LSUHealth Public Forum on Zika Virus

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Zika Virus Outbreak

1 February 2016 – WHO declared Public Health Emergency of International Concern
Based upon concern that Zika linked to neonatal microcephaly and GBS
18 May 2016 – Zika continued transmission in 60 countries/territories
   46 countries are experiencing first outbreak since 2015
   10 countries reported person-to-person transmission
Neurological Complications of Zika - I

Congenital Zika Syndrome (microcephaly)
- Brazil, retrospectively French Polynesia, others (Colombia, etc.)
- Brain maldevelopment, intracranial calcifications, other brain anomalies.
  - Eye abnormalities, redundant scalp skin arthrogryposis, clubfoot
  - Fetal disruption sequence (microcephaly, overlapping cranial sutures, prominent occipital bone, redundant scalp skin, severe neurologic impairment).
Neuroimaging of Congenital Zika Brain
MRI Fetal Brain at 19 Weeks Gestation.
Neurological Complications of Zika - II

Guillain – Barre Syndrome (GBS) and Others

13 countries and territories have reported increased incidence of GBS as well as myelitis and meningoencephalitis, ADEM (Recife, Brazil)

Most GBS appear to be AMAN variety
Diagnostic Tests for Zika - I

- Virus detection by RT-PCR
  - Blood @ one week after symptoms
  - Urine @ 3 weeks
  - Semen @ several months?
Diagnostic Tests for Zika - II

Antibody testing
- IgM as early as 3 days (lasts @ 3 months)
- IgG from 10 days onward (lasts months to years)
- Problems with cross reactivity to Dengue; therefore, confirmation by Neutralization Assay necessary
- Need better validated assays and kits available at point-of-service
Diagnostic Tests for Zika - III

Current recommendations
- Early phase: RT-PCR
- Later phase (2nd week onward): Antibody (esp. IgM)
Therapeutics and Research on Zika Virus
Therapeutics - I

- Pregnant women with Zika
  - Offer ultrasound beginning first trimester
    - Ultrasound better at defining absence rather than presence
    - Non-directive counseling
- Babies with congenital Zika syndrome
  - Supportive and symptomatic care
Therapeutics - II

GBS
- Admission to hospital with proactive care
- ICU for respiratory, bulbar, autonomic complications
- IVIg or PE when non-ambulatory or progressing
Needs to Combat Zika

• Resources: Financial and health care systems (neurological)
• Surveillance
• Vector (mosquito) control
• Public and health care provider education
• Research
  • Diagnostic tests
  • Vaccine
  • Therapeutics
Vaccine

None available yet
Development starting at NIH and private companies
Spraying for Mosquitoes in Honduras
Mosquito Control

- Genetic modification of mosquitoes
- Irradiation of mosquitoes
- Bacterial modification of mosquitoes
Antiviral treatments for Zika

None available yet
Helpful Links

- World Health Organization (WHO) [www.who.int/](http://www.who.int/)
- Pan American Health Organization (PAHO) [www.paho.org](http://www.paho.org)
- World Federation of Neurology (WFN) [www.wfneurology.org](http://www.wfneurology.org)
- Centers for Disease Control and Prevention (CDC) [www.cdc.gov](http://www.cdc.gov)