



Vector Borne Disease 2019 Surveillance Report

Summit County Public Health

Report Weeks 5 and 6 (June 23 to July 6, 2019)
MMWR Weeks 26 and 27



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.

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 | | | | | |
| Weeks 9 & 10: 7/21 to 8/3 | | | | | |
| Weeks 11 & 12: 8/4 to 8/17 | | | | | |
| 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 5 and 6, there were 4 tests for West Nile virus (stand alone or part of an arbovirus panel) ordered by Summit County hospitals. So far this season, there has been one positive result, which was determined to be due to a past exposure and was not a current infection (Table 1).

Lyme disease testing (Table 2): There were 59 diagnostic test series performed for Lyme disease during Weeks 5 and 6, six 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 | | | | | |
| Weeks 9 & 10: 7/21 to 8/3 | | | | | |
| Weeks 11 & 12: 8/4 to 8/17 | | | | | |
| 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 July 6, there were 10 reported cases of Lyme disease; 2 were confirmed by laboratory testing and 8 were suspected cases. Two confirmed cases of malaria have been reported, and one suspected case of Rocky Mountain spotted fever. There was also one suspected case of Powassan virus disease, testing results are pending.

| | Confirmed | Suspected | Notes |
|--------------------------------------|-----------|-----------|---|
| Tick-borne diseases: | | | |
| Babesiosis | 0 | 0 | |
| Ehrlichiosis / anaplasmosis | 0 | 0 | |
| Lyme disease | 2 | 8 | |
| Powassan virus disease | 0 | 1 | |
| Rocky Mountain spotted fever | 0 | 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 | 0 |
| <i>Aedes triseriatus</i> | La Crosse encephalitis | 124 |
| 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)

| 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 | | |
| Weeks 9 & 10: 7/21 to 8/3 | | |
| Weeks 11 & 12: 8/4 to 8/17 | | |
| 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 2 cases were reported during Weeks 5 and 6. 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 July 12, over 35,372 mosquitoes were collected as 975 pooled samples throughout Summit County. One of the samples tested positive for West Nile virus.

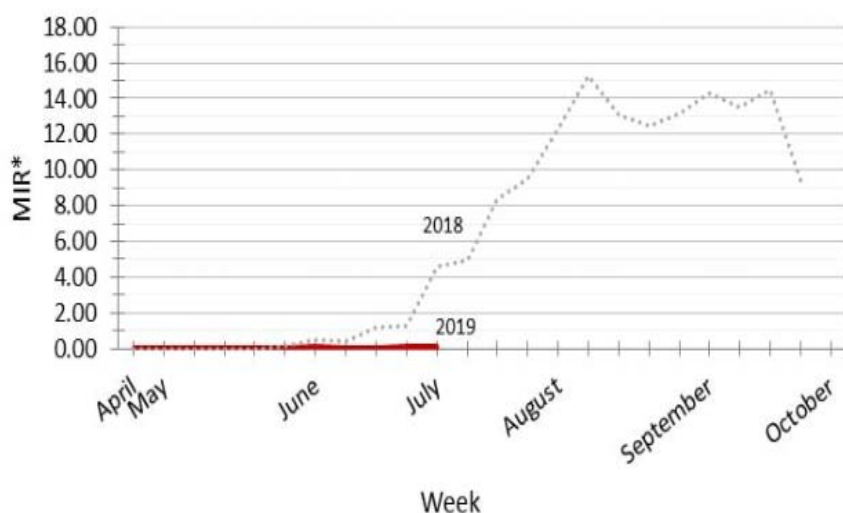
Table 6. Mosquito Testing in Summit County (samples processed by noon on 7/12/2019)

| | |
|-----------------------------|--------|
| Mosquitoes identified | 35,372 |
| Pooled samples tested | 975 |
| Positive WNV pooled samples | 1 |

