The Zika Virus
WHAT YOU NEED TO KNOW

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Public Health Implications
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February 1, 2016: Zika Declared a Public Health Emergency of International Concern

“Our advice to declare a PHEIC was not made on basis of what is currently known about Zika virus...rather made on the basis of what is not known about the clusters of microcephaly, Guillain-Barre syndrome, and possibly other neurological defects...”

Heymann DL et al. The Lancet. 2016; published online 10 February 2016
What We KNOW About Zika

• Transmitted through a mosquito vector (*Aedes* species), less commonly through sexual activity

• Most commonly causes no symptoms, but if symptoms occur: rash, fever, conjunctivitis, arthritis

• Causes microcephaly and other birth defects in unborn fetus

• Can cause other complications, e.g. paralysis
We Know What Happens Anywhere can Happen in the USA

“The health security of the U.S. is only as strong as the health security of every country around the world. We are all connected by the food we eat, the water we drink and the air we breathe.” – Tom Frieden, CDC Director

Photo courtesy of CDC. Public Domain
We Also Know We Don’t Have All the Resources Necessary to Fight Zika: Events in June, 2016

• Locally acquired dengue and chikungunya identified in Florida and Texas, respectively
• A baby girl is born in NJ with microcephaly from a mother from Honduras
• Fighting of Zika funding continues in Congress
• Governor Rick Scott warns of imminent Zika ‘Disaster’ without Federal funds: “We are not fully prepared”
So, What Do We Do? Everyone Has a Role

• PUBLIC HEALTH
  • Tracking, trending, testing
  • Investigate environmental Transmission from mosquitos
  • Teaching providers and public

• PROVIDERS (professionals, hospitals, researchers)
  • Counsel patients
  • Communicate with public health and patients
  • Collaborate with government and industry to develop vaccine

• PATIENTS (PUBLIC)
  • Pregnant women – avoid travel to Zika areas
  • Personal protection
  • If traveled and sick, Prevent transmission to others
  • Don’t Panic - stay informed
ROLE OF PUBLIC HEALTH

Tracking, trending, testing
Investigate environmental Transmission from mosquitos
Teaching providers and public
Federal Response (CDC)
Zika Virus Disease in the United States

- Nationally (6/1)
  - Travel-associated: 618
  - Local vector-borne: 0
  - Sexually transmitted: 11
  - Guillain-Barre: 1
- FL DOH (6/2)
  - Travel-associated: 127
  - Pregnant women: 38
  - Tri-county area: 18

Florida Executive and Legislative Actions

• Executive Order 16-29
  • Public Health Emergency in 12 counties (duration and geographic boundaries can change)
  • Authorizes Commissioner of Agriculture to issue mosquito declaration in those counties.
  • Designates DOH as lead state agency to coordinate emergency response activities among state agencies and local governments
  • Directs Department of Environmental Protection and Fish and Wildlife Conservation Commission to support in developing extensive mosquito control plans

• 64DER16-1 (64D-3.029) Requires immediate reporting to DOH of suspected or confirmed cases of the Zika virus by physicians, hospitals, and laboratories

• 64DER16-2 (64D-3.040) Hospitals and providers with Zika virus cases will provide case status reports to DOH
Florida DOH: Suspected Zika Fever Case Investigation

Sick person

Health care provider

County Health Department

Laboratory

Mosquito Control

State Laboratory

Department of Health State Office

• Case finding
• Outreach/education
• Alerts/advisories
• Testing Approval

Response

Public

CDC

• Subject Matter Experts
• Policy Guidance
• Case Consultation
• Weekly reports
• Publish statewide data

• Publish nationwide data
Aedes mosquito
Estimated Range

- Endemic transmission is likely to occur
Environmental Health Activities to Abate Neighborhood Mosquito Breeding Sites

• Responsible under State statute to investigate and address sanitary nuisances which include “the creation, maintenance, or causing of any condition capable of breeding flies, mosquitoes or other arthropods capable of transmitting diseases
ROLE OF PROVIDERS

Counsel patients
Communicate with public health and patients
Collaborate with government and industry to develop vaccine
Example from Central Florida: How Providers Assist Public Health & Patients

• Emergency departments assist in screening and notify PH if positive; we collect specimens from:
  • Travelers with acute onset of fever, maculopapular rash, arthralgia, or conjunctivitis within 2 weeks after return
  • Pregnant women who traveled to areas with Zika virus transmission during pregnancy regardless of symptoms or who may have had a partner that traveled

• Evaluate fetuses/infants of women infected during pregnancy for possible congenital infection and microcephaly

• Assess and manage newborn during and after perinatal period

• Counsel all patients, including the worried well
Florida Hospital Laboratories
ZIKA VIRUS Required Information Form

The following information is required by State/CDC for Laboratory testing. Please complete requested information on this form and submit with each patient’s samples.

