



Vector Borne Disease 2022 Surveillance Report

Summit County Public Health



Report Weeks 19 and 20 (September 26 to October 9, 2022)
MMWR Weeks 39 and 40

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

*Test ordering numbers (Table 1 & 2) will not be comparable to last year’s reports due to absence of reporting from a facility that made up approximately 20% of the tests submitted in 2021.

SUMMIT COUNTY SURVEILLANCE

West Nile virus testing (Table 1): During surveillance period Weeks 19 and 20, there was 1 test for West Nile virus ordered by Summit County hospitals, it was negative.

Table 1: West Nile virus (WNV) tests ordered in Summit County hospitals 2022					
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	5	0	5	0	0.0%
Weeks 3 & 4: 6/6 to 6/19	4	1	9	1	11.1%
Weeks 5 & 6: 6/20 to 7/3	0	0	9	1	11.1%
Weeks 7 & 8: 7/4 to 7/17	5	0	14	1	7.1%
Weeks 9 & 10: 7/18 to 7/31	3	0	17	1	5.9%
Weeks 11 & 12: 8/1 to 8/14	1	0	18	1	5.6%
Weeks 13 & 14: 8/15 to 8/28	3	0	21	1	4.8%
Weeks 15 & 16: 8/29 to 9/11	5	0	26	1	3.9%
Weeks 17 & 18: 9/12 to 9/25	3	0	29	1	3.5%
Weeks 19 & 20: 9/26 to 10/9	1	0	30	1	3.3%
Weeks 21 & 22: 10/10 to 10/23	-	-	-	-	-

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

Lyme Disease testing (Table 2): There were 58 diagnostic test series performed for Lyme disease during Weeks 19 and 20, 8 tests 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: 5/23 to 6/5	63	7	63	7	11.1%
Weeks 3 & 4: 6/6 to 6/19	79	11	142	18	12.7%
Weeks 5 & 6: 6/20 to 7/3	61	14	203	32	15.8%
Weeks 7 & 8: 7/4 to 7/17	79	14	282	46	16.3%
Weeks 9 & 10: 7/18 to 7/31	77	10	359	56	15.6%
Weeks 11 & 12: 8/1 to 8/14	54	8	413	64	15.5%
Weeks 13 & 14: 8/15 to 8/28	61	10	474	74	15.6%
Weeks 15 & 16: 8/29 to 9/11	45	7	519	81	15.6%
Weeks 17 & 18: 9/12 to 9/25	51	7	570	88	15.4%
Weeks 19 & 20: 9/26 to 10/9	58	8	628	96	15.3%
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 2022 (Table 3): As of October 4, there were 81 reported cases of Lyme disease in Summit County; 10 were confirmed, 4 were probable and 67 were suspected. There were also 2 confirmed cases of malaria among Summit County residents.

	Confirmed	Suspected	Notes
Tick-borne diseases:			
Babesiosis	0	0	
Ehrlichiosis / anaplasmosis	0	0	
Lyme disease	10	67	
Powassan virus disease	0	0	
Rocky Mountain spotted fever	0	0	
Mosquito-borne diseases:			
Chikungunya	0	0	
Dengue	0	0	
Eastern equine encephalitis	0	0	
LaCrosse virus disease	0	0	
Malaria	2	0	
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	Summit County	Ohio
Mosquito species			
<i>Aedes albopictus</i>	Chikungunya, dengue fever, yellow fever	11	4,106
<i>Aedes triseriatus</i>	La Crosse encephalitis	665	2,585
<i>Coquillettia perturbans</i>	Eastern equine encephalitis, West Nile virus	820	3,266
Tick species			
<i>Amblyomma americanum</i>	Ehrlichiosis, tularemia, red meat allergy	0	285
<i>Dermacentor variabilis</i>	Rocky Mountain spotted fever, tularemia	20	1,020
<i>Ixodes scapularis</i>	Lyme disease, babesiosis, anaplasmosis	12	448

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 5/22/2022)	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	1	1
Weeks 7 & 8: 7/4 to 7/17	1	2
Weeks 9 & 10: 7/18 to 7/31	2	4
Weeks 11 & 12: 8/1 to 8/14	1	5
Weeks 13 & 14: 8/15 to 8/28	0	5
Weeks 15 & 16: 8/29 to 9/11	1	6
Weeks 17 & 18: 9/12 to 9/25	3	9
Weeks 19 & 20: 9/26 to 10/9	1	10
Weeks 21 & 22: 10/10 to 10/23	-	-