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

OHIO SURVEILLANCE

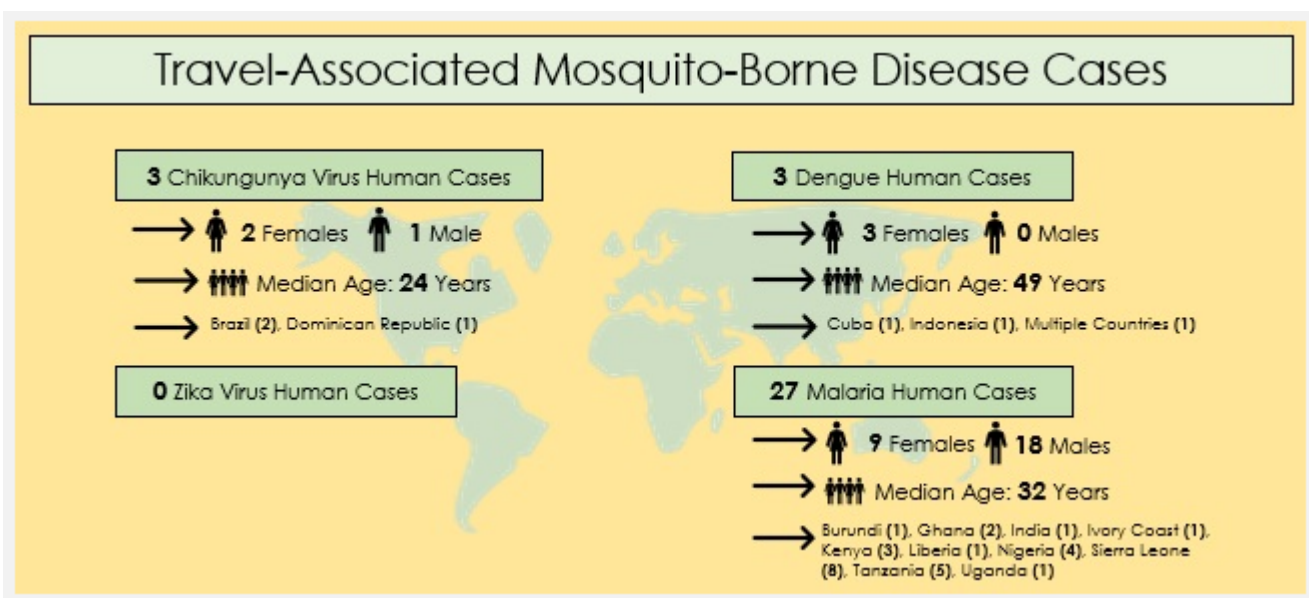
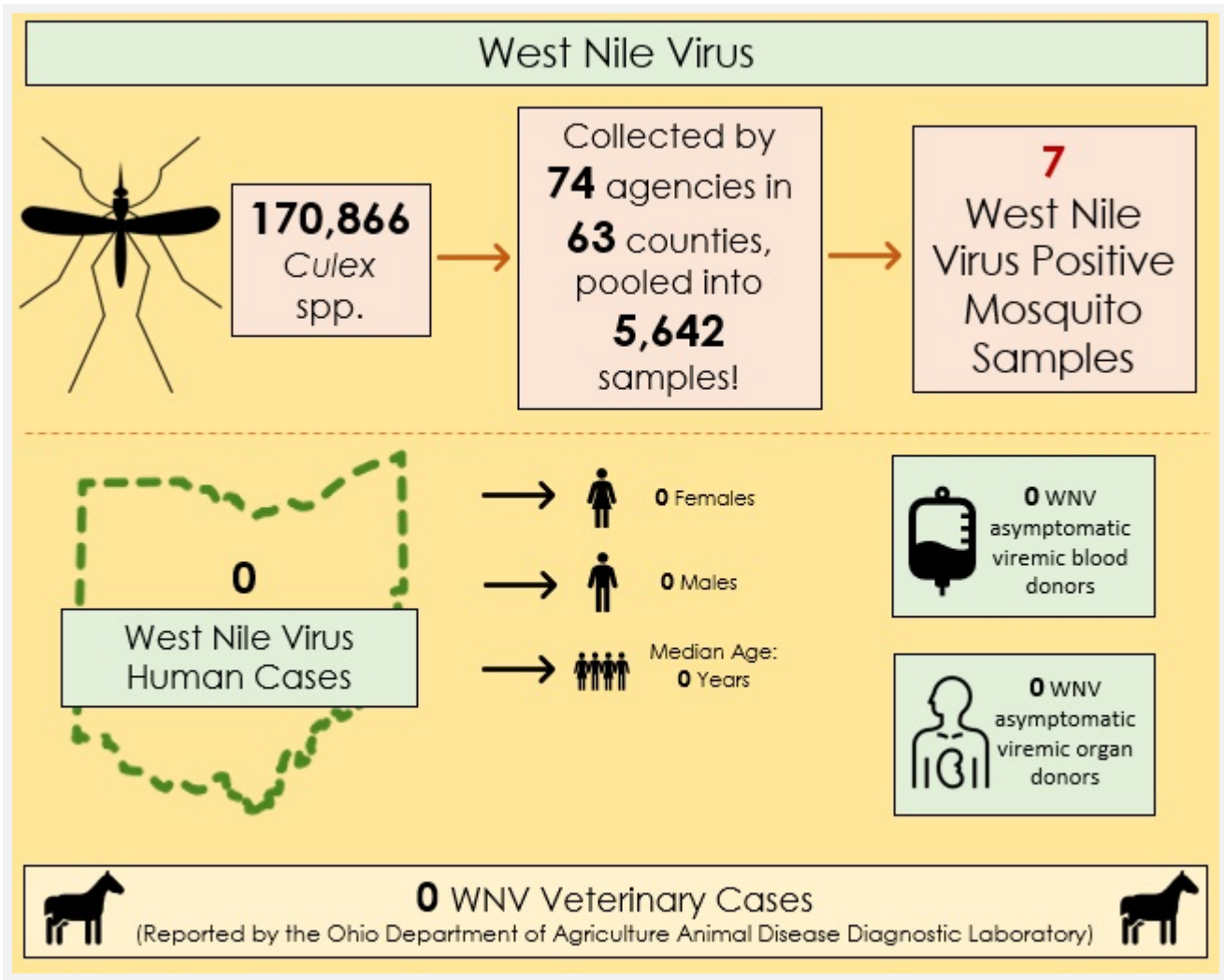
Figure 1. Minimum infection rate (MIR) of West Nile Virus in *Culex spp.* collected in Ohio as of 7/11/2019

