Louisiana Arbovirus Surveillance Summary 2016

CDC Week   41   From: 01/01/2016-10/15/2016
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Report Summary

Prevention - Not in my house, not in my yard, not on my skin, day and night, I'll fight the bite!

The goal of the surveillance for West Nile (WN) Infections in humans is to describe the disease burden of the West Nile infection on the human population. Only West Nile Neuroinvasive diseases (NID) including encephalitis or meningitis get reliably reported. For every NID case there are about 10 cases of Fever and about 90 completely asymptomatic infections. Only one percent of the WN-Fever (WN-F) and asymptomatic (WN-PRE) cases are reported. Although we show the number of cases of all WN infections, it is important to remember that only WN-NID cases are useful for monitoring disease burden and trends in WN in humans.

Humans: Detailed information on the number of arboviral infections can be found within this report, please refer to the Table of Contents.

Equines: Horses can be infected by WN and Eastern Equine Encephalitis (EEE) virus and do develop encephalitis. Horse's viremia is too low to infect mosquitoes and does not play a role in transmission. However, since horses live outside surveillance of horse infections is a good indicator of arboviral transmission. Contact the Louisiana Department of Agriculture and Forestry (LDAF) for the most up to date statistics on horse infections.

Sentinel Chickens: Have been used in the past as a statewide early warning system to detect arbovirus transmission. These chickens in secure cages were strategically placed and bled regularly. Serologic tests performed on the sentinel chickens provided information of current and local transmission of many arboviruses. However, experience shows that this was not very effective in providing information about local transmission.

Dead Birds: Are no longer collected statewide because testing of dead birds does not provide information on where and when the bird was infected or of local transmission. Dead birds can only indicate that the bird died at a particular location of an arbovirus endemic to Louisiana.

Mosquito Pools: This is the most effective surveillance system to monitor arboviral transmission. Arboviruses are detected through nucleic acid testing of pools of 50 or more mosquitoes of the same species. A positive mosquito pool is an indicator of recent transmission, between mosquitoes and birds, horses or humans. Every year 20,000-50,000 mosquito pools from approximately 30 parishes are submitted for testing. Detailed information on the number of positive pools can be found within this report, please refer to the Table of Contents.

Explanation of Clinical Disease: WN infections have occurred each year in Louisiana for the last 10 years. Persons of all ages are considered equally susceptible to infection. The majority of all persons infected and immuno-competent are completely asymptomatic (80-90%). A smaller proportion of persons (10-20%) present with influenza-like illness with abrupt onset of fever. A minority of people develop a serious neurologic illness such as aseptic meningitis or encephalitis (0.2% younger than 65 years old, 2% older than age 65).

Explanation of Deaths: About 10% of people who develop neuroinvasive disease can die. The reporting of deaths caused by WN-NID is not mandated by the Louisiana Sanitary code so it is inconsistently reported. It is limited to being included in this report to only those deaths occurring within two weeks for onset. For the preservation of confidentiality, OPH will not report details about WN deaths (such as date, parish, gender and age).

Limitations: Human data have very limited usefulness for mosquito control purposes. Only two percent of all WN infections are reported (because most WN infections are asymptomatic or WN fever cases do not get medical care, they never get diagnosed nor are reported). The reporting of those cases is delayed. From the time a mosquito bites a bird infected with WN viruses, it takes 1 to 2 weeks depending on temperatures and other environmental conditions for the virus to multiply in the mosquito vector (extrinsic incubation period); then it takes 3 to 14 days for the virus to multiply in the human host (intrinsic incubation period); it then takes several days from onset of disease to seeking medical care; then a few more days for a physician to order a confirmatory lab test and get the result back (one week from onset, if all goes well); then any where from a few days to a week or two to get the report to Department of Health Office of Public Health (LDH OPH). All in all, from the initial mosquito infection to the reporting of the infection it may take from 3 to 6 weeks. In summary, human data are too little too late to be of major use for mosquito control. To provide mosquito control program with data on location of human cases that may be of limited use for correlating infection rates in mosquitoes and human cases and of use to address public and media concern, general geographical location of cases and weeks of onset are provided to mosquito control who request the information. This information must remain strictly confidential. The LDH OPH Laboratory is a reference laboratory used for epidemiologic purposes. Its role in diagnosis of cases is limited since the great majority of physicians and hospitals use private laboratories for their diagnosis.

Data from CDC Week 1-41   From: 01/01/2016-10/15/2016

Disease	Mosquito Pools	Avian	Equine	Human					
				Neuroinvasive NID	Fever F	Asymptomatic PRE	Total	Positive Blood Donors PVD ‡	Deaths
CAL									
EEE	3		11						
SLE									
WEE									
WNV	190	64	5	21	12	3	36	5	1
Total	193	64	16	21	12	3	36	5	1

CAL = California serogroup viruses (including La Crosse)
EEE = Eastern Equine Encephalitis virus
SLE = St. Louis Encephalitis virus
WEE = Western Equine Encephalitis virus
WNV = West Nile virus

* Avian includes any wild bird or sentinel chicken samples

‡ PVD are people who had no symptoms at the time of donating blood with a blood collection agency, but whose blood tested positive when screened for the presence of virus. If they become symptomatic and meet the case definition reporting criteria, they are counted as a case and are included in the appropriate disease category case tallies.

Data from CDC Week 1-41   From: 01/01/2015-10/17/2015

Disease	Mosquito Pools	Avian *	Equine	Human					
				Neuroinvasive NID	Fever F	Asymptomatic PRE	Total	Positive Blood Donors PVD ‡	Deaths
CAL				1					
EEE	0		2	1					
SLE	0	2							
WEE									
WNV	510	70	1	36	7	14	57	15	5
Total	510	72	3	38	7	14	57	15	5

Data from   CDC Week: 1-41   From: 01/01/2016-10/15/2016

Parish	WNV M	A	E	NID	F	PRE	Total	SLE M	A	E	Human	EEE M	A	E	Human	CAL Human
Acadia							0									
Allen	2						0									
Ascension	1						0									
Avoyelles			1				0									
Beauregard				1			1									
Bossier							0									
Caddo	16			6			6							4		
Calcasieu	56			5	1		6									
East Baton Rouge	19	6		3	3	1	7									
East Feliciana				1			1									
De Soto			1				0									
Franklin		1		1			1									
Iberia	2						0					1				
Iberville					1		1									
Jefferson	1	34					0									
Jefferson Davis					1		1									
Lafourche	2						0									
Lafayette					1		1									
Lincoln	3				1		1									
Orleans	2				1		1									
Ouachita	19			2			2									
Plaquemines	1						0									
Rapides			2	1		1	2									
St. Bernard	2						0									
St. Charles		15					0									
St. Martin	2	5					0							2		
St. Mary		3					0									
St. Tammany	23				1		1							1		
Tangipahoa	12				1		1							5		
Vernon						1	1									
Washington							0							1		
Webster			1		1		1									
West Baton Rouge	27						0									
West Feliciana				1			1									
Total	190	64	5	21	12	3	36	0	0	0	0	3	0	11	0	0

CAL = California serogroup viruses (including La Crosse)
EEE = Eastern Equine Encephalitis virus
SLE = St. Louis Encephalitis virus
WEE = Western Equine Encephalitis virus
WNV = West Nile virus

M = Mosquito
A = Avian
E = Equine

All human and equine case tallies are reported by the case's parish of residence, not the parish where the exposure occurred.

Age Group	Clinical Classification					
	NID Cases	Incidence	Fever Cases	Incidence	PRE Cases	Deaths
0-14	0	0.0	0	0.0	0	0
15-29	1	0.1	3	0.3	1	0
30-44	0	0.0	4	0.4	1	0
45-59	7	0.9	2	0.3	0	0
60-74	7	1.5	3	0.7	1	0
75+	6	2.6	0	0.0	0	1
Undetermined						
Total	21	0.5	12	0.3	3	1

Age Group	Neuroinvasive Disease Cases by Gender			
	Male	M Incidence	Female	F Incidence
0-14	0	0.0	0	0.0
15-29	1	0.2	0	0.0
30-44	0	0.0	0	0.0
45-59	3	0.8	4	1.0
60-74	4	2.0	3	1.2
75+	4	4.8	2	1.3
Undetermined				
Total	12	0.6	9	0.4

