Gearing up for the Travel Season: How Clinicians Can Ensure Their Patients are Packed with Knowledge on Zika Prevention

Clinician Outreach and Communication Activity

(COCA) Call

December 8, 2016

Office of Public Health Preparedness and Response

Division of Emergency Operations

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Planners have reviewed content to ensure there is no bias.

This presentation will include discussion of the unlabeled use of a product or products under investigational use.

Objectives

At the conclusion of this session, the participant will be able to:

- Describe the latest guidance for travelers visiting areas with active Zika transmission, and differentiate between countries with epidemic and endemic Zika.
- Advise patients who are considering or planning to travel on the possible Zika risk associated with their travel, and the protective measures they can take before, during, and after their trip.
- Apply CDC Zika Laboratory testing algorithms when determining which patients with relevant travel history, possible Zika virus exposure, or Zika symptoms should receive testing.
- State recommendations for travelers returning from areas with active Zika transmission to prevent further transmission of Zika.

TODAY'S PRESENTER

Mary Tanner, MD, FAAP

Epidemic Intelligence Service Officer
National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention
Centers for Disease Control and Prevention

TODAY'S PRESENTER

Allison Taylor Walker PhD, MPH
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Zika Virus

Gearing Up for the Travel Season: How to Ensure Your Patients are Packed with Knowledge on Zika Prevention

Mary Tanner, MD, FAAP
Epidemic Intelligence Service Officer

December 8, 2016

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

Objectives

- Review pre-travel counseling recommendations for men and women of reproductive age, pregnant women, and women considering pregnancy who are planning travel to areas with active Zika virus transmission

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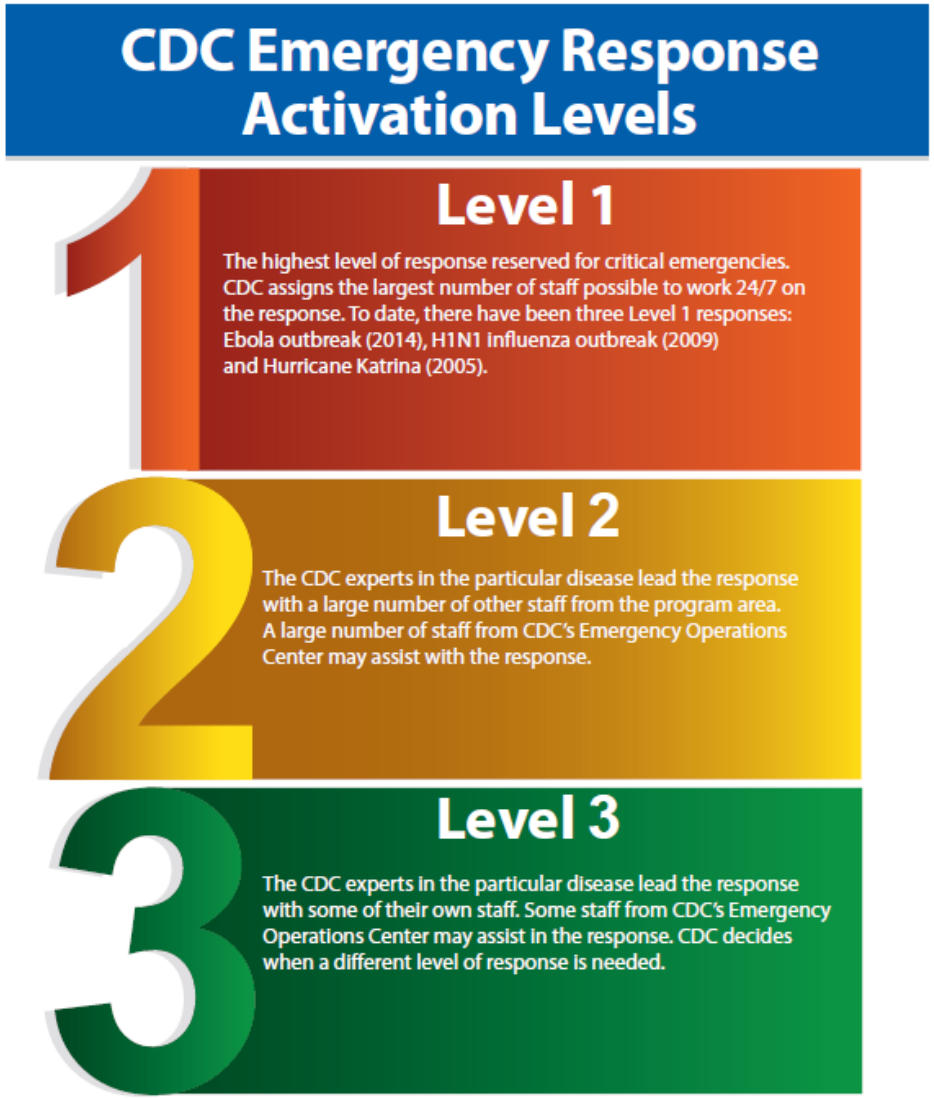
- Discuss recommended protective measures for women who live in or travel to areas with active Zika virus transmission
- Describe the current guidance regarding the care of pregnant women who have possible Zika virus exposure

A Unique Challenge

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

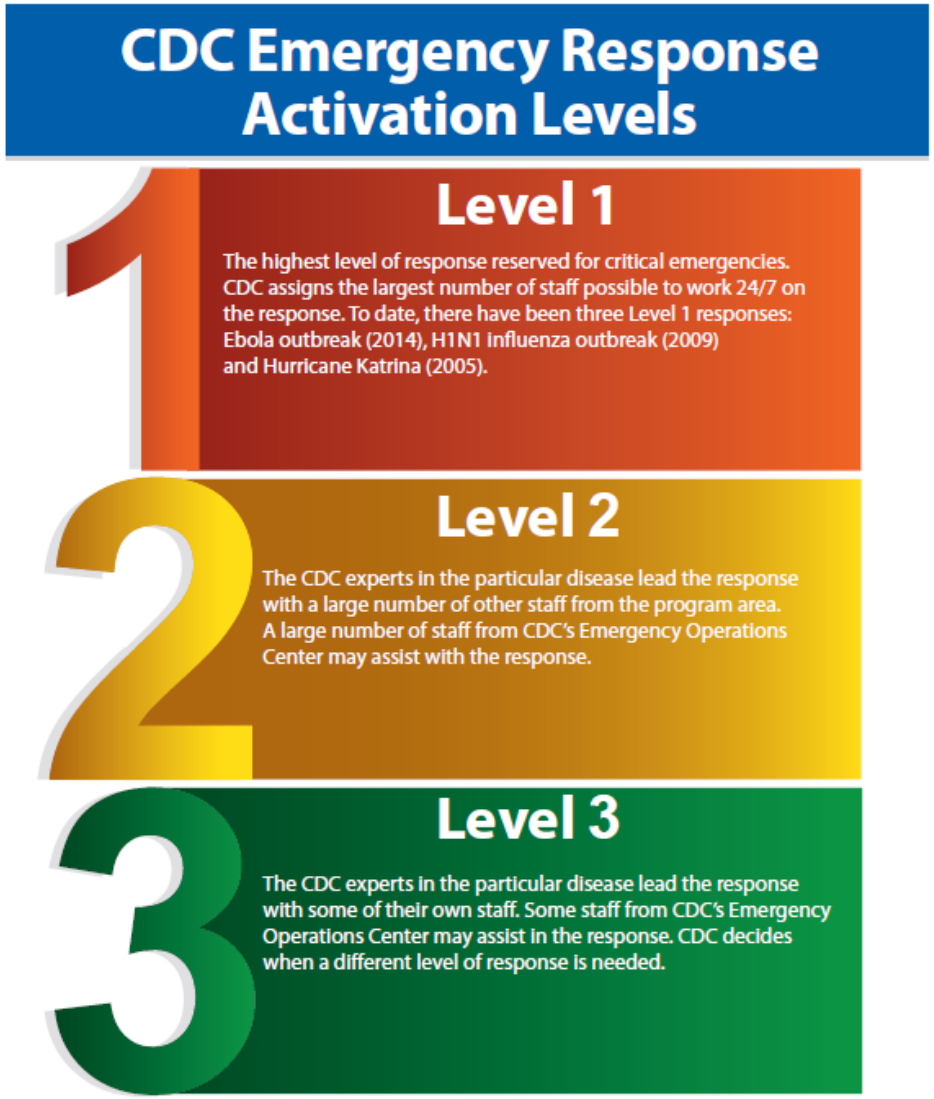
– *New England Journal of Medicine*, April 13, 2016

2016 CDC Zika Virus Response



Transitioned to Level 1 Response on February 8, 2016

2016 CDC Zika Virus Response



Transitioned to Level 1 Response on February 8, 2016

Prior to the Zika virus response, the only Level 1 activations in CDC history were for Hurricane Katrina, H1N1 (Pandemic Flu), and Ebola.

