

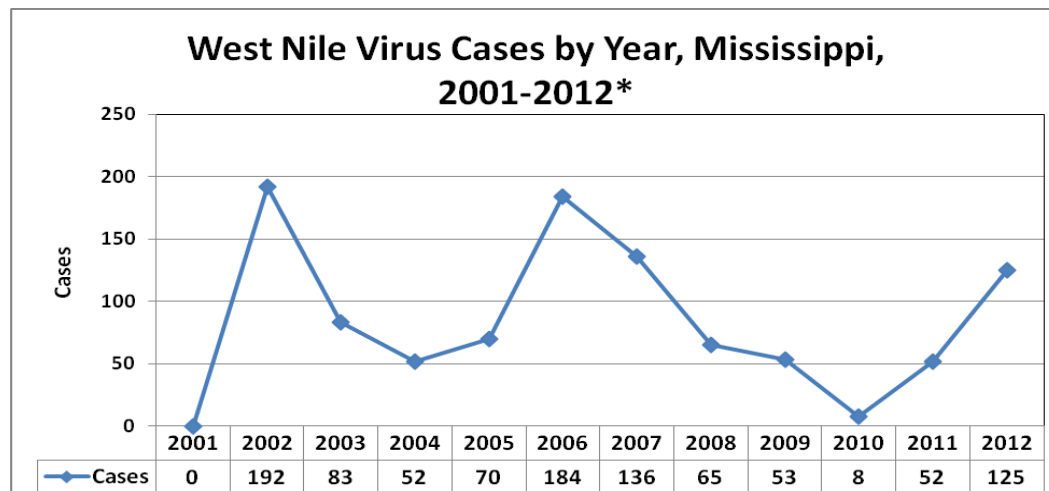


Mississippi Morbidity Report

Introduction: Mississippi is experiencing one of its most significant West Nile virus (WNV) seasons in several years. As of September 5, 2012 there are 125 cases with four deaths reported to the Mississippi State Department of Health (MSDH). The first year human cases were detected in Mississippi was 2002, the most active year to date with 192 reported cases. In that year there were 56 cases and four deaths reported by September 5. The U. S. season has also been quite active, with a total of 1,993 cases reported by the Centers for Disease Control and Prevention (CDC) on September 4, 2012. This is the highest number of cases reported to the CDC through the first week of September since WNV human cases were first detected in the U.S. in 1999. In the CDC report the 113 Mississippi cases at that time ranks third behind Texas and South Dakota for highest total cases.

There has been considerable variability in the number of cases reported in Mississippi on an annual basis, from the high of 192 in 2002 to a low of eight in 2010 (Figure 1). Typically WNV is most prevalent from July through October so we are still in the midst of our most active time of the year. The following is a brief overview of WNV and its transmission, and an update of activity in both the United States and Mississippi, including some of the prevention activities MSDH is undertaking.

Figure 1



*2012 reports through September 5

Background: WNV is an arbovirus (a virus transmitted by arthropod vectors—in this case a mosquito) in the genus *Flavivirus*. The virus was first isolated from a febrile patient in 1937 in the “West Nile District” of Uganda and was recognized as the cause of severe meningitis and encephalitis during an outbreak in Israel in the 1950’s. In the U.S., WNV infections were first identified in New York City in 1999, followed by a rapid spread throughout the U.S. resulting in a large outbreak with over 4,000 cases in 39 states in 2002. In Mississippi WNV was first identified in horses in 2001, followed by the first human cases in 2002; cases have occurred annually since that year. Human cases, positive mosquito pools, birds or horses have been reported in every county except Issaquena.

Transmission: The virus is maintained in a bird-mosquito cycle and has been identified in more than 300 different species of birds; both humans and horses are “dead-end” or incidental hosts and do not transmit the virus to uninfected mosquitoes. In Mississippi the mosquito primarily responsible for transmission is the southern house mosquito (*Culex quinquefasciatus*). This mosquito breeds easily in small amounts of standing water that contain organic material such as outdoor flower pots, discarded tires, obstructed gutters, or any other container that can hold water. Standing water becomes a more suitable breeding site during periods of relative drought when water pools begin to evaporate thereby