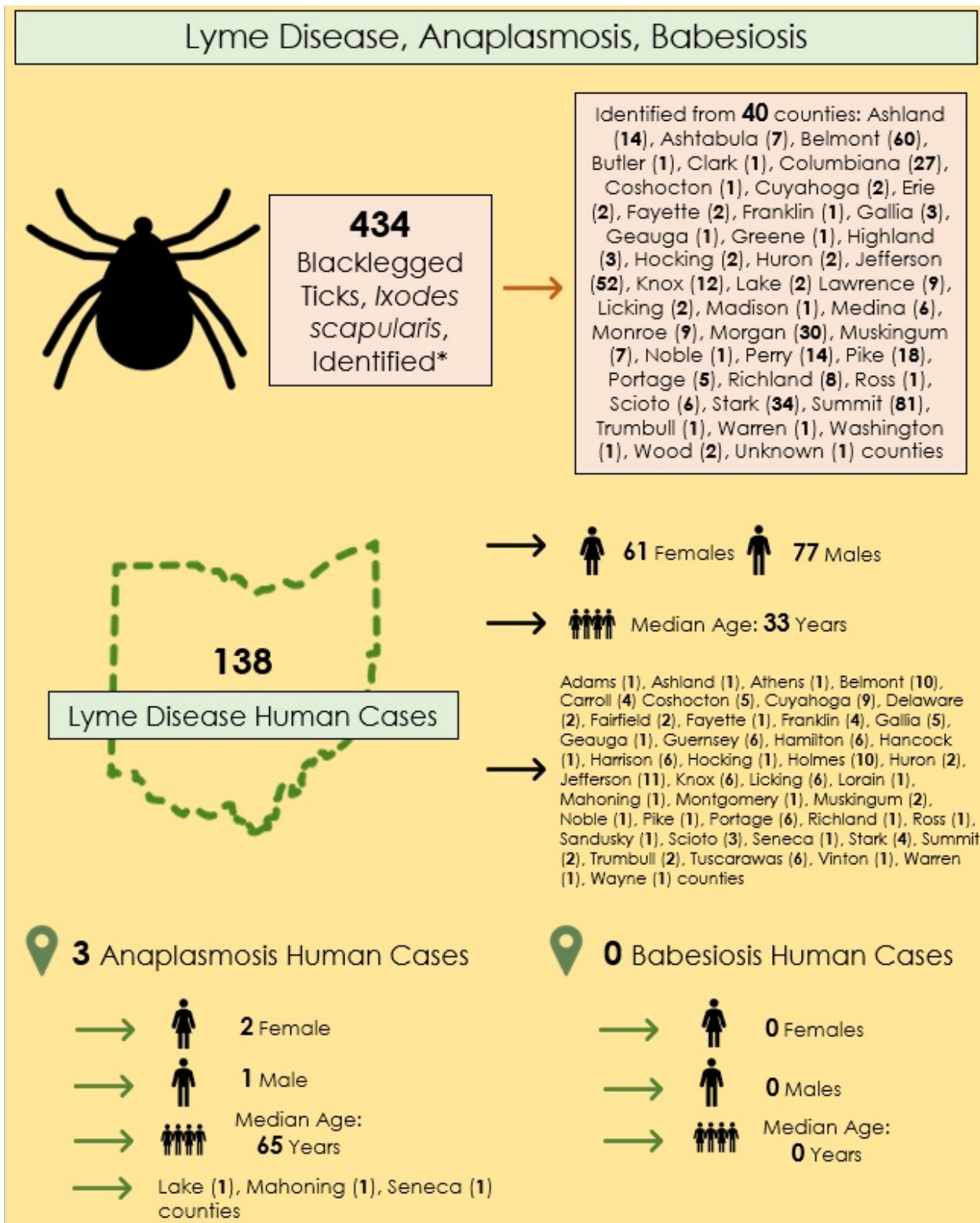


Although the recent high amounts of rainfall have resulted in increased mosquito breeding, West Nile virus infection rates remain minimal in Ohio (Figure 1). Seven mosquito pools in Ohio tested positive for West Nile virus, including one pool in Summit