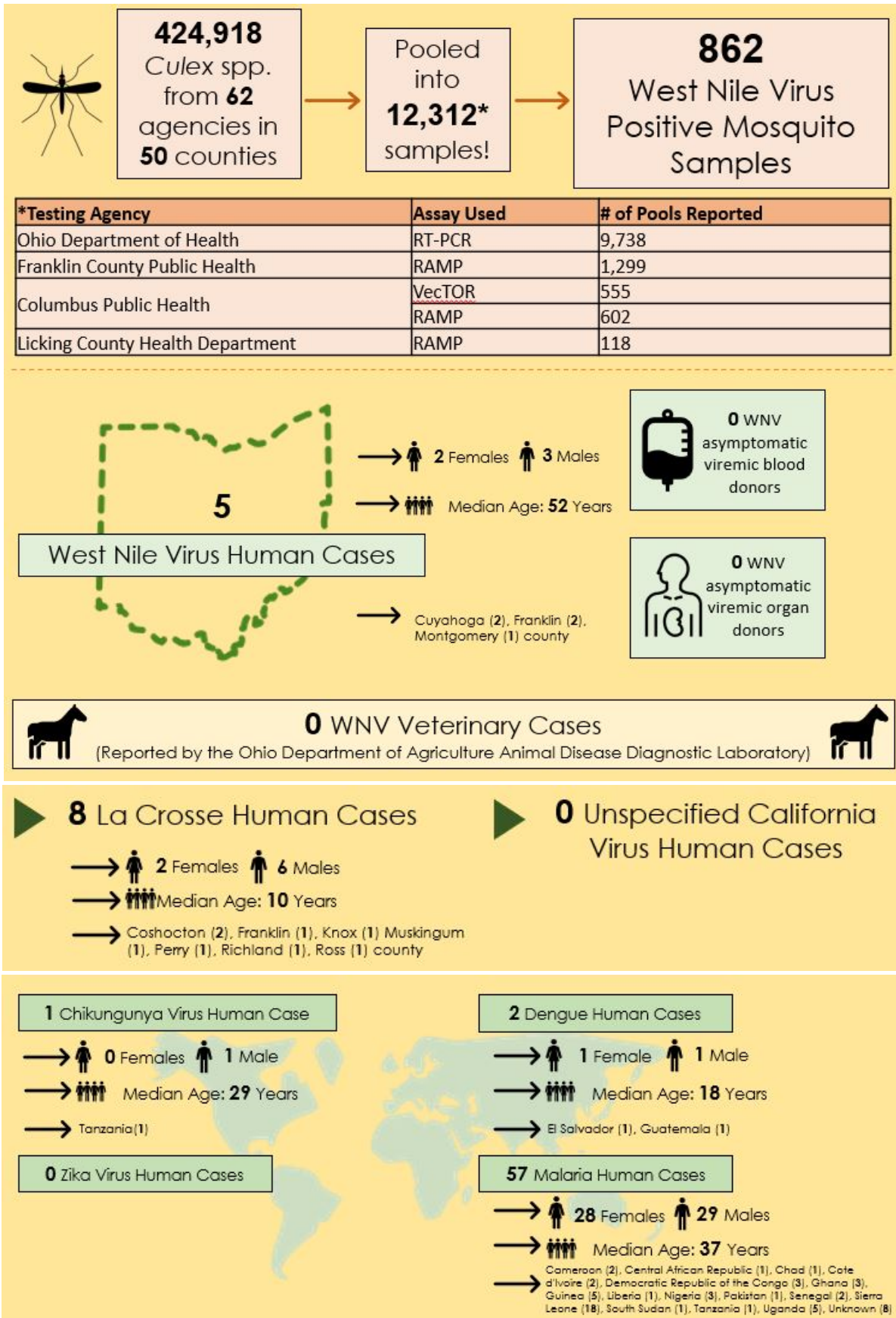
Source: Ohio Disease Reporting System (ODRS)
 *Cases reported this period may vary from prior week totals due to late reporting.

Reported aseptic/viral meningitis cases (Table 5): Prior to the reporting season, there were 4 reported cases of aseptic meningitis. There was 1 new cases reported during week 19 and 20. 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: Based on the ODH mosquito testing summary released on 9/30/2022, 56,368 mosquitoes were collected as 1,495 pooled samples throughout Summit County. 19 of the pooled samples were positive for West Nile Virus during weeks 19 and 20.

