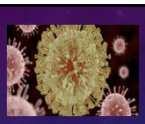
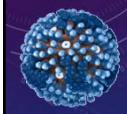


EMERGING INFECTIOUS DISEASES NHSN WORKSHOP NOVEMBER 2016

JULIE HAND, MSPH
LOUISIANA DEPARTMENT OF HEALTH OFFICE OF PUBLIC HEALTH
INFECTIOUS DISEASE EPIDEMIOLOGY SECTION
1-800-256-2748

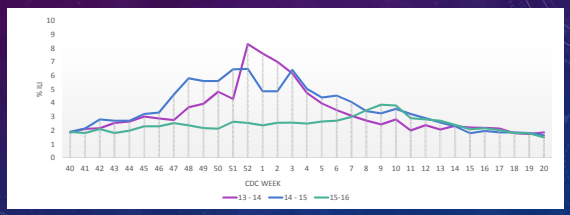


NATIONAL HEALTHCARE SAFETY NETWORK/EMERGING INFECTIOUS DISEASES WORKSHOP

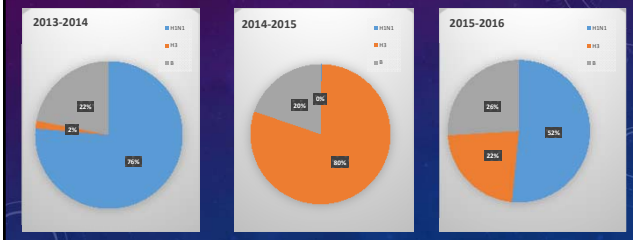
Purpose: This workshop is targeted towards infection preventionists who are seeking to reduce the number of healthcare-associated infections and prepare for emerging infectious disease threats that may present in their facility.

INFLUENZA

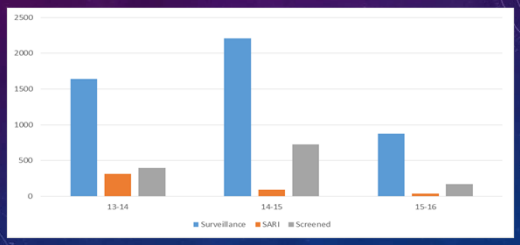
LOUISIANA ILI SURVEILLANCE 2013-2016



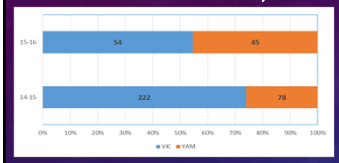
INFLUENZA SUBTYPES – STATE PUBLIC HEALTH LABORATORY

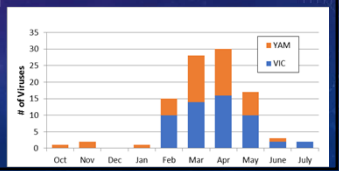


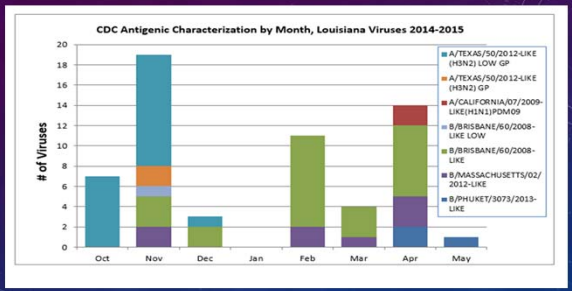
INFLUENZA SAMPLE TYPE BY SEASON, 2013-2016

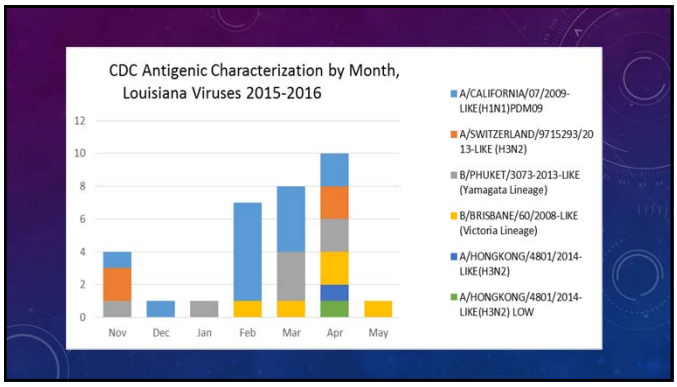


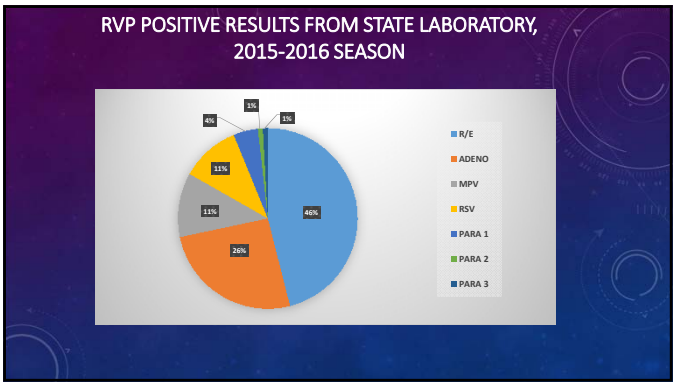
INFLUENZA B GENOTYPE, LOUISIANA 2014-2016

