



Zika Virus Overview

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CDC Zika Virus Response

U.S. Centers for Disease Control and Prevention



Zika Virus: Update on a New Teratogen

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

First time in history...

“Never before in history has there been a situation where a bite from a mosquito could result in a devastating malformation.”

– Dr. Tom Frieden, former CDC Director

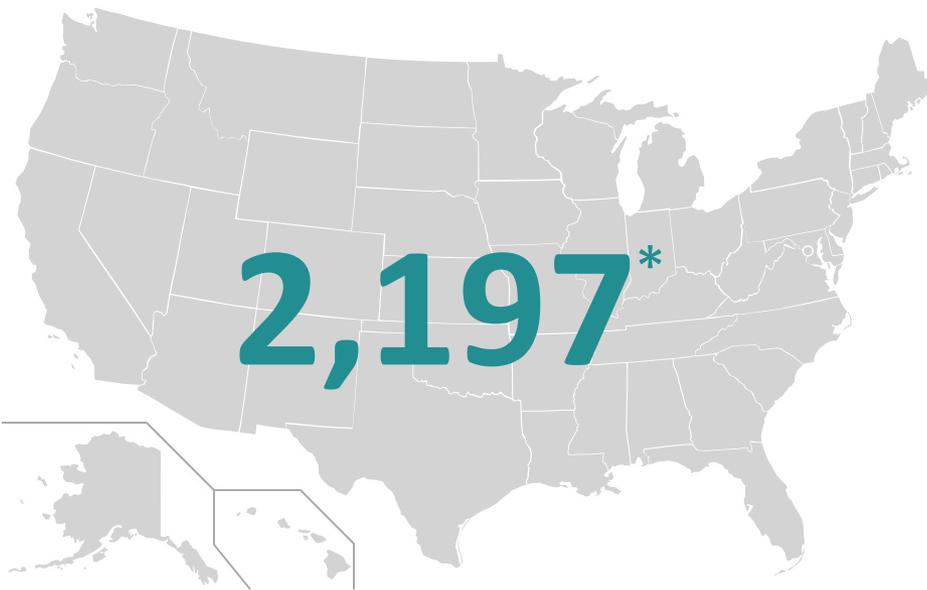
Fortune, April 13, 2016



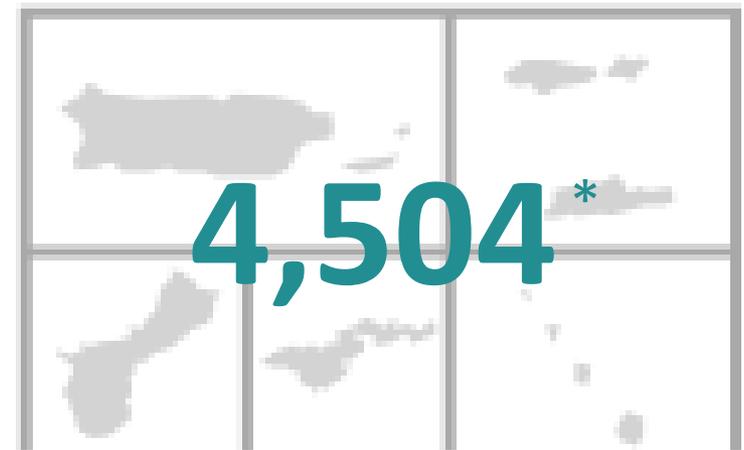
“...the last time an infectious pathogen (rubella virus) caused an epidemic of congenital defects was more than 50 years ago...”

