



**ARKANSAS DEPARTMENT OF HEALTH**

# **Zika Virus**

## **and how Arkansas is preparing**

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## What is Zika?

- Zika is a virus (related to dengue virus) that is spread through *Aedes* species mosquito bites.
- *Aedes* mosquitoes also spread dengue, yellow fever, and chikungunya viruses.
- Zika infection is a risk to anyone traveling to regions of world where Zika virus transmission is ongoing.
- **Zika infection is a particular concern to pregnant women because of the association with birth defects.**



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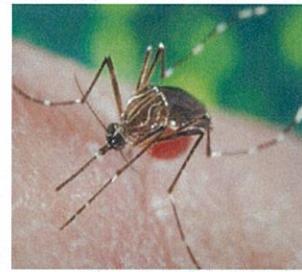
## Zika Virus History

- First isolated from a monkey in Uganda in 1947
- Prior to 2007, only sporadic human disease cases reported from Africa and southeast Asia
- In 2007, first outbreak reported on Yap Island, Federated States of Micronesia
- In 2013–2014, >28,000 suspected cases reported from French Polynesia
- In May 2015, Brazil reported the first outbreak of Zika virus in the Americas

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## **Aedes Mosquitoes**

- *Aedes aegypti* more efficient vectors for humans, only bite people
- *Aedes albopictus* bite people plus other animals
- Both can transmit dengue and chikungunya viruses as well
- Lay eggs in water-holding containers around homes
- Live in and around households - urban mosquito
- Aggressive daytime biters, also bite at night



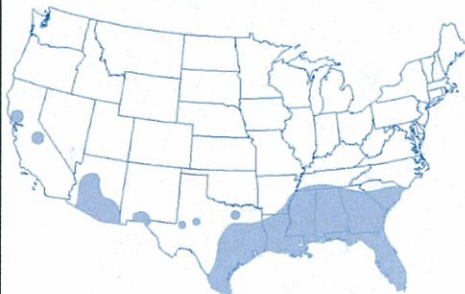
*Aedes aegypti*



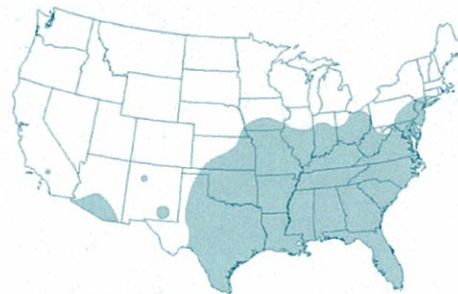
*Aedes albopictus*

## ***Aedes aegypti* and *Aedes albopictus***

### **Geographic Distribution in the US**



*Aedes aegypti*



*Aedes albopictus*

## Other Modes of Transmission

- Maternal-fetal
  - Intrauterine
  - Perinatal
- Other
  - Sexual
  - Blood transfusion
  - Laboratory exposure
- Theoretical
  - Organ or tissue transplantation
  - Breast milk

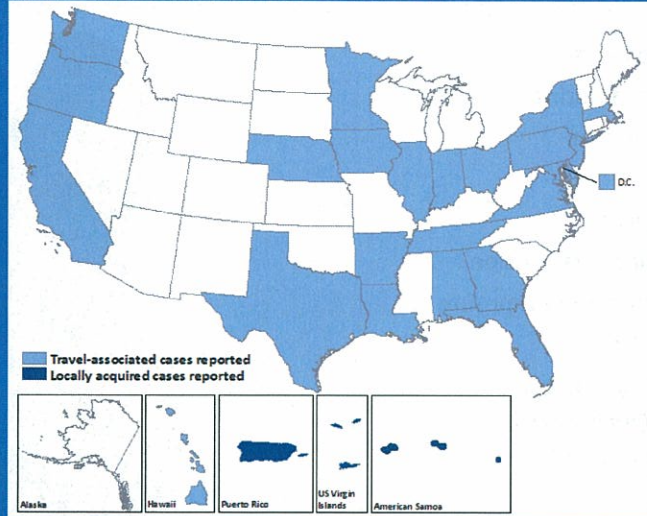


## Areas of Active Zika Transmission



<http://www.cdc.gov/zika/index.html>

# Zika in the US



<http://www.cdc.gov/zika/geo/united-states.html>

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## Zika US Update

### US States

- Travel-associated Zika virus disease cases reported: 107
- Locally acquired vector-borne cases: 0

### US Territories

- Travel-associated cases reported: 1
- Locally acquired cases reported: 39

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## Symptoms

- Only about 1 in 5 people infected with Zika virus become ill (similar to WNV).
- Most common symptoms are fever, rash, joint pain, or conjunctivitis (red eyes). Other common symptoms include muscle pain and headache.
- Illness is usually mild with symptoms lasting for several days to a week.
- Severe disease requiring hospitalization is uncommon.
- Deaths are rare.
- **Guillain-Barré syndrome (GBS), which can cause paralysis, has rarely been associated with Zika infection.**

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## Diagnostic Testing for Zika Virus

- No commercially available tests
- **Reverse transcriptase-polymerase chain reaction (RT-PCR)** for viral RNA in serum collected  $\leq 7$  days after illness onset
  - Available at ADH lab as of 2/5/16
- **Serology** for IgM and neutralizing antibodies in serum collected  $\geq 4$  days after illness onset
  - Available at CDC. Will be available at ADH soon
- **Plaque reduction neutralization test (PRNT)** for  $\geq 4$ -fold rise in virus-specific neutralizing antibodies in paired sera
  - Only available at CDC
- **Immunohistochemical (IHC)** staining for viral antigens or RT-PCR on fixed tissues
  - CDC only

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# Treatment

- No vaccine or medications are available to prevent or treat Zika infections.
- Treat the **symptoms**:
  - Get plenty of rest
  - Drink fluids to prevent dehydration
  - Take medicines such as acetaminophen to relieve fever and pain
  - Aspirin and other non-steroidal anti-inflammatory drugs (NSAIDs), like ibuprofen and naproxen, should be avoided until dengue can be ruled out to reduce the risk of hemorrhage.



