Welcome

Office for State, Tribal, Local and Territorial Support

presents . . .

CDC Vital Signs

Zika Virus: Protecting Pregnant Women and Babies

April 11, 2017
2:00–3:00 pm (ET)
<table>
<thead>
<tr>
<th>Time</th>
<th>Agenda Item</th>
<th>Speakers</th>
</tr>
</thead>
</table>
| 2:00 pm | Welcome & Introduction       | Dagny Olivares, MPA  
Associate Director, Program Planning and Communication, Office for State, Tribal, Local and Territorial Support, CDC |
| 2:05 pm | Vital Signs Overview         | Denise J. Jamieson, MD, MPH; CAPT, USPHS  
Incident Manager, 2016 Zika Virus Response, CDC |
| 2:15 pm | Presentations                | Ellen Lee, MD  
Medical Director, General Surveillance Unit, Bureau of Communicable Disease, New York City Department of Health and Mental Hygiene |
|         |                              | Siobhan Dolan, MD, MPH  
Professor, Vice Chair for Research, Department of Obstetrics & Gynecology and Women’s Health, Albert Einstein College of Medicine |
| 2:35 pm | Q&A and Discussion           | Dagny Olivares, MPA |
| 2:55 pm | Wrap-up                      |                                                                         |
| 3:00 pm | End of Call                  |                                                                         |
to support STLT efforts and build momentum around the monthly release of CDC Vital Signs
Zika Virus: Protecting Pregnant Women and Babies

Denise Jamieson, MD, MPH; CAPT, USPHS
Incident Manager, 2016 Zika Virus Response
US 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...”
Zika, Pregnancy, and Congenital Zika Syndrome

Zika infection during pregnancy can:
• Cause brain abnormalities, microcephaly, and has been linked to other birth defects
• Lead to congenital Zika syndrome, a pattern of birth defects that includes
  » Brain abnormalities
  » Vision problems
  » Hearing loss
  » Joint contractures
US Zika Pregnancy Registry (USZPR)

Purpose of USZPR:

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

• Estimate the proportion of pregnancies with lab evidence of possible Zika virus infection who have Zika-associated birth defects

• Provide information to inform the full range of outcomes associated with congenital Zika virus infection

• Help to ensure infants are linked to care

• Update clinical guidance

Possible Zika infection — Any lab evidence of recent Zika infection.
Confirmed Zika infection — A subgroup of possible Zika infection defined as presence of Zika virus or antibodies specific to Zika. Testing for Zika can only positively confirm Zika within a few weeks of infection—a special challenge when there are no symptoms.
**Vital Signs Key Findings**

- **44** States that reported pregnant women with evidence of Zika in 2016.

- **about 1 in 10** Pregnant women with *confirmed* Zika that had a fetus or baby with birth defects.

- **only 1 in 4** Babies with possible congenital Zika infection were reported to have received brain imaging after birth.
# Pregnancy and Birth Defects Registries

## Pregnant Women with Any Laboratory Evidence of Possible Zika Virus Infection

<table>
<thead>
<tr>
<th>US States and the District of Columbia*</th>
<th>US Territories**</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,716</td>
<td>3,461</td>
</tr>
</tbody>
</table>

*Includes aggregated data reported to the US Zika Pregnancy Registry as of March 28, 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 System as of March 28, 2017

## Pregnancy Outcomes in the United States and the District of Columbia

<table>
<thead>
<tr>
<th>Completed Pregnancies</th>
<th>Liveborn infants with birth defects*</th>
<th>Pregnancy losses with birth defects**</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,311</td>
<td>56</td>
<td>7</td>
</tr>
</tbody>
</table>

*Includes aggregated data reported to the US Zika Pregnancy Registry*

*Includes aggregated data reported to the US Zika Pregnancy Registry*
CDC Guidance: Avoid Travel to Areas with 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

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 insect repellents with one of the following EPA-registered 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 tires, buckets, planters, toys, pools, birdbaths, flowerpots, or trash containers
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