– *New England Journal of Medicine*, April 13, 2016

Pregnant Women with Any Laboratory Evidence of Possible Zika Virus Infection in the United States and Territories



Pregnant women with any laboratory evidence of possible Zika virus infection in the **50 US states and DC**



Pregnant women with any laboratory evidence of possible Zika virus infection in **US territories**

*Includes aggregated data reported to the [US Zika Pregnancy Registry](#) as of September 13, 2017

**Includes aggregated data from the US territories reported to the [US Zika Pregnancy Registry](#) and data from Puerto Rico reported to the [Zika Active Pregnancy Surveillance](#) as of September 13, 2017

Pregnancy Outcomes among US Women* in the US States and DC with Evidence of Zika

- Number of completed pregnancies with or without birth defects: **1,901**
- Of these
 - » **98** live born infants born with a birth defect consistent with congenital Zika infection
 - » **8** pregnancy losses affected by a birth defect consistent with congenital Zika infection

*Outcomes for Completed Pregnancies in the US States and District of Columbia
As of September 13, 2017



Pregnancy Outcomes among US Women* in the US Territories with Evidence of Zika

- Number of completed pregnancies with or without birth defects: **3,338**
- Of these
 - » **138** live born infants born with a birth defect consistent with congenital Zika infection
 - » **8** pregnancy losses affected by a birth defect consistent with congenital Zika infection

*Outcomes for Completed Pregnancies in the US Territories (Includes US Territories and Freely Associated States)

As of September 13, 2017



Zika: The Basics

What is Zika Virus?

- Single-stranded RNA virus
- Flavivirus, closely related to dengue virus
- Primarily transmitted by *Aedes* mosquitoes
- Additional modes of transmission
 - » Intrauterine and perinatal transmission (mother-to-fetus)
 - » Sexual transmission
 - » Laboratory exposure
 - » Probable blood transfusion



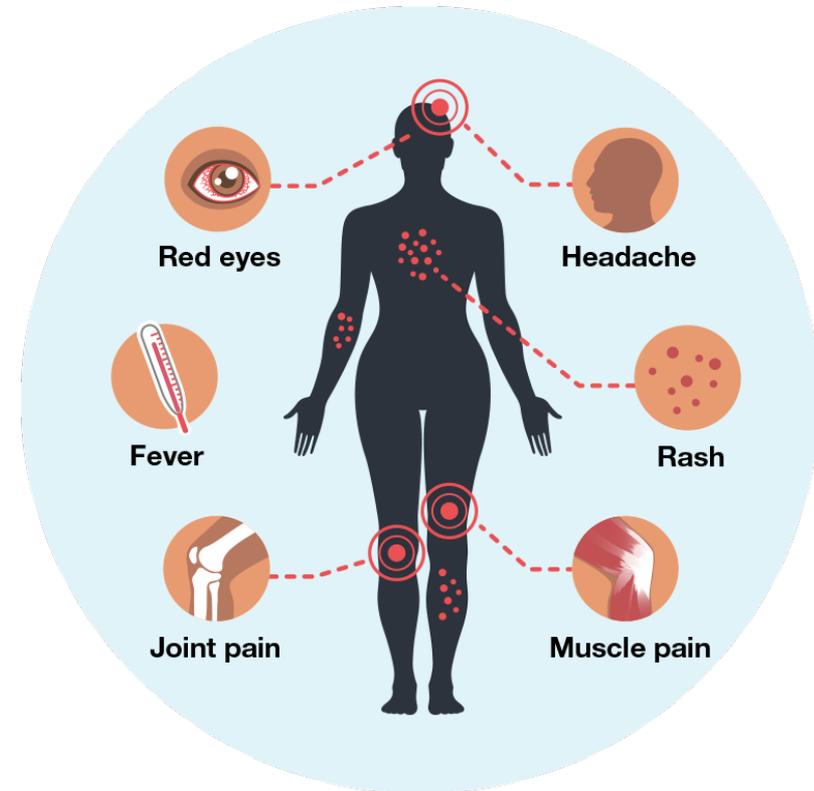
Aedes aegypti mosquito



Aedes albopictus mosquito

Clinical Presentation

- Clinical illness usually mild or asymptomatic
- Most common symptoms
 - » Fever
 - » Rash
 - » Joint pain
 - » Conjunctivitis
 - » Headache
 - » Muscle pain
- Symptoms last several days to a week
- Severe disease uncommon
- Fatalities rare
- Serious implications for Zika virus infection during pregnancy



