

#CHAIR2017

10TH ANNUAL
CHAIR SUMMIT

neuroscience CME

Master Class for Neuroscience Professional Development

November 16 - 18, 2017 | Hotel Monteleone | New Orleans, LA

Provided by
CME
Outfitters



Zika Virus and Implications for World Health

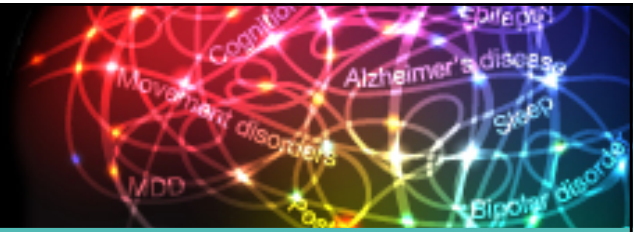
John D. England, MD

Louisiana State University Health
Sciences Center School of Medicine
New Orleans, LA



John D. England, MD

Disclosures



- ***Research/Grants:*** World Federation of Neurology
- ***Speakers Bureau:*** Grifols USA, LLC
- ***Consultant:*** Baxalta

Learning Objective 1

Describe the etiology and spread of the Zika virus.



Learning Objective 2

Identify potential complications of Zika virus infection.

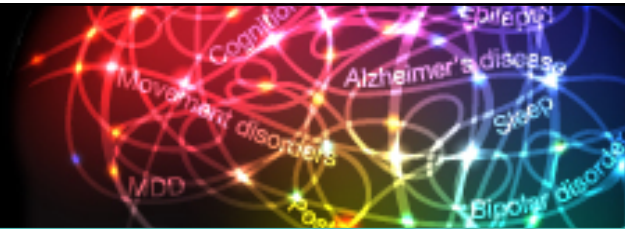


Learning Objective 3

Review the current and proposed prevention and management approaches.



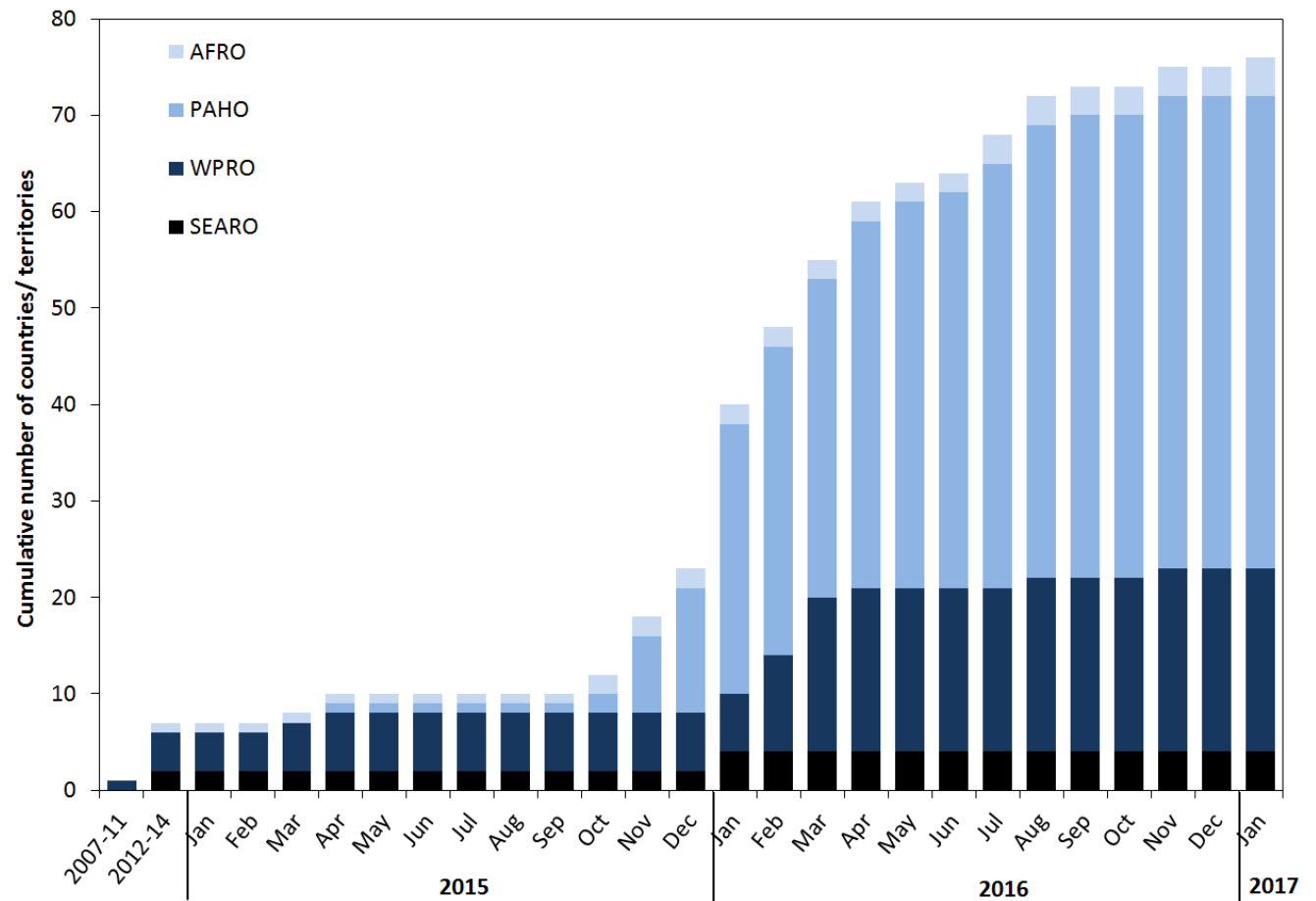
Zika Virus



- Flavivirus
- 1947: Isolated from primate in Uganda
- 1953: Human illness first recognized in Nigeria
- 2007: Outbreak in State of Yap, Federated States of Micronesia
- 2013-14: Outbreak in French Polynesia and other Pacific islands
- 2015 March: Outbreak in the Americas (Bahia, Brazil)
- 2015-17: Zika continues to spread

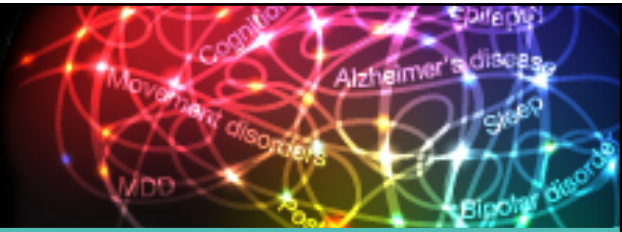
Petersen LR, et al. *New Engl J Med.* 2016;374:1552-1563.

Countries and Territories Reporting Zika Virus Transmission



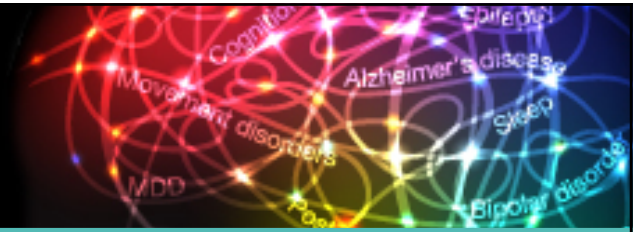
World Health Organization. <http://apps.who.int/iris/bitstream/10665/254507/1/zikasitrep2Feb17-eng.pdf>

Aedes aegypti



Pan American Health Organization. <http://www.paho.org/hq/>.