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# PROTECT YOURSELF from MOSQUITO BITES

Mosquitoes spread chikungunya, dengue, and Zika viruses.



Mosquitoes that spread chikungunya, dengue, and Zika are aggressive daytime biters.



#### Use insect repellent.

Look for the following active ingredients:

- DEET
- PICARIDIN
- IR3535
- OIL of LEMON EUCALYPTUS
- PARA-MENTHANE-DIOL



Wear long-sleeved shirts and long pants or use insect repellent. For extra protection, treat clothing with permethrin.



U.S. Department of Health and Human Services  
Centers for Disease Control and Prevention

For more information:

[www.cdc.gov/chikungunya](http://www.cdc.gov/chikungunya) • [www.cdc.gov/dengue](http://www.cdc.gov/dengue) • [www.cdc.gov/zika](http://www.cdc.gov/zika)

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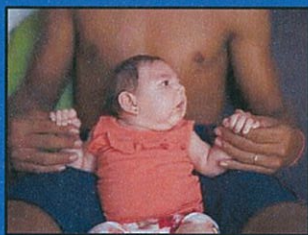


## Protect Others

- Travelers to areas where Zika is present should avoid mosquitoes while abroad and for the first 10 days after they return home whether they have symptoms of illness or not.
  - During the first week of infection, Zika virus can be found in the blood and passed from an infected person to another mosquito through mosquito bites.
  - An infected mosquito can then spread the virus to other people.

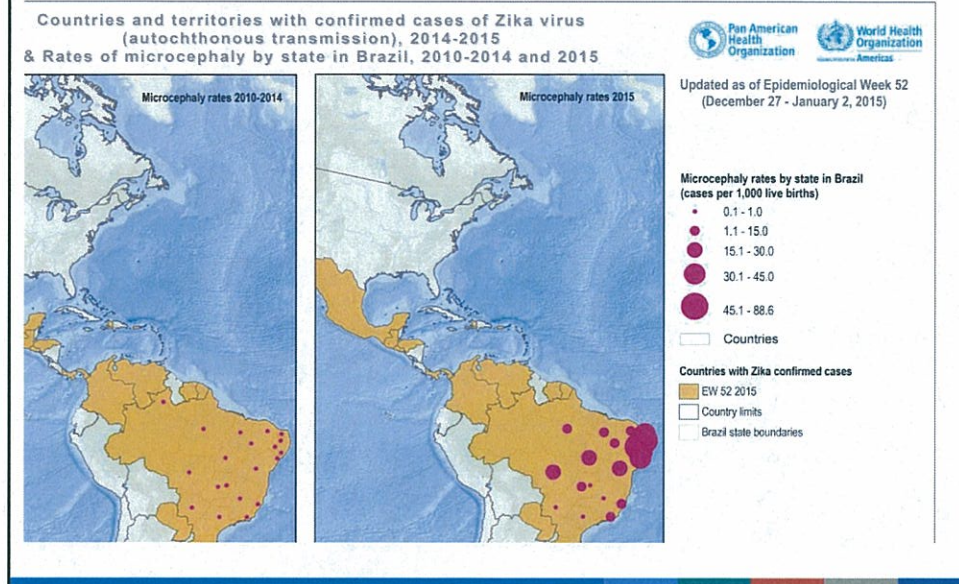
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## Microcephaly



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## Rates of Microcephaly Over Time



## Current Strategy for Case Identification

- Test travelers returning from Zika endemic areas with acute onset of fever, maculopapular rash, arthralgia, or conjunctivitis within 2 weeks after return
- Offer testing to women who traveled to areas with Zika virus transmission while they were pregnant
- Evaluate fetuses/infants of women who traveled to Zika endemic areas during pregnancy for possible congenital infection and microcephaly
- Consider possible local transmission in areas where *Aedes* species mosquitoes are active

## Zika: What We Know

- Zika is primarily transmitted through mosquito bites.
- It can be spread through sexual contact.
- It might be spread through blood transfusion.
- Most people who get it do not have symptoms (80%).
- Zika virus can be spread from a pregnant woman to her fetus.
- There have been reports of a serious birth defect of the brain called microcephaly in babies of mothers who had Zika virus while pregnant.
- There is no vaccine or treatment.

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## Zika: What We Don't Know

- If there's a safe time during your pregnancy to travel to an area with Zika.
- If you do travel and you are bitten, how likely you are to get Zika.
- If you are infected with Zika, how likely it is that your baby will have birth defects from the infection.
- And a lot more...

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## Recommendations

- If pregnant, or planning to become pregnant, do not travel to areas affected by Zika virus.
- If you travel to affected areas, protect yourself from mosquito bites.
- Practice mosquito control at home in Arkansas, whether you have traveled or not (we still have other diseases carried by mosquitoes, like WNV and EEE).

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## ADH Preparation

- Mosquito Surveillance
- Communicating with healthcare professionals
- Evaluating those with possible Zika and reporting cases to CDC (1 confirmed)
- Communications Plan and ongoing communications with a variety of audiences
- Activation of EOC to Level 3: Increased Preparedness

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# Mosquito Surveillance

