

# Zika Virus Update

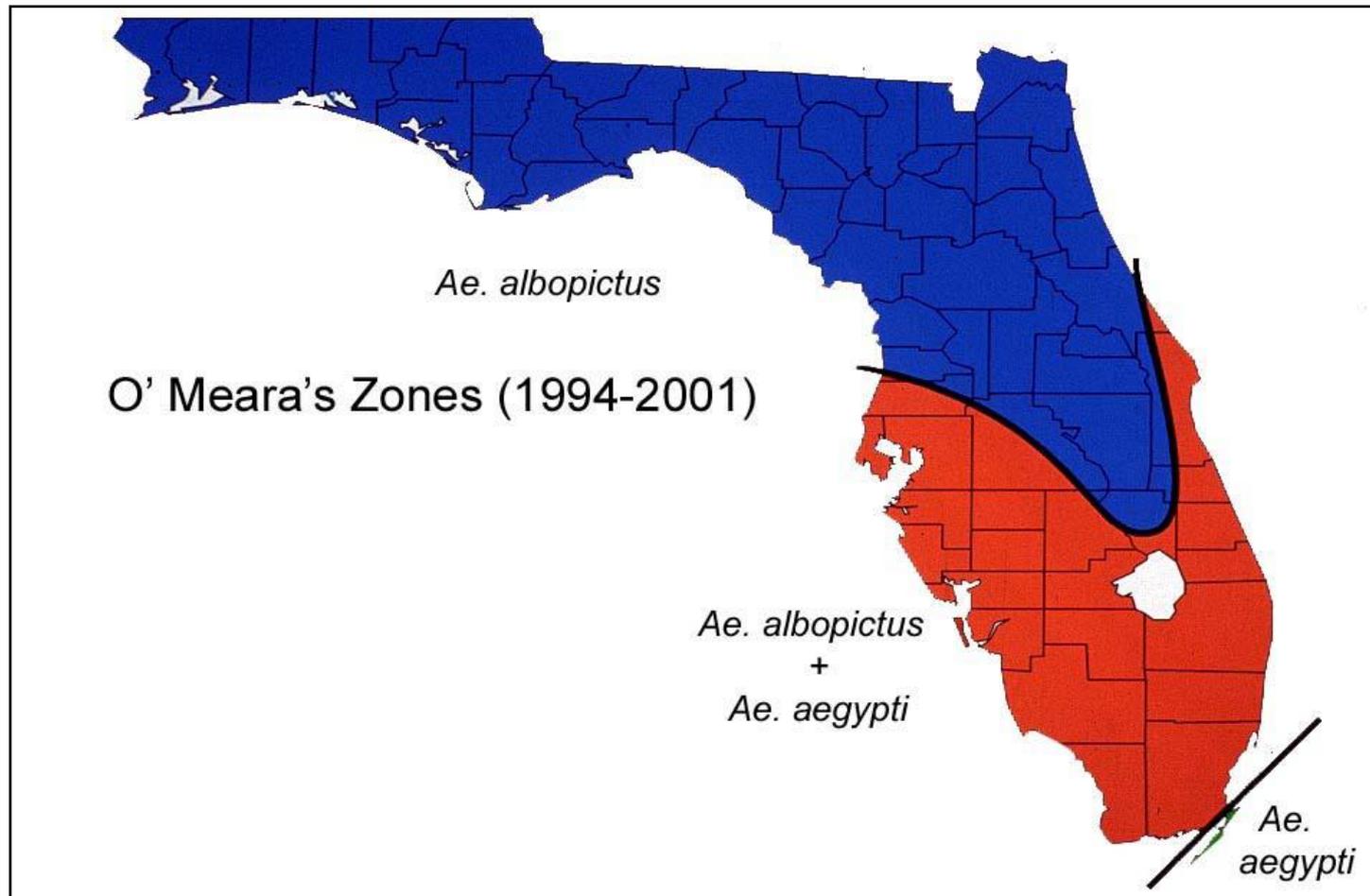
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September 23, 2016