Clinical Management

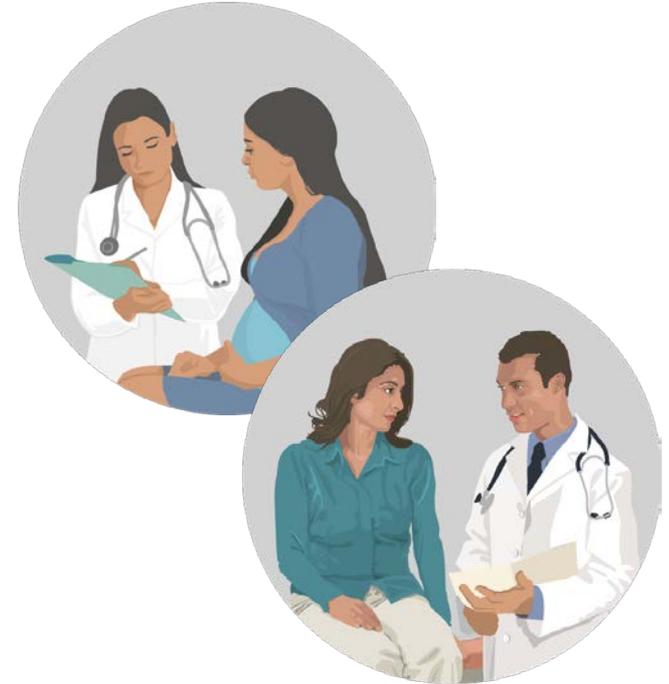
- No vaccine or specific antiviral treatment
- Treat the symptoms
 - » Rest
 - » Drink fluids to prevent dehydration
 - » Take medicine such as acetaminophen to reduce fever and pain
 - » Avoid aspirin and other non-steroidal anti-inflammatory drugs (NSAIDs) until dengue can be ruled out to reduce the risk of bleeding



CDC Zika Prevention Guidance

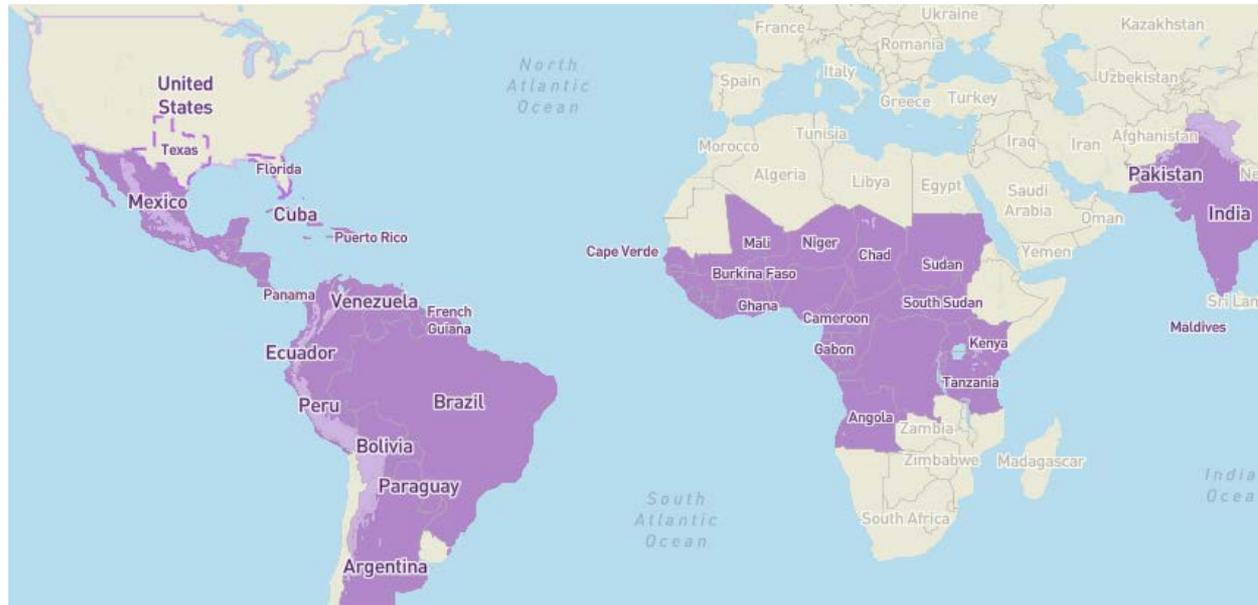
Do Not Travel to Areas with Risk of Zika

