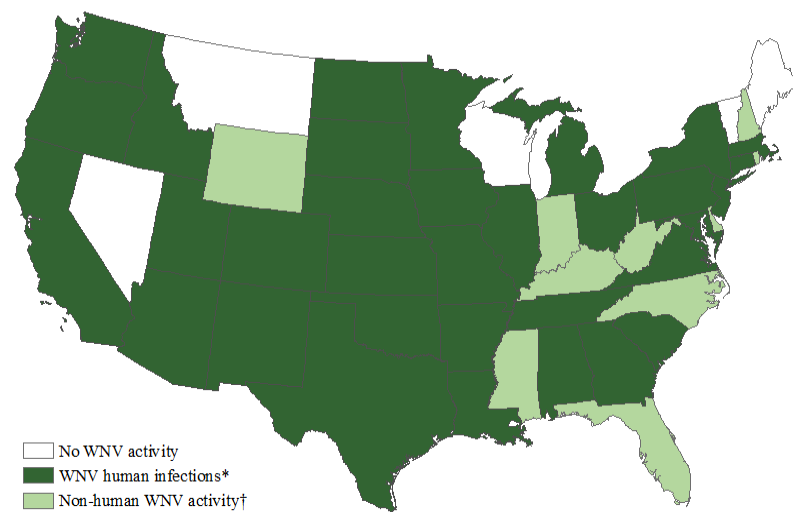
UNITED STATES SURVEILLANCE

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

Disease	Weeks 17 and 18 (9/12 to 9/25/2021)	2021 (as of 9/25) Cumulative
Babesiosis	45	1914
Chikungunya	0	9
Dengue (includes dengue-like illness)	0	41
Eastern equine encephalitis	0	1
Erlchiosis / anaplasmosis	100	5172
Jamestown Canyon virus disease	0	5
LaCrosse virus disease	0	16
Lyme Disease	Not reported weekly by CDC	
Malaria	27	733
Powassan virus disease	0	17
Spotted fever rickettsiosis	Not reported weekly by CDC	
St. Louis encephalitis virus disease	0	1
West Nile virus infection	64	647
Zika virus infection, non congenital	0	1
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 September 21, 2021)



WNV infections in mosquitoes, birds, sentinel animals, or veterinary animals have been reported to CDC ArboNET from every state in 2021 except: Maine, Montana, Nevada, Vermont, Washington, and Wisconsin

West Nile virus infections in humans have been reported to CDC ArboNET from the following states: Alabama, Arizona, Arkansas, California, Colorado, Connecticut, District of Columbia, Georgia, Idaho, Illinois, Iowa, Kansas, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Nebraska, New Jersey, New Mexico, New York, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, and Washington.

*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/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 **October 1, 2021**.