County. At this time in 2018, Summit County had 15 mosquito pools that were positive for West Nile virus.

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

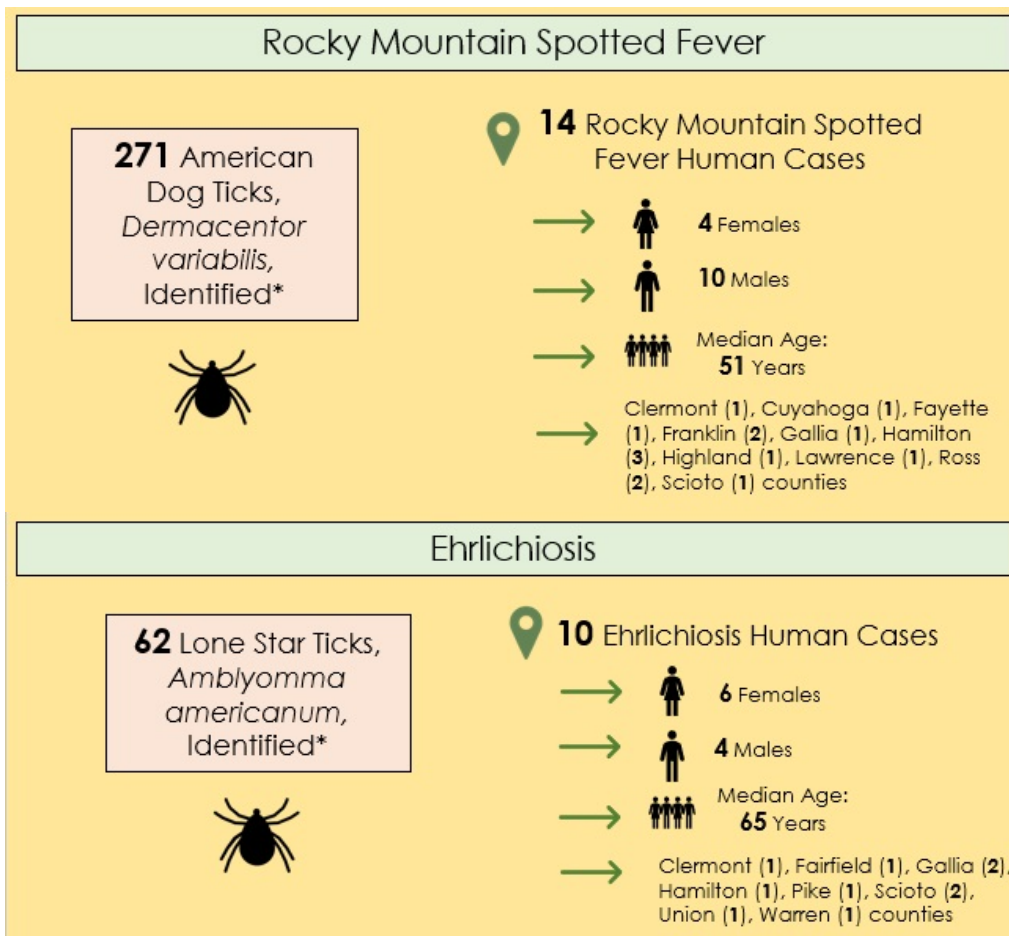
Ohio Mosquito-borne diseases:





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.



