



# General Information





## OBJECTIVES

- Describe the Zika virus disease and its origins
- State the recommendations for pregnant women and others to prevent possible Zika virus exposure
- Articulate the importance of early recognition and of pregnant women seeking care and testing
- Describe the ways Zika virus disease can be prevented
  - ✓ Personal protective actions
  - ✓ Vector control actions
- Discuss the Zika Pregnancy Registry



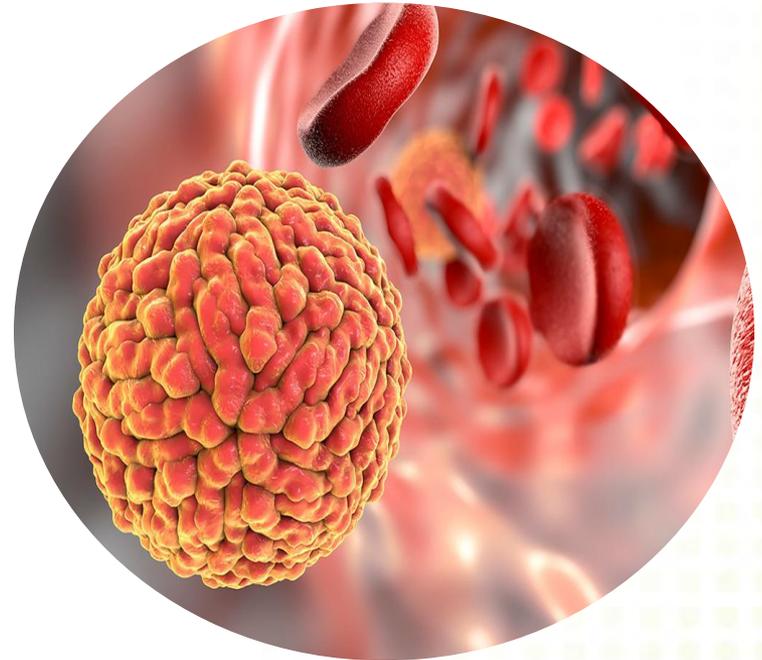


# ZIKA VIRUS



## What is Zika Virus?

- A member of the virus family *Flaviviridae* and the genus *Flavivirus*, transmitted to humans primarily by *Aedes* mosquitoes, such as *A. aegypti* and *A. albopictus*
- Closely related to dengue, yellow fever, Japanese encephalitis and West Nile viruses



