August 27, 2019

Topic: Eastern Equine Encephalitis (EEE) in Michigan

Dear Colleagues,

Information was received late yesterday from the Michigan Department of Health and Human Services (MDHHS) concerning Eastern Equine Encephalitis (EEE) activity in Michigan. Although there have been no reported cases of EEE in Ottawa County, there have been two confirmed human cases in Kalamazoo and Berrien Counties, as well as six equine deaths from EEE in Barry, Kalamazoo and St. Joseph counties.

Attached is the press release from MDHHS, as well as important information from MDHHS for health care providers, including the "MDHHS Bureau of Laboratories Mosquito-borne and Tick-borne Disease Testing" guidelines. Information can also be found on the Center for Disease Control and Prevention (CDC) website as well as the Michigan Emerging Diseases website. Links for these websites are listed on the attached information sheet for health care providers.

If you have further questions, please contact me at 616-494-5548.

Sincerely,

Paul A. Heidel, MD, MPH
Medical Director
Ottawa County Department of Public Health
Information for Health Care Providers from the Michigan Health Alert Network

Topic: Eastern Equine Encephalitis Risk Increasing in Southwest Michigan

The Michigan Department of Health and Human Services is alerting local public health and health care providers to increasing Eastern Equine Encephalitis (EEE) activity in the state.

Two cases of EEE are now suspected in residents from Kalamazoo and Berrien counties. An additional suspect case is under investigation. Since August 26, MDHHS has been notified of six equine deaths attributable to EEE in Barry, Kalamazoo, and St. Joseph counties and two white-tailed deer deaths in Barry and Cass counties. Horses and deer are sentinels for human risk.

Mosquitoes transmit the EEE virus from its bird reservoir to uninfected humans, horses, deer, and other species. In humans, EEE is a rare cause of encephalitis, however approximately a third of those who develop illness die and many survivors will have mild to severe permanent neurologic damage.

Health care providers should test any human cases of unexplained meningitis or encephalitis occurring in the summer months for exposure to arboviruses. The MDHHS Bureau of Laboratories offers a specialized panel for arboviruses endemic in Michigan, including West Nile Virus (WNV), EEE, St. Louis encephalitis virus (SLE) and California Group viruses. In some instances, MDHHS testing has been more sensitive at detecting arbovirus-associated illnesses than those methods currently available through commercial laboratories.

For additional information on arbovirus testing through MDHHS, contact the Bureau of Laboratories as 517-335-8063, or the Communicable Disease Division at 517-335-8165.

Anyone living in an area where EEE is circulating can get infected. The risk is highest for people who live in or visit woodland habitats, and people who work outside or participate in outdoor recreational activities, because of greater exposure to potentially infected mosquitoes.

FOR IMMEDIATE RELEASE:
Aug. 26, 2019

CONTACT: Lynn Sutfin
517-241-2112
SutfinL1@michigan.gov

Cases of mosquito-borne disease suspected in Michigan residents
Eastern Equine Encephalitis continues to be a threat in Southwest Michigan

LANSING, Mich. – Michigan residents are being reminded by the Michigan Department of Health and Human Services (MDHHS) to protect themselves from mosquito bites following the confirmation of one case of a mosquito-borne disease in a resident and three other possible cases in the state.

Three cases of Eastern Equine Encephalitis (EEE) are now suspected in residents from Kalamazoo and Berrien counties. In addition, a case of California encephalitis virus has been confirmed in a Genesee County resident.

As of Aug. 23, six cases of EEE have been confirmed in horses in Barry, Kalamazoo and St. Joseph counties. None of the horses were vaccinated against EEE and all animals have died. There is an EEE vaccine available for horses, but not for people. In addition, two deer in Barry and Cass counties have been diagnosed with EEE.

“Mosquito-borne diseases can cause long-term health effects in people and even death,” said Dr. Mary Grace Stobierski, MDHHS state public health veterinarian and manager of the Zoonotic and Emerging Infectious Diseases Section. “These cases, along with confirmed cases in horses and deer in the state, stress the importance of taking precautions against mosquito bites.”