# Zika Virus

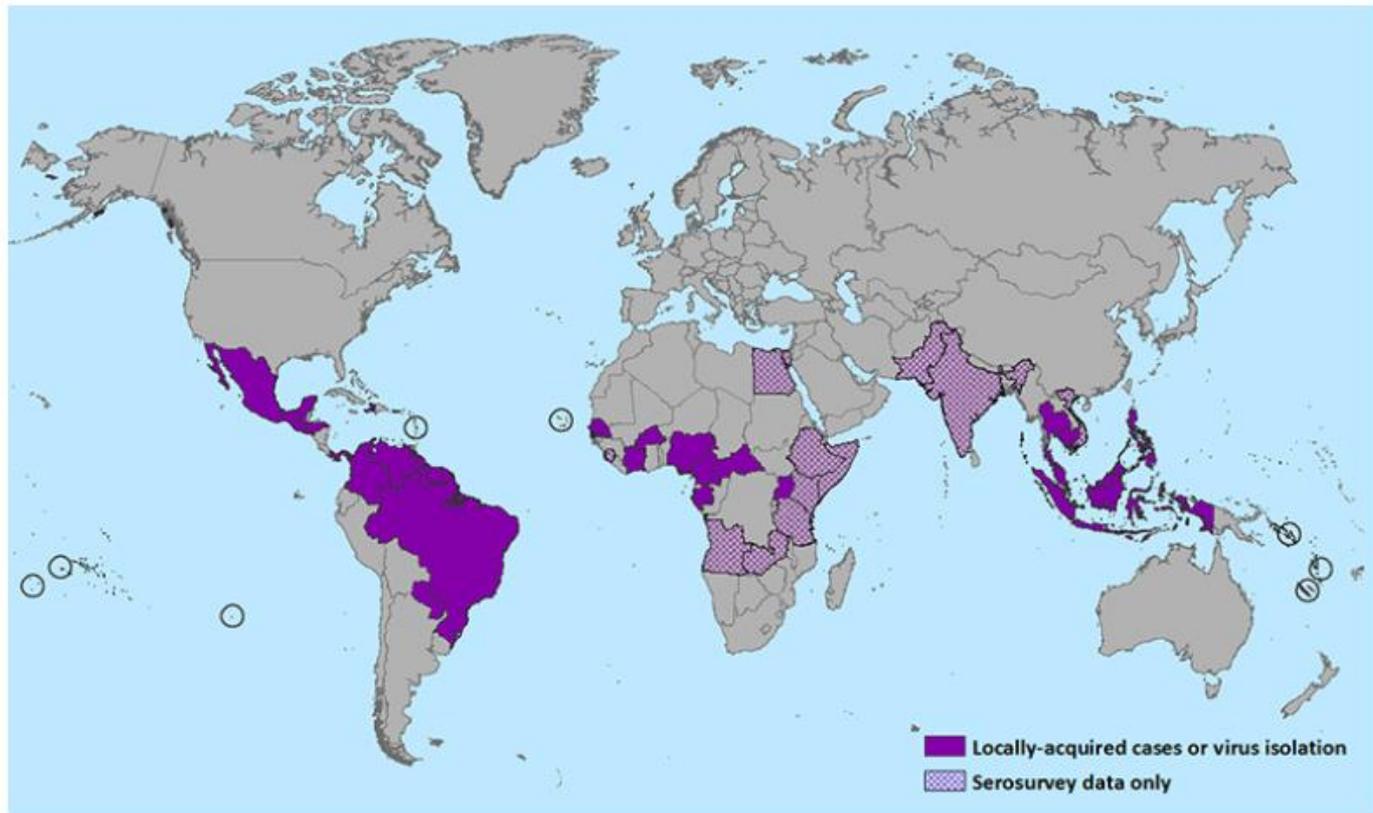
- **Flavivirus:**
  - Antibody testing has cross-reactivity with related flaviviruses: Dengue, West Nile, Yellow Fever, Japanese Encephalitis
- **Distribution:**
  - Uganda's Zika Forest 1947, then outbreaks Western Pacific Region 2007
  - Currently 48 countries/territories in the Americas Region
- **Transmission**
  - Primarily, mosquito – *Aedes aegypti*, possibly *Aedes albopictus*
  - Maternal-fetal (intrauterine or perinatal)
  - Sexual
  - Lab exposures
  - Transfusion and theoretically, organ/tissue transplant and fertility treatment
  - Detected in breast milk, saliva and urine but no documented transmission to date