## Zika Virus Vectors: *Aedes* Mosquitoes



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

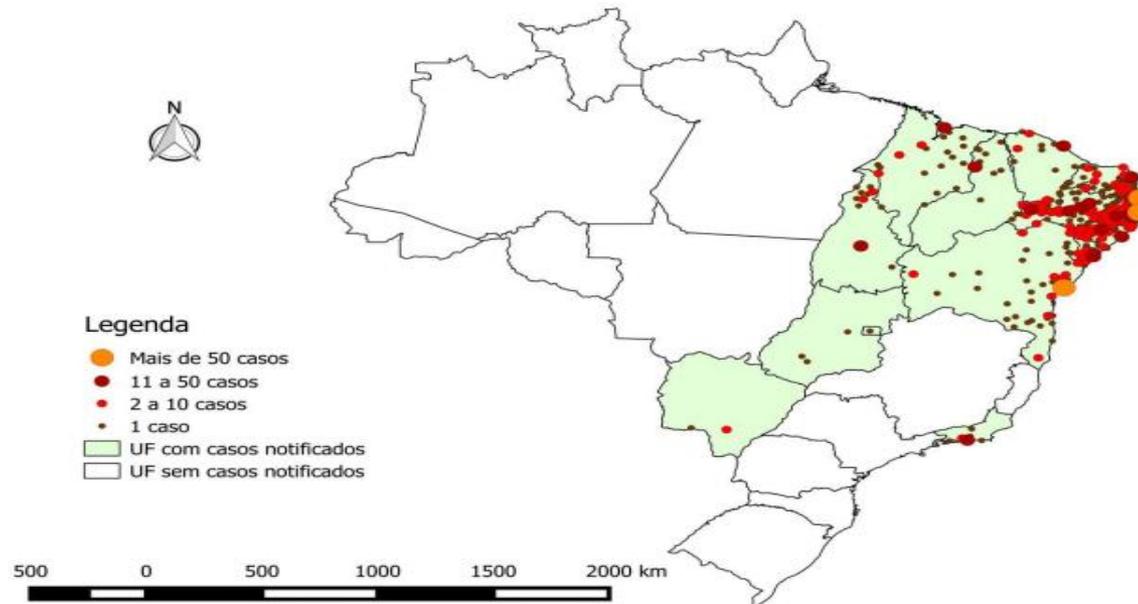


## *Aedes aegypti* and *Aedes albopictus* Mosquitoes: Distribution in the U.S.

- *Aedes* species mosquitoes: *Aedes aegypti* (Yellow Fever mosquito) and *Aedes albopictus* (Asian Tiger mosquito)
- Currently in Alabama, *Aedes albopictus* is found throughout the state, *Aedes aegypti* has not been identified in more than 25 years
- Research suggests that *Aedes albopictus* out-competed and displaced *Aedes aegypti* in the late 1980s

## Zika Virus Outbreaks in the Americas

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



Fonte: Ministério da Saúde e Secretarias Estaduais de Saúde (atualizado em 5/12/2015). Dados sujeitos a alteração.



## Zika Virus in the Outbreaks in the Americas

- Currently, outbreaks are occurring in many countries or territories in the Americas, including the Commonwealth of Puerto Rico and the U.S. Virgin Islands.
- Local transmission in the continental United States was reported on June 29, 2016 in Florida and on November 28, 2016 in Texas.
- As of September 20, 2017, Florida has reported 53 cases of laboratory-confirmed symptomatic Zika virus disease and 3 presumptive viremic blood donors.\*

\*Not cumulative representation, count reflects 2017 cases alone.





# Countries and Territories with Active Zika Virus Transmission





## Other Modes of Transmission for Zika Virus

- Maternal-fetal
  - Intrauterine (inside the womb)
  - Perinatal (just before or after birth)
  
- Other
  - Sexual
  - Blood transfusion
  - Health care and laboratory exposure
  
- Theoretical
  - Organ or tissue transplantation
  - Breast milk





## Zika Virus in the Continental United States

- As of September 20, 2017, U.S. states and Washington, D.C. have reported a total of 5,505 cases.
  - ✓ 5,230 travel-associated cases
    - (48 cases of sexual transmission)
    - (28 case of congenital infection)
    - (225 cases acquired through presumed local mosquito-borne transmission)
    - (1 laboratory-acquired case)
    - (1 person-to-person through an unknown route)
- U.S. territories have reported a total of 147 travel-related cases and 36,916 cases through presumed local mosquito-borne transmission.
- As of September 20, 2017, 2,197 cases in pregnant women in U.S. and 4,504 cases through presumed local mosquito-borne transmission in pregnant women in U.S. territories.

•On August 4, 2016, the Governor of Florida announced that the Florida Department of Public Health announced that 16 people in the state had been infected with locally transmitted Zika virus.





## Reported Clinical Symptoms Among Confirmed Zika Virus Disease Cases

Symptoms	Percent of Incidence
Rash	90%
Fever	65%
Joint Pain	65%
Conjunctivitis (Pink Eye)	55%
Muscular Pain	48%
Headache	45%
Eye Pain	39%
Edema (Swollen Body Parts)	19%
Vomiting	10%

Duffy M. N Engl J Med 2009  
Yap Island, 2007





## Zika Virus Illness

- Clinical illness is usually mild.
- Symptoms last several days to a week.
- Severe disease requiring hospitalization is uncommon – 4 out of 5 people do not even realize they have the disease.
- Deaths are rare.
- Guillain-Barré syndrome, a condition that causes muscle weakness and in some cases complete paralysis, has been reported in patients following suspected Zika virus infection. (As of September 13, 2017, 98 cases of liveborn infants with birth defects and 8 pregnancy losses with birth defects have been reported to the US Zika Pregnancy Registry.)





