



# Zika Virus

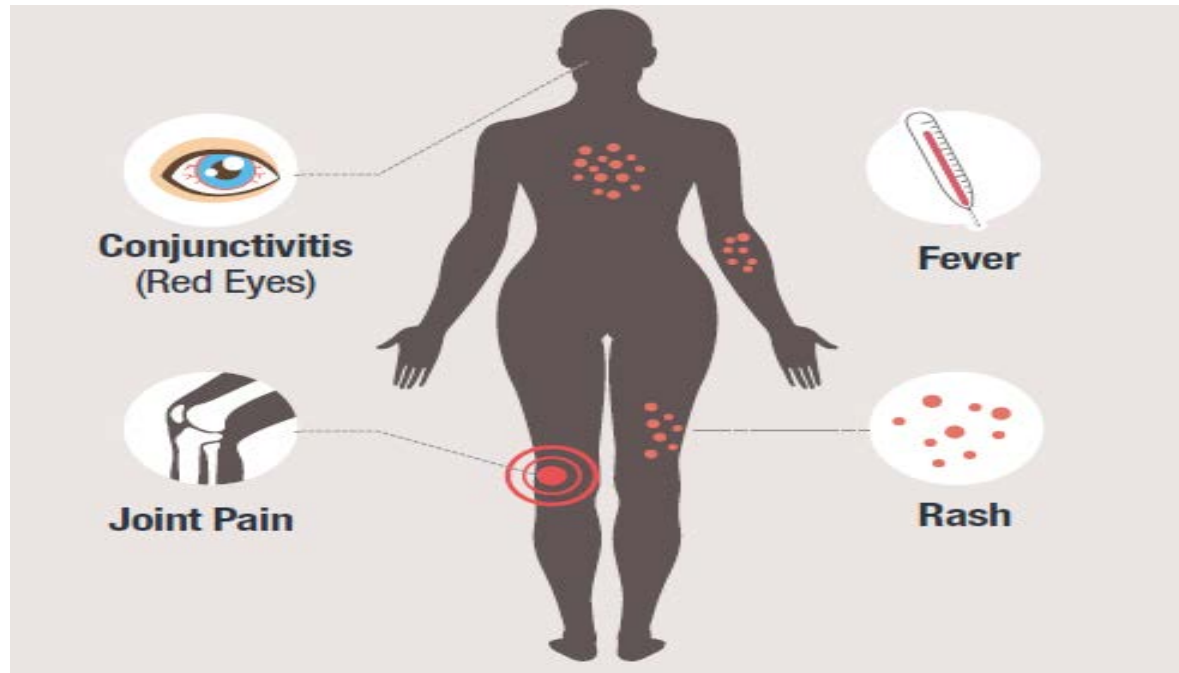
Roane County Department Head Retreat

# Background

- **1947- Virus first identified in Rhesus monkeys in the Zika forest of Uganda, Africa**
- **1952- First human case of Zika reported**
- **Outbreaks recorded in Africa, and recently Southeast Asia, and the Pacific Islands**
- **Spread to Mexico, Central, and South America - with notable outbreak in Brazil in spring of 2015**

# Symptoms

- Most people infected are unaware- no symptoms, so won't be tested or diagnosed. Symptoms may begin 3-7 days after mosquito bite; include low grade fever, rash, red eyes, and/or joint pain



# Microcephaly & Zika

- Brazil outbreak led to reports of pregnant women delivering stillborns, and babies with other severe birth defects like blindness and microcephaly
- Microcephaly incidence baseline in Brazil: **150-200** cases/ year, 2010-2014
- Up to **1,248** suspected cases during Zika virus outbreak of 2015
- Microcephaly is devastating diagnosis- resulting in serious lifetime health challenges- seizures, hyperactivity, coordination problems, speech impairment and other neurological problems preventing normal development maturity