# General *Aedes aegypti* and *Aedes albopictus* Distribution

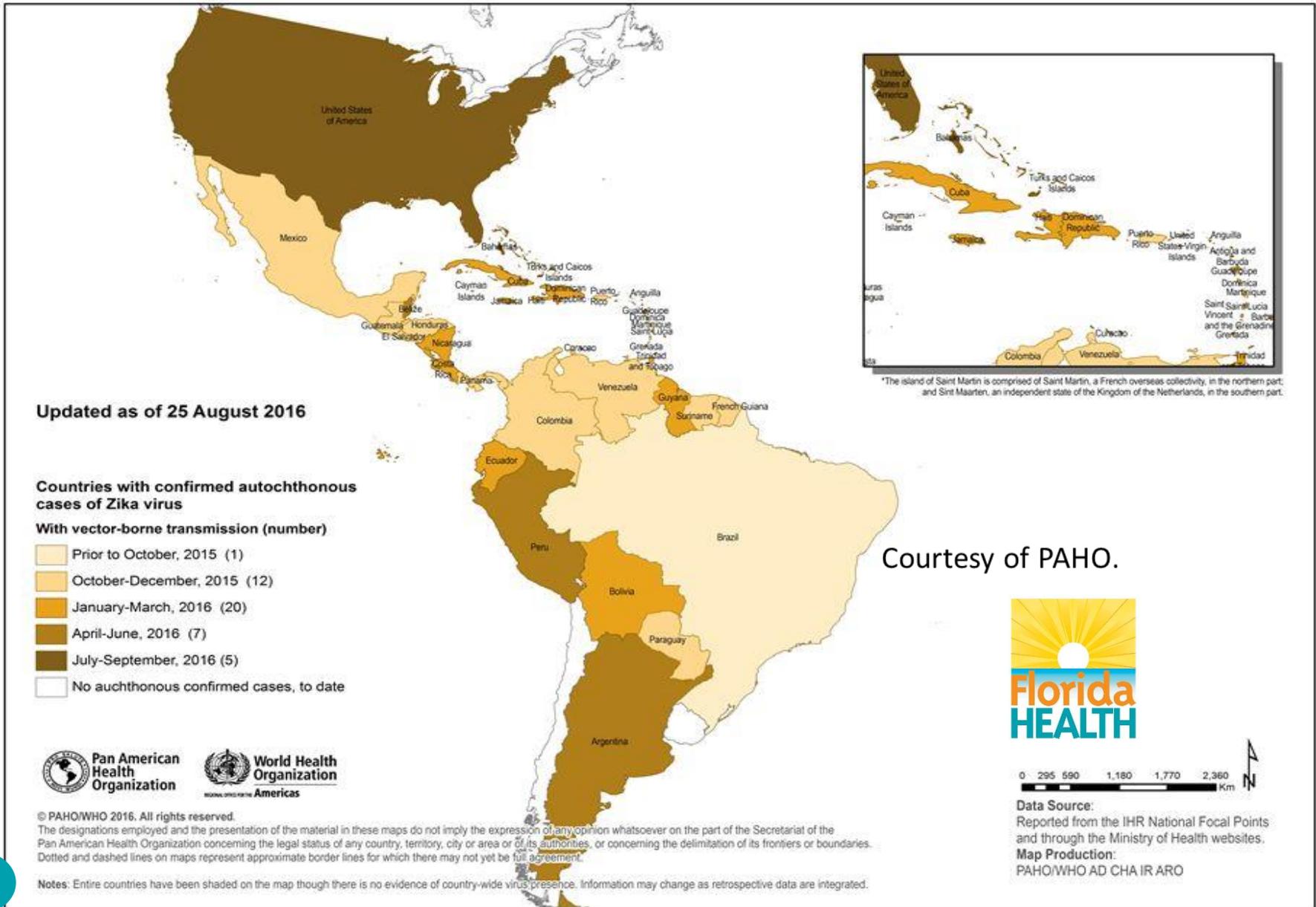


# Zika Fever Distribution

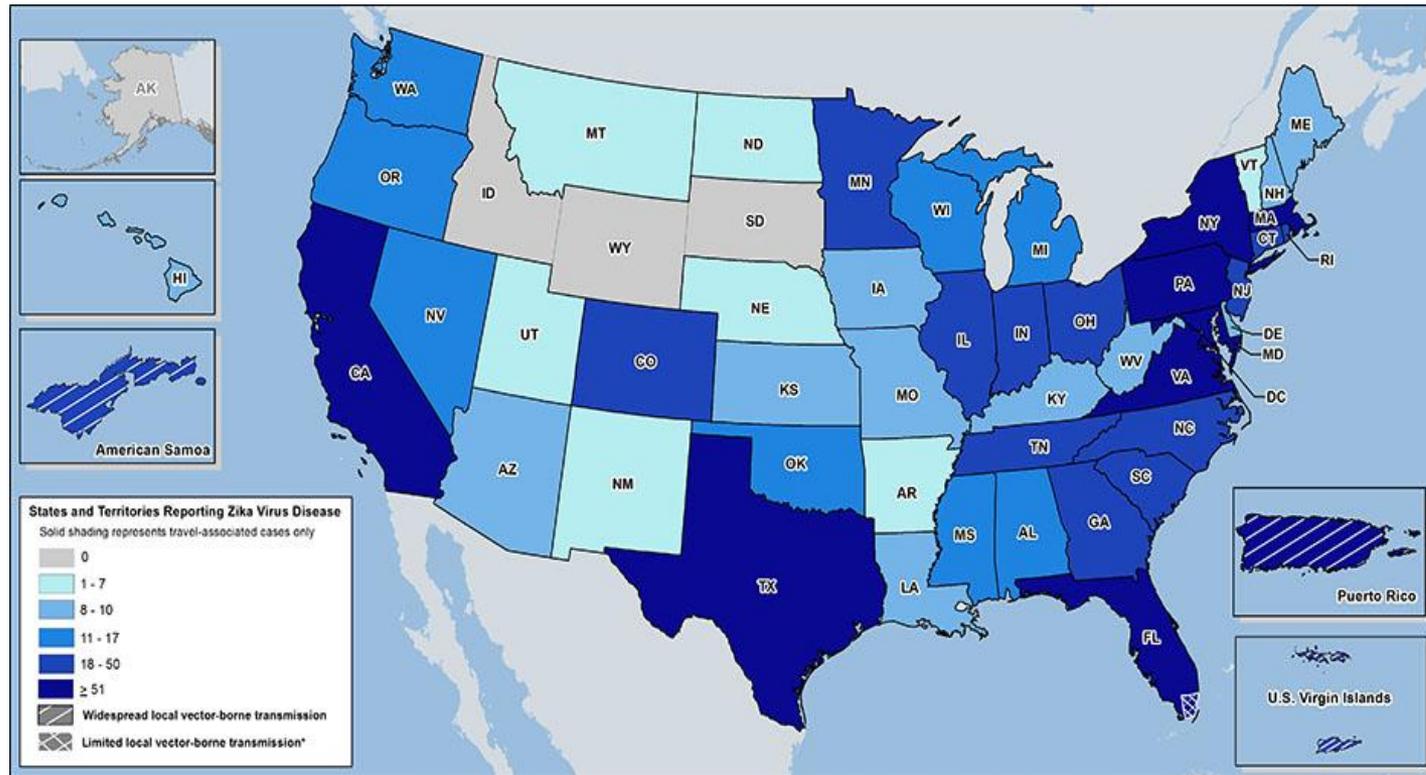
Countries that have past or current evidence of Zika virus transmission (as of January 2016)



# Countries and territories in the Americas with confirmed autochthonous (vector-borne) Zika virus cases, 2015-2016



# Zika Cases Reported in the United States



Laboratory-confirmed Zika virus disease cases reported to ArboNET by state or territory (as of August 3, 2016)

# FL Status

- Florida has confirmed local transmissions of Zika virus are occurring in two small areas in Miami-Dade County.
  - Area One is a small, less than one-square mile area in Miami-Dade County, just north of downtown
  - Area Two is a less-than 1.5 square mile area in Miami Beach within the boundaries of 8th and 28th streets
- Florida's small case cluster is not considered widespread transmission.



# FL Status

- As of September 13, 2016:
  - 634 Travel-Associated Zika Cases in non-pregnant individuals
    - Majority in Miami-Dade County but 36 counties have reported cases
  - 70 Locally Acquired Cases
    - Majority in Miami-Dade County
  - 86 Pregnant Women with laboratory evidence of possible Zika infection
    - Locations not disclosed
- DOH continues door-to-door outreach and targeted testing in Pinellas, Palm Beach and Miami-Dade counties
- Mosquito abatement and reduction activities are also taking place around the locations being investigated
- DOH conducts a thorough investigation by sampling close contacts and community members around each case to determine if additional people are infected
- The department is currently conducting 17 investigations

# CDC Travel Alert/HAN

- CDC recommends that women who are pregnant or thinking of becoming pregnant should avoid non-essential travel to areas with active Zika transmission
- Pregnant women and their partners living in areas of active transmission should consistently follow steps to prevent mosquito bites and sexual transmission of Zika
- For more information:
  - <http://www.cdc.gov/media/releases/2016/p0801-zika-travel-guidance.html>
  - <http://wwwnc.cdc.gov/travel/notices>
  - <http://emergency.cdc.gov/han/han00393.asp>
  - EpiCom
  - Zika Virus Information Hotline is **1-855-622-6735**

# Incubation and Viremia

- Incubation period generally 3-14 days
- Viremia ranges from a few days to one week
- Virus generally detectable in blood for 7 days after symptom onset
- Virus generally detectable in urine for 14 days after symptom onset
- Virus has been detected in semen up to 6 months

# Zika Fever Clinical Presentation

- 1 in 5 people infected will become symptomatic
- Presentation similar (but milder) to other arