Mississippi State Department of Health

Mississippi Morbidity Report

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Chikungunya Virus Infection—Mississippi 2014

Key Messages:

- **A large outbreak of chikungunya virus disease, a mosquito borne viral illness, is occurring the Americas (Caribbean, South and Central America) with more than 580,000 cases reported in 2014;**
- **690 travel associated cases have been reported in the US, including six in Mississippi;**
- **Travel associated cases may result in the introduction of the virus in the US; at least one US state has confirmed local transmission of the virus (Florida-6 cases);**
- **Clinicians should consider chikungunya virus infection in individuals with fever, polyarthralgia and recent travel to the Caribbean.**

Background: Chikungunya, a mosquito borne-viral disease, is endemic in parts of Asia and Africa where documented outbreaks have occurred for decades. Since 2004 the virus has spread into many new territories resulting in outbreaks in India, Europe and Indian and Pacific Ocean islands. In December 2013 the first local transmission of chikungunya virus in the Americas was reported. Since that time the outbreak has rapidly expanded to include 31 countries and territories in the Caribbean (including Puerto Rico and the US Virgin Islands), South America and Central America with over 580,000 cases reported as of August 22, 2014. With ongoing local transmission in these countries the numbers of chikungunya cases among travelers visiting or returning to the US from affected areas has increased as well. As of August 26, 2014 there are 690 travel associated cases reported in 44 US states and the District of Columbia. The concern has been that the imported cases may result in introduction of the virus into the US mosquito population, thus leading to local transmission of the infection. In mid-July 2014 Florida reported the first cases of locally acquired chikungunya in the continental US; a total of six locally acquired cases are now reported in Florida.

Transmission: Humans serve as the primary reservoir for chikungunya virus, which is maintained in a human-mosquito-human transmission cycle. There are two main mosquito vectors for the transmission of chikungunya, *Aedes aegypti* and *Aedes albopictus* (the same mosquitoes that transmit dengue virus). *Ae. aegypti*, the mosquito primarily responsible for transmission in the current outbreak in the Americas, is not present in the state, while *Ae. albopictus* (Asian Tiger Mosquito) is widely distributed throughout Mississippi. *Ae. albopictus*, an aggressive daytime feeder, effectively breeds in urban settings in very small collections of standing water such as those that can occur in tires, flower pots and plastic containers and bags. *Ae. albopictus* also has a propensity to feed on birds and mammals other than humans which may lessen the risk of mosquito infection and human transmission.

Infected persons may remain viremic for up to 8 days post onset of illness. It is during this time frame that uninfected mosquitoes may acquire infection during feeding. After an average "extrinsic" incubation period of 10 days, the mosquito then has the ability to transmit the virus to an uninfected human host, thus perpetuating the transmission cycle.

Clinical Presentation: The majority (>70%) of infected individuals develop symptoms. The incubation period is typically 3-7 days (range 1-12 days). The disease is characterized by an acute onset of fever (usually >102°F) and polyarthralgia. Joint symptoms, usually bilateral and symmetrical, can be severe and debilitating. The name "chikungunya" derives from an African language word meaning "that which bends", describing the stooped appearance often seen in persons with the severe joint pain that is characteristic of the infection. Other symptoms include a maculopapular rash, headache and myalgias. Symptoms usually resolve within 7-10 days. Some patients may have relapsing rheumatologic symptoms for months after the acute illness. Deaths are rare, with individuals >65 years at greatest risk. Treatment is supportive.

Laboratory Diagnosis: The primary methods of laboratory diagnosis are virological detection through reverse transcriptase polymerase chain reaction (RT-PCR) testing and IgM antibody detection through serological testing. The best timing for RT-PCR is within 8 days of onset of illness; IgM antibodies can be detected as early as 4 days post onset. Both of these diagnostic methods are available through commercial laboratories. Testing can also be performed through the Centers for Disease Control and Prevention (CDC) by special arrangement with MSDH.

Mississippi Cases: The first travel associated Mississippi case was reported in early June 2014 in a resident with travel to Haiti. Since that time a total of six travel associated cases have been identified in Mississippi residents, two with travel to Haiti and four to the Dominican Republic. The ages range from 14 to 30 years. Four were in the Caribbean for mission trips and two were visiting family members. No deaths were reported and all have fully recovered. There is currently no documented local transmission in Mississippi.

Mississippi Response: In order to interrupt the transmission cycle locally, MSDH is taking action around each reported chikungunya suspect (individuals with appropriate symptoms and travel history). Once a suspect is identified, MSDH provides guidance to reduce mosquito exposures during the viremic period. MSDH also performs site inspections of the suspect's home and surrounding neighborhood to provide education, identify and remediate mosquito breeding sites, and when indicated, works with the community mosquito control organizations to reduce the adult mosquito population.