During pregnancy, even if the pregnant woman’s partner does not have symptoms or feel sick.
Pediatric Evaluation and Follow-Up: The First 12 Months


Kace Russell, MD1,2; Sara E. Oliver, MD1,3; Lillianne Lewis, MD1,4; Wanda D. Barfield, MD5; Janet Cragan, MD6; Dana Meaney-Delman, MD7; J. Erin Staples, MD, PhD8; Marc Fischer, MD9; Georgina Pescok, MD9; Tirote Oduyebo, MD9; Emily E. Peterson, MD10; Sherif Zaki, MD, PhD10; Cynthia A. Moore, MD, PhD10; Sonja A. Rasmussen, MD11; Contributors

On August 19, 2016, this report was posted as an MMWR ongoing psychosocial support and assistance with coordi-
What You Can Do To Help

- Educate healthcare providers
- Coordinate testing
- Report cases
- Support babies and families
Thank you!

For more information, please visit:

www.cdc.gov/vitalsigns/index.html
www.cdc.gov/zika

For more information, contact CDC
1-800-CDC-INFO (232-4636)

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.
Monitoring Pregnant Women and Infants with Possible Zika Virus Infection in New York City

Ellen H. Lee, MD
Medical Director, General Surveillance Unit
Bureau of Communicable Disease, Division of Disease Control
New York City Department of Health and Mental Hygiene
April 11, 2017
New York City

- Population ~8.5 million residents (2016)
  - Close to 40% of residents are foreign-born
  - Birth cohort of 120,000-123,000 infants/year

- Total ~60 hospitals
  - 39 hospitals handling infant deliveries

- Travel volume to NYC metro airports from areas affected by Zika (2015):
  - 6.5 million passengers
Response to Zika in NYC, 2016

- Surveillance for human cases: travel associated, sentinel surveillance for possible local transmission (2016)
  - Molecular and serologic testing at NYC and New York State Public Health Laboratories
  - Investigation of cases with positive laboratory testing
  - Creation of Zika testing call center
  - Modified mosquito surveillance and control
  - Public education
  - Provider outreach
Zika in NYC Residents (as of 03/24/2017)

1,060 cases of confirmed/probable Zika virus infection (+/-symptoms)

- 383 (36%) cases in pregnant women
- Median age 33 years (range 0-78 years)
- All travel-associated
- >75% with travel to Caribbean
# Birth Outcomes for Infants Born in NYC

## Birth outcomes for 383 NYC women meeting criteria for inclusion in US Zika Pregnancy Registry (as of 03/24/2017)

<table>
<thead>
<tr>
<th>Description</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liveborn infants, total</td>
<td>327</td>
</tr>
<tr>
<td>Infants with laboratory evidence of Zika virus infection</td>
<td>23/327 (7%)</td>
</tr>
<tr>
<td>Infants with ≥1 finding consistent with congenital Zika syndrome</td>
<td>7/23</td>
</tr>
<tr>
<td>Infants with negative maternal Zika testing (negative PCR, negative IgM)</td>
<td>3/7</td>
</tr>
</tbody>
</table>
Collaboration with NYC Providers

Developed guidance on testing, laboratory result interpretation, management

Outreach to prenatal care and pediatric providers via
- Health alerts sent by email
- Conference calls, webinar
- In-person presentations

Direct communication with providers about results and updated recommendations
- Email templates
Monitoring Pregnant Women and Infants

- Providers notify DOHMH at time of pregnancy outcome for infant evaluation/testing; if past due date, DOHMH will
  - Contact prenatal care providers, newborn nurseries
  - Check electronic medical records remotely through regional health information networks

- Information obtained via phone, email, fax, remote access to electronic records, citywide immunization registry, on-site chart reviews

- Regular data reports identify infants:
  - Without complete Zika testing
  - At each stage of registry follow up
Challenges