Mosquitoes identified	56,368
Pooled samples tested	1,495
Positive WNV pooled samples	19

Note: All mosquito pools tested were *Culex spp.*





443
Blacklegged
Ticks, *Ixodes*
scapularis,
Identified

Submitted from **43** counties: Allen (1), Ashland (1), Ashtabula (13), Athens (19), Belmont (2), Carroll (5), Clermont (3), Columbiana (111), Coshocton (106), Cuyahoga (10), Erie (4), Franklin (6), Gallia (64), Geauga (5), Greene (1), Guernsey (1), Hamilton (5), Highland (2), Hocking (3), Holmes (4), Jackson (2), Jefferson (3), Knox (3), Lake (5), Licking (4), Lucas (1), Mahoning (1), Medina (3), Meigs (2), Montgomery (1), Morrow (1), Noble (1), Ottawa (1), Portage (7), Richland (1), Ross (12), Scioto (1), Stark (3), Summit (12), Tuscarawas (1), Washington (1), Wayne (9), Williams (2) counties



285
Lyme Disease Human Cases

→ **94** Females

→ **191** Males

→ **Median Age: 21** Years

→ Allen (2), Ashtabula (1), Athens (1), Belmont (29), Butler (2), Carroll (2), Champaign (1), Clark (1), Clermont (9), Columbiana (11), Coshocton (10), Cuyahoga (10), Delaware (3), Fairfield (12), Franklin (19), Gallia (3), Geauga (3), Guernsey (4), Hamilton (13), Hancock (1), Harrison (4), Highland (1), Holmes (21), Jackson (7), Jefferson (8), Knox (5), Lake (2), Licking (7), Lucas (1), Madison (1), Mahoning (5), Marion (2), Medina (4), Monroe (1), Morgan (2), Morrow (1), Muskingum (9), Noble (2), Portage (2), Richland (6), Ross (10), Scioto (1), Stark (10), Summit (9), Trumbull (11), Tuscarawas (13), Warren (3) counties

▶ **6** Anaplasmosis Human Cases

→ **2** Females

→ **4** Males

→ **Median Age: 65** Years

→ Franklin (1), Jackson (2), Stark (1), Warren (2) counties

▶ **4** Babesiosis Human Cases

→ **2** Females

→ **2** Males

→ **Median Age: 52** Years

→ Athens (1), Hamilton (1), Montgomery (1), Stark (1) counties

1,020
American Dog Ticks,
Dermacentor variabilis,
Identified



▶ **22** Rocky Mountain Spotted
Fever Human Cases

→ **14** Females

→ **8** Males

→ **Median Age: 45** Years

→ Athens (1), Butler (1), Clermont (1), Gallia (3), Hamilton (1), Jackson (8), Lucas (1), Montgomery (1), Pike (2), Ross (1), Stark (1), Warren (1) counties

285
Lone Star Ticks,
Amblyomma americanum,
Identified



▶ **9** Ehrlichiosis Human Cases

→ **3** Females

→ **6** Males

→ **Median Age: 53** Years

→ Athens (2), Hamilton (1), Hocking (1), Meigs (1), Portage (1), Preble (1), Ross (1), Stark (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, 2022