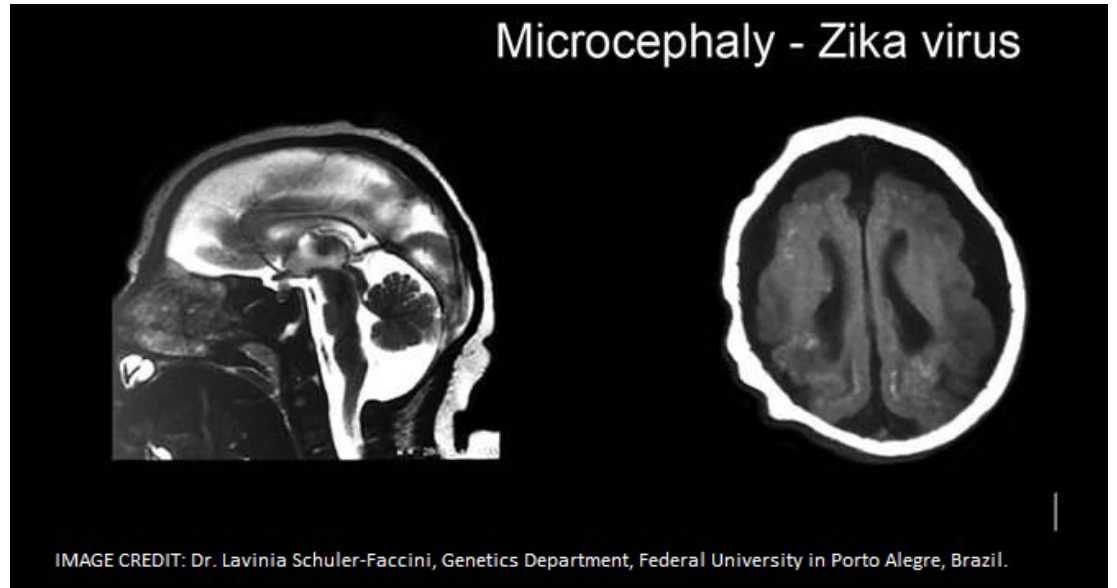
Baby with Typical Head Size

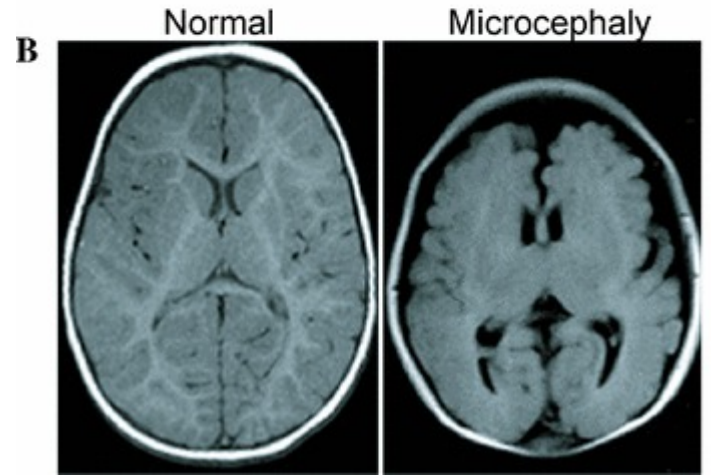
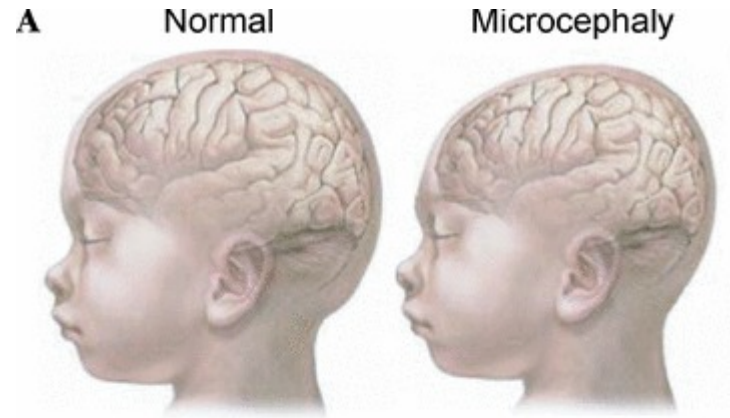


Baby with Microcephaly



Baby with Severe Microcephaly





# Microcephaly and Its Consequences

- Seizures and developmental delay of milestones like sitting, standing, and walking
- Problems with movement and balance
- Feeding problems, such as difficulty swallowing- must be fed
- Hearing loss
- Blindness or other severe visual impairment
- Severe intellectual disability-decreased ability to learn and provide independent self care into adulthood- likely requiring long term complete care

# Guillain-Barre Syndrome & Zika

- Autoimmune illness in which a person's own immune system attacks nerve cells, resulting in muscle weakness and sometimes paralysis
- Previously associated with other viral illnesses like Swine Flu
- Primarily affects arms, legs, and muscles that control swallowing and eye movements. Breathing is affected in most serious cases, requiring ventilator assistance
- Most people recover, but some have permanent damage; 1 in 20 cases die



# Treatment

- **No treatment available**
- **Supportive care only**
  - Rest
  - Fluids to prevent dehydration
  - Acetaminophen to relieve fever and pain (aspirin and NSAIDS not recommended due to potential for bleeding diathesis if patient actually has Dengue instead of Zika)
  - No way to *prevent* development of microcephaly or other birth defects once mother has contracted virus

# Zika in the U.S.

As of 5/18/16:

- **Travel-associated Zika virus disease cases reported: 544**
- **157 were diagnosed in pregnant women with a personal history of travel to endemic area.**
- **10 Zika Virus Disease cases have been sexually transmitted.**
- **There is 1 case of Guillain-Barré**
- **Locally acquired vector-borne cases reported: 0**
- **In Tennessee, there have been 3 travel related cases.**

# Zika in the U.S. Territories

As of 5/18/16:

- A total of 836 cases have been reported.
- Travel-associated Zika virus disease cases reported: 4
- 122 were diagnosed in pregnant women
- 5 cases of Guillain-Barré
- **Locally acquired vector-borne cases reported: 832**
- These territories include American Samoa, Puerto Rico and the US Virgin Islands

# Transmission

- Primarily spread through the bite of an infected *Aedes aegypti* or *Aedes albopictus* mosquito
  - Both present in U.S. and bite *mostly during the day time*
  - Same mosquitoes that transmit Dengue and Chikungunya

*Aedes aegypti*



*Aedes albopictus*



These mosquitoes can be identified by the white stripes on their black bodies and legs. They are aggressive daytime biters, with peak feeding activity at dawn and dusk.

# Secondary Transmission

- **Mother to child**
  - A pregnant woman who contracts the virus from a mosquito bite or through sex with infected male can pass the virus to her fetus *anytime during pregnancy*
  - No reports of transmission through breast milk
- **Sexual contact**
  - Can be spread by a man to his sex partners through semen
  - Virus can be transmitted before, during, or after presence of symptoms and is present in semen longer than in blood
- **Blood transfusion**
  - Multiple reports of blood transfusion transmission cases in Brazil that are currently being investigated
  - No reports of blood transfusion transmission in US but probably a matter of time...

# Prevention

- **No vaccine**
- **Avoid mosquito bites when traveling to endemic areas**
- **Avoid sexual transmission to pregnant woman by abstinence for duration of pregnancy or consistent condom use**
- **Infected persons should stay indoors during first three weeks of illness, specifically avoid mosquitoes**

# Prevention



**The best method of preventing Zika virus infection is avoiding mosquito bites!**

- Stay inside with air conditioning or use screens on all windows and doors.
- Sleep under a mosquito net
- Wear long-sleeved shirts and pants, use insect repellents consistently.
  - containing DEET, picaridin, IR3535, and oil of lemon, eucalyptus and para-methane-diol products

# Recommendations for **Pregnant** Women

- Postpone travel to Zika endemic areas until after pregnancy
- If travel is unavoidable, follow all mosquito bite-prevention recommendations strictly
- Undergo testing for Zika virus infection upon return to US in accordance with CDC guidelines
- Use condoms for duration of pregnancy or abstain with partners who have traveled to endemic area and not tested or tested positive



# Public Health Response

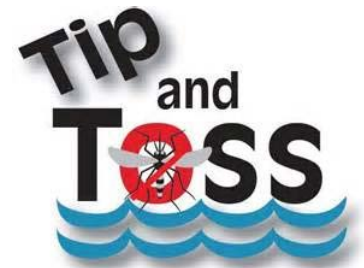
- Travel alerts recommending deferred travel to endemic countries for pregnant women
- Enhanced mosquito avoidance for *all travelers* to Zika endemic countries
- Enhanced surveillance for Zika by testing of symptomatic suspect cases and asymptomatic pregnant women with a compatible travel history
- Enhanced surveillance for infants born with microcephaly

# Public Health Response Continued

- **Education of public on transmission methods and prevention of mosquito bites**
- **Work with primary care and OB healthcare providers to facilitate appropriate testing of suspect cases and support OB providers in intensive monitoring of pregnant patients with confirmed testing**
- **Promote Zika testing of appropriate patients which will increase our understanding of how Zika is spreading and its mechanism of injury to the developing fetus**

# What Can You Do?

- Protect pregnant women and those who plan to attempt to become pregnant.
- **FIGHT THE BITE**-Follow precautions regarding reducing exposure to mosquitoes and use insect repellent.
- **Tip-N-Toss or Drain and Cover**-Eliminate areas of standing water around your homes to rid mosquitoes of their breeding grounds. Remember-a bottlecap full of water is enough for mosquitoes to breed.



# Conclusion

- **Zika and its challenges are a real time example of emerging infectious disease threats to public health associated with planet warming and the resultant northward migration of insect vectors of disease beyond their historic boundaries.**
- **TDH: <https://www.tn.gov/health/topic/zika-virus>**
- **CDC: <http://www.cdc.gov/zika/index.html>**



**I WISH NOAH  
HAD SWATTED  
THOSE TWO  
MOSQUITOES**

**TN**

**QUESTIONS?**

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