

Zika Virus Transmission, Epidemiology and Testing

Satellite Conference and Live Webcast
Tuesday, August 29, 2017
1:00 – 3:00 p.m. Central Time

Produced by the Alabama Department of Public Health
Distance Learning and Telehealth Division

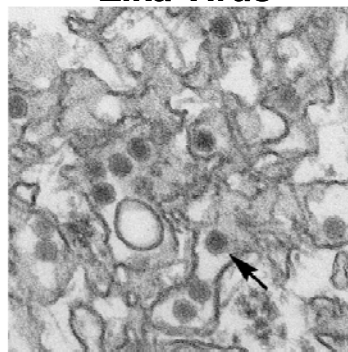
Faculty

Scott Harris, MD
Assistant State Health Officer
Public Health Area 2
Alabama Department of Public Health

Zika Virus

- Single stranded RNA Virus
- Genus *Flavivirus*, Family *Flaviviridae*
- Closely related to dengue, yellow fever, Japanese encephalitis and West Nile viruses

Zika Virus



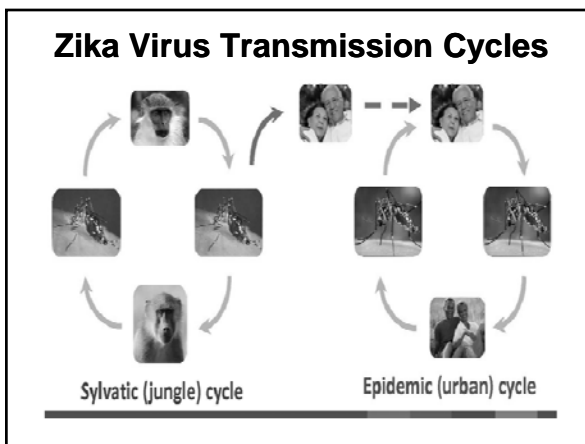
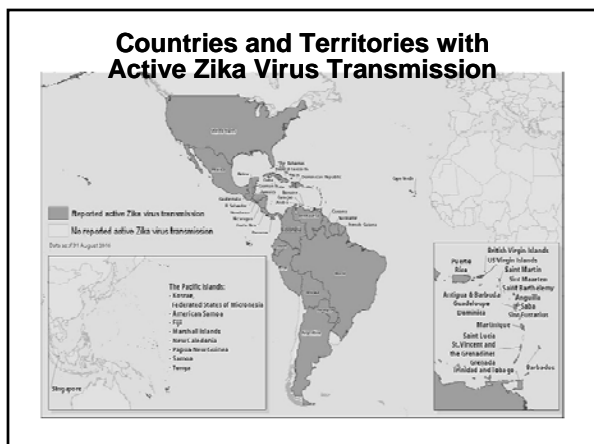
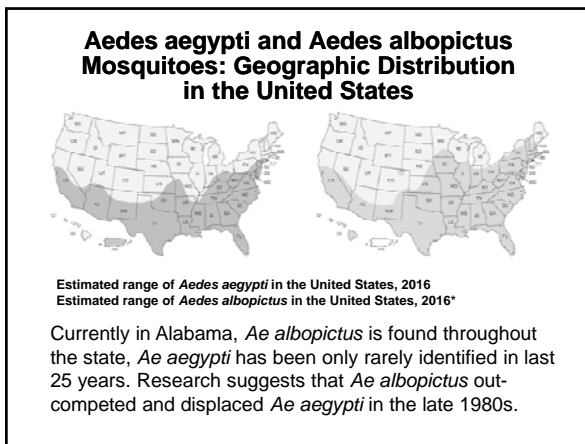
Zika Virus Vectors: Aedes Mosquitoes

- *Aedes* species mosquitoes
 - *Ae aegypti* more efficient vectors for humans
 - *Ae albopictus*



Zika Virus Vectors: Aedes Mosquitoes

- These mosquitoes can transmit dengue and chikungunya viruses
- Species lays eggs in domestic water - holding containers
- Typically live in and around households
- Known to be aggressive daytime biters, but can also bite at night



Other Modes of Transmission

- Maternal-fetal
 - Intrauterine
 - Perinatal
- Sexual
- Blood product transfusion
- Laboratory exposure
- Theoretical
 - Organ or tissue transplantation
 - Breast milk
- Utah case??

Zika Virus Epidemiology

- First isolated from a monkey in Uganda in 1947
- Prior to 2007, only sporadic human disease cases reported from Africa and southeast Asia
 - At least 14 cases of human Zika virus disease had been documented, although other cases were likely to have occurred and were not reported

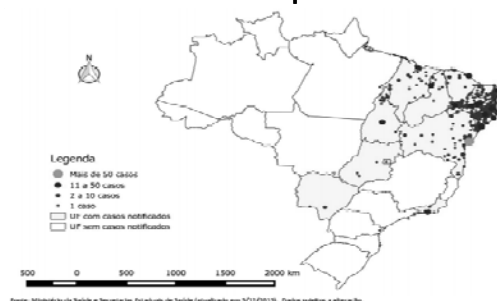
Zika Virus Epidemiology

- Most likely other cases were not identified because the symptoms of Zika are similar to many other diseases
- In 2007, first outbreak reported on Yap Island, Federated States of Micronesia
- In 2013-2014, > 28,000 suspected cases reported from French Polynesia*