Active Zika Virus Transmission

61 countries and territories worldwide, including 50 countries and territories in the Americas, reporting active Zika virus transmission

http://www.cdc.gov/zika/geo/active-countries.html

As of November 21, 2016

Zika Virus Infection in Pregnant Women

- Pregnant women can be infected
  - » Through a mosquito bite
  - » Through sex with an infected partner
- If infected during pregnancy
  - » Zika virus can be passed to the fetus during pregnancy or around the time of birth
- If infected around conception
  - » Zika virus might present a risk to the fetus

Zika Virus is a Cause of Congenital Anomalies

The NEW ENGLAND JOURNAL of MEDICINE

SPECIAL REPORT

Zika Virus and Birth Defects — Reviewing the Evidence for Causality

Sonja A. Rasmussen, M.D., Denise J. Jamieson, M.D., M.P.H.,
Margaret A. Honein, Ph.D., M.P.H., and Lyle R. Petersen, M.D., M.P.H.

Congenital Zika Syndrome

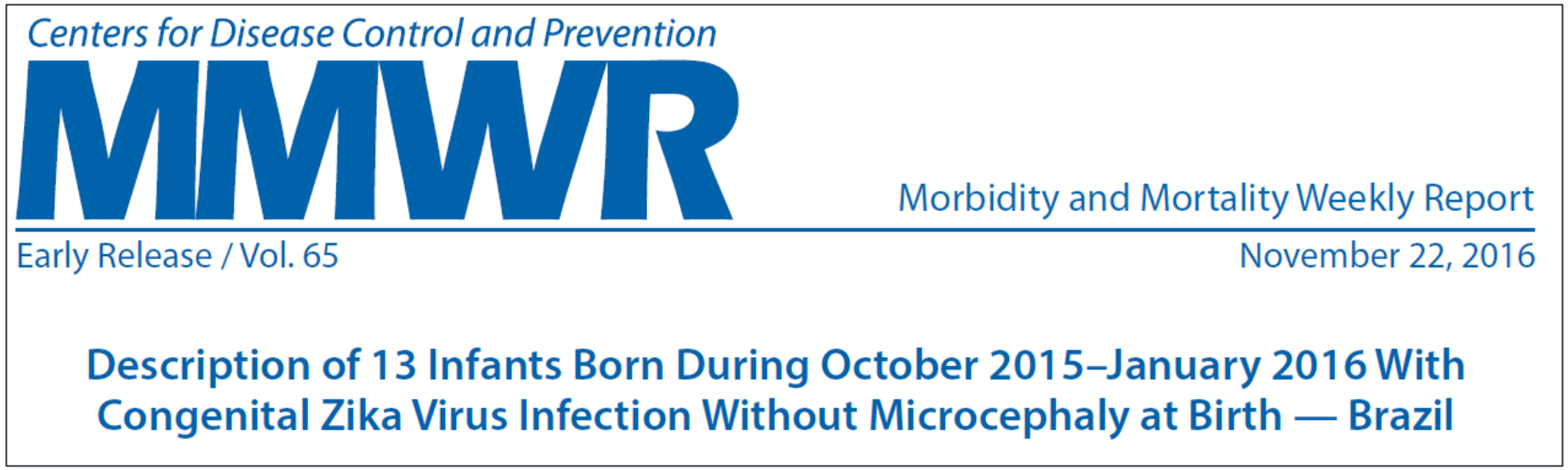
- A recently described pattern of congenital anomalies associated with Zika virus infection during pregnancy
  - Severe microcephaly with partially collapsed skull
  - Thin cerebral cortices with subcortical calcifications
  - Macular scarring and focal pigmentary retinal mottling
  - Congenital contractures
  - Early hypertonia with symptoms of extrapyramidal involvement
- Congenital Zika virus infection also linked to
  - Hearing impairment
  - Other neurologic sequelae

Baby with Severe Microcephaly

Moore CA, Staples D, Dobyns WB, et al. Characterizing the Pattern of Anomalies in Congenital Zika Syndrome . . . JAMA Peds. 3 Nov 2016.

Congenital Zika Infection without Microcephaly at Birth

- The full spectrum of adverse outcomes caused by Zika virus infection during pregnancy remains unknown
- Congenital infection can result in head growth deceleration leading to postnatal microcephaly



Linden V, Pessoa A, Dobyns WB, et al. Description of 13 Infants Born During October 2015–January 2016 . . . MMWR. 22 Nov 2016.

CDC Recommendations: Prevention

Avoid Traveling to Areas with Active Zika Transmission

- Pregnant women should not travel to areas with Zika
- If a pregnant woman must travel, she should
  - » Strictly follow steps to prevent mosquito bites
  - » Take steps to prevent sexual transmission
  - » Talk with her healthcare provider before and after her trip

https://www.cdc.gov/zika/pregnancy/protect-yourself.html

Prevent Mosquito Bites

If a pregnant woman travels to an area with 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 or para-menthane-diol, or 2-undecanone

https://www.cdc.gov/zika/prevention/prevent-mosquito-bites.html

Prevent Sexual Transmission of Zika Virus

For couples with a partner who lives in or has recently traveled to an area with Zika

- Couples in which a woman is pregnant should
  - » Use condoms consistently and correctly every time they have sex, or abstain from sex
  - » Not share sex toys
  - » Follow these precautions for the **duration of the pregnancy** even if the pregnant woman's partner does not have symptoms or feel sick

https://www.cdc.gov/zika/hc-providers/clinical-guidance/sexualtransmission.html

Women and Their Partners Thinking about Pregnancy

- Before a woman or her partner plan travel, they should talk to their healthcare provider about their plans to become pregnant and the risk of Zika virus infection
- If a woman and/or her partner travel to an area with active Zika transmission, they should
  - » Strictly follow steps to prevent mosquito bites during the trip
  - » Be aware of preconception guidance related to Zika virus exposure

https://www.cdc.gov/zika/hc-providers/women-reproductive-age.html

Suggested Timeframes to Wait before Trying to Conceive

Possible exposure via recent travel or sex without a condom with a partner infected with Zika	
Women	**Men**
Wait ***at least*** 8 weeks after symptoms start or last possible exposure	Wait ***at least*** 6 months after symptoms start or last possible exposure

People living in or frequently traveling to areas with Zika		
	Women	**Men**
Positive Zika test	Wait ***at least*** 8 weeks after symptoms start	Wait ***at least*** 6 months after symptoms start
No testing performed or negative test	Talk with doctor or healthcare provider	Talk with doctor or healthcare provider

http://www.cdc.gov/mmwr/volumes/65/wr/mm6539e1.htm

https://www.cdc.gov/zika/pregnancy/women-and-their-partners.html

CDC's Response to **Zika**

COUNSELING TRAVELERS

Women and Men of Reproductive Age Who are Considering Travel to Areas with Active Transmission of Zika Virus (ZIKV)

Recommendation	Key Issues	Talking Points
Assess risk of ZIKV exposure and prevention	Environment	Discuss whether Zika is being spread by mosquitoes in the planned area of travel (see CDC Zika Travel Information website*).
		Discuss environment in which patient will be staying: advise traveler to stay in hotel rooms or other accommodations that are air conditioned or have good window and door screens to keep mosquitoes outside.
		Discuss mosquito bite prevention, including insect repellent, clothing (including permethrin-treated[2]), and bed net use.
Discuss ZIKV infection	1. Signs and symptoms of ZIKV disease 2. Treatment 3. When to seek care 4. Preventing transmission after returning home	Many people infected with ZIKV won't have symptoms or will have only mild symptoms. The most common symptoms of ZIKV disease are fever, rash, arthralgias, and conjunctivitis; other common symptoms include myalgia and headache.
		Illness usually lasts about a week.
		ZIKV infection during or just before pregnancy may cause poor pregnancy and infant outcomes, including birth defects.
		Guillain-Barré syndrome is possibly triggered by ZIKV in a small proportion of infections, as it is after a variety of other infections.
		People who have possibly been exposed and develop symptoms consistent with ZIKV disease should see a healthcare provider and report their recent travel.
		If travelers develop symptoms of ZIKV disease, they should rest, stay hydrated, and take acetaminophen for fever or pain. To reduce the risk of hemorrhage, aspirin or other NSAIDs should not be taken until dengue can be ruled out.
		To help prevent others from getting sick, people infected with ZIKV should strictly follow steps to prevent mosquito bites during the first week of illness. Even if they do not feel sick, travelers returning from an area with Zika should take steps to prevent mosquito bites for 3 weeks. These steps will prevent them from passing Zika to mosquitos that could spread the virus to other people.
Discuss ZIKV infection and pregnancy	Possible adverse outcomes of ZIKV infection during pregnancy	ZIKV can be passed to the fetus during pregnancy or at delivery if a woman is infected around the time of conception or during pregnancy.
		ZIKV infection during pregnancy can cause microcephaly and other severe fetal brain defects.
		Children with microcephaly often have serious problems with development and can have other neurologic problems, such as seizures.
		ZIKV has been linked to other problems in pregnancies and among fetuses and infants infected with ZIKV before birth, such as miscarriage, stillbirth, defects of the eye, hearing deficits, and impaired growth.
		There is no evidence that ZIKV infection poses an increased risk for birth defects in future pregnancies after the virus has cleared from the blood.

http://www.cdc.gov/zika/pdfs/travelcounceling-fs.pdf

PRECONCEPTION COUNSELING

For Women and Men Living in Areas with Ongoing Spread of Zika Virus Who Are Interested in Conceiving