EEE is one of the most dangerous mosquito-borne diseases in the United States, with a 33 percent fatality rate in people who become ill and a 90 percent fatality rate in horses that become ill. People can be infected with EEE or California group encephalitis viruses from the bite of a mosquito carrying the viruses.

Residents can stay healthy by following steps to avoid mosquito bites:

- Apply insect repellents that contain the active ingredient DEET, or other U.S. Environmental Protection Agency-approved product to exposed skin or clothing, and always follow the manufacturer’s directions for use.
- Wear long-sleeved shirts and long pants when outdoors. Apply insect repellent to clothing to help prevent bites.
- Maintain window and door screening to help keep mosquitoes outside.

- MORE -
- Empty water from mosquito breeding sites around the home, such as buckets, unused kiddie pools, old tires or similar sites where mosquitoes may lay eggs.
- Use nets and/or fans over outdoor eating areas.

Signs of EEE include the sudden onset of fever, chills, body and joint aches. Symptoms of California encephalitis virus include fever, headache, nausea, vomiting, fatigue and lethargy.

Both diseases can develop into severe encephalitis, resulting in headache, disorientation, tremors, seizures and paralysis. Permanent brain damage, coma and death may also occur in some cases.

Additionally, West Nile Virus activity in Michigan has increased in wildlife and mosquito populations. Health officials have identified 18 positive mosquito pools and eight infected birds in the Lower Peninsula. No human cases of West Nile Virus have been reported. Mosquito-borne illness will continue to be a risk in Michigan until late fall when nighttime temperatures consistently fall below freezing.

For more information about mosquito-borne diseases, visit Michigan.gov/emergingdiseases.

# # #
MDHHS BUREAU OF LABORATORIES
MOSQUITO-BORNE AND TICK-BORNE DISEASE TESTING

MOSQUITO-BORNE DISEASES

The Michigan Department of Health and Human Services Bureau of Laboratories (MDHHS BOL) offers comprehensive testing on clinical specimens for the following viral mosquito-borne diseases (also known as arboviruses) of concern in Michigan: California Group encephalitis virus (CGV), Eastern Equine encephalitis virus (EEE), St. Louis encephalitis virus (SLE), and West Nile virus (WNV). Testing is available free of charge through Michigan healthcare providers for their patients. Testing for mosquito-borne viruses should be considered in patients presenting with meningitis, encephalitis, or other acute neurologic illness in which an infectious etiology is suspected during the summer months in Michigan. Methodologies include:

- IgM detection for all four arboviruses (CGV, EEE, SLE, WNV)
- Molecular detection (PCR) for WNV only
- Plaque Reduction Neutralization Test (PRNT) is also available and may be performed on select samples when indicated

The preferred sample for arbovirus serology at MDHHS BOL is cerebral spinal fluid (CSF), followed by paired serum samples (acute and convalescent). In cases where CSF volume may be small, it is recommended to also include an acute serum sample. Please see the following document for detailed instructions on specimen requirements, shipping and handling instructions: http://www.michigan.gov/documents/LSArbovirus_IgM_Antibody_Panel_8347_7.doc

Michigan residents may also be exposed to mosquito-borne viruses when traveling domestically or internationally. In recent years, the most commonly encountered arboviruses impacting travelers include Zika, dengue, and chikungunya virus. MDHHS has the capacity to perform PCR and IgM detection for Zika virus, dengue, and chikungunya virus to confirm commercial laboratory arbovirus findings or for complicated medical investigations. MDHHS BOL no longer performs routine screening for Zika virus as assays are now available through commercial laboratories. To discuss a case and request travel-associated arbovirus testing, contact the MDHHS Emerging and Zoonotic Diseases Section (EZID) at 517-335-8165. Information about requirements for sample submission can be found at www.michigan.gov/mdhhslab, A-Z Test Listing, "Arbovirus-Emerging Arbovirus Panel".

TICK-BORNE DISEASES

Human Serologic Testing for Lyme Disease

The MDHHS BOL offers the Centers for Disease Control and Prevention’s recommended two-step testing for detection of antibodies to Borrelia burgdorferi, the causative agent of Lyme disease.

- The first step uses an EIA methodology; if a sample is positive or equivocal-
- The second step immunoblot (Western Blot) test is performed

Michigan Department of Health and Human Services
Emerging and Zoonotic Infectious Diseases Section
June 11, 2018
Serologic testing for Lyme disease is available free of charge through Michigan healthcare providers for their patients. Please see the following document for detailed instructions on specimen requirements, shipping and handling instructions: [http://www.michigan.gov/documents/LSGLyme_Borreliaisis_Antibody_IgM_and_IgG_Test_8272_7.doc](http://www.michigan.gov/documents/LSGLyme_Borreliaisis_Antibody_IgM_and_IgG_Test_8272_7.doc)

**Tick Identification/Testing of Live Blacklegged Ticks for Presence of *Borrelia burgdorferi***

MDHHS provides the following services for tick identification and testing at no charge to Michigan residents:

- Accepts ticks or photos of ticks for identification
- Live blacklegged ticks removed from people can be tested at BOL for the presence of the Lyme disease bacteria, *Borrelia burgdorferi*. (Dead blacklegged ticks or ticks removed from animals will not be tested.)

Email tick photos and questions about tick-borne diseases to MDHHS-Bugs@michigan.gov. For details on how to submit ticks or photos of ticks to MDHHS for tick identification, or live blacklegged ticks removed from people for *B. burgdorferi* testing, visit [www.michigan.gov/lyme](http://www.michigan.gov/lyme).

**SPECIALIZED TESTING AVAILABLE AT CENTERS FOR DISEASE CONTROL AND PREVENTION (CDC)**

Michigan residents may also be exposed to other mosquito-borne and tick-borne diseases, both in Michigan or when traveling, either domestically or internationally. Testing for many less common mosquito and tick-borne pathogens is available at no cost through the CDC with prior approval. Information about specific diseases and diagnostic testing available at CDC can be located at [www.cdc.gov](http://www.cdc.gov). Clinical specimen submissions to CDC must be coordinated through MDHHS. Contact the MDHHS EZID Section at 517-335-8165 to discuss a case with an epidemiologist and obtain authorization and instructions on how to submit patient samples to CDC.

**DISEASE REPORTING REQUIREMENTS**

Mosquito-borne and tick-borne infections in people are reportable conditions in Michigan ([http://www.michigan.gov/documents/mdch/Reportable_Diseases_Michigan_by_Condition_478488_7.pdf](http://www.michigan.gov/documents/mdch/Reportable_Diseases_Michigan_by_Condition_478488_7.pdf)) and must be reported to MDHHS and the local health department where the case patient lives. An important goal of mosquito-borne and tick-borne disease surveillance is to monitor for changes in disease activity, including identifying disease agents currently being spread by mosquitoes and ticks in Michigan, as well as potentially identifying emerging threats. Michigan’s Public Health Code, Act No. 368 of the Public Acts of 1978, authorizes MDHHS and Michigan local health departments to investigate potential human cases of any reportable disease as well as unusual occurrences. As a part of this ongoing surveillance effort, MDHHS epidemiologists routinely follow up on any Michigan patient with testing that indicates recent exposure to a mosquito-borne or tick-borne disease. Laboratories may be asked to forward remaining samples on these patients to MDHHS for confirmatory testing.

Questions about MDHHS mosquito-borne and tick-borne disease surveillance can be directed to the EZID Section at 517-335-8165.

Questions about submitting specimens to MDHHS BOL can be directed to 517-335-8063.

Information about West Nile virus, Lyme disease and other diseases spread by mosquitoes and ticks can be found at [www.michigan.gov/emergingdiseases](http://www.michigan.gov/emergingdiseases) and [www.cdc.gov](http://www.cdc.gov).

---

Michigan Department of Health and Human Services
Emerging and Zoonotic Infectious Diseases Section
June 11, 2018