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

OHIO AND UNITED STATES SURVEILLANCE

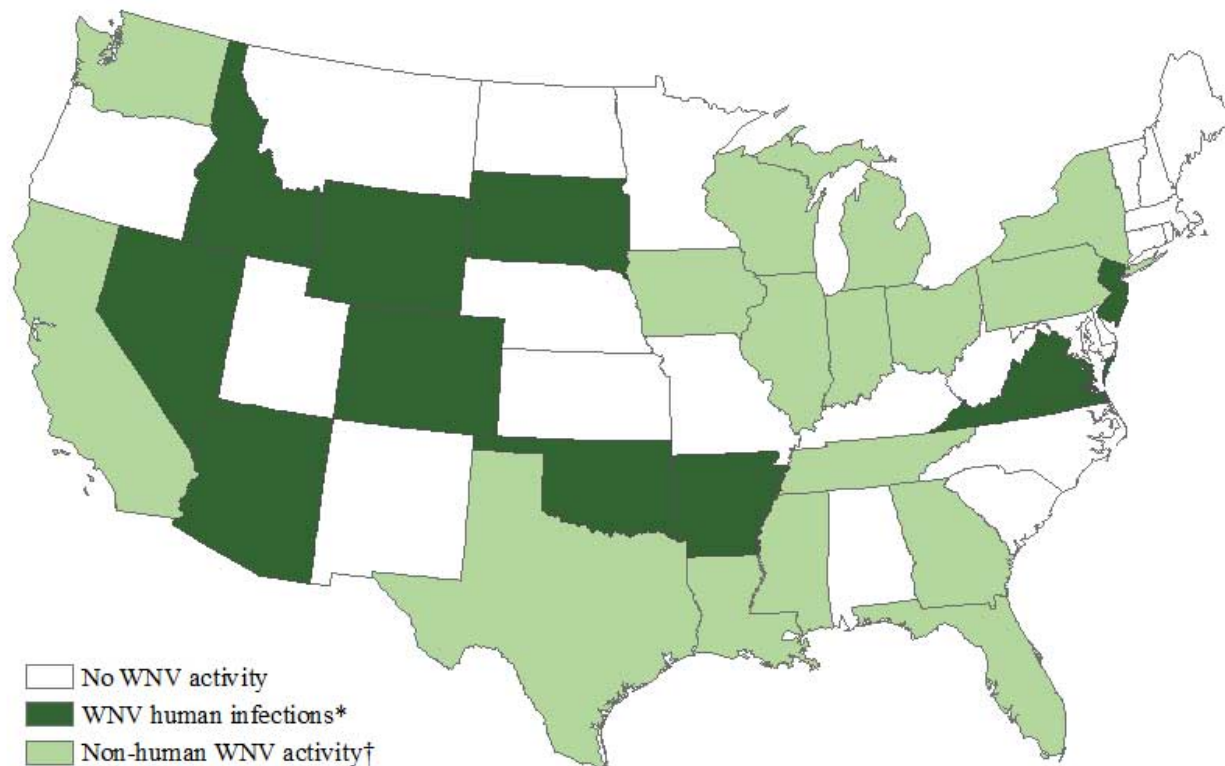
Table 7. Reported Vector Borne disease in Ohio and the United States, 2019

| Disease | OHIO | UNITED STATES | |
|---------------------------------------|-----------------------------|-----------------------------|-----------------------------|
| | 2019 (as of 7/6) cumulative | Weeks 5 and 6 (6/23 to 7/6) | 2019 (as of 7/6) Cumulative |
| Babesiosis | 5 | 41 | 169 |
| Chikungunya | 6 | 0 | 28 |
| Dengue (includes dengue-like illness) | 4 | 0 | 132 |
| Eastern equine encephalitis | 0 | 0 | 0 |
| Ehrlichiosis / anaplasmosis | 26 | 229 | 1784 |
| Jamestown Canyon virus disease | 0 | 0 | 0 |
| LaCrosse virus disease | 0 | 0 | 0 |
| Lyme Disease | 349 | Not reported weekly by CDC | |
| Malaria | 25 | 26 | 528 |
| Powassan virus disease | 0 | 0 | 0 |
| Spotted fever rickettsiosis | 45 | 84 | 1349 |
| St. Louis encephalitis virus disease | 0 | 0 | 0 |
| West Nile virus infection | 0 | 0 | 7 |
| Zika virus infection, non congenital | 0 | 0 | 2 |