Incidence by Age and Clinical Event

Neuro-invasive Disease Incidence by Age and Gender

Month ranges by CDC Week: Jan = 1–5, Feb = 6–9, Mar = 10–13, Apr = 14–17, May = 18–21, Jun = 22–25, Jul = 26–29, Aug = 30–34, Sep = 35–39, Oct = 40–44, Nov = 45–48, Dec = 49–52.
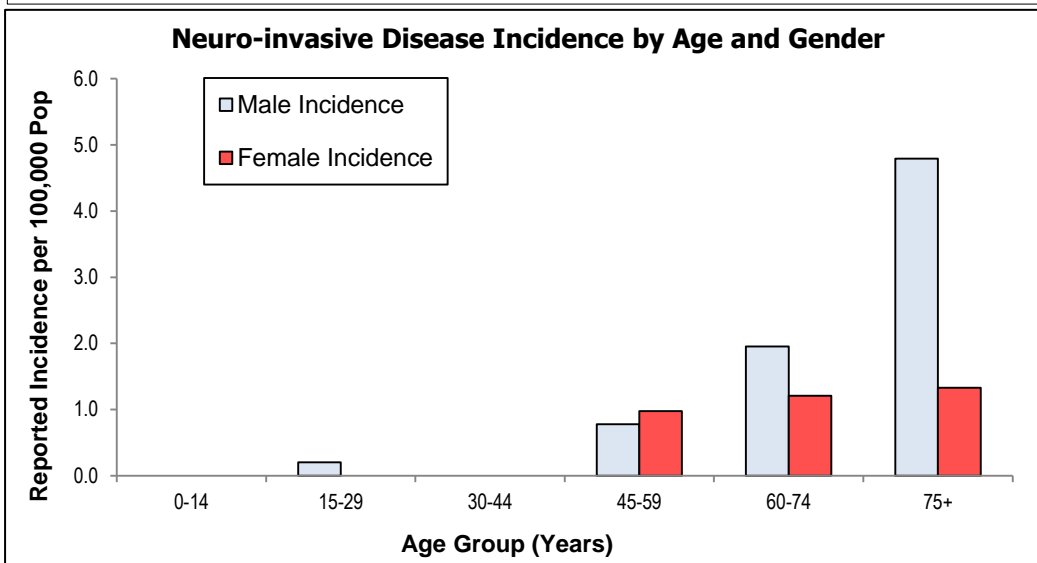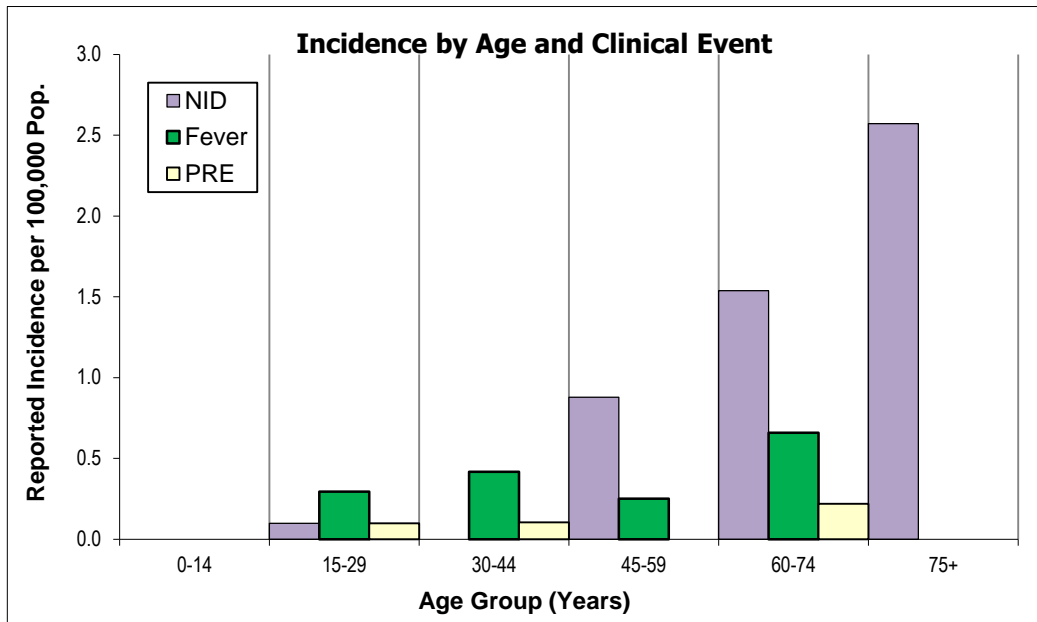
Region	Parish	Total	1-5	6-9	10-13	14-17	18-21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
1		0																																				
2	East Baton Rouge	3																1		1		1																
2	East Feliciana	1																								1												
2	West Feliciana	1																									1											
3		0																																				
4		0																																				
5	Beauregard	1																1																				
5	Calcasieu	5												2	1		1									1												
6	Rapides	1																									1											
7	Caddo	6													1		1	1		1	1				1												
8	Franklin	1																1																			
8	Ouachita	2																2																			
9		0																																				
	WNV-NID 2016	21	0	0	0	0	0	0	0	0	0	0	0	2	2	0	2	6	0	2	1	1	0	0	1	2	2	0	0	0	0	0	0	0	0	0	0	0
	WNV-F 2016	12	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	2	0	1	2	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0
	WNV-PRE 2016	3	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
	WNV-NID 2012	160	0	0	0	0	0	0	0	0	1	1	3	15	11	13	17	18	16	14	12	4	7	4	4	7	2	1	3	3	0	1	1	1	0	1	0	0