Clinician Guidance: Chikungunya virus infection should only be considered in patients with an acute onset of fever and polyarthralgias, **AND** recent travel to areas with known ongoing local transmission (see www.cdc.gov/chikungunya). The differential diagnosis includes dengue since the viruses are transmitted by the same mosquitoes, circulate in the same geographic regions and have similar clinical features.

Spread into new areas in the Americas is likely as the outbreak continues. It is possible that further travel associated cases of chikungunya will be identified in the US and Mississippi. Clinicians are encouraged to report suspected cases to the MSDH Office of Epidemiology at 601-576-7725 (601-576-7400 after hours, holidays and weekends).

Ebola Virus Outbreak – West Africa 2014

Key Messages:

- **An unprecedented outbreak of Ebola Virus Disease in western Africa has resulted in 2615 cases and 1427 deaths as of August 22, 2014;**
- **Transmission has occurred within Guinea, Liberia, Sierra Leone and Nigeria;**
- **U.S. medical facilities should prepare for the possibility of travel associated cases of Ebola in patients arriving from these affected countries.**

Introduction: Ebola virus, one of several filoviruses capable of causing hemorrhagic fever, was first identified in a 1976 outbreak near the Ebola River in the Democratic Republic of Congo. An Ebola virus outbreak in western Africa has been ongoing since March of 2014, leading to 2615 reported cases and 1427 deaths (as of August 22, 2014). The majority of cases have been confined to three contiguous western African nations: Guinea, Liberia and Sierra Leone. A smaller outbreak in Nigeria, linked to an ill traveler from Liberia, has lead to sixteen cases and five deaths.

Transmission and Clinical Presentation: Ebola Virus Disease (EVD) transmission occurs via direct contact with infected blood and bodily fluids, explaining the high proportion of infection among healthcare workers. Ebola virus is not transmitted through air, food or water. The incubation period typically spans 8-10 days but may be up to 21 days. Prior to the onset of symptoms, infected individuals are not considered contagious. Early in the course of illness fever, chills, weakness and malaise predominate. A diffuse maculopapular rash may occur in the early stages of illness. Gastrointestinal complaints such as abdominal pain, diarrhea, nausea and vomiting may develop after about five days. Hemorrhagic finding are not universal, but manifest as

petechiae, easy bruising and mucosal hemorrhage. Excessive blood loss is uncommon. The mortality rate of the current outbreak approaches 60%, with death typically attributed to shock and multisystem organ failure.

Identification of EVD in the U.S.: The ease and efficiency of international travel lead to the real possibility of importation of EVD into the U.S. Currently, U.S. medical providers should suspect EVD among an individual presenting with documented fever (>101.5 F) **AND** known exposure to blood or bodily fluids of an EVD case. EVD should also be considered among symptomatic individuals with travel to countries with ongoing transmission (Guinea, Liberia, Sierra Leone and Nigeria), regardless of known direct contact with an EVD case. Individuals without know direct contact to EVD cases should be considered at lower risk and other diagnoses should be investigated first. Testing for EVD (PCR and serological testing) is available through the CDC and can be obtained through coordination with the Mississippi State Department of Health.

Infection Control: EVD is spread only via direct contact with blood or bodily fluids of symptomatic EVD cases. Due to the mechanism of spread, enhanced vigilance and the prompt initiation of proper infection control procedures should be initiated immediately if a suspect EVD cases presents to a U.S. medical facility. Any suspected EVD case should be placed in droplet isolation immediately and unnecessary visitation curtailed to essential medical personnel only. Personal Protective Equipment (PPE) should include gloves, mask (surgical or N-95), and eye protection and a fluid impermeable gown. Additional consideration should include the use of disposable shoe covers, leg coverings, hoods and double gloving if significant exposure to blood or bodily fluids is anticipated. For detailed guidance, including how to don and remove PPE, please visit: http://www.cdc.gov/vhf/ebola/hcp.

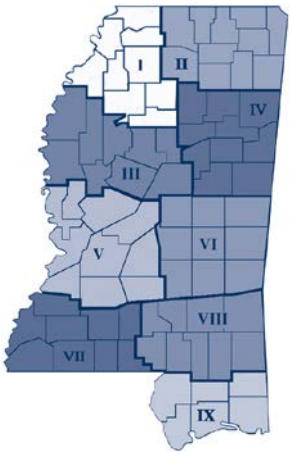
If an EVD suspect is identified based on the criteria mentioned above, immediately notify the Mississippi State Department of Health Office of Epidemiology at 601 576-7725 (601 576-7400 after hours). Though it is currently unlikely that EVD will be identified in Mississippi, in preparation the Mississippi State Department of Health has developed an *Ebola Virus Disease Quick Reference Guide*, based on the latest CDC recommendations, that contains guidance for identifying, diagnosing, and controlling the environment in the event that an EVD suspect presents to a Mississippi facility. Please visit www.msdh.ms.gov/ebola to find the guide and for additional information on EVD.

Call for Volunteers: CDC / MSDH Influenza Surveillance System Providers

The Mississippi State Department of Health (MSDH) is recruiting volunteers who are interested in participation in the MSDH influenza surveillance program. Those interested clinicians will have the opportunity to be part of a statewide surveillance system used to monitor influenza activity and to participate in virologic surveillance for influenza through the submission of samples to the Mississippi Public Health Laboratory (PHL). We are currently seeking primary care providers (with an emphasis on pediatricians and obstetricians) in DeSoto, Lee, Washington, Warren, Rankin, Madison, Lauderdale, and Lamar counties. However, all interested providers throughout the state are invited to contact MSDH.

MSDH utilizes an active syndromic surveillance system to monitor influenza activity statewide. The system is made up of volunteer sentinel providers representing hospital emergency departments, urgent care and primary care clinics, and college and university student health centers. Each week the providers report the number of patient visits consistent with an "Influenza-like Illness" or ILI. An ILI is defined as fever ≥100^{o} and cough and/or sore throat. MSDH uses this information to estimate the magnitude and spread of influenza in the state. ILI providers are also supplied with kits for PCR influenza testing at the PHL. Testing is performed to identify the type and subtype of influenza circulating in the state and representative samples are sent to the CDC for further characterization, including gene sequencing, antiviral resistance testing and antigenic characterization.

Interested providers are encouraged to call the MSDH Office of Epidemiology at 601-576-7725, or providers may call their local District Health Office (see http://msdh.ms.gov/msdhsite/_static/resources/3468.pdf for a list of the MSDH District Offices) and ask for the Emergency Preparedness Nurse.



Mississippi
Provisional Reportable Disease Statistics

July 2014

		Public Health District									State Totals*			
		I	II	III	IV	V	VI	VII	VIII	IX	July 2014	July 2013	YTD 2014	YTD 2013
Sexually Transmitted Diseases	**Primary & Secondary Syphilis**	-	-	-	-	-	-	-	-	-	†	†	†	†
	Early Latent Syphilis	-	-	-	-	-	-	-	-	-	†	†	†	†
	Gonorrhea	-	-	-	-	-	-	-	-	-	†	†	†	†
	Chlamydia	-	-	-	-	-	-	-	-	-	†	†	†	†
	HIV Disease	-	-	-	-	-	-	-	-	-	†	†	†	†
Myco-bacterial Diseases	**Pulmonary Tuberculosis (TB)**	0	1	1	1	4	0	0	1	1	**9**	4	39	41
	Extrapulmonary TB	0	1	1	0	0	0	0	0	0	**2**	1	4	2
	Mycobacteria Other Than TB	0	4	1	1	3	2	0	1	4	**16**	32	218	225
Vaccine Preventable Diseases	**Diphtheria**	0	0	0	0	0	0	0	0	0	**0**	0	0	0
	Pertussis	0	0	0	0	1	0	0	0	0	**1**	9	47	37
	Tetanus	0	0	0	0	0	0	0	0	0	**0**	0	0	0
	Poliomyelitis	0	0	0	0	0	0	0	0	0	**0**	0	0	0
	Measles	0	0	0	0	0	0	0	0	0	**0**	0	0	0
	Mumps	0	0	0	0	0	0	0	0	0	**0**	0	0	0
	Hepatitis B (acute)	0	0	0	0	1	0	0	2	0	**3**	7	24	36
	Invasive *H. influenzae* disease	1	1	0	0	1	0	0	0	0	**3**	2	17	19
	Invasive Meningococcal disease	0	0	0	0	0	0	0	0	1	**1**	1	1	3
Enteric Diseases	**Hepatitis A (acute)**	0	0	0	0	0	0	0	0	0	**0**	1	1	2
	Salmonellosis	13	23	7	11	28	6	9	12	20	**131**	139	390	410
	Shigellosis	1	1	2	3	2	1	0	1	1	**12**	16	136	93
	Campylobacteriosis	4	1	1	0	0	0	1	1	2	**10**	10	54	59
	***E. coli* O157:H7/STEC/HUS**	0	0	0	0	0	0	0	3	1	**4**	6	18	22
Zoonotic Diseases	**Animal Rabies (bats)**	0	0	0	0	1	0	0	0	0	**1**	0	1	1
	Lyme disease	0	0	0	0	0	0	0	0	0	**0**	0	0	0
	Rocky Mountain spotted fever	0	0	0	0	0	0	0	0	0	**0**	14	4	29
	West Nile virus	0	0	0	0	2	0	2	0	0	**4**	7	6	13

* Totals include reports from Department of Corrections and those not reported from a specific District.

† Data not available.