- Pregnant women should **not** travel to areas with risk of Zika
- If a pregnant woman *must* travel, she should
 - » Talk with her healthcare provider before she goes
 - » Strictly follow steps to prevent mosquito bites during the trip
 - » Take steps to prevent sexual transmission
 - » Talk with her healthcare provider after she returns, even if she doesn't feel sick



<http://wwwnc.cdc.gov/travel/page/zika-information>

Areas with Risk of Zika



International areas and US territories

- Areas with risk of Zika infection (below 6,500 feet)*
- Areas with low likelihood of Zika infection (above 6,500 feet)*
- Areas with no known risk of Zika infection

US areas

- State reporting Zika
- Zika cautionary (yellow) area
- State previously reporting Zika
- Area previously designated as Zika active transmission (red) area
- Area previously designated as Zika cautionary (yellow) area
- No known Zika

As of September 6, 2017

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

Note: Zika risk is determined according to altitude (height above sea level). Mosquitoes that spread Zika usually do not live at high altitudes (above 6,500 feet or 2,000 meters). The risk of getting Zika from a mosquito at high altitudes is less than at low altitudes.

Prevent Mosquito Bites

If a pregnant woman lives in or travels to an area with risk of Zika, she should

- Wear long-sleeved shirts and long pants
- Stay and sleep in places with air conditioning or that use window and door screens
- Use EPA-registered insect repellents with one of the following active ingredients:
 - » DEET, picaridin, IR3535, oil of lemon eucalyptus, para-menthane-diol, or 2-undecanone
- Once a week, empty and scrub, turn over, cover, or throw out items that hold water, such as trash containers, tires, buckets, toys, planters, flowerpots, birdbaths or pools



Prevent Sexual Transmission of Zika Virus

A pregnant woman whose partner lives in or has traveled to an area with risk of Zika should

- Use condoms correctly every time they have sex, or
- Not have sex

For the duration of the pregnancy, even if the pregnant woman's partner does not have symptoms or feel sick.



Zika, Pregnancy, and Congenital Zika Virus Infection

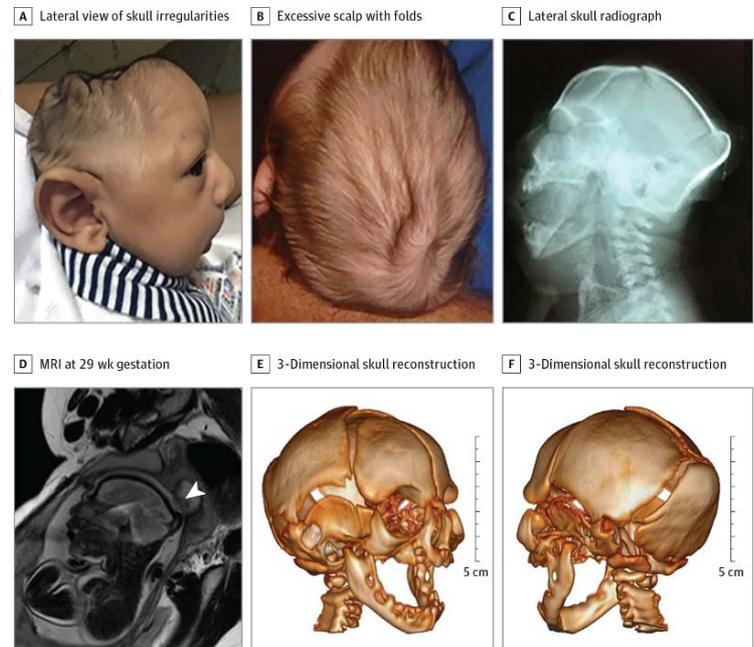
How Can Zika Affect Pregnancies?