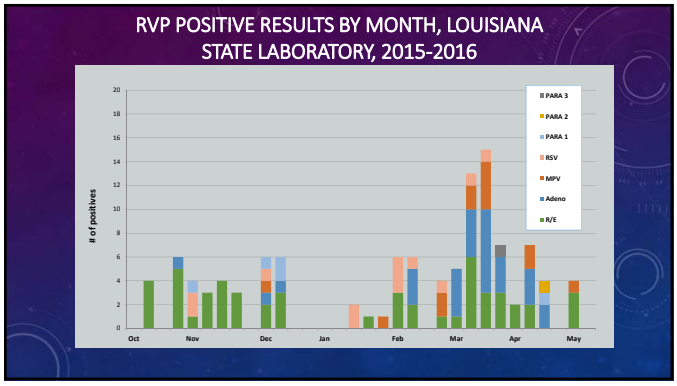


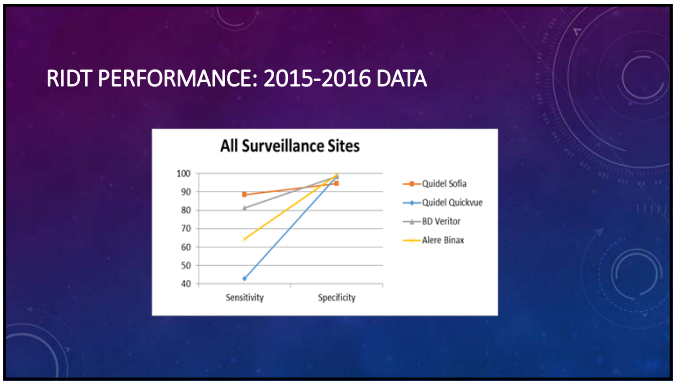




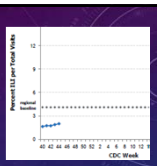

CDC Antigenic Characterization by Month, Louisiana Viruses 2015-2016
12
10
8
6
4
2
0
Nov
Dec
Jan
Feb
Mar
Apr
May
A/CALIFORNIA/07/2009-LIKE(H1N1)PDM09
A/SWITZERLAND/9715293/2013-LIKE (H3N2)
B/PHUKET/3073-2013-LIKE (Yamagata Lineage)
B/BRISBANE/60/2008-LIKE (Victoria Lineage)
A/HONGKONG/4801/2014-LIKE(H3N2)
A/HONGKONG/4801/2014-LIKE(H3N2) LOW


RVP POSITIVE RESULTS FROM STATE LABORATORY, 2015-2016 SEASON
46%
26%
11%
11%
4%
1%
1%
R/E
ADENO
MPV
RSV
PARA 1
PARA 2
PARA 3

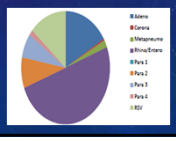

RVP POSITIVE RESULTS BY MONTH, LOUISIANA STATE LABORATORY, 2015-2016
# of positives
20
18
16
14
12
10
8
6
4
2
0
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
PARA 3
PARA 2
PARA 1
RSV
MPV
Adeno
R/E


RIDT PERFORMANCE: 2015-2016 DATA
All Surveillance Sites
100
90
80
70
60
50
40
Sensitivity
Specificity
Quidel Sofia
Quidel Quickvue
BD Veritor
Alere Binax

2016-2017 INFLUENZA SEASON



- 6 influenza positives from May – September, all influenza A/H3
- First positives released from the state public health laboratory this week
  - 3 influenza A/H3 (predominant virus nationwide)
  - All collected as part of sentinel surveillance over the previous 3 weeks
- First outbreak reported last week
- Region 6 HHS (AR, LA, NM, OK, and TX) – highest baseline in the U.S. – 4.1%
- RVP percent positive rate range last 4 weeks: 52% - 92%



EMPLOYEE INFLUENZA VACCINATION RATES*

- 81 facilities included in the vaccination summary
  - 66 acute care
  - 2 ambulatory surgery centers
  - 1 psychiatric hospital
  - 6 inpatient rehabilitation centers
  - 6 surgical hospitals
- Rates of employees who decline influenza vaccination continues to decrease

Season	% declined
2012-2013	14.7
2013-2014	9.6
2014-2015	8.9

- Employees who are vaccinated are most likely to be vaccinated by employer
- Number of unknown vaccination status was lowest in the 2014-2015 season

*report generated 11/9/16

ACUTE FLACCID MYELITIS (AFM)

ACUTE FLACCID MYELITIS (AFM)

- Syndrome characterized by rapid onset of weakness in one or more limbs and distinct abnormalities of the spinal cord gray matter on magnetic resonance imaging (MRI)
- Symptoms

Most common	Less common
Sudden onset limb weakness and loss of muscle tone and reflexes	Numbness or tingling
Facial droop/weakness	Pain in arms or legs
Difficulty moving eyes	Inability to pass urine
Drooping eyelid	Respiratory failure
Difficulty swallowing or slurred speech	

WHAT CAUSES AFM?

- Most commonly attributed:
  - Enteroviruses (polio and non-polio)
  - West Nile virus (WNV) and other flaviviruses
  - Herpesviruses, such as cytomegalovirus and Epstein-Barr virus
  - Adenoviruses
- Understanding of the incidence and epidemiology of AFM and its public health impact in the US significantly limited
  - Not nationally notifiable
  - Lack of routine surveillance and assessment

Number of confirmed AFM cases by year of illness onset, 2014-2016

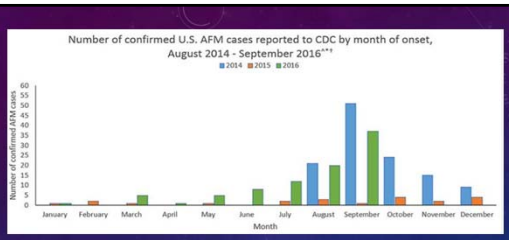
Year	Number confirmed cases	Number of states reporting confirmed cases
2014 (Aug-Dec)	120	34
2015	21	16
2016* (Jan-Sept)	89	33

DIAGNOSIS

- Location of weakness, muscle tone, and reflexes
- MRI of the spinal cord and brain
- Laboratory testing
  - Cerebrospinal fluid (CSF)
  - Nasopharyngeal swab/aspirate/wash
  - Serum/plasma/whole blood
  - Stool (polio rule out)
- All cases reviewed by CDC neurologist

Patient Summary Form

- Acute Flaccid Myelitis: Patient Summary Form Word [v 4.0, 5 pages] UPDATED SEP 2015
- Acute Flaccid Myelitis: Patient Summary Form PDF [v 4.0, 5 pages] UPDATED SEP 2015
- Instructions for completing the AFM Patient Summary Form [5 pages] NEW JAN 2016



Notice to Clinicians and Health Departments - Acute Flaccid Myelitis - 2016

Distributed via the Louisiana HAN in September 2016

ZIKA

The latest challenge we're dealing with is Zika. This is unprecedented and tragic. It has been more than 50 years since we've identified any pathogen that can cause a birth defect. And we have never before identified a situation where a mosquito bite could result in an infection that causes a devastating birth defect. It is unprecedented. It is tragic. And it is now proven. We know that Zika causes microcephaly and other birth defects. But there is an enormous amount that we still don't know. We're still learning more, literally every day, about what Zika causes and how to prevent it.

ZIKA VIRUS

- A flavivirus, like WNV, JE, but more closely related to St. Louis Encephalitis and Dengue viruses
  - First discovered in a monkey in Uganda, 1947
  - Underreported (similar to other diseases)
- Prior to 2015, had caused sporadic, mostly small outbreaks in Africa, Southeast Asia and the Pacific Islands (Yap Island: 1st big outbreak, >5000 infections estimated)

ZIKA - CURRENT OUTBREAK

- In May 2015, the Pan American Health Organization (PAHO) issued an alert regarding the first confirmed Zika virus infections in Brazil.
- Currently, outbreaks are occurring in many countries and territories.
- On January 22, 2016, CDC activated its Emergency Operations Center (EOC) to respond to outbreaks of Zika occurring in the Americas and increased reports of birth defects and Guillain-Barré syndrome in areas affected by Zika. On February 8, 2016, CDC elevated its EOC activation to a Level 1, the highest level.
- On February 1, 2016, the World Health Organization declared a Public Health Emergency of International Concern(PHEIC) because of clusters of microcephaly and other neurological disorders in some areas affected by Zika.
- On February 8, 2016, President Obama announced a request for $1.8 billion in emergency funds for several agencies to accelerate research into a vaccine and educate populations at risk for disease.
- On April 13, 2016, CDC scientists announced that Zika virus is a cause of microcephaly and other severe fetal brain defects.