• Monitoring pregnant women and infants
  – Loss to follow-up: changes in provider/facility, move outside NYC
  – Multiple facilities from which information needs to be collected

• Provider outreach
  – Missed opportunities to screen/test pregnant women and infants
  – Burden of time required to identify and communicate with provider about specimen testing, results, recommendations, etc.
  – Loss of information from prenatal care provider → inpatient pediatric care provider → outpatient pediatric care provider

• Community outreach
  – Need to maintain messaging about risk prevention
Disparities in Testing by Residence, NYC, Early 2016

Number of NYC residents born in areas with active Zika transmission, by census tract of residence (ACS 2010-14)

Zika virus testing rate per 10,000 females ages 15–44 years, by census tract of residence

Jan-Feb 2016

Jan-Sept 2016
Challenges

- Laboratory testing
  - Challenges with interpreting laboratory results
  - Difficult for providers to access results of Zika testing performed at public health laboratories
  - Confusion due to false positive results with Zika IgM testing performed at commercial laboratories
Acknowledgements

- New York City provider and hospital community
- New York State Department of Health Wadsworth Center
- New York City Health + Hospitals Corporation
- Greater New York Hospital Association
- Healthcare Association of New York State
- Centers for Disease Control and Prevention

Contact: elee4@health.nyc.gov
Update on Prenatal Zika Virus Infection

CDC Vital Signs Town Hall
April 11, 2017

Siobhan Dolan, MD, MPH
Professor and Vice Chair, Research
Department of Obstetrics & Gynecology and Women’s Health
Albert Einstein College of Medicine / Montefiore Medical Center
Medical Advisor March of Dimes
Transmission

- Bite from an infected mosquito
- Maternal-fetal
  - Periconceptional
  - Intrauterine
  - Perinatal
- Sexual transmission from an infected person to his or her partners
- Laboratory exposure
- Zika may be spread through blood transfusion
- There are no reports of transmission of Zika virus infection through breastfeeding
  - Zika virus has been detected in breast milk
  - Based on available evidence, the benefits of breastfeeding outweigh any possible risk

[cdc.gov/zika]
Travel Precautions

Before your trip

If you are pregnant or trying to get pregnant

- If you are pregnant, do not travel to areas with Zika.
- If you or your partner are trying to get pregnant, consider avoiding nonessential travel to areas with Zika. Talk to your doctor or other healthcare provider about your travel plans.

cdc.gov/zika

Source: Centers for Disease Control and Prevention
Zika Virus Transmission in South Florida

Miami-Dade County, FL. Red shows areas where pregnant women should not travel. Yellow shows areas where pregnant women should consider postponing travel.

cdc.gov/zika
Zika Virus Transmission in Texas

Pregnant women should consider postponing travel to these areas.

Brownsville, TX. Yellow shows areas where pregnant women should consider postponing travel.

cdc.gov/zika
Travel Precautions

During your trip

Protect yourself from mosquito bites

- Strictly follow steps to prevent mosquito bites to protect yourself and your family.

Keep mosquitoes outside

- Stay in places with air conditioning and with window/door screens.
- Use a bed net if air conditioned or screened rooms are not available or if sleeping outdoors.

cdc.gov/zika

Source: Centers for Disease Control and Prevention
Travel Precautions

After your trip

Protect yourself from mosquito bites

- Even if you do not feel sick, travelers returning to the United States from an area with Zika should take steps to prevent mosquito bites for 3 weeks so they do not spread Zika to mosquitoes that could spread the virus to other people.