- Zika virus can be transmitted from a pregnant woman to her fetus during pregnancy or around time of birth
- Zika during pregnancy can cause brain abnormalities, microcephaly, and congenital Zika syndrome
- Linked to other problems such as miscarriage and stillbirth
- No evidence that past infection will affect future pregnancies once the virus has cleared the body



Congenital Zika Syndrome

- Recognized pattern of congenital anomalies associated with Zika virus infection during pregnancy that includes
 - » Severe microcephaly (small head size) resulting in a partial skull collapse
 - » Intracranial calcifications in the subcortical region
 - » Macular scarring and focal pigmentary retinal mottling
 - » Congenital contractures
 - » Neurologic abnormalities
- Zika virus also linked to
 - » Hearing loss
 - » Limb abnormalities
 - » Impaired growth



Congenital Zika Syndrome – Other Neurologic Sequelae

- Information on long-term medical and developmental outcomes sparse
- Neurologic sequelae reported include
 - » Motor and cognitive disabilities
 - » Epilepsy
 - » Swallowing difficulties
 - » Vision loss and hearing impairment
 - » Hypertonia and spasticity with tremors
 - » Irritability with excessive crying

Congenital Zika Syndrome without Microcephaly at Birth

- Microcephaly from congenital Zika virus infection can occur after birth
- The full spectrum of adverse outcomes caused by Zika virus infection during pregnancy remains unknown

Centers for Disease Control and Prevention
MMWR

Morbidity and Mortality Weekly Report

Early Release / Vol. 65

November 22, 2016

Description of 13 Infants Born During October 2015–January 2016 With
Congenital Zika Virus Infection Without Microcephaly at Birth — Brazil



Head circumference in normal
range at birth
(0.8 SD below the mean)



Microcephaly at age 12 months
(4.3 SD below the mean)

Contribute to the US Zika Pregnancy Registry

- Purpose of Registry

To monitor pregnancy and infant outcomes in pregnancies with laboratory evidence of possible Zika virus infection and to inform clinical guidance and public health response

- More information

- » Available on the [U.S. Zika Pregnancy Registry website](#).
- » To contact CDC Registry staff, email ZIKApregnancy@cdc.gov.



Up-to-Date Information

- Providing updated clinical guidance
 - » Travel, testing, and other recommendations for pregnant women
 - » Published updates to clinical guidance and algorithms for healthcare providers caring for pregnant women and infants
- Responding to your inquiries
 - » Email: ZikaMCH@cdc.gov
- Providers and the general public can also ask questions through CDC-INFO
 - » Call 1-800-CDC-INFO (1-800-232-4636)
 - » Visit www.cdc.gov/cdc-info



Tools for Healthcare Providers

CDC's Response to Zika

KEY ZIKA CONSIDERATIONS FOR HEALTHCARE SETTINGS

Background

Zika is a mosquito-borne disease that is currently spreading throughout many countries and territories, including a small area in the continental United States. CDC recommends that healthcare systems (including urgent care, hospitals, physician offices, etc.) prepare for patients seeking a diagnosis and/or symptom management.

CDC continues to evaluate cases of Zika in the United States and US territories and updates guidance as new information becomes available. For more information, visit CDC's Zika website (www.cdc.gov/zika/index.html).