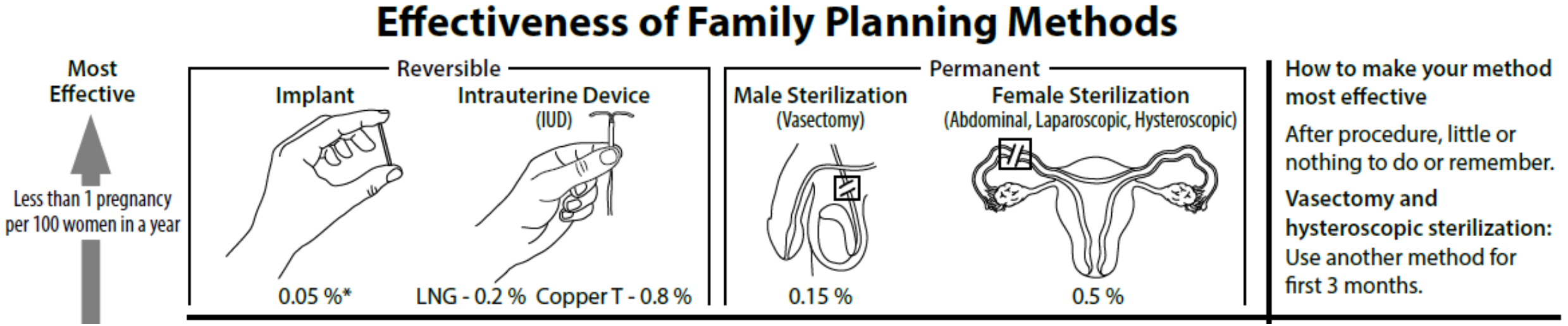
This guide describes recommendations for counseling women and men living in areas with Zika who want to become pregnant and have not experienced clinical illness consistent with Zika virus disease. This material includes recommendations from CDC's updated guidance[1], key questions to ask patients, and sample scripts for discussing recommendations and preconception issues. Because a lot of content is outlined for discussion, questions are included throughout the sample script to make sure patients understand what they are being told.

Recommendation	Key Issue	Questions to Ask	Sample Script
Assess pregnancy intentions	Introduce importance of pregnancy planning	*Have you been thinking about having a baby?* *Would you like to become pregnant in the next year?* *Are you currently using any form of birth control?*	If you are thinking of having a baby, I would like to help you have a healthy and safe pregnancy. With the Zika virus outbreak, planning pregnancy is more important than ever. Preparing and planning for a healthy pregnancy means getting as healthy as you can before becoming pregnant, and also taking the time now to learn about how best to care for yourself during pregnancy.
Assess risk of Zika virus exposure	Environment	*Do you have air conditioning in your home? At work?* *Do you have window and door screens in your home? At work?* *Do you have a bed net? Would you consider using one?* *Do you live in an area with a lot of mosquitoes?*	The best way to prevent Zika is to prevent mosquito bites. To protect yourself at home and work, use air conditioning if possible. Install window and door screens and repair any holes to help keep mosquitoes outside. Sleep under a bed net, if air conditioning or screened rooms are not available. Since you live in an area where Zika is spreading, you are at risk of getting Zika. It is important that we discuss the timing of your pregnancy, and ways to prevent infection when you are pregnant. **Knowledge check:** What are some ways to protect yourself at home and work?
	Personal measures to prevent mosquito bites	*Are you willing to wear clothes that cover your skin, like long pants and long-sleeved shirts?* *Do you dip or spray your clothes with permethrin or wear permethrin-treated clothing (specially treated clothing to keep mosquitoes away)?[2]* *Do you use insect repellents throughout the day and night? How often do you reapply? Are you following the directions on the label?*	Now and throughout your pregnancy, you and your partner should take important steps to protect yourselves from getting Zika. Wearing long-sleeved shirts and long pants protects your arms and legs. Treating clothing with permethrin adds another layer of protection, just don't put it directly on your skin. Use EPA-registered insect repellents with one of the following active ingredients: DEET, picaridin, IR3535, or oil of lemon eucalyptus. These insect repellents are safe to use during pregnancy. Always follow the product label instructions and use as directed. This includes reapplying throughout the day as directed on the product label instructions. Help reduce the number of mosquitoes around your home by emptying standing water from flowerpots, gutters, buckets, pool covers, pet water dishes, discarded tires, and birdbaths on a regular basis.

http://www.cdc.gov/zika/pdfs/preconception-counseling.pdf

Preventing Unintended Pregnancy

- Preventing unintended pregnancy among people who may be exposed to Zika virus is a primary strategy to reduce the number of pregnancies affected by Zika virus infection.
- The best way to reduce risk of unintended pregnancy is to use an effective form of birth control ***consistently*** and ***correctly***.



https://www.cdc.gov/zika/pregnancy/preventing-pregnancy.html

http://www.cdc.gov/reproductivehealth/contraception/unintendedpregnancy/pdf/contraceptive_methods_508.pdf

CDC Guidance: Pregnancy

Zika Virus Assessment During Pregnancy

- **All** pregnant women should be assessed for possible Zika virus exposure and signs or symptoms of infection at each prenatal care visit.

- They should be asked if they
  - » Traveled to or live in an area with active Zika virus transmission during pregnancy or periconceptional period
  - » Had sex without a condom with a partner who has traveled to or lives in an area with active Zika virus transmission

Most common symptoms:
Fever, rash, joint pain, conjunctivitis

Other symptoms:
Muscle pain, headache

CDC's Response to **Zika**

ZIKA SCREENING TOOL FOR PREGNANT WOMEN

(To be administered by nurse, check-in receptionist, or other healthcare provider)

All pregnant women should be assessed for possible Zika virus exposure[1] at each prenatal care visit. Use this tool to evaluate pregnant women for exposure to Zika virus and for signs and symptoms of Zika virus disease to determine whether testing is indicated.

NOTE: If your pregnant patient has questions about Zika testing, educational factsheets are available on CDC's website: http://www.cdc.gov/zika/hc-providers/pregnant-woman.html

Assess for Possible Exposure[1] to Zika Virus Infection

(See references on back for more information.)

	Circle response:
Do you live in or do you frequently travel (daily or weekly) to an area with active Zika virus transmission[2]?	**YES** | **NO**
Have you traveled to an area with Zika[2] during pregnancy or just before you became pregnant [8 weeks before conception or 6 weeks before your last menstrual period]?	**YES** | **NO**
Have you had sex (vaginal, anal, or oral sex) without a condom or shared sex toys with a partner(s) who lives in or has traveled to an area with Zika[2]?	**YES** | **NO**

➡ If your pregnant patient answered **"NO"** to ALL questions, she is at low risk for exposure to Zika.

If Pregnant Patient Answered "Yes" to Any Question, Assess for Signs and Symptoms of Zika Virus Disease

	Circle response:
Do you currently have or have you had (in the last 12 weeks) fever, rash, joint pain, or conjunctivitis (red eyes)?	**YES** | **NO**

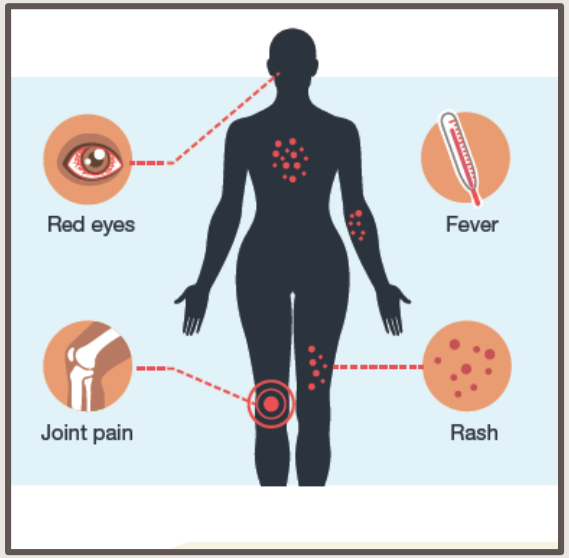
➡ If your pregnant patient answered **"YES"** to having any of these signs or symptoms, she might have symptomatic Zika virus infection. Test in accordance with CDC guidance for symptomatic persons[3].

➡ If your pregnant patient answered **"NO"** to having any signs or symptoms, she has been exposed and might have an asymptomatic Zika virus infection. Test in accordance with CDC guidance for asymptomatic pregnant women[3].

http://www.cdc.gov/zika/pdfs/zikapreg_screeningtool.pdf

Who should be tested?