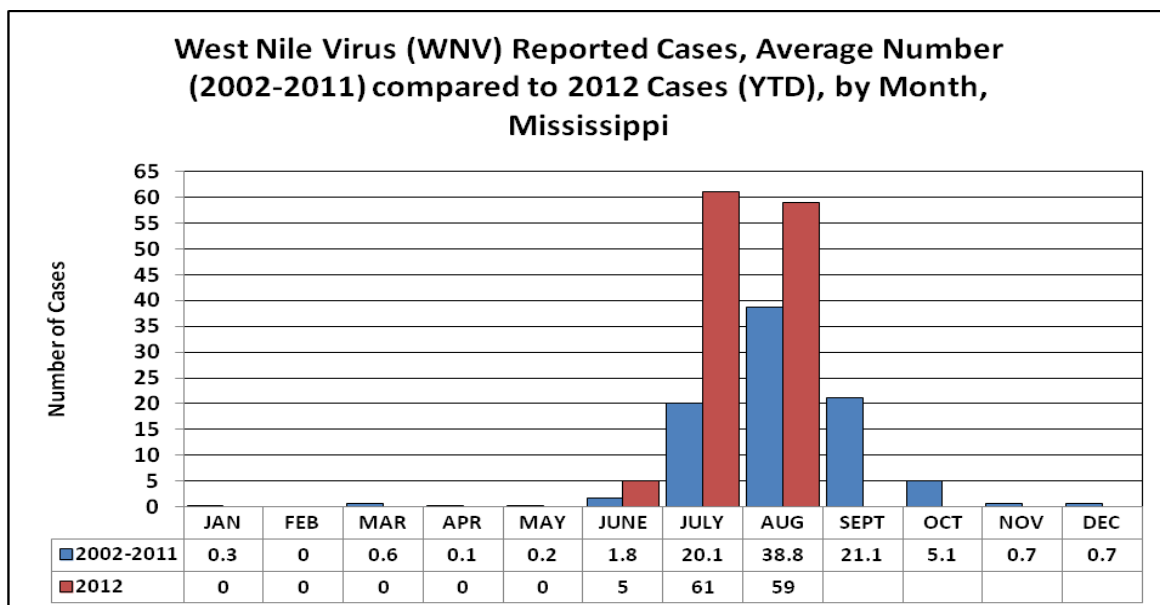
concentrating the organic matter within them. Rare transmission has also been reported through blood transfusions and organ transplants.

Clinical Features: Clinical illness is apparent in only about 20% of all infected individuals and the majority of those have relatively mild symptoms that include fever, headache, fatigue and myalgias, and sometimes a transient rash (WNV Fever). About 1 in 150 infected individuals develop the more severe WNV neuroinvasive disease with meningitis, encephalitis and in some cases a polio-like flaccid paralysis syndrome. Age is the most important risk factor for the development of neuroinvasive WNV infections, primarily in individuals 50 years and older.

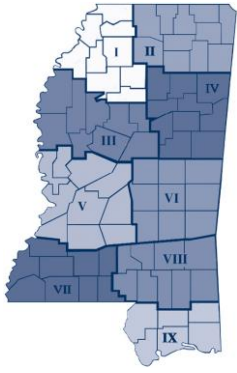
United States: Since 1999, more than 30,000 cases of WNV infection have been reported in the U.S., with more than 1,200 associated deaths. So far, 2012 is proving to be an active year for WNV in the U.S., with 1,993 cases with 87 deaths reported from 43 states as of September 4. Of the reported cases, 1,069 (54%) have been classified as neuroinvasive disease and 924 (46%) as non-neuroinvasive disease. Over 70% of the cases have been reported from 5 states (Texas, Mississippi, Louisiana, South Dakota, and Oklahoma) with approximately 45% (888) of the reported cases from Texas. For complete U.S. information, see <http://www.cdc.gov/ncidod/dvbid/westnile/index.htm>.

Mississippi: Though cases are reported year round in Mississippi, the most active times of the year historically have been July, August and September, when 90% (920/1020) of the total cases reported from 2002 through September 5, 2012 have occurred. During this time frame, 25.6% (262) of all reported cases have occurred in the month of July, 43.8% (447) in August and 20.7% (211) in September. So far in 2012 the number of cases with onsets of illness in July and August exceed the average number of cases occurring in those months from 2002-2011 (Figure 2). Because of the possible delay between onset of illness and diagnosis, illnesses that began in August may not yet be reported.