Purpose

In order to prepare for Zika patients coming to your clinic, hospital, or physicians' offices, healthcare system leaders should ensure the following:

- Healthcare providers** should know the clinical manifestation of Zika virus infection and how to access information about areas with active transmission. Clinicians should be able to assess for risk factors and exposures¹ to Zika virus when evaluating patients. It is important that providers are aware that people with Zika virus infection can be asymptomatic or mildly symptomatic, and therefore providers should consider Zika virus disease in the differential diagnosis for patients with appropriate risk factors.
- Healthcare providers** should assess all pregnant women for possible Zika virus exposure² and evaluate for signs and symptoms of Zika virus disease at every clinical encounter. Testing may be indicated. (Updated Interim Pregnancy Guidance Testing Algorithm: www.cdc.gov/zika/hc-providers/testing_algorithm.pdf) The Zika Pregnancy Hotline can be accessed by clinicians for questions; call 770-488-7100 and ask for the Pregnancy Hotline.
- Healthcare providers** should advise pregnant women about how to prevent sexual transmission of Zika during pregnancy. (www.cdc.gov/zika/prevention/sex-test-counseling-during-sex.html)
- Discuss preventive measures** with patients and families. Provide materials with information about risk factors to encourage the use of mosquito bite prevention actions. Patients should protect themselves from mosquito bites for 3 weeks post exposure to prevent further spread of the virus. Emphasize risks to families and household contacts as these are at the greatest risk for human-mosquito-human transmission.
- All healthcare personnel** should follow Standard Precautions for all patient care (www.cdc.gov/infectioncontrol/basics/sd007.pdf).
- Healthcare personnel** caring for pregnant women should be aware of the requirement for Standard Precautions to be used for labor and delivery care. (www.cdc.gov/mmwr/preview/mmwrhtml/mm6011a01.htm)
- Internal and external hospital websites** should link back to www.cdc.gov/zika/hc-prov.htm. CDC's Zika web to ensure that all staff have access to the most up-to-date guidance and other training and clinical resources.
- Appropriate healthcare staff** should report suspected cases to state or local health departments to facilitate diagnosis.
- Healthcare personnel** should report all pregnant women with laboratory evidence of possible Zika virus infection, with or without symptoms, as well as infant born to these women, to state, tribal, territorial, or local health department officials for enrollment in the US Zika Pregnancy Registry (www.cdc.gov/zika/hc-providers/registry.html).

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

0388191-1 August 2016

CDC's Response to Zika

UPDATED INTERIM PREGNANCY GUIDANCE:

Testing and interpretation recommendations^{1,4,5,6} for a pregnant woman with possible exposure to Zika virus⁷ – United States (including U.S. territories)

Abbreviations: IgM – immunoglobulin M; PRNT – plaque reduction neutralization test; rRT-PCR – real-time reverse transcription-polymerase chain reaction.

¹ A pregnant woman is considered symptomatic if one or more signs or symptoms (fever, rash, arthralgia, or conjunctivitis) consistent with Zika virus disease is reported whereas a pregnant woman is considered asymptomatic if symptoms are NOT reported.

² Testing includes Zika virus rRT-PCR on serum and urine samples, Zika virus and dengue virus immunoglobulin M (IgM), and plaque reduction neutralization test (PRNT) on serum samples. PRNT results that indicate recent flavivirus infection should be interpreted in the context of the currently circulating flaviviruses. Refer to the laboratory guidance for updated testing recommendations (<http://www.cdc.gov/media/releases/2016/s160804-zika-test.html>).

³ Because of the overlap of symptoms in areas where other viral illnesses are endemic, evaluate for possible dengue or chikungunya virus infection.

⁴ Dengue IgM antibody testing is recommended only for symptomatic pregnant women if Zika virus rRT-PCR testing is equivocal from laboratory testing. Laboratory testing of antibody testing in the event of a false rRT-PCR negative result.