- Anyone who has or recently had symptoms of Zika virus infection
  - » And lives in or recently traveled to an area with Zika virus transmission, or
  - » Had sex without a condom with a partner who lived in or traveled to an area with active Zika virus transmission
- All pregnant women who
  - » Live in or recently traveled to an area with active Zika virus transmission, or
  - » Had sex without a condom with a partner who lives in or recently traveled to an area with active Zika virus transmission



http://www.cdc.gov/mmwr/volumes/65/wr/pdfs/mm6529e1.pdf

Diagnostic Testing for Zika Virus

Molecular testing

- Real-time reverse transcriptase-polymerase chain reaction (rRT-PCR) for viral RNA in body fluids or tissues

Serologic testing

- Zika virus immunoglobulin M (IgM) enzyme-linked immunosorbent assay
- Plaque reduction neutralization test (PRNT)

https://www.cdc.gov/zika/laboratories/types-of-tests.html

Diagnostic Testing for Zika Virus

PRNTs

- PRNTs evaluate neutralizing antibodies in the serum.
- Neutralizing antibodies develop shortly after IgM and consist primarily of IgG antibodies
- Zika virus is a flavivirus, closely related dengue, yellow fever, Japanese encephalitis, and West Nile viruses
- After infection with a flavivirus, neutralizing antibodies are expected to persist for many years

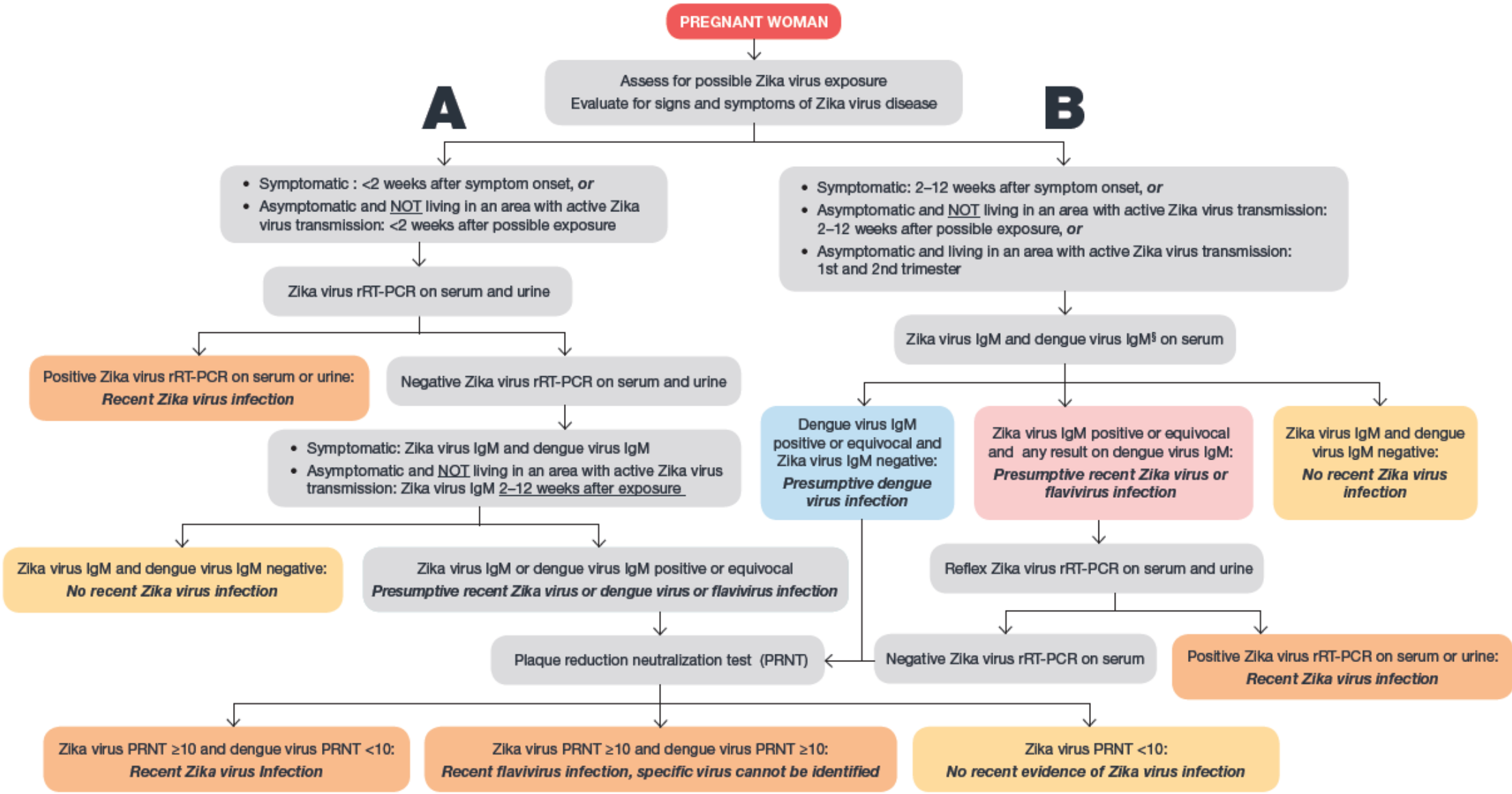
Rabe IB, Staples JE, Villanueva J, et al. Interim Guidance for Interpretation of Zika Virus Antibody Test Results. MMWR. 3 June 2016.

Limitations of Zika Virus Tests

- Presence of Zika virus RNA is relatively short-lived; negative results do not exclude infection
- Testing for Zika virus IgM can produce false positive results because of cross-reacting antibodies against related flaviviruses or nonspecific reactivity
- PRNT levels may not distinguish infecting virus in people previously infected with or vaccinated against a related flavivirus

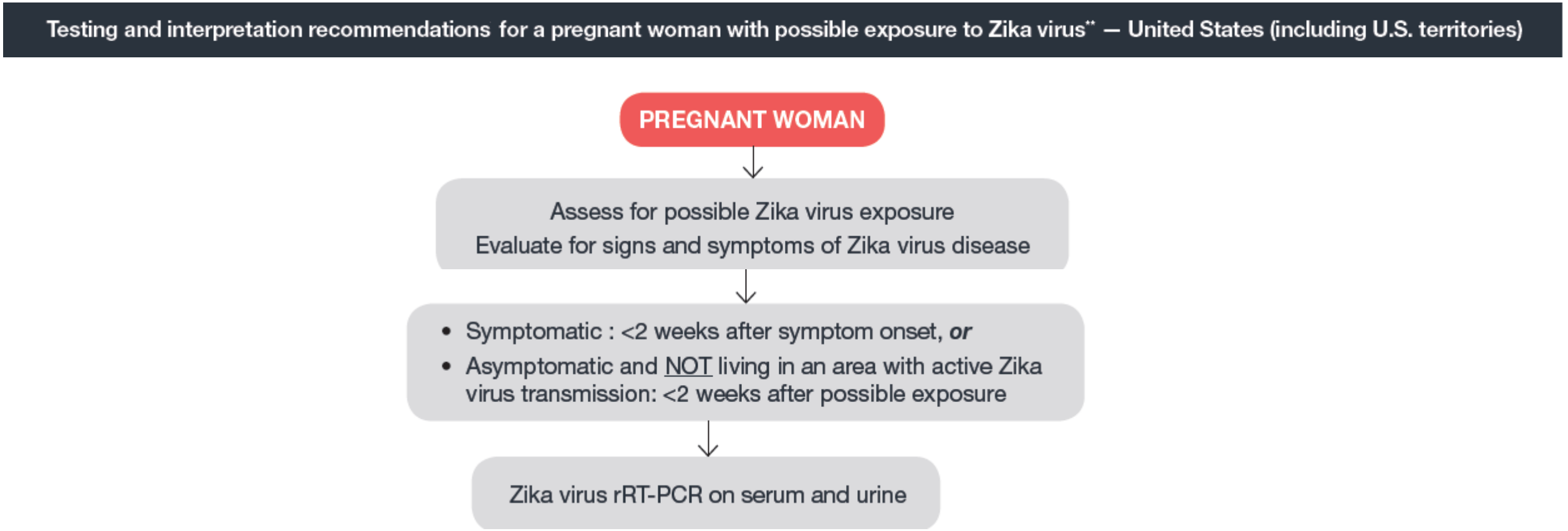
Rabe IB, Staples JE, Villanueva J, et al. Interim Guidance for Interpretation of Zika Virus Antibody Test Results. MMWR. 3 June 2016.

Testing and interpretation recommendations for a pregnant woman with possible exposure to Zika virus** — United States (including U.S. territories)



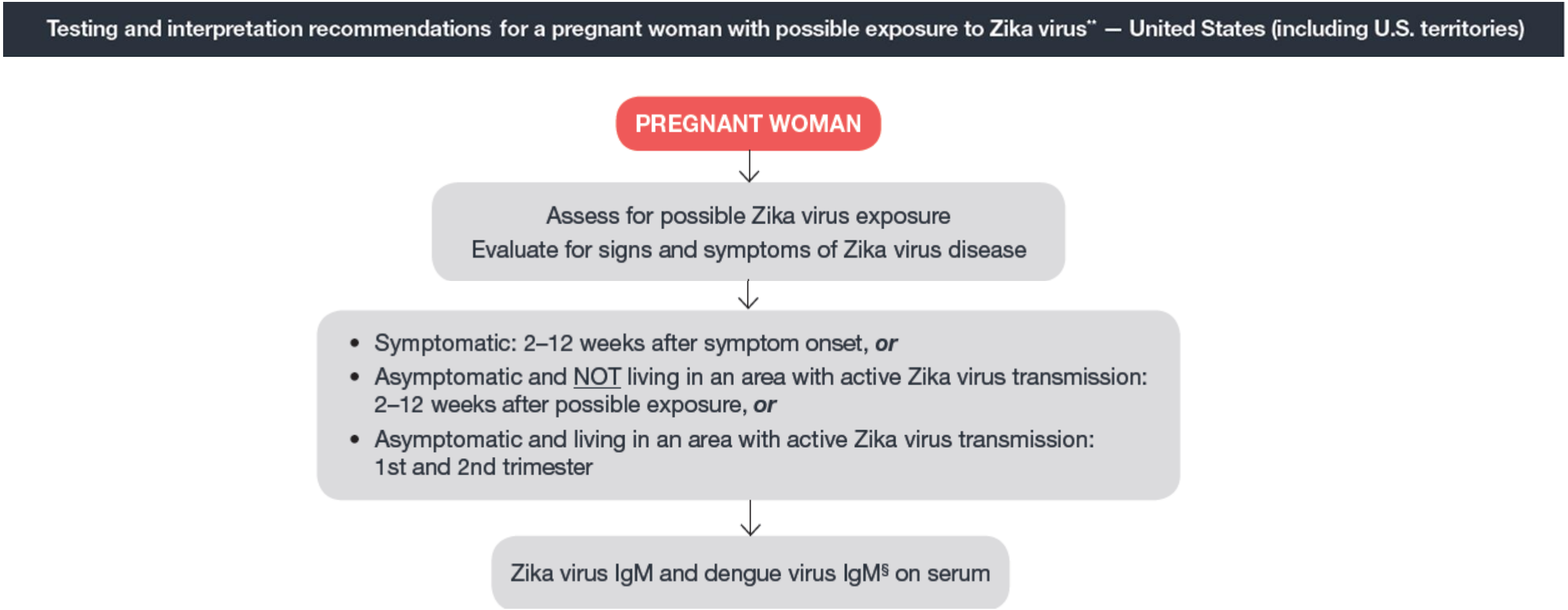
https://www.cdc.gov/zika/pdfs/testing_algorithm.pdf