Figure 2



Seventy percent (87/125) of the 2012 reported cases are in individuals 50 years of age and older. Comparable to national data, 50% (63/125) of the total reported cases are classified as neuroinvasive disease. Those 50 years and older are also the most affected by severe illness, with 73% (46/63) of all cases of neuroinvasive disease occurring in persons in this age group. The four deaths are in individuals over the age of 75 years. In addition to the 125 symptomatic WNV cases that have been reported, 12 asymptomatic viremic donors have been identified through routine screening at blood banks in the state.



Mississippi Provisional Reportable Disease Statistics

July 2012

		Public Health District									State Totals*			
		I	II	III	IV	V	VI	VII	VIII	IX	July 2012	July 2011	YTD 2012	YTD 2011
Sexually Transmitted Diseases	Primary & Secondary Syphilis	0	1	0	0	6	0	0	0	0	7	18	98	89
	Early Latent Syphilis	3	3	0	0	11	2	1	4	3	27	47	149	217
	Gonorrhea	79	52	74	68	214	47	24	49	45	652	533	4,001	3,355
	Chlamydia	254	190	241	164	499	167	116	190	229	2,050	1,851	14,278	12,589
	HIV Disease	3	2	3	1	16	4	4	3	1	37	51	327	392
Mycobacterial Diseases	Pulmonary Tuberculosis (TB)	1	0	0	0	3	0	1	0	0	5	2	40	41
	Extrapulmonary TB	0	0	0	0	0	0	0	0	0	0	1	6	5
	Mycobacteria Other Than TB	1	10	1	1	4	6	1	1	3	28	23	174	196
Vaccine Preventable Diseases	Diphtheria	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pertussis	0	0	0	0	1	1	0	1	0	3	10	47	21
	Tetanus	0	0	0	0	0	0	0	0	0	0	0	1	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	1	2
	Hepatitis B (acute)	1	2	0	0	1	0	0	2	1	7	7	44	30
	Invasive <i>H. influenzae</i> b disease	0	0	0	0	1	0	0	0	0	1	0	12	12
	Invasive Meningococcal disease	0	0	0	0	0	0	0	0	0	0	0	4	2
Enteric Diseases	Hepatitis A (acute)	0	0	0	0	0	0	0	2	0	2	2	4	5
	Salmonellosis	19	50	2	20	38	12	9	17	13	180	211	576	566
	Shigellosis	1	2	1	0	5	0	0	1	2	12	15	144	83
	Campylobacteriosis	0	3	0	0	3	2	2	2	2	14	7	55	44
	<i>E. coli</i> O157:H7/shiga toxin-producing <i>E. coli</i> (STEC)/HUS	0	0	0	0	1	2	0	0	0	3	8	12	21
Zoonotic Diseases	Animal Rabies (bats)	0	0	0	0	0	0	0	0	0	0	0	1	1
	Lyme disease	0	0	0	0	0	0	0	0	0	0	0	1	3
	Rocky Mountain spotted fever	0	0	0	0	0	0	0	0	0	0	4	3	12
	West Nile virus	1	0	5	3	28	6	6	9	3	61	16	66	17

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

WNV cases have been reported from all Public Health Districts throughout the state in 2012 except for Northeast Public Health District II in the Tupelo area. Eighty-four percent (105/125) of the all the 2012 cases have occurred in four Public Health Districts in the central and southern areas of the state: 51% (64/125) in West Central Public Health District V (Jackson area), 15% (19/125) in Southeast Public Health District VIII (Hattiesburg area), 10% (12/125) in Southwest Public Health District VII (McComb area) and 8% (10/125) in East Central Public Health District VI (Meridian area). Please see the MSDH website at [http://msdh.ms.gov/msdhsite/ static/14,0,93.html](http://msdh.ms.gov/msdhsite/static/14,0,93.html) for the most current case counts in Mississippi.

Prevention Activities: The MSDH Office of Epidemiology and MSDH entomologists are working with county and city Mosquito Control Programs throughout the state to provide consultation and up to date maps of human cases to direct land based spraying efforts. Additionally, MSDH has contacted city and county elected officials statewide to provide information about the increases in WNV activity this year, and to provide printed educational materials and door-hangers for distribution to the public in their jurisdictions. MSDH has also partnered with the Mississippi High School Athletic Association and the Mississippi Independent Schools Association to announce public service messaging at high school football games and other athletic events this fall.

References available on request.

Submitted by Paul Byers, MD, Deputy State Epidemiologist, MSDH