Disclaimer: This form is intended to collect information for administrative purposes for specimen processing by the State or CDC laboratory. This document is not intended to be part of Patient Medical record.

**Patient Info:**

- **Name:**
- **DOB:**
- **Sex:** Male □ Female □
- **Pregnant:** YES ☐ NO ☐
- **Physician’s name:**
- **Contact number:**

**Clinical Info:**

- **Date of onset:**
- **Clinical Symptoms:** Fever □ Rash □ Joint pain □ Headache □ Conjunctivitis □ Other □
- **History of yellow fever vaccination:** YES □ NO □
- **Date:**

**Travel History**

- **Travel:** YES □ NO □
- **Known exposure to Mosquito:** YES □ NO □
- **Region (Country):**
- **Date(s):**
- **Location:**
- **Dates:**
- **Household/daycare contact travel/partner travel history:**

**Sample collection:** Red top or SST tube (serum) □ Urine □ Saliva □ Other □

**Contact County Health Department**

Department of Health Required information:
- **County Health Department (CHD) Contact Name:**
- **County:**
- **CHD:**

*Note: Some forms are not required to be completed in order to proceed with testing.

**County Health Department number:**
- **Address:**
- **City:**
- **State:**
- **Zip:**

*Testing criteria for pregnant women:
- The DOH recommends a consult call for all pregnant women who have traveled to one of the Zika surveillance countries at any time during their pregnancy. These women will be eligible for testing and follow up by the DOH.
- Pregnant women who meet travel criteria and are symptomatic will require 3 specimens. PCR will be used to detect viral RNA in serum, urine, and saliva samples collected during the first three weeks after illness onset. Serum antibody tests may also be available for samples collected 4 days after illness onset.
- Pregnant women who meet travel criteria and have symptoms greater than 10 days ago and recovered should be referred to DOH for consultation. DOH will provide guidance for any specimen collection or follow-up required.
- Pregnant women who meet travel criteria and are asymptomatic should still be reported to DOH for consult but may only have serum antibody tests performed. DOH will provide guidance on specimens to be collected.

Orlando Health Screening Protocol for potential Zika patients
(modified from FL DOH/CDC guidelines)

1. **Complete this form for any potential Zika patient.**
2. **CALL THE FLORIDA DEPARTMENT OF HEALTH (County of Patient Residence) FOR CONSULTATION AND APPROVAL FOR ZIKA TESTING.**
   - **County:**
   - **Zip:**
   - **Address:**

   **Patient Name:**
   - **DOB:**

3. **Patients approved by the Health Department for testing may go to one of the following Orlando Health Laboratories:**
   - **Orlando Regional Medical Center**
   - **P. Phillips Hospital**
   - **South Seminole Hospital**
   - **Address:**
   - **City:**
   - **Zip:**

4. **Travel History**
   - **Travel:** YES □ NO □
   - **Known exposure to Mosquito:** YES □ NO □
   - **Region (Country):**
   - **Date(s):**
   - **Location:**
   - **Dates:**
   - **Household/daycare contact travel/partner travel history:**

5. **Sample collection:** Red top or SST tube (serum) □ Urine □ Saliva □ Other □

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**Instructions from Health Department:**
1. **Patient must present FDH Test Request Form D11487 and Physician Prescription for Zika Fever testing to the lab as confirmation of approval.**
2. **Travel History**
3. **Sample collection**

*Note: Some forms are not required to be completed in order to proceed with testing.*
May 27, 2016

Let’s have a discussion

Controversies between scientists and health agencies
The Future: Vaccines and Antivirals

• Vaccines for genus *Flavivirus*
  • Japanese encephalitis
  • Yellow fever
  • Tickborne encephalitis
  • West Nile (in development, DNA-based, phase 1)
  • Dengue (Dengvaxia® licensed in a few countries since Dec 2015)

• Antivirals
  • Hepatitis C is most related to zika virus structure for which antivirals are available
ROLE OF THE PUBLIC

Pregnant women – avoid travel to Zika areas
Personal protection
If traveled and sick, Prevent transmission to others
Don’t Panic - stay informed
PREGNANT? Read this before you travel

Pregnant?
Delay travel to areas with Zika.

Pregnant women and their male partners should strictly follow steps to prevent mosquito bites.

If you have a male sex partner who lives in or travels to an area with Zika, you should use condoms the right way every time you have sex, or do not have sex during the pregnancy.