*<http://ecdc.europa.eu/en/publications/Publications/Zika-virus-French-Polynesia-rapid-risk-assessment.pdf>

Zika Virus Outbreaks in the Americas

- In May 2015, the first locally-acquired cases in the Americas were reported in Brazil



Zika Virus in the Continental United States

- From January 1, 2015 - August 9, 2017, U.S. states have reported to CDC a total of 5,140 travel-associated and 224 locally-acquired cases
 - At least 2,086 pregnant women with evidence of infection
 - 47 cases were sexually transmitted
 - One laboratory transmission
 - Utah case?

Zika Virus in United States Territories

- From January 1, 2015 - August 9, 2017, U.S. territories have reported 147 travel-associated and 36,860 locally-acquired cases (most of these are in Puerto Rico)
 - There are 4,341 pregnant women with evidence of infection

Zika Virus and Pregnancy Outcomes in Continental United States

- As of July 25, 2017, U.S. states have reported
 - 1,784 completed pregnancies in women with Zika virus infection
 - 91 liveborn infants with birth defects
 - 8 pregnancy losses with birth defects

Zika Virus in Alabama

- 40 confirmed Zika infections in travelers
- 4 additional flavivirus infections in travelers, presumed to be Zika infections



Zika Virus in Alabama

- 466 requests for testing
- 310 females approved for testing
- 197 pregnant females approved for testing
- 5 pregnant women who have tested positive for Zika or flavivirus

Zika Virus Clinical Disease Course and Outcomes

- Clinical illness is usually mild
- Symptoms last several days to a week
- Severe disease requiring hospitalization is uncommon
 - 4 out 5 people are asymptomatic
- Fatalities are rare



Zika Virus Clinical Disease Course and Outcomes

- Guillain - Barré syndrome has been reported in patients following suspected Zika virus infection
 - The relationship to Zika virus infection is not known
 - This illness is often associated with other infections

Distinguishing Zika from Dengue and Chikungunya

- Dengue and chikungunya viruses are transmitted by the same mosquitoes with similar ecology
- Dengue and chikungunya can circulate in the same area and rarely cause co-infections
- The diseases have similar clinical features

Initial Assessment and Treatment

- There is no specific antiviral therapy for Zika
- Current treatment is supportive (i.e., rest, fluids, analgesics, antipyretics)
- Suspected Zika virus infections should be evaluated and managed for possible dengue or chikungunya virus infections

Zika Virus Preventive Measures

- There is no medication to prevent infection or disease; Phase 2 vaccine trials are underway
- The primary prevention measure is to reduce mosquito exposure
- Pregnant women should consider postponing travel to areas with ongoing Zika virus outbreaks

Zika Virus Preventive Measures

- Infected people should be protected from mosquito exposure during first three weeks of illness to prevent further transmission
- ADPH is performing environmental assessments

CDC Recommendations: Pregnant Women Considering Travel

- Pregnant women in any trimester should consider postponing travel to areas where Zika is present
- Pregnant women who do travel to one of these areas should talk to their health care provider and strictly follow steps to avoid mosquito bites during the trip

Zika Virus and Sexual Transmission

- Sexual transmission of Zika virus has been documented, and is of particular concern during pregnancy
- At least 47 cases of documented sexual transmission have been reported in the U.S.

CDC Recommendations: Pregnant Women Considering Travel

- Pregnant women who have a male partner who has traveled to a Zika - affected area should ask their partner to consistently and correctly use condoms or consider abstaining from insertive sexual activity for the duration of the pregnancy

CDC Recommendations for Couples

- Couples in which a man had confirmed Zika virus infection or clinical illness consistent with Zika virus disease, or who traveled to an area with active Zika virus transmission but did not develop symptoms of Zika virus disease should consider using condoms or abstaining from sex for at least 6 months after onset of illness

Laboratories for Diagnostic Testing

- Both state and commercial labs are offer some types of Zika testing
- Most testing performed at CDC and a few state health departments (including BCL in Montgomery)
- ADPH has online consultation form for testing

Recommendations for Zika Testing

- Testing is recommended for symptomatic, pregnant women with:
 - History of travel to an area with Zika virus transmission during pregnancy, AND
 - Presence of 1 or more of the following symptoms (acute onset of fever, maculopapular rash, arthralgia, or conjunctivitis) during travel or within 2 weeks of travel

Recommendations for Zika Testing

- Testing may be considered for pregnant asymptomatic women without ongoing exposure to Zika virus
- Decided on case-by-case basis, in consultation with medical provider, based on patient preferences and values, clinical judgement and assessment of risks and expected outcomes

Recommendations for Zika Testing

- Testing for pregnant asymptomatic women with ongoing exposure to Zika virus
 - First test at initiation of prenatal care
 - Test 3 times over the course of the pregnancy