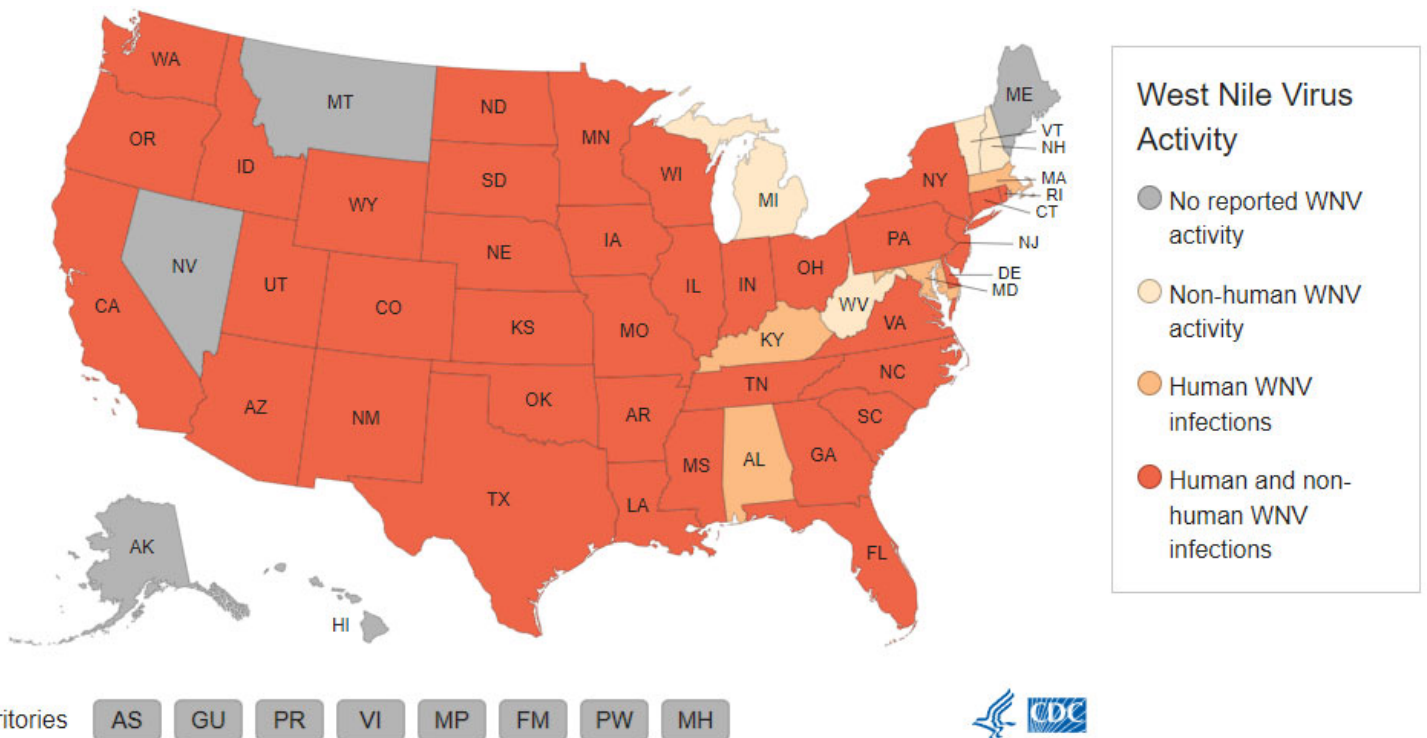
Disease	Week 19 and 20 (9/26 to 10/8/2022)	2022 Cumulative (as of 10/8)
Babesiosis	23	1,216
Chikungunya	0	36
Dengue (includes dengue-like illness)	3	692
Eastern equine encephalitis	0	1
Ehrlichiosis / anaplasmosis	64	4,890
Jamestown Canyon virus disease	0	4
LaCrosse virus disease	0	16
Lyme Disease	Not reported weekly by CDC	
Malaria	38	1,041
Powassan virus disease	1	30
Spotted fever rickettsiosis	Not reported weekly by CDC	
St. Louis encephalitis virus disease	0	8
West Nile virus infection	20	729
Zika virus infection, non-congenital	0	4

****Note:** Data is provisional and subject to change

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

<https://www.cdc.gov/westnile/statsmaps/preliminarymapsdata2022/index.html#:~:text=As%20of%20June%2014%2C%202022,classified%20as%20non%2Dneuroinvasive%20disease.>

Figure 1. West Nile virus activity by state – United States, 2022 (as of October 4, 2022)



Source: <https://www.cdc.gov/westnile/statsmaps/preliminarymapsdata2022/activitybystate2022.html>