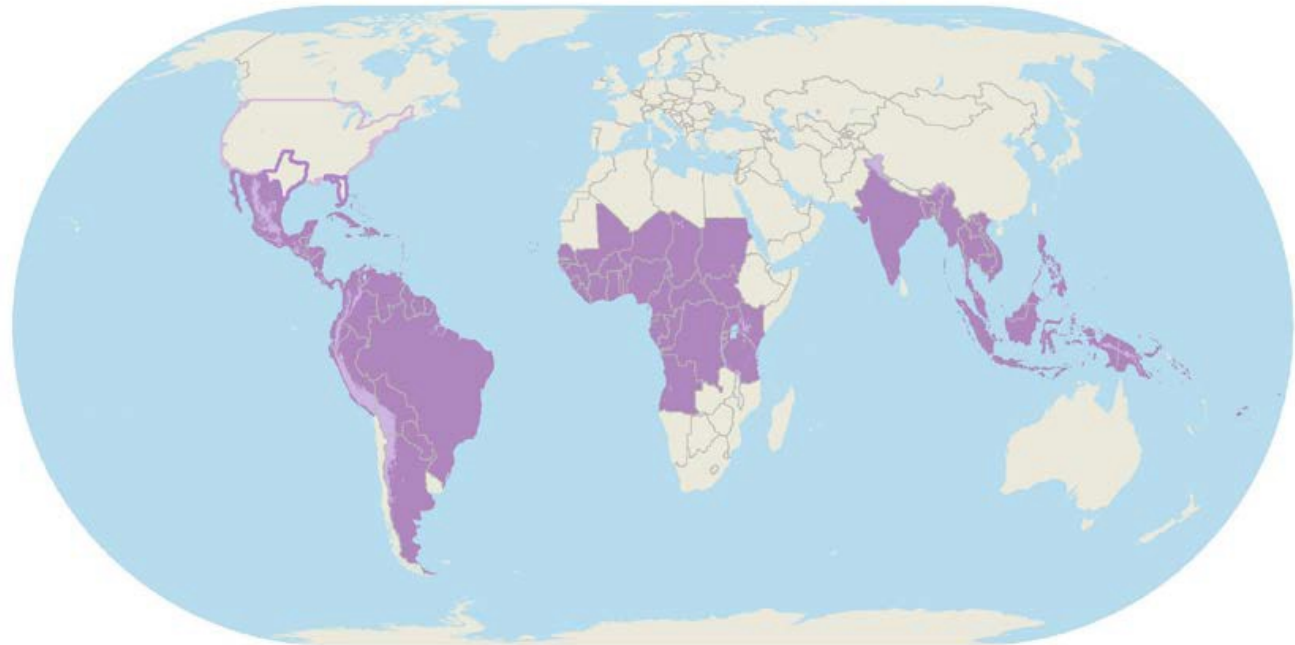
Worldwide Distribution of *Aedes aegypti*



Kraemer MU, et al. *Sci Data*. 2015;2:150035.

Areas with Risk of Zika

World Map of Areas with Risk of Zika



United States areas

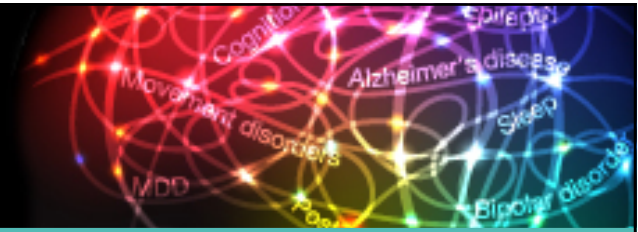
- State Reporting Zika
- No Known Zika

International areas

- Area with risk of Zika
- Area with minimal risk of Zika
- No Known Zika

Centers for Disease Control. <https://wwwnc.cdc.gov/travel/page/world-map-areas-with-zika>.

Symptoms of Zika



- Fever
- Rash
- Headache
- Joint Pain
- Conjunctivitis
- Muscle pain

Centers for Disease Control and Prevention. <https://www.cdc.gov/zika/symptoms/symptoms.html>.

Neurological Complications of Zika



- Congenital Zika Syndrome (microcephaly)
 - 31 countries or territories with congenital Zika syndrome
 - 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)

World Health Organization. <http://www.who.int/emergencies/zika-virus/situation-report/10-march-2016/en/>;

CDC and Prevention. <https://www.cdc.gov/zika/hc-providers/infants-children/zika-syndrome-birth-defects.html>

Neurological Complications of Zika (cont'd)



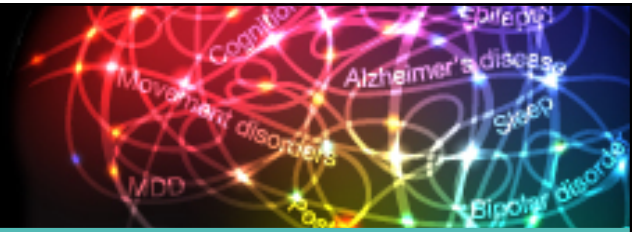
- Guillain – Barre Syndrome (GBS) and others
 - 21 countries and territories have reported increased incidence of GBS as well as myelitis and meningoencephalitis, ADEM (Recife, Brazil)
 - GBS subtype is variable
- WHO Guideline: Identification and management of Guillain-Barre syndrome in the context of Zika virus, August 22, 2016
- Long-term memory damage?