⁵ Possible exposures to Zika virus include travel to or within (<http://www.cdc.gov/zika/what-to-know/>) or new residence in an area with active Zika virus transmission, sexual contact with a partner who has had Zika virus infection (male or female partners for vaginal or anal sex, if condoms are not used), or contact with a partner who has had Zika virus infection (male or female partners for oral or anal sex in an area with active Zika virus transmission).

Restart

Select your profession:

- Obstetrician/Gynecologist
- Family Physician
- Nurse
- Nurse-midwife
- Other healthcare provider
- State health department official
- Local health department official
- Other

Back **Next**

<https://www.cdc.gov/zika/hc-providers/index.html>

*Free materials available in English, Spanish, and other languages

Resources for Families

The image displays a collection of CDC informational posters about Zika virus, arranged in a collage. The posters are designed to be helpful for families and include the following titles and content:

- PREGNANT AND IN AN AREA WITH ZIKA?*** WARNING: ZIKA IS LINKED TO BIRTH DEFECTS. Includes a "DOCTOR'S VISIT CHECKLIST: For Pregnant Women Who Traveled to an Area with Zika*" and "Ideas for Talking to your Children about Zika".
- FOR WOMEN: A POSITIVE ZIKA VIRUS TEST**. Includes "HOW TO PROTECT AGAINST MOSQUITO BITES" and "THINKING ABOUT HAVING A BABY? WARNING: ZIKA IS LINKED TO BIRTH DEFECTS".
- THINKING ABOUT HAVING A BABY? WARNING: ZIKA IS LINKED TO BIRTH DEFECTS**. Includes "Plan Your Pregnancy" and "Protect yourself from getting Zika from mosquito bites".
- FOR WOMEN: A POSITIVE ZIKA VIRUS TEST**. Includes "Once you're pregnant, protect yourself from getting Zika from sex" and "Talk to your healthcare provider".
- THINKING ABOUT HAVING A BABY? WARNING: ZIKA IS LINKED TO BIRTH DEFECTS**. Includes "Protect yourself from getting Zika from mosquito bites" and "Mosquito-proof your home".

Each poster features the CDC logo, the U.S. Department of Health and Human Services logo, and the date "April 14, 2016". The posters use a color palette of teal, red, and white, with illustrations of people and mosquitoes.

For more resources to share with families, visit: <http://www.cdc.gov/zika/fs-posters/index.html>
Available in English, Spanish and other languages

Zika Care Connect: Improving Access to Clinical Services

- Referral Network

Identify specialty healthcare providers

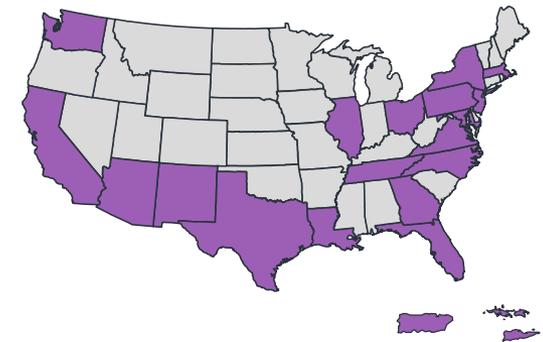
- » Maternal-fetal medicine, mental health services, audiology, radiology, pediatric ophthalmology, pediatric neurology, developmental pediatrics, infectious disease, and endocrinology
- » Consider joining the network if you are a healthcare professional located within one of the Zika Care Connect focus areas

- Professional Resources

Information for healthcare professionals caring for patients with Zika

- » Links to materials from American Academy of Pediatrics, American College of Obstetricians and Gynecologists, CDC, and March of Dimes

Website: www.zikacareconnect.org
HelpLine: 1-844-677-0447 (toll-free)



ZIKAcareconnect
in collaboration with the **March of Dimes**

CDC'S Response to Zika



More information on Zika

www.cdc.gov/zika

https://www.cdc.gov/mmwr/zika_reports.html

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.



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