If you develop the symptoms of Zika, see a healthcare provider right away for testing.

Trying to become pregnant?
Women trying to become pregnant and their male partners should strictly follow steps to prevent mosquito bites.

Talk to your healthcare provider about plans to become pregnant.
Mosquito Bite Prevention (United States)

Not all mosquitoes are the same. Different mosquitoes spread different viruses and bite at different times of the day.

Type of Mosquito | Viruses spread | Biting habits
--- | --- | ---
Aedes aegypti, Aedes albopictus | Chikungunya, Dengue, Zika | Primarily daytime, but can also bite at night
Culex species | West Nile | Evening to morning — do not bite at night

Protect yourself and your family from mosquito bites

Use insect repellent

Use an Environmental Protection Agency (EPA)-registered insect repellent with one of the following active ingredients. All EPA-registered insect repellents are evaluated for safety and effectiveness.

<table>
<thead>
<tr>
<th>Active ingredient</th>
<th>Some brand name examples*</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEET</td>
<td>Off, Cutter, Sawyer, UltraTone</td>
</tr>
<tr>
<td>Picaridin, also known as KBR 3023, Bayrepel, and Icaridin</td>
<td>Cutter Advanced, Skin So Soft Bug Guard Plus, Autan (outside the United States)</td>
</tr>
<tr>
<td>Oil of lemon eucalyptus (OLE) or para-methane-diol (PMD)</td>
<td>Repel</td>
</tr>
<tr>
<td>IR3535</td>
<td>Skin So Soft Bug Guard Plus Expedition, SkinSmart</td>
</tr>
</tbody>
</table>

* Insect repellent brand names are provided for your information only. The Centers for Disease Control and Prevention and the U.S. Department of Health and Human Services cannot recommend or endorse any name brand products.

Protect yourself and your family from mosquito bites (continued)

- Always follow the product label instructions.
- Reapply insect repellent every few hours, depending on product and strength you choose.
  - Do not spray repellent on the skin under clothing.
  - If you are also using sunscreen, apply sunscreen first and insect repellent second.

Natural insect repellents (repellents not registered with EPA)

- EPA has not evaluated natural insect repellents for effectiveness.
  - Examples of ingredients used in unregistered insect repellents include citronella oil, cedar oil, geranium oil, peppermint oil, or soybean oil.

If you have a baby or child

- Always follow instructions when applying insect repellent to children.
- Do not use insect repellent on babies younger than 2 months of age.
- Dress your child in clothing that covers arms and legs, or
- Cover crib, stroller, and baby carrier with mosquito netting.
- Do not apply insect repellent onto a child’s hands, eyes, mouth, and out or irritated skin.
  - Adults: Spray insect repellent onto your hands and then apply to a child’s face.

Treat clothing and gear

- Treat items such as boots, pants, socks, and tents with permethrin or purchase permethrin-treated clothing and gear.
  - Permethrin-treated clothing will protect you after multiple washings. See product information to find out how long the protection will last.
  - If treating items yourself, follow the product instructions.
  - Do not use permethrin products directly on skin.

Mosquito-proof your home

- Use screens on windows and doors. Repair holes in screens to keep mosquitoes outside.
- Use air conditioning when available.
- Keep mosquitoes from laying eggs in and near standing water.
  - Once a week, empty and scrub, turn over, cover, or throw out items that hold water, such as tires, buckets, planters, toys, pools, bird baths, flowerpots, or trash containers. Check inside and outside your home.

www.cdc.gov/features/StopMosquitoes
Sick with chikungunya, dengue, or Zika?

Protect yourself and others from mosquito bites the first week you are sick. If a mosquito bites you, it can get infected, bite other people, and make them sick.

For more information:
www.cdc.gov/chikungunya
www.cdc.gov/dengue
www.cdc.gov/zika

See your doctor if you develop a fever with:
- Muscle or joint pain
- Headache or pain behind eyes
- Rash
- Red eyes

Protect yourself from mosquito bites
- Wear long-sleeved shirts and long pants.
- Use door and window screens to keep mosquitoes outside.
- Use insect repellent.
Stay Informed

- Orange County epidemiology office: (407) 858-1420

CDC Infographic
In Summary

• We’ve learned a lot, but still much to be learned about Zika
• Although there are concerns about funding, local vector transmission, future of Zika...
• All of us – Public Health, Providers, and Patients (Public) – can still play our respective roles to combat Zika
  • Education & training
  • Tracking cases, controlling vectors, vaccine
  • Disease recognition and notification
  • Personal responsibility to reduce risk of getting disease