Evaluation <2 Weeks after Symptoms or Exposure



https://www.cdc.gov/zika/pdfs/testing_algorithm.pdf

Evaluation 2-12 Weeks after Symptoms or Exposure



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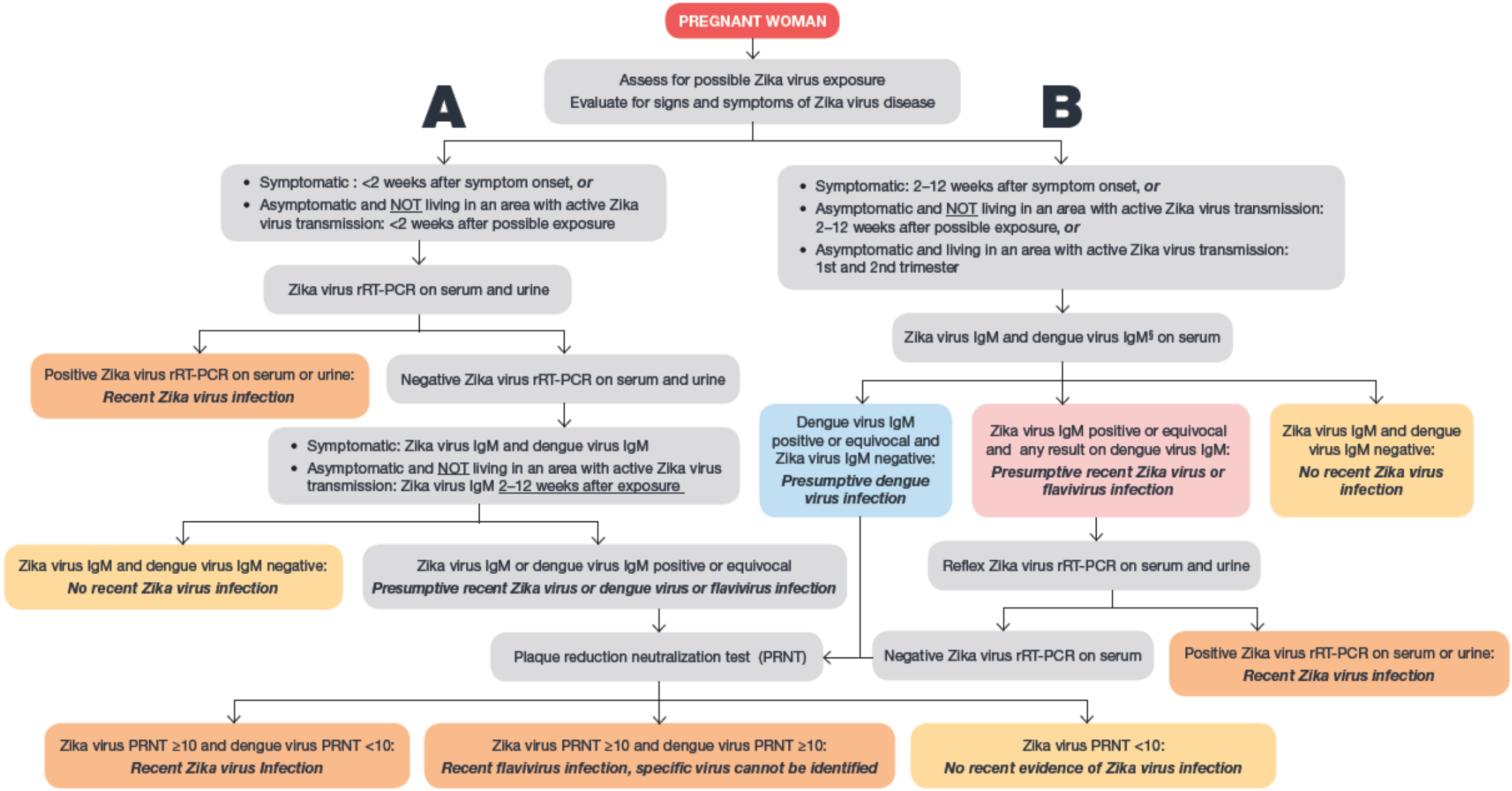
Testing and interpretation recommendations for a pregnant woman with possible exposure to Zika virus** — United States (including U.S. territories)



https://www.cdc.gov/zika/pdfs/testing_algorithm.pdf

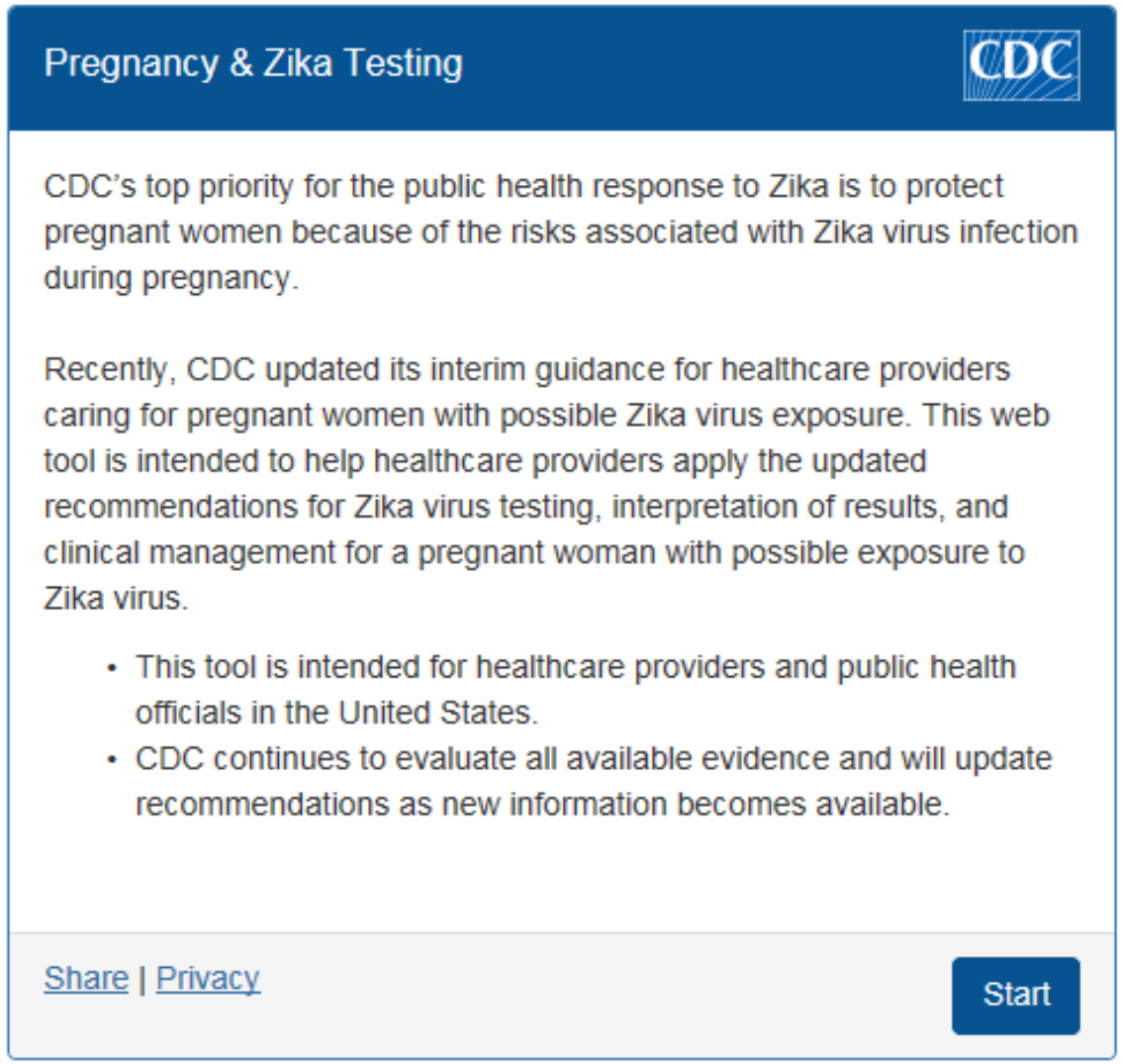
Clinical management of a pregnant woman with suspected Zika virus infection