TRENDS IN VECTOR BORNE DISEASE IN SUMMIT COUNTY, 2013 - 2021

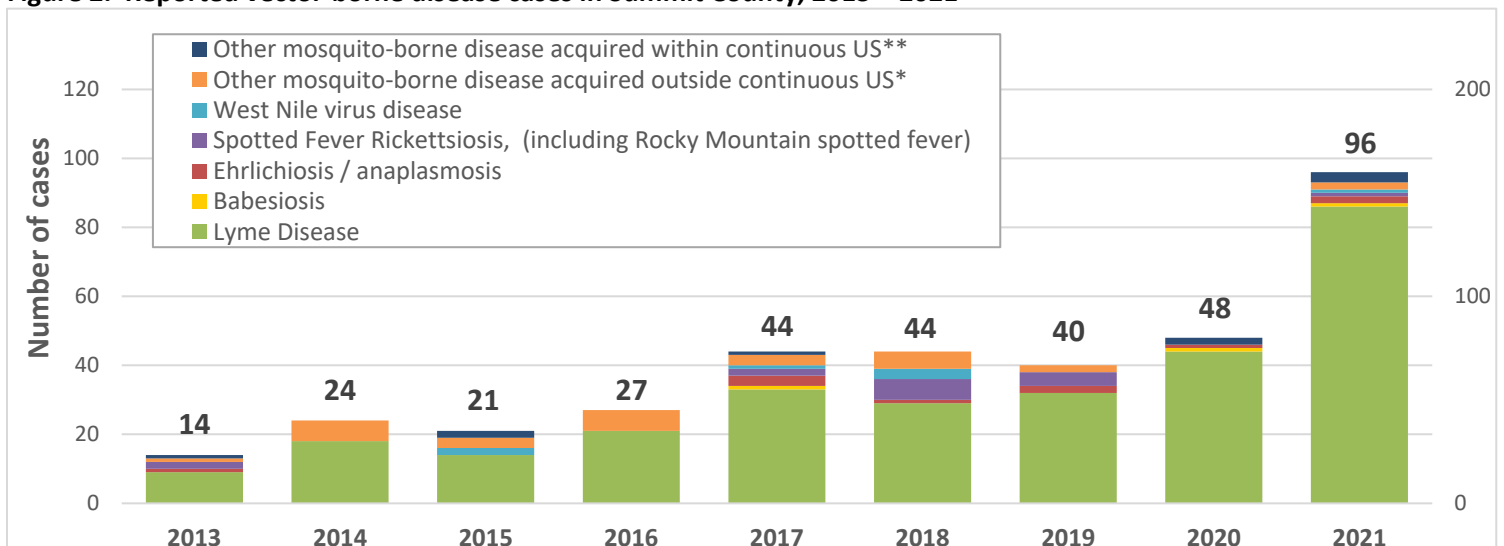
Table 8 provides data on the vector borne disease that were reported in Summit County from 2013 to 2021. As indicated in Table 8 and Figure 2, the number of vector borne disease cases increased from 48 to 96 cases from 2020 to 2021. The majority of these cases were transmitted by ticks. The vector for Lyme disease, the blacklegged tick (*Ixodes scapularis*), was first identified in Ohio in 1989, but populations did not begin to increase dramatically until 2009. The blacklegged tick is now established throughout eastern and southern Ohio, and has been collected in all of Ohio's 88 counties.

Other notable events in vector borne disease surveillance were the increase in Chikungunya cases in 2014 (reported as other arthropod-borne diseases) and the Zika virus disease epidemic of 2016. Increases in ehrlichiosis and spotted fever rickettsiosis were observed from 2017 to 2019. The incidence of other vector-borne diseases, including West Nile virus disease and other tick-borne illness have remained consistently low.

Table 8. Reported vector-borne disease cases in Summit County, 1/1/2013 - 12/31/2021

	2013	2014	2015	2016	2017	2018	2019	2020	2021
Babesiosis	0	0	0	0	1	0	0	1	1
Ehrlichiosis / anaplasmosis	1	0	0	0	3	1	2	1	2
Lyme Disease	9	18	14	21	33	29	32	44	86
Spotted Fever Rickettsiosis, (including Rocky Mountain spotted fever)	2	0	0	0	2	6	4	0	1
West Nile virus disease	0	0	2	0	1	3	0	0	1
Other mosquito-borne disease acquired outside continuous US*	1	6	3	6	3	5	2	0	2
Other mosquito-borne disease acquired within continuous US**	1	0	2	0	1	0	0	2	3
	14	24	21	27	44	44	40	48	96

Figure 2. Reported vector-borne disease cases in Summit County, 2013 – 2021



Notes: * Includes imported cases of malaria, chikungunya, dengue, and Zika virus infection

** Includes LaCrosse virus disease and St. Louis encephalitis virus disease

Data Source: Ohio Disease Reporting System

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 Julie Zidones (JZidones@sched.org) or the Summit County Public Health Communicable Disease Unit (330-375-2662). This report was issued on **October 14, 2022**.