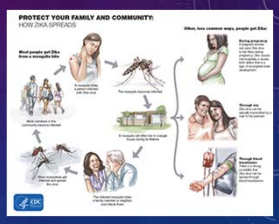
ZIKA - SYMPTOMS

- Usually symptoms last a few days to a week:
  - 80% of those infected were asymptomatic
  - Fever, rash, joint pain, conjunctivitis
  - Muscle pain and headache
  - Rarely sick enough to go to the hospital (flu-like)
  - Symptoms have not been more severe in pregnant women
- Increased incidence of Guillain-Barre Syndrome (GBS)
  - Seen in 19 countries
- Increased incidence of microcephaly, other brain defects, pregnancy loss
  - Over 20 times expected prevalence
  - 26 countries or territories reporting

Microcephaly caused by Zika virus has been a very severe form, so CDC can make no estimate of life expectancy.

ZIKA - TRANSMISSION

- By the bite of mosquitoes…*Aedes* mosquitoes
- **Mother → child**
- **Sexual transmission**
- **Blood transfusion**



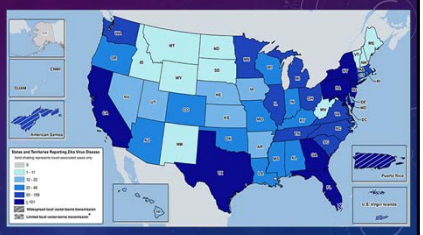
ZIKA - DIAGNOSIS

- CDC recommends that persons with possible exposure to Zika virus receive testing if they have symptoms of Zika virus disease within 2 weeks of exposure.
  - The test should be conducted within the first week of symptom onset.
- CDC recommended that health care providers offer testing to asymptomatic pregnant women with possible exposure to Zika virus
- Tests of semen are not widely available
- RT-PCR recommended in symptomatic travelers
  - Virus is cleared in the blood by ten days
- Serology: IgM appears as early as days five after symptom onset up to 12 weeks
- Ultrasound for detection of brain abnormalities
  - Latency period between infection and onset of microcephaly and intracranial calcification is likely to be prolonged
  - MRI may be more sensitive to changes

ZIKA TRANSMISSION IN THE US

U.S. States
- Travel-associated cases: 4,036
- Locally acquired cases: 139
- Laboratory acquired cases: 1
- Total: 4,175
  - Sexual transmitted: 34
  - GBS: 13
- Pregnant women with lab evidence of Zika Virus Infection: 1,057

U.S. Territories
- Travel-associated cases: 105
- Locally acquired cases: 31,093
- Total: 31,198
  - GBS: 46
- Pregnant women with lab evidence of Zika Virus Infection: 2,357



CDC Map 11/9/16

ESTABLISHMENT OF ZIKA IN THE U.S.?

- *Aedes* mosquitoes are present in the south, southeast, southwestern and western states.
  - *Aedes aegypti* (feeds almost exclusively on human blood)
  - *Aedes albopictus* (feeds 25% of the time on human blood)
- No vaccine is available.
  - Development of a vaccine may have more urgency due to severe brain defects in pregnancy.
- <u>Virus can be present in semen much longer than in blood.</u>

ZIKA TRANSMISSION IN LOUISIANA*

ZIKV in Louisiana	Total
Locally acquired mosquito-borne cases:	0
Travel-associated cases:	20[a]
Travel-associated infections:	4[b]
Sexually Transmitted	1
Guillain-Barré Syndrome	0
Statewide Total	39

Parish	Total
Ascension	1
Bienville	1
Caddo	1
East Baton Rouge	4
Jefferson	6
Lafayette	1
Livingston	2
Orleans	13
Ouachita	1
St. Charles	1
St. James	1
St. Landry	4
St. Tammany	3
Statewide Total	39

Mosquito Pools	Total
Negative	334
Positive	0

Gender	Total
Female	29
Male	10

Age Group	Total
0-14	0
15-44	29
45-59	8
60+	2
Age Total	39

Louisiana Data - U.S. Zika Pregnancy Registry	Total
Travel-associated cases or infections	7

[a] "This number includes 2 pregnant women who are also reported above as Zika disease cases"
[b] "This number includes 4 pregnant women who are also reported above as Zika infections"

*as of 11/10/16

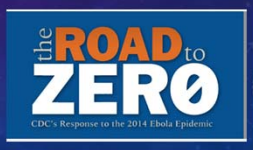
Just a couple more….

INTER-FACILITY COMMUNICATION ON MDRO STATUS

- Notification of transmission-based precautions at time of admit
- Long term care facilities
  - Admit refusal
  - Tests of cure
  - Education
- Inter-facility communication form

TRAVEL HISTORY

Travel Screenings



QUESTIONS?…if you are still awake