WNV Cases - Louisiana, 2012 compared to 2016

Legend: ■ WNV-NID 2012 (gray) · ■ WNV-PRE 2016 (yellow) · ■ WNV-F 2016 (green) · ■ WNV-NID 2016 (black)

X-axis: CDC Week · Y-axis: Number of Cases
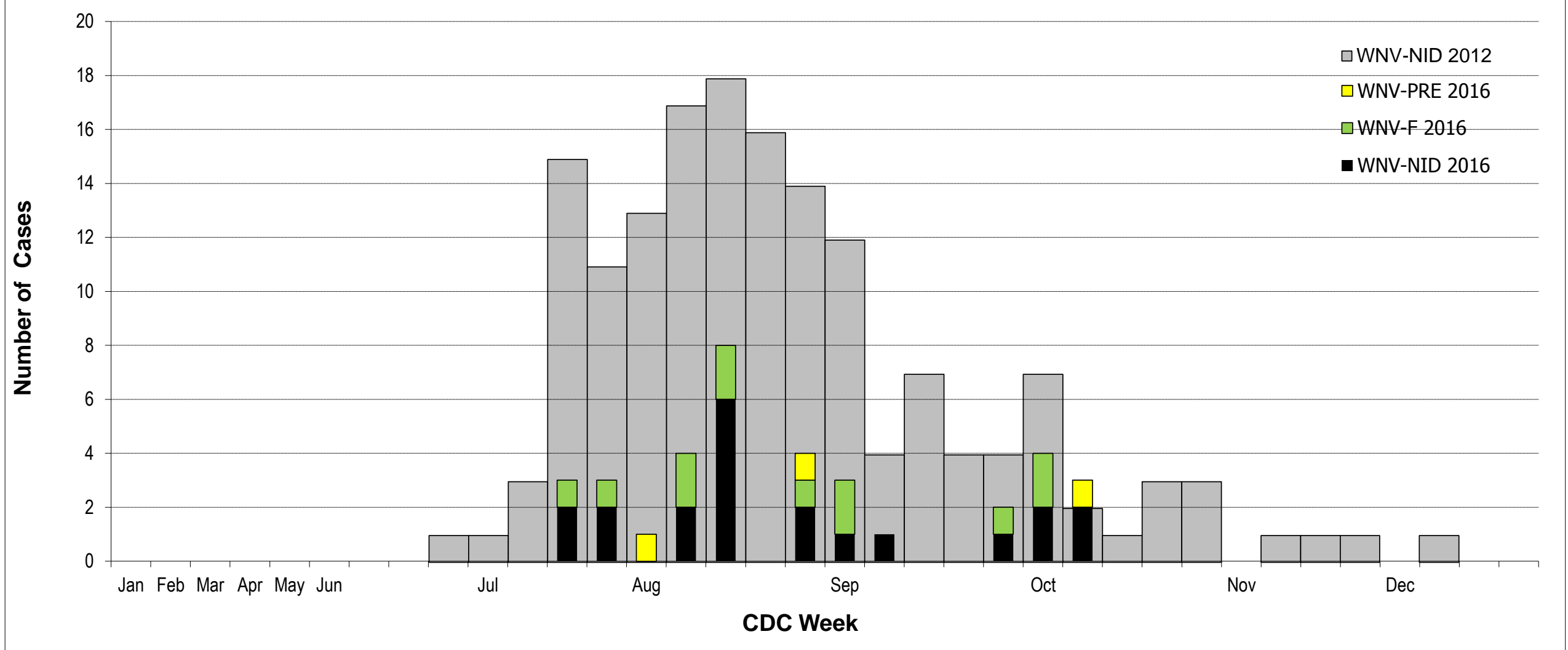
WNV-NID Cases by CDC Week by Year