## Zika Virus Testing

### Who should be tested?

- All pregnant women with a history of travel to a Zika affected area during their pregnancy or pregnant women who had sexual contact with persons who have traveled or lived in Zika affected areas
  - ✓ Includes Wynwood area in FL if traveled on or after June 15, 2016
  - ✓ North or South Miami Beach area any time after July 14, 2016
  - ✓ Miami-Dade County after August 1, 2016; Little River after August 1, 2016
  - ✓ Brownsville, TX on or after October 29, 2016
  
- All persons with symptoms who traveled to any Zika affected area who present for testing within the recommended time frame.
  - ✓ Must present to their physician for testing within 12 weeks of symptom onset.
  - ✓ Exceptions for pregnant women on a case-by-case basis



## Initial Assessment and Treatment

- There is no specific treatment for Zika.
- Current treatment is supportive (i.e., rest, fluids, pain medication, fever reducers).
- Suspected Zika virus infections should be evaluated and managed for possible dengue or chikungunya virus infections.
- Aspirin and other nonsteroidal anti-inflammatory medicines like ibuprofen or naproxen should be avoided until dengue can be ruled out to reduce the risk of hemorrhaging/abnormal bleeding.





## Authorization for Zika Testing

- All specimens to be tested for pregnant women **must** be sent to the Bureau of Clinical Laboratories (BCL). Prior to submission, an online consultation form must be submitted.
- **Effective September 9, 2016**, calls for authorization prior to submitting the Zika Consultation Form are only required for testing at birth and for fetal losses. Zika consultation forms should continue to be submitted for all patients for which Zika testing is indicated per CDC's guidance.
- Different diagnostic tests are available to help determine if a person is infected with Zika virus disease. BCL can perform the rRT-PCR and the MAC-ELISA.
- A negative rRT-PCR does not exclude Zika virus testing and must be followed by the MAC-ELISA test for results to be valid and interpretable.





# ZIKA VIRUS AND PREGNANCY



## Zika Virus and Pregnancy

- Existing data show:
  - No evidence that pregnant women are more likely to become infected
  - Infection can occur in any trimester
  - Incidence of Zika virus in this population is not known
  - No evidence of more severe effect of the disease in the woman herself, but this is currently being studied



## Zika Virus and Pregnancy

- Illness onset occurs 2-12 days following the mosquito bite.
- Illness is usually short lived, normally lasting less than one week.
- Infected individuals usually do not require hospitalization or experience serious morbidity.
- Rare deaths have occurred.



## CDC Recommendations: Pregnant Women Considering Travel

- Pregnant women in any trimester should **NOT** travel to areas where Zika is present.
- Pregnant women who must travel to one of these areas should talk to their health care provider and strictly follow steps to avoid mosquito bites during the trip.
- Pregnant women who have a partner who has traveled to a Zika-affected area should ask their partner to consistently and correctly use a barrier method or abstain from insertive (vaginal, anal or oral sex) and sharing of sex toys for the duration of the pregnancy.





## Zika Virus Disease Prevention for Pregnant Women

- Avoid mosquito bites :
  - Use EPA- registered insect repellents
- EPA- registered repellents including DEET are considered safe to use in pregnant and lactating women.
  - Wear long-sleeved shirts and long pants to cover exposed skin.
  - Wear Permethrin-treated clothes.
  - Stay and sleep in screened-in or air-conditioned rooms.
  - Practice mosquito prevention strategies throughout the entire day and night.





# Zika Patient Information Fact Sheet

## ZIKA Patient Information Fact Sheet

Your health care provider has evaluated you and consulted with the Alabama Department of Public Health (ADPH). You are being tested for the mosquito-borne diseases Zika, Dengue, and Chikungunya because of your exposure history.

An exposure history means you have traveled recently to/from another country or an area within the United States with Zika virus transmission and developed symptoms within two weeks of travel, or you are pregnant with a travel history to a Zika-affected country, or you are pregnant and became symptomatic after a partner traveled to a Zika-affected area. Your health care provider will contact you with the results of the test. Please contact your health care provider with any questions you may have.

While waiting for your test results, please protect others by protecting yourself from additional mosquito bites. Please consistently use an EPA-approved insect repellent. Insect repellents containing DEET, IR3535, picaridin, some oil of lemon eucalyptus and para-methane-diol containing products provide long-lasting protection. You are also asked to wear long sleeves and pants to reduce the likelihood of bites.