ADEM = acute disseminated encephalomyelitis.

World Health Organization. http://apps.who.int/iris/bitstream/10665/204474/1/WHO_ZIKV_MOC_16.4_eng.pdf.

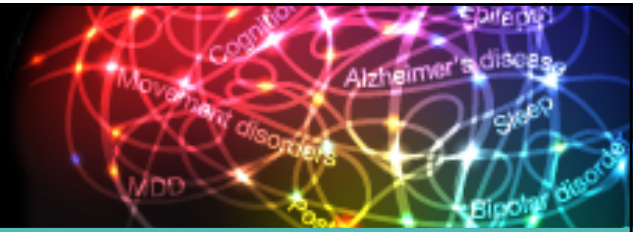
Firger J. <http://www.newsweek.com/zika-virus-affects-adult-brain-stem-cells-491674>

Zika Virus and Sensory Polyneuropathy



- Medina MT, England JD, Lorenzana I, et al. Zika virus associated with sensory polyneuropathy. *Journal of the Neurological Sciences*. 2016;369:271-272.
- Cleto TL, de Araujo LF, Capuano KG, et al. Peripheral neuropathy associated with Zika virus infection. *Pediatric Neurology*. 2016;65:e1-e2.

Diagnostic Tests for Zika



- Virus detection by RT-PCR
 - Blood @ one week after symptoms
 - Urine @ 3 weeks
 - Semen @ several months

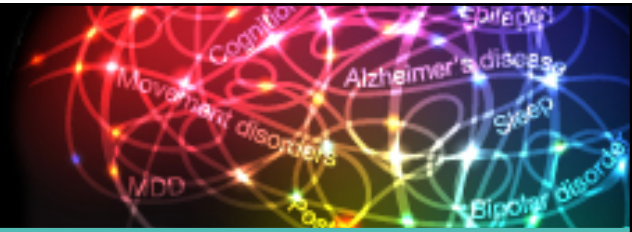
Centers for Disease Control. <https://www.cdc.gov/zika/hc-providers/types-of-tests.html>

Diagnostic Tests for Zika (cont'd)



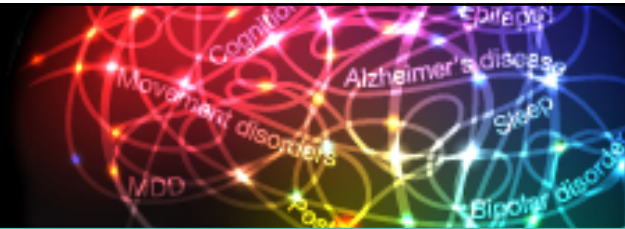
- Antibody testing
 - IgM as early as 3 days (lasts @ 3 months)
 - IgG from 10 days onward (lasts months to years)
 - Problems with cross reactivity to Dengue; therefore, confirmation by Neutralization Assay necessary
 - Need better validated assays and kits available at point-of-service

Needs to Combat Zika



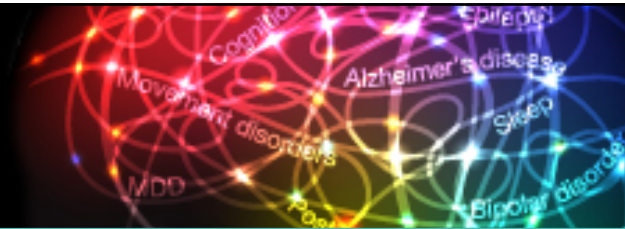
- Resources: Financial and health care systems (neurological)
- Surveillance
- Vector (mosquito) control
- Public and health care provider education
- Research
 - Diagnostic tests
 - Vaccine
 - Therapeutics

Helpful Links



- World Health Organization (WHO) www.who.int/
- Pan American Health Organization (PAHO) www.paho.org
- World Federation of Neurology (WFN)
www.wfneurology.org
- Centers for Disease Control and Prevention (CDC)
www.cdc.gov
 - <https://wwwnc.cdc.gov/travel/page/zika-information>
- Neurovirus Emerging in the Americas Study (NEAS)
www.neasstudy.org/en/home/

Call to Action



- Be aware of the potential spread of Zika virus, potential complications, and proposed prevention and management approaches.

Questions & Answers



Don't forget to fill out your evaluations to collect your credit.