	Week	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Jan	1															
	3															
	7															
March	10															
	13															
	17															
May	19															
	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
June	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	24	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	25	2	2	0	0	0	0	0	1	0	0	1	0	0	0	0
July	26	11	0	0	0	1	0	0	1	0	0	1	0	0	1	0
	27	6	3	3	4	1	0	0	2	3	0	3	0	0	1	0
	28	9	5	2	5	4	0	0	0	0	1	15	1	3	2	2
	29	23	5	2	13	5	0	0	1	1	1	11	0	7	1	2
August	30	23	8	8	8	6	0	2	1	2	0	13	1	9	2	0
	31	21	10	5	21	7	1	1	0	0	0	17	3	3	5	2
	32	24	7	15	11	14	3	2	1	1	1	18	3	4	4	6
	33	21	8	7	9	13	2	1	2	1	0	16	7	9	4	0
	34	14	6	3	8	7	2	3	1	2	0	14	6	6	5	2
September	35	8	6	5	6	6	5	3	0	3	1	12	2	3	5	1
	36	13	4	5	8	9	3	2	0	1	1	4	2	8	1	1
	37	8	9	3	9	6	3	0	1	2	1	7	3	2	4	0
	38	6	4	4	2	3	1	0	0	1	0	4	0	4	0	0
	39	3	2	5	4	4	1	0	0	0	0	4	1	2	1	1
October	40	3	4	5	4	1	3	3	0	1	0	7	3	1	0	2
	41	3	2	4	3	1	0	0	0	0	0	2	1	0	0	2
	42	3	1	2	3	1	0	0	0	0	0	1	1	0	3	0
	43	0	2	0	0	0	3	0	0	0	0	3	0	0	1	0
	44	0	4	0	0	1	0	0	0	0	0	3	0	0	0	0
November	45	0	2	2	0	0	0	1	0	0	0	0	0	0	0	0
	46	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0
	47	1	1	2	0	1	0	1	0	0	0	1	0	0	1	0
	48	0	2	1	0	0	0	0	0	0	0	1	0	0	0	0
December	49	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
	50	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
	51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NID Total		204	101	84	118	91	27	19	11	20	6	160	34	61	41	21

Total Human WNV Clinical Presentation by Year

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total
NID Cases	204	101	84	118	91	27	19	11	20	6	160	34	61	41	21	977
Fever	124	23	24	54	89	13	30	10	7	4	191	20	59	10	12	658
Asymptomatic	0	4	7	16	22	10	9	8	7	2	46	4	20	18	3	173
Proportion of NID/F	0.62	0.81	0.78	0.69	0.51	0.68	0.39	0.52	0.74	0.60	0.46	0.63	0.51	0.80	0.64	
Deaths	24	7	7	11	9	2	1	0	0	0	21	4	12	0	0	
Total Disease	328	128	115	188	202	50	58	29	34	12	397	58	140	69	36	
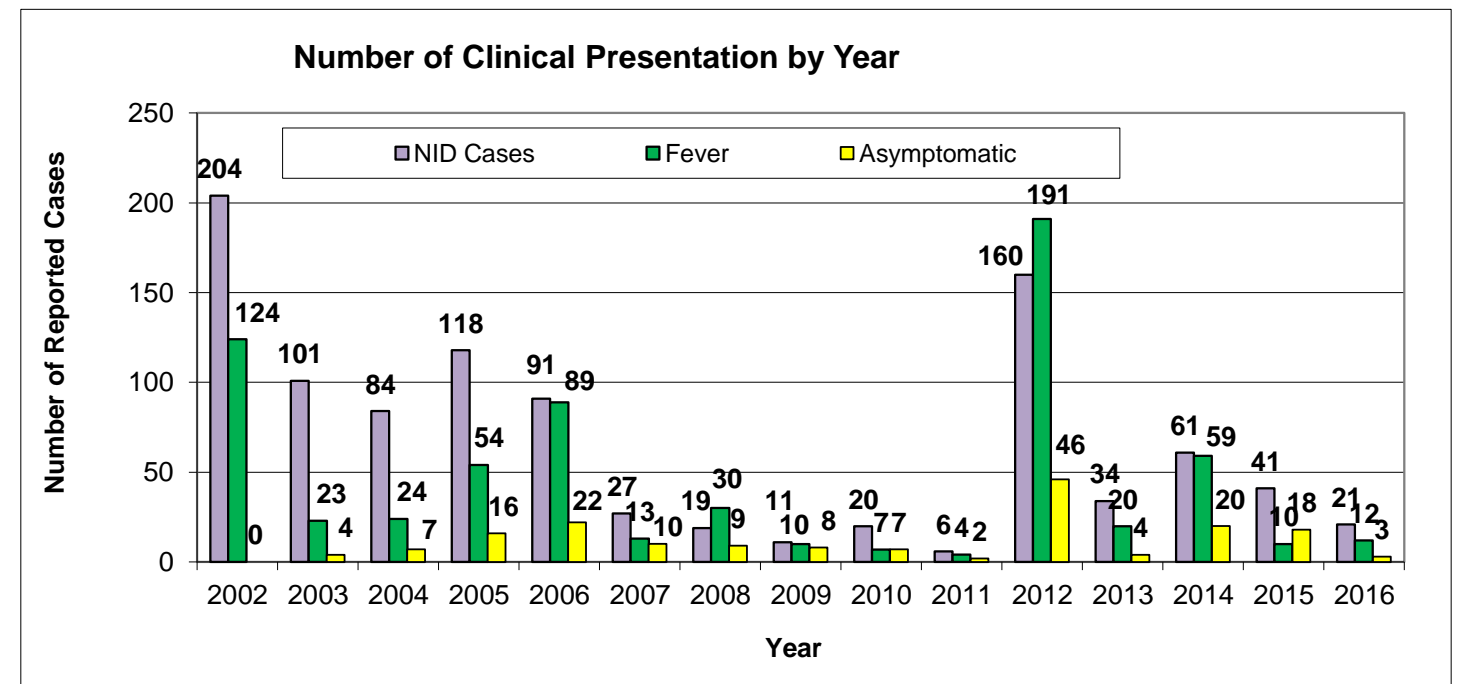
Number of Clinical Presentation by Year

Reg	Parish	NID 2016 Incidence	#	02	03	04	05	06	07	08	09	10	11	12	13	14	15
1	Jefferson	0.0		24	3	1	6	8	2	2	0	0	0	13	0	0	1
1	Orleans	0.0		10	2	1	6	12	2	2	0	0	0	11	0	0	1
1	Plaquemines	0.0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	St Bernard	0.0		0	0	0	1	0	0	0	0	0	0	1	0	0	0
2	Ascension	0.0		6	2	1	3	10	0	0	0	2	0	3	0	4	2
2	East Baton Rouge	0.7	3	37	1	22	17	6	0	0	2	9	0	17	0	21	3
2	East Feliciana	4.7	1	2	1	1	0	0	0	0	0	0	0	2	0	0	0
2	Iberville	0.0		2	0	0	2	0	0	0	0	0	0	0	0	1	1
2	Pointe Coupee	0.0		6	0	0	0	0	0	0	0	0	0	0	0	2	1
2	West Baton Rouge	0.0		2	0	1	2	1	0	0	0	0	0	0	0	0	0
2	West Feliciana	6.6	1	0	0	0	0	0	0	1	0	0	0	1	0	0	0
3	Assumption	0.0		0	1	0	0	1	0	0	0	0	0	0	0	0	0
3	Lafourche	0.0		0	2	0	1	1	0	0	0	0	0	1	0	4	1
3	St Charles	0.0		0	0	0	0	0	0	0	0	0	0	1	0	1	0
3	St James	0.0		2	0	0	0	0	0	0	0	0	0	0	0	0	0
3	St John	0.0		2	0	0	0	1	0	0	0	0	0	0	0	0	0
3	St Mary	0.0		0	1	0	0	0	0	0	0	0	0	0	0	0	0
3	Terrebonne	0.0		0	3	0	0	0	0	0	0	0	0	1	0	1	0
4	Acadia	0.0		0	0	0	1	0	0	0	0	0	0	0	1	0	0
4	Evangeline	0.0		1	0	1	0	0	1	0	0	0	0	0	0	0	0
4	Iberia	0.0		2	1	0	4	0	0	0	0	3	0	1	0	0	0
4	Lafayette	0.0		4	0	1	1	1	1	0	0	0	0	2	9	0	0
4	St Landry	0.0		1	0	3	0	0	0	0	0	0	0	0	0	0	2
4	St Martin	0.0		0	0	0	0	0	0	0	0	0	0	1	0	0	1
4	Vermillion	0.0		0	0	0	0	1	0	0	0	2	0	0	0	0	0
5	Allen	0.0		0	0	0	0	0	0	0	1	0	0	1	0	0	0
5	Beauregard	3.0	1	0	0	1	1	0	1	0	0	1	0	1	0	0	0
5	Calcasieu	2.7	5	8	1	3	2	5	0	1	0	0	2	8	1	0	0
5	Cameron	0.0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Jefferson Davis	0.0		0	1	1	0	0	0	0	0	0	0	0	0	0	3

* parishes highlighted in grey have cases each year

Reg	Parish	NID 2016 Incidence	#	02	03	04	05	06	07	08	09	10	11	12	13	14	15
6	Avoyelles	0.0		2	0	0	0	1	1	1	0	0	0	1	0	0	1
6	Catahoula	0.0		0	1	0	0	1	0	0	0	0	0	0	0	0	0
6	Concordia	0.0		1	0	0	0	1	1	0	0	0	0	2	0	0	0
6	Grant	0.0		1	0	0	0	0	0	0	0	0	0	3	0	0	0
6	Rapides	0.8	1	14	2	8	7	7	2	0	1	0	0	11	4	0	8
6	Lasalle	0.0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Vernon	0.0		0	0	0	0	1	0	0	0	0	1	1	0	0	0
6	Winn	0.0		1	0	0	1	0	0	0	0	0	0	1	0	0	0
7	Bienville	0.0		0	0	0	0	0	0	0	0	0	0	1	0	0	0
7	Bossier	0.0		3	8	9	6	2	0	0	0	0	0	6	0	2	1
7	Caddo	2.4	6	5	38	8	16	3	7	3	1	0	0	19	0	16	5
7	Claiborne	0.0		0	1	0	0	0	0	0	0	0	0	0	0	0	0
7	DeSoto	0.0		1	1	0	0	0	0	0	0	0	0	3	0	0	0
7	Natchitoches	0.0		0	1	0	2	0	0	0	0	0	0	2	0	1	0
7	Red River	0.0		1	0	0	0	0	0	0	0	1	0	0	0	0	0
7	Sabine	0.0		0	0	0	0	0	1	0	0	0	0	0	0	0	0
7	Webster	0.0		0	0	1	0	1	0	0	0	0	0	4	0	0	1
8	Caldwell	0.0		0	0	1	0	0	0	0	0	0	0	1	3	0	0
8	East Carroll	0.0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Franklin	4.7	1	0	0	1	1	0	0	0	0	0	0	1	0	1	0
8	Jackson	0.0		0	1	0	0	0	0	0	0	0	0	0	0	0	0
8	Lincoln	0.0		0	2	0	1	0	0	1	0	0	0	1	0	0	0
8	Madison	0.0		0	0	1	0	0	0	0	0	0	0	1	0	0	0
8	Morehouse	0.0		0	2	2	1	0	1	0	0	0	0	1	0	0	0
8	Ouachita	1.4	2	6	2	5	15	3	1	1	0	0	0	3	14	2	6
8	Richland	0.0		2	1	1	0	0	0	0	0	0	0	1	0	0	0
8	Tensas	0.0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Union	0.0		1	1	1	0	0	0	0	0	0	0	1	0	0	0
8	West Carroll	0.0		0	2	2	0	0	1	0	0	0	0	0	0	0	0
9	Livingston	0.0		12	5	6	11	1	1	1	0	1	0	6	1	2	0
9	St Helena	0.0		0	2	0	2	0	0	0	0	0	0	2	0	0	0
9	St Tammany	0.0		27	4	0	3	14	0	3	4	1	1	10	1	2	2
9	Tangipahoa	0.0		12	6	1	2	6	1	3	1	0	1	12	0	0	1
9	Washington	0.0		6	2	0	3	4	2	0	1	0	1	1	0	1	0
	Total	0.7	21	204	101	84	118	91	27	19	11	20	6	160	34	61	41