Protect yourself during sex

- Protect yourself during sex, especially if your partner traveled to an area with Zika or if you are pregnant or considering getting pregnant.
- The amount of time you need to protect yourself during sex depends on whether your partner has symptoms and whether you are pregnant or trying to get pregnant. For specific guidelines, see protect yourself during sex.

cdc.gov/zika

Source: Centers for Disease Control and Prevention
Pregnancy Planning for Men and Women with Possible Zika Exposure

Possible exposure via recent travel or sex without a condom with a partner infected with Zika

<table>
<thead>
<tr>
<th>Women</th>
<th>Men</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use condoms for at least 8 weeks after the last possible exposure or after symptoms start, or do not have sex for the duration of the pregnancy.</td>
<td>Use condoms for at least 6 months after the last possible exposure or after symptoms start, or do not have sex for the duration of the pregnancy.</td>
</tr>
</tbody>
</table>
• All pregnant women should be asked at each prenatal care visit if they
  > Traveled to or live in an area with Zika risk during their pregnancy or periconceptional period (the 6 weeks before last menstrual period or 8 weeks before conception)
  > Had sex without a condom with a partner who has traveled to or lives in an area with Zika
• Pregnant women who have a possible exposure to Zika virus are should be tested for Zika virus infection.
Diagnostic Testing for Zika Virus

• During first 2 weeks after the start of illness
  > RNA nucleic acid testing (NAT) on serum and urine

• Serologic assays can also be used to detect Zika virus-specific IgM and neutralizing antibodies, which typically develop toward the end of the first week after onset of symptoms

• Plaque reduction neutralization test (PRNT) for presence of virus-specific neutralizing antibodies in paired serum samples
  > Done to confirm the presence of anti-Zika IgM antibodies (positive, equivocal, presumptive or possible Zika virus positive result)

Flowchart:

1. Assess for possible Zika virus exposure
   - Evaluate for signs and symptoms of Zika virus disease

A. Symptomatic: <2 weeks after symptom onset, or
   - Asymptomatic and NOT living in an area with active Zika virus transmission: <2 weeks after possible exposure
   - Zika virus rRT-PCR (serum and urine)
     - Positive Zika virus rRT-PCR (serum or urine): Recent Zika virus infection
     - Negative Zika virus rRT-PCR (serum and urine)
       - Symptomatic: Zika virus IgM and dengue virus IgM
       - Asymptomatic and NOT living in an area with active Zika virus transmission: Zika virus IgM 2–12 weeks after possible exposure
         - Zika virus IgM and dengue virus IgM negative: No recent Zika virus infection
         - Zika virus IgM positive or equivocal and dengue virus IgM positive or equivocal: Presumptive recent Zika virus infection or dengue virus infection
         - Zika virus IgM negative: Recent Zika virus infection

B. Symptomatic: 2–12 weeks after symptom onset, or
   - Asymptomatic and NOT living in an area with active Zika virus transmission: 2–12 weeks after possible exposure, or
   - Asymptomatic and living in an area with active Zika virus transmission: first and second trimester
   - Zika virus IgM and dengue virus IgM (serum)
     - Dengue virus IgM positive or equivocal and Zika virus IgM negative: Presumptive recent Zika virus infection or dengue virus infection
     - Zika virus IgM positive or equivocal and any result on dengue virus IgM: Presumptive recent Zika virus infection
     - Zika virus IgM and dengue virus IgM negative: No recent Zika virus infection

MMWR. 7/29/16.
# Clinical Management of a Pregnant Woman with Suspected Zika Virus Infection

<table>
<thead>
<tr>
<th>Interpretation of Laboratory Results*</th>
<th>Prenatal Management</th>
<th>Postnatal Management</th>
</tr>
</thead>
</table>
| **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/10665/44198/1/9789241547871_eng.pdf](http://apps.who.int/iris/bitstream/10665/44198/1/9789241547871_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. |                      |

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Thank you

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Provide feedback on this teleconference:
OSTLTSFeedback@cdc.gov

Please mark your calendars for the next *Vital Signs* Town Hall Teleconference
May 9, 2017
2:00–3:00 pm (ET)

For more information, please contact Centers for Disease Control and Prevention.

1600 Clifton Rd, NE, Atlanta, GA 30333
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Email: cdcinfo@cdc.gov
Web: www.cdc.gov

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