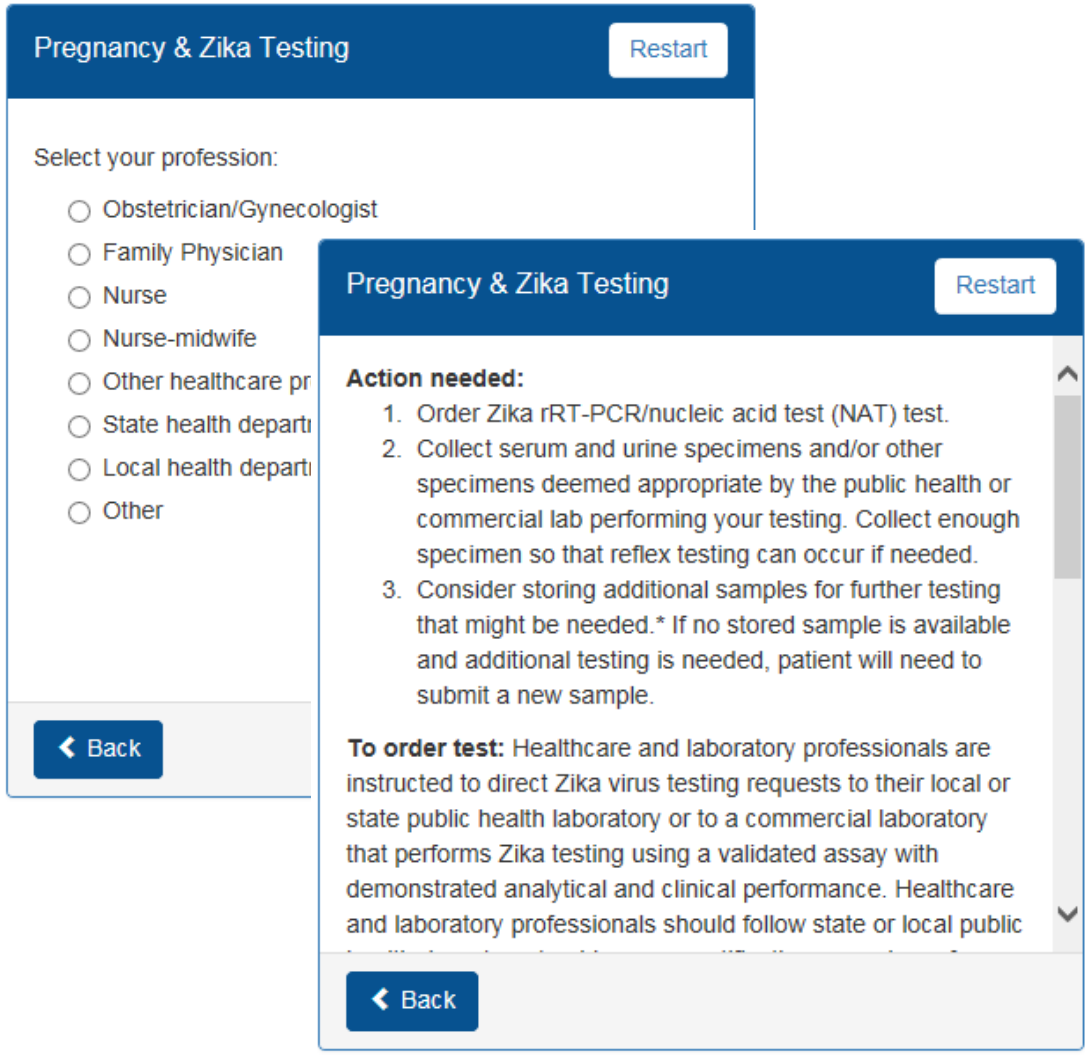
Interpretation of Laboratory Results*	Prenatal Management	Postnatal Management
Recent Zika virus infection	• Consider serial ultrasounds every 3–4 weeks to assess fetal anatomy and growth† • Decisions regarding amniocentesis should be individualized for each clinical circumstance§	**LIVE BIRTHS:** • Cord blood and infant serum should be tested for Zika virus rRT-PCR, Zika IgM, and dengue virus IgM antibodies. If CSF is obtained for other reasons, it can also be tested. • Zika virus rRT-PCR and IHC staining of umbilical cord and placenta is recommended.¶ **FETAL LOSSES:** • Zika virus rRT-PCR and IHC staining of fetal tissues is recommended.¶
Recent flavivirus infection; specific virus cannot be identified		
Presumptive recent Zika virus infection**	• Consider serial ultrasounds every 3–4 weeks to assess fetal anatomy and growth† • Amniocentesis might be considered; decision should be individualized for each clinical circumstance§	**LIVE BIRTHS:** • Cord blood and infant serum should be tested for Zika virus rRT-PCR, Zika IgM, and dengue virus IgM antibodies. If CSF is obtained for other reasons, it can also be tested. • Zika virus rRT-PCR and IHC staining of umbilical cord and placenta should be considered.¶ **FETAL LOSSES:** • Zika virus rRT-PCR and IHC staining of fetal tissues should be considered.¶
Presumptive recent flavivirus infection**		
Recent dengue virus infection	• Clinical management in accordance with existing guidelines (http://apps.who.int/iris/bitstream/10665/44188/1/9789241547871_eng.pdf).	

No evidence of Zika virus or dengue virus infection	• Prenatal ultrasound to evaluate for fetal abnormalities consistent with congenital Zika virus syndrome.†
	  • Fetal abnormalities present: repeat Zika virus rRT-PCR and IgM test; base clinical management on corresponding laboratory results.
	  • Fetal abnormalities absent: base obstetric care on the ongoing risk of Zika virus exposure to the pregnant woman.	

https://www.cdc.gov/zika/pdfs/testing_algorithm.pdf

Pregnancy & Zika Testing: Interactive Web Algorithm





http://www.cdc.gov/zika/hc-providers/index.html

What CDC is Doing

Many Questions Remain about Zika Virus and its Impact on Pregnancies

- What is the level of risk from Zika virus infection during pregnancy?
- When during pregnancy does Zika virus infection pose the highest risk to the fetus?
- What is the full range of potential health problems that Zika virus infection may cause?
- What are other factors (e.g., co-occurring infection) that might affect the risk for birth defects?

Sample of Current CDC Efforts Related to Pregnant Women, Fetuses, & Infants

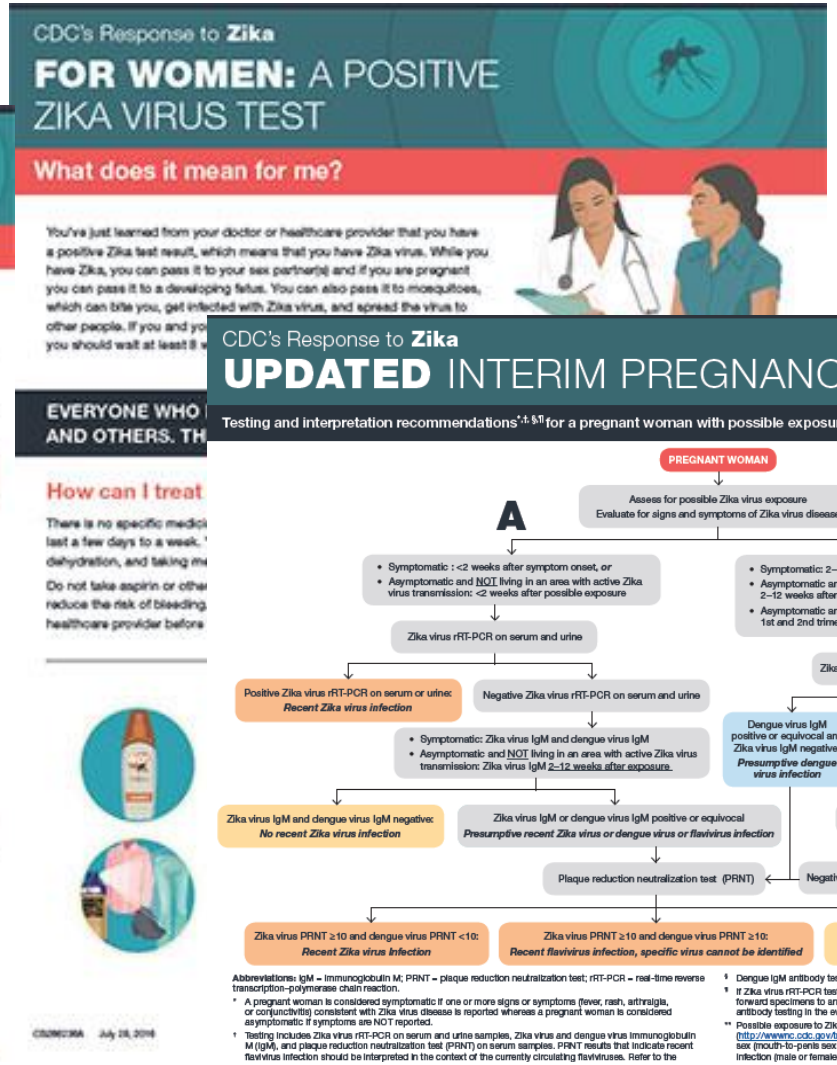
US Zika Pregnancy Registry

Zika Active Pregnancy Surveillance System (Puerto Rico)

US Zika-Related Birth Defects Surveillance

Proyecto Vigilancia de Embarazadas con Zika (Colombia)

Tools for Healthcare Providers and Information for Patients



www.cdc.gov/Zika

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

Thank you!

- More information on Zika:
  www.cdc.gov/zika
  https://www.cdc.gov/mmwr/zika_reports.html

- Questions about CDC's work related to Zika:
  contact CDC-INFO at
  800-232-4636 or **www.cdc.gov/cdc-info**

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.

Zika Virus Transmission and Prevention

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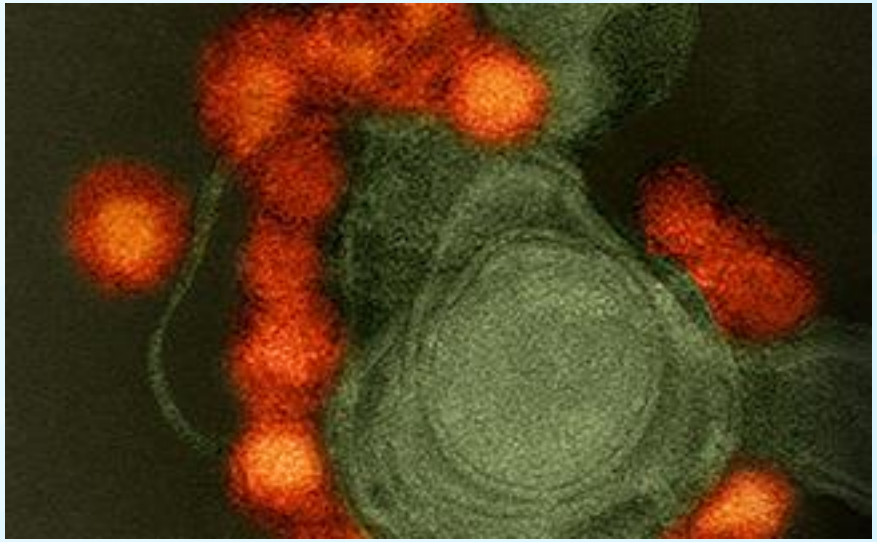
National Center of Emerging and Zoonotic Infectious Diseases
Centers for Disease Control and Prevention

December 8, 2016

ZIKV

- **Single stranded RNA virus**
- **Genus *Flavivirus*, family *Flaviviridae***
- **Closely related to dengue, yellow fever, Japanese encephalitis (JEV), and West Nile virus (WNV)**



Transmission electron microscope image of negative-stained, Fortaleza-strain ZIKV (red), isolated from a microcephaly case in Brazil.

Photo Credit: www.niaid.nih.gov

Modes of Transmission

- **Bite from an infected *Aedes* species mosquito**
  - *Ae. aegypti* and *Ae. albopictus*
- **Maternal-fetal**
  - Intrauterine
  - Perinatal
- **Sexual transmission from ANY infected partner**
- **Laboratory exposure**
- **Probable: blood transfusion**

Aedes aegypti

Aedes albopictus

Vector Characteristics

Characteristic	 *Aedes aegypti*	 *Aedes albopictus*
Time of Blood Meal	Bite during the day and night	
Number of Blood Meals	Multiple (*Ae. aegypti*), single (*Ae. albopictus*)	
Preferred Host(s)	Humans (*Ae. aegypti*), humans and other mammals (*Ae. albopictus*)	
Preferred Site to Lay Eggs	Containers of standing water (*i.e.*, tires, flower pots)	
Vector-borne Diseases	Dengue, yellow fever, chikungunya, ZIKV	
Environment	Urban (*Ae. aegypti*), urban and rural (*Ae. albopictus*)	

Zika Virus Infection Prevention

Incubation Period, Viremia, and Transmissibility

- **Incubation period: 3–14 days**
- **Viremia: few days–1 week**
- **Virus can be shed in semen and urine after viremia has resolved**
  - Viral RNA has been detected in semen as long as 188 days after illness onset
  - Duration of transmissibility not established
  - To date, cases of sexual transmission have involved exposure within a few weeks of illness onset

Musso D, Roche C, et al. Potential sexual transmission of Zika virus. *Emerg Infect Dis*. 2015;21(2):359-361.
Mansuy JM, et al. Zika virus in semen of a patient returning from a non-epidemic area. *Lancet Infect Dis*. 2016;16(8):894-895.

Recommendations for Prevention of Sexual Transmission

- **Couples in which a woman is pregnant**
  - Use condoms or abstain from sex throughout pregnancy
- **Couples who are not pregnant and one or both partners have traveled to or live in an area with ZIKV**
  - Use condoms (male or female) or abstain from sex (vaginal, anal, oral, and sharing of sex toys) as follows:
    - Men: At least 6 months after symptom onset or last possible exposure (if asymptomatic)
    - Women: At least 8 weeks after symptom onset or last possible exposure (if asymptomatic)

Petersen EE, et al. Update: Interim Guidance for Preconception Counseling and Prevention of Sexual Transmission of Zika Virus for Persons with Possible Zika Virus Exposure — United States, September 2016. *MMWR*. ePub: 30 September 2016.

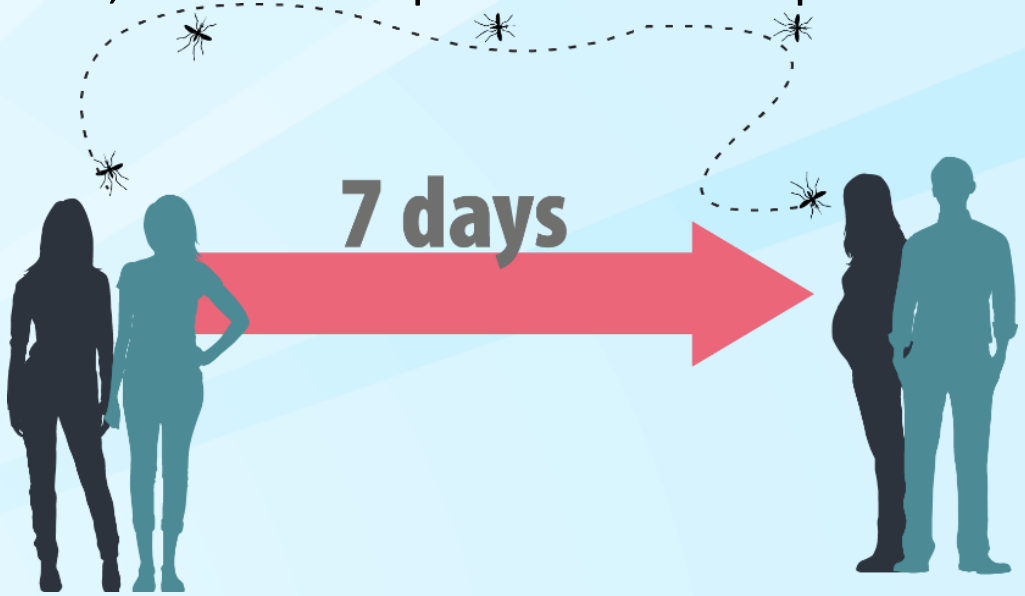
Mosquito Bite Protection

- **Wear long-sleeved shirts and long pants**
- **Stay and sleep in places with air conditioning, when possible, and use window and door screens to keep mosquitoes outside**
- **Take steps to control mosquitoes indoors and outdoors**
- **Personal protection:**
  - Use EPA-registered insect repellents with either DEET, picaridin, IR3535, para-menthane-diol (PMD), oil of lemon eucalyptus (OLE), 2-undecanone and follow label directions
    - PMD and OLE should not be used in children <3 years
  - Apply sunscreen before insect repellent

http://www.nc.cdc.gov/travel/page/avoidbug-bites

What People Infected with ZIKV or Possibly Exposed to ZIKV Can Do to Protect Others

- **Protect from mosquito bites for 3 weeks after leaving an area with Zika**
  - 3 weeks = Incubation weeks + viremic week
  - When viremic, ZIKV can be passed to a mosquito and to other people



Zika Virus Disease Risk in Countries with Active and Previous Zika Virus Transmission

Risk to Travelers

- **Countries with active Zika virus transmission**
  - Travel notices
  - Immunologically naïve population
  - Competent vector

- **Countries with previously documented Zika virus transmission**
  - CDC does not issue travel notices in non-outbreak settings
  - Population immunity at an unknown level
  - Likely lower vector burden
  - Likely lower force of infection
  - Likely lower risk to the traveler than travel to countries with active Zika virus transmission

Travel Notices

Watch

Alert

Warning

Travel Notice Level	Recommended Preventive Measures	Examples
Level 1, Watch	Follow usual precautions	Measles, Chikungunya
Level 2, Alert	Use enhanced precautions	Zika, Rubella
Level 3, Warning	Avoid nonessential travel	Ebola, Haiti Earthquake

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Countries and Territories with Active ZIKV Transmission: AMERICAS

(current as of December 5, 2016)