Aspirin and other nonsteroidal anti-inflammatory medications (NSAIDs) should be avoided until Dengue virus infection can be ruled out. Medications which are NSAIDs are marketed under many product names including Advil, Motrin, Aleve and other generic names. If you have questions about products containing NSAIDs, please consult your pharmacist.

### You are being tested because of the following reason:

- You have an exposure history and are symptomatic (sick); or
- You are pregnant and have recently traveled to a Zika-affected area; or
- You are pregnant and have had unprotected sex with a partner who lives in or traveled to an area with active Zika transmission. (Please begin using barrier methods immediately or abstain from sex for the duration of pregnancy for the protection of your unborn child. The CDC recommends the use of barrier protection such as condoms and dental dams.)

*Note: Zika can be passed through sex, even if the infected person does not have symptoms. Sex includes vaginal, anal, and oral sex, and the sharing of sex toys. Couples with a partner who lives in or has traveled to an area with active Zika transmission should use condoms or other barrier methods to protect against infection. For couples in which the partner has symptoms during or on return from an area with active Zika transmission:*

- *If partner traveling was female, use barrier methods or abstain from sex for at least 8 weeks after returning.*
- *If the partner traveling was male, use barrier methods or abstain from sex for at least 6 months after returning.*
- *If the partner who traveled has a pregnant partner, barrier protection should be used or abstain from sex for the duration of the pregnancy.*

*If a partner travelled (male or female) and never developed symptoms, barrier protection should be used or abstain from sex for at least 8 weeks after returning.*

ADDITIONAL INFORMATION CAN BE FOUND ON THE FOLLOWING WEBSITES:  
The Alabama Department of Public Health (ADPH): [www.adph.org/mosquito](http://www.adph.org/mosquito)

The Centers for Prevention and Control (CDC), Fact Sheets and Posters:  
[www.cdc.gov/zika/fs-posters/index.html](http://www.cdc.gov/zika/fs-posters/index.html)

Zika Patient Information Fact Sheet | Page 15, 2014 | Alabama Department of Public Health



## Information for Clinicians

## Suggested Timeframe to Wait Before Trying to Get Pregnant

Possible exposure via recent travel or sex without a condom with a man infected with Zika		
	Women	Men
Symptoms	Wait at least 8 weeks after symptoms start	Wait at least 6 months after symptoms start
No symptoms	Wait at least 8 weeks after exposure	Wait at least 6 months after exposure Talk with your healthcare provider



## Initial Maternal-Fetal Transmission of Zika Virus Discovery

- Evidence of perinatal transmission (during time of delivery)
  - ✓ Zika outbreak occurred in French Polynesia 2013-2014
    - Two pregnant women with signs and symptoms consistent with Zika infection around the time of delivery.
    - Both mothers tested positive for Zika virus.
    - Zika virus infection was confirmed in the newborns, 1-3 days after delivery.
    - Unlikely that the newborns were exposed to mosquitoes.
    - Outcomes regarding microcephaly were not reported.





## U.S. Zika Pregnancy Registry

- CDC recently established a national registry to learn about the risks of Zika during pregnancy.
- Collaboration with local, state and health care providers to collect clinical information about pregnancy and infant from birth through the first year of life.
- Knowledge gained will assist in responding to the ongoing outbreak.
- Have already learned additional information about the types of birth defects infants can have and about severity of effects.





# ZIKA VIRUS AND SEXUAL TRANSMISSION





## Zika Virus and Sexual Transmission – What We Know

- There is evidence that the Zika virus can be sexually transmitted by both men and women to their sex partners. As of September 20, 48 cases of sexually transmitted Zika virus infection have been confirmed in the U.S.
- The virus can be spread before, during, or after symptoms are present.
- The virus is present in semen longer than in blood.

•Sexually transmitted cases are not reported for areas with local mosquito-borne transmission of Zika virus because it is not possible to determine whether infection occurred due to mosquito-borne or sexual transmission.





## Zika Virus and Sexual Transmission – What We Don't Know

- How long the virus is present in semen in men who have had Zika.
- How long the virus can be spread through sex.
- How often a person with Zika will pass it to sex partners.





## Additional Zika Virus and Sexual Transmission Information

- There are tests to detect Zika virus in semen, but they are not widely available. In addition, most clinicians have limited understanding of how to interpret the results of such tests, so CDC does not recommend testing semen at this time.
- Testing of men without symptoms is not recommended because negative results do not mean that the virus is not present and will not change the current guidance on use of condoms.
- Testing of asymptomatic women who are not pregnant is not recommended.





# ZIKA VIRUS IN INFANTS AND CHILDREN





## What is Microcephaly?

- Clinical finding of a small head when compared to infants of same sex and age.
- Often leads to cognitive and/or neurologic issues.
- Difficult birth defect to monitor because of inconsistent definition and use of terminology.
- In addition to microcephaly, other neurological birth defects have been found including hearing, visual problems, and impaired growth.



## Range of Microcephaly Severity



Baby with Typical Head Size



Baby with Microcephaly



Baby with Severe Microcephaly



•As of August 8, 2017, 93 cases of liveborn infants with birth defects and 8 pregnancy losses with birth defects have been reported to the U.S. Zika Pregnancy Registry. CDC websites accessed on September 20, 2017. <http://www.cdc.gov/zika/geo/pregnancy-outcomes.html>





## Zika Virus Laboratory Testing of Infants

- Recommended for
  - Infants with microcephaly, intracranial calcification and other congenital birth defects caused by Zika virus infection born to women who traveled to or resided in an area with Zika virus transmission while pregnant.
  - Infants born to mothers with positive or inconclusive test results for Zika virus infection.
  - For fetal losses of women with positive or inconclusive tests for Zika virus infection.





## What is Congenital Zika Syndrome?

- Pattern of birth defects found among fetuses and babies infected with Zika virus during pregnancy. Features include:
  - ✓ Severe microcephaly where the skull has partially collapsed
  - ✓ Decreased brain tissue with a specific pattern of brain damage
  - ✓ Damage to the back of the eye
  - ✓ Joints with limited range of motion, such as clubfoot
  - ✓ Too much muscle tone restricting body movement soon after birth
- Not all babies born with congenital Zika infection will have all of these problems
- Some infants may later develop postnatal microcephaly





## Recommended Long-Term Follow-Up of Infants with Possible Congenital Zika Virus Infection

- Zika virus is an arboviral disease and must be reported. This includes suspected and confirmed Zika congenital infection.
- Physicians and other providers required to report by ADPH's notifiable disease rules must report cases/suspected cases to ADPH at 1-800-338-8374 for additional guidance.
- CDC has established the U.S. Zika Pregnancy Registry for follow up of women and infants with Zika virus infection.
- For additional information go to <http://www.cdc.gov/zika/pregnancy/index.html>





# Alabama Zika Action Plan (AZAP)





## Alabama Zika Action Plan Components

Alabama and other states are developing plans to respond to the threat of local transmission of Zika based on the following risk categories:

- Phase 0: Preparation – mosquito vector is present or possibly present in our state
- Phase 1: Mosquito Season – indication of *Aedes* species biting activity in the setting of travel -acquired or sexually - acquired Zika cases in Alabama
- Phase 2: Confirmed Local Transmission – single, locally acquired case or cases in a single household within a two-week period
- Phase 3: Confirmed Multi-Person Local Transmission – Zika infections occurring greater than two weeks apart, but within 1.5km diameter area





# Vector Control in Alabama



## Summary

- Zika virus continues to circulate and cause locally-transmitted disease in the Americas.
- Consider the possibility of Zika virus infection in travelers with acute fever, rash, arthralgia, or conjunctivitis within 2 weeks after return.
- Pregnant women in any trimester should NOT travel to areas of Zika virus transmission.
- Pregnant women who have a partner who has traveled to areas of Zika virus transmission should ask their partner to use condoms consistently and correctly or abstain from sexual activity for the duration of the pregnancy.
- Go to <http://adph.org/mosquito/index.asp?id=7427> for additional information about Zika.





Questions?



## Contact Information

For general information, please call the Alabama Department of Public Health at 1-800-252-1818.

Visit [www.adph.org/mosquito](http://www.adph.org/mosquito) for the most updated information.