Note: Data is provisional and subject to change

Source: https://wonder.cdc.gov/ndss/ndss_weekly_tables_menu.asp

Figure 2. West Nile virus activity by state – United States, 2019 (as of July 9, 2019)



*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.

West Nile virus infections in humans have been reported to CDC ArboNET from the following states: Arizona, Arkansas, Colorado, Idaho, Nevada, New Jersey, Oklahoma, South Dakota, Virginia, and Wyoming.

West Nile virus infections in mosquitoes, birds, horses or other animals have been reported in the states that are light green, including Ohio.

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

VECTOR BORNE DISEASE NEWS

New draft Lyme disease guidelines issued, open for comment

The Infectious Diseases Society of America, American Academy of Neurology, and American Academy of Rheumatology today issued new draft guidelines for the prevention, diagnosis, and treatment of Lyme disease and opened a comment period on the document.

Among the recommendations in the new guidelines, which were last updated in 2006, is that prophylactic antibiotics should be administered to adults and children within 72 hours after removal of a high-risk tick bite. High-risk bites are those that come from an identified *Ixodes* tick that was engorged and attached for more than 36 hours and occur in a highly endemic area. The recommended antibiotic is a single dose of oral doxycycline.

For patients with erythema migrans—a skin lesion at the site of the tick bite often shaped like a bullseye that indicates early localized Lyme disease—the guidelines recommend clinical diagnosis over antibody testing, and treatment with a 10-day course of doxycycline or a 14-day course of amoxicillin, cefuroxime axetil, or phenoxymethylpenicillin.

The guidelines also recommend serum antibody testing for patients who have manifestations of Lyme neuroborreliosis and routine testing for those who've had plausible exposure to *Ixodes* ticks infected with *Borrelia burgdorferi* and present with meningitis, painful radiculoneuritis, mononeuropathy multiplex, and acute cranial neuropathies. Routine testing is not recommended for patients with other neurologic conditions or psychiatric illnesses who have no history of a tick bite or other manifestations of Lyme disease, or for children presenting with symptoms of developmental, behavioral, or psychiatric disorders.

For patients who have persistent or recurring non-specific symptoms such as fatigue, pain, or cognitive impairment following Lyme treatment, the guidelines advise against additional antibiotics. The authors also call for more studies on patients who've been diagnosed as having chronic Lyme disease—a term that currently lacks an accepted definition but refers to patients with infections lasting more than 6 months.

A public comment period on the draft guidelines is open for 45 days, with a submission deadline of Aug 10.

Jun 27 [draft Lyme disease guidelines](#)

Source: <http://www.cidrap.umn.edu/news-perspective/2019/06/news-scan-jun-27-2019>

Invasive tick kills 5th cow in North Carolina, NC state veterinarian issues warning

A fifth cow was found dead on a farm in North Carolina. The young bull was found to be infested by the invasive longhorned tick, and had over 1,000 ticks on it. The official cause of death was acute anemia, which is usually associated with hemorrhaging. The farm lost four heads of cattle to tick infestations in 2018. The state veterinarian of North Carolina issued a warning to residents to check their pets and livestock frequently for ticks.

Although the Asian longhorned tick has not yet been officially confirmed in Ohio, it has been identified in neighboring states (West Virginia, Kentucky and Pennsylvania). Veterinarians and animal owners are encouraged to be vigilant and to report the finding of unusual ticks, particularly in large numbers, to the Ohio State Veterinarian office at 614-728-6220 during regular work hours. The [Division of Animal Health](#) will be working closely with the [USDA APHIS Veterinary Services](#) and the [Ohio Department of Natural Resources Division of Wildlife](#) to monitor Ohio.



Source: [ncagr.gov press release](#)
[Ohio Dept of Ag reporting information](#)

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 **July 12, 2019**.