- Anguilla
- Antigua and Barbuda
- Argentina
- Aruba
- The Bahamas
- Barbados
- Belize
- Bolivia
- Bonaire
- Brazil
- British Virgin Islands
- Cayman Islands
- Colombia
- Costa Rica
- Cuba
- Curaçao
- Dominica
- Dominican Republic
- Ecuador
- El Salvador
- French Guiana
- Grenada
- Guadeloupe
- Guatemala
- Guyana
- Haiti
- Honduras
- Jamaica
- Martinique
- Montserrat
- Mexico
- Nicaragua
- Panama
- Paraguay
- Peru
- Puerto Rico
- Saba
- Saint Barthélemy
- Saint Lucia
- Saint Martin
- Saint Vincent and the Grenadines
- Saint Eustatius
- Saint Maarten
- Saint Kitts and Nevis
- Suriname
- Trinidad and Tobago
- Turks and Caicos
- United States
- U.S. Virgin Islands
- Venezuela

http://www.cdc.gov/zika/geo/active-countries.html

Countries and Territories with Active ZIKV Transmission: Outside the Americas
(current as of December 5, 2016)

- American Samoa
- Fiji
- Marshall Islands
- Micronesia
- New Caledonia
- Palau
- Papua New Guinea
- Samoa
- Singapore
- Tonga

http://www.cdc.gov/zika/geo/active-countries.html

Countries and Territories with Previous Reported ZIKV Transmission: Outside the Americas

AFRICA

- Angola
- Benin
- Burkina-Faso
- Cameroon
- Central African Republic
- Côte d'Ivoire
- Egypt
- Ethiopia
- Gabon
- Guinea-Bissau
- Kenya
- Liberia
- Mali
- Mozambique
- Niger
- Nigeria
- Senegal
- Sierra Leone, Somalia
- Tanzania
- Togo
- Uganda
- Zambia

ASIA

- Bangladesh
- India
- Pakistan

PACIFIC ISLANDS

- Easter Island
- Vanuatu

SOUTHEAST ASIA

- Brunei
- Burma (Myanmar)
- Cambodia
- Indonesia
- Laos
- Malaysia
- Maldives
- Philippines
- Thailand
- Timor-Leste
- Vietnam

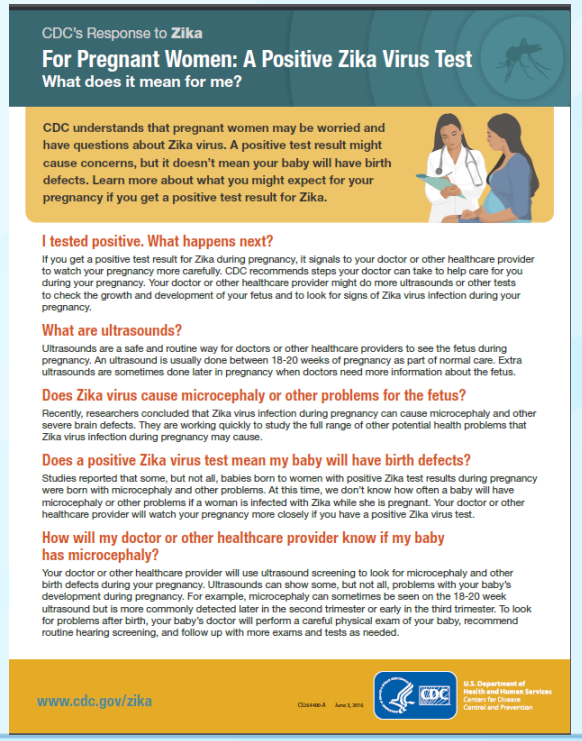
http://www.cdc.gov/zika/geo/active-countries.html

CDC Consultation Service

- **CDC maintains a 24/7 consultation service for health officials and healthcare providers caring for pregnant women with Zika virus infection (suspect or confirmed)**
  - To contact the service:
    - Call: 770-488-7100
    - Email: ZIKAMCH@cdc.gov
- **For other questions call:**
  - 800-CDC-INFO

Additional Resources

- http://www.cdc.gov/zika/index.html
- http://www.cdc.gov/zika/hc-providers/index.html
- http://wwwnc.cdc.gov/travel/page/zika-travel-information



CDC's Response to **Zika**

For Pregnant Women: A Positive Zika Virus Test
What does it mean for me?

CDC understands that pregnant women may be worried and have questions about Zika virus. A positive test result might cause concerns, but it doesn't mean your baby will have birth defects. Learn more about what you might expect for your pregnancy if you get a positive test result for Zika.

I tested positive. What happens next?

If you get a positive test result for Zika during pregnancy, it signals to your doctor or other healthcare provider to watch your pregnancy more carefully. CDC recommends steps your doctor can take to help care for you during your pregnancy. Your doctor or other healthcare provider might do more ultrasounds or other tests to check the growth and development of your fetus and to look for signs of Zika virus infection during your pregnancy.

What are ultrasounds?

Ultrasounds are a safe and routine way for doctors or other healthcare providers to see the fetus during pregnancy. An ultrasound is usually done between 18-20 weeks of pregnancy as part of normal care. Extra ultrasounds are sometimes done later in pregnancy when doctors need more information about the fetus.

Does Zika virus cause microcephaly or other problems for the fetus?

Recently, researchers concluded that Zika virus infection during pregnancy can cause microcephaly and other severe brain defects. They are working quickly to study the full range of other potential health problems that Zika virus infection during pregnancy may cause.

Does a positive Zika virus test mean my baby will have birth defects?

Studies reported that some, but not all, babies born to women with positive Zika test results during pregnancy were born with microcephaly and other problems. At this time, we don't know how often a baby will have microcephaly or other problems if a woman is infected with Zika while she is pregnant. Your doctor or other healthcare provider will watch your pregnancy more closely if you have a positive Zika virus test.

How will my doctor or other healthcare provider know if my baby has microcephaly?

Your doctor or other healthcare provider will use ultrasound screening to look for microcephaly and other birth defects during your pregnancy. Ultrasounds can show some, but not all, problems with your baby's development during pregnancy. For example, microcephaly can sometimes be seen on the 18-20 week ultrasound but is more commonly detected later in the second trimester or early in the third trimester. To look for problems after birth, your baby's doctor will perform a careful physical exam of your baby, recommend routine hearing screening, and follow up with more exams and tests as needed.

www.cdc.gov/zika

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

CDC's Response to **Zika**

ZIKA Virus Testing for Pregnant Women Living in an Area with ZIKA

CDC understands that pregnant women may be worried and have questions about Zika virus infection during pregnancy. Learn more about Zika virus testing for pregnant women and what you might expect if you have Zika virus during your pregnancy.

What CDC knows about Zika virus and pregnancy

- Zika virus can spread from mother to fetus during pregnancy and around the time of birth.

What CDC doesn't yet know about Zika virus and pregnancy and is researching quickly to find out

- If a woman is infected during pregnancy, we don't know yet
  - How the virus will affect her or her pregnancy.
  - How often the virus is passed to her fetus.
  - How often infection of the fetus leads to birth defects or other pregnancy problems.
  - When in pregnancy the infection might lead to poor health effects for the fetus.

How can I find out if I have Zika?

If you get infected with Zika, the virus will be in your blood for about a week. If you get sick with a fever, joint pain, rash, or red eyes, doctors or other healthcare providers can take a small amount of your blood and test it for Zika virus.

After the virus clears from the blood or if you never feel sick, doctors can order a different test to look for evidence that you were infected with Zika in the last 2-12 weeks.

www.cdc.gov/zika

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

Resources for Travelers

- **Text messaging service**
  - Text “PLAN” to 855-255-5606 to subscribe
- **TravWell mobile application**
  - Destination-specific vaccine recommendations
  - Packing and to do lists
  - Notifications from CDC about disease outbreaks

To Ask a Question

- **Using the Webinar System**
  - “Click” the Q&A tab at the top left of the webinar tool bar
  - “Click” in the white space
  - “Type” your question
  - “Click” ask

- **On the Phone**
  - Press Star (*) 1 to enter the queue
  - State your name
  - Listen for the operator to call your name
  - State your organization and then ask your question

Thank you for joining!

Centers for Disease Control and Prevention
Atlanta, Georgia
http://emergency.cdc.gov/coca

Today's webinar will be archived

When: A few days after the live call

What: All call recordings (audio, webinar, and transcript)

Where: On the COCA Call webpage

http://emergency.cdc.gov/coca/calls/2016/callinfo_120116.asp

Upcoming COCA Call

registration is not required

Effectively Communicating with Patients about Opioid Therapy

- **Date: Tuesday, December 13, 2016**
- **Time: 2:00 – 3:00 pm (Eastern)**
- **Presenters:**
  - Deborah Dowell, MD, MPH—CDC
  - David J. Tauben, MD, FACP—University of Washington
  - Joseph O. Merrill MD, MPH—University of Washington

http://emergency.cdc.gov/coca

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Those who participated in today's COCA Call and who wish to receive continuing education should complete the online evaluation by January 9, 2017 with the course code WC2286. Those who will participate in the on demand activity and wish to receive continuing education should complete the online evaluation between January 9, 2017 and December 7, 2018 will use course code WD2286.

Continuing education certificates can be printed immediately upon completion of your online evaluation. A cumulative transcript of all CDC/ATSDR CE's obtained through the CDC Training & Continuing Education Online System will be maintained for each user.

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