ZIKV in Louisiana	Total
Locally acquired mosquito-borne cases:	**0**
Travel-associated cases:	**33[a]**
Sexually Transmitted	**1**
Guillain-Barré Syndrome	**0**

Parish	Cases
Ascension	**1**
Caddo	**1**
East Baton Rouge	**2**
Jefferson	**5**
Lafayette	**1**
Livingston	**2**
Orleans	**12**
Ouachita	**1**
St. Charles	**1**
St. James	**1**
St. Landry	**4**
St. Tammany	**2**
Total	**33**

Mosquito Pools	Total
Negative	**334**
Positive	0

Gender	Disease ZIKV
Female	**24**
Male	**9**

Age Group	Disease ZIKV
0-14	**0**
15-44	**23**
45-59	**8**
60+	**2**
Total	**33**

Countries of Travel:
Belize
Colombia
Dominican Republic
El Salvador
Grenada
Guatemala
Haiti
Honduras
Jamaica
Mexico
Nicaragua
Puerto Rico
Saint Lucia
Trinidad
USVI
Venezuela

Louisiana Data for U.S. Zika Pregnancy Registry	Total
Travel-associated infections:	**6**

"[a] This number includes 2 pregnant women who are also reported above as Zika disease cases"

Louisiana has reported any pregnant woman or newborn residing in Louisiana who has laboratory evidence of Zika infection to the CDC Pregnancy Registry. The U.S. Zika Pregnancy Registry casts a wide net - beyond reported Zika cases - to track and follow pregnancies that may have been impacted by Zika. Regardless of symptoms, pregnant women and newborns are included if testing for Zika virus infection yielded positive or inconclusive test results. Also this includes individuals who don't qualify as Zika cases because they have had no symptoms or if the infection couldn't be specifically identified as Zika virus but have some lab indication of a Flavivirus infection. Flaviviruses are known to cross-react during antibody testing, making it difficult to determine if the person was infected with Zika or some other flavivirus.

Note: No other details will be provided about Louisiana pregnancies reported to CDC due to privacy concerns and it is not warranted from a public health standpoint.

CDC Week	Week Starting	Week Ending
01	12/27/2015	1/9/2016
02	1/3/2016	1/16/2016
03	1/10/2016	1/23/2016
04	1/17/2016	1/30/2016
05	1/24/2016	2/6/2016
06	1/31/2016	2/13/2016
07	2/7/2016	2/20/2016
08	2/14/2016	2/27/2016
09	2/21/2016	3/5/2016
10	2/28/2016	3/12/2016
11	3/6/2016	3/19/2016
12	3/13/2016	3/26/2016
13	3/20/2016	4/2/2016
14	3/27/2016	4/9/2016
15	4/3/2016	4/16/2016
16	4/10/2016	4/23/2016
17	4/17/2016	4/30/2016
18	4/24/2016	5/7/2016
19	5/1/2016	5/14/2016
20	5/8/2016	5/21/2016
21	5/15/2016	5/28/2016
22	5/22/2016	6/4/2016
23	5/29/2016	6/11/2016
24	6/5/2016	6/18/2016
25	6/12/2016	6/25/2016
26	6/19/2016	7/2/2016
27	6/26/2016	7/9/2016
28	7/3/2016	7/16/2016
29	7/10/2016	7/23/2016
30	7/17/2016	7/30/2016
31	7/24/2016	8/6/2016
32	7/31/2016	8/13/2016
33	8/7/2016	8/20/2016
34	8/14/2016	8/27/2016
35	8/21/2016	9/3/2016
36	8/28/2016	9/10/2016
37	9/4/2016	9/17/2016
38	9/11/2016	9/24/2016
39	9/18/2016	10/1/2016
40	9/25/2016	10/8/2016
41	10/2/2016	10/15/2016
42	10/9/2016	10/22/2016
43	10/16/2016	10/29/2016
44	10/23/2016	11/5/2016
45	10/30/2016	11/12/2016
46	11/6/2016	11/19/2016
47	11/13/2016	11/26/2016
48	11/20/2016	12/3/2016
49	11/27/2016	12/10/2016
50	12/4/2016	12/17/2016
51	12/11/2016	12/24/2016
52	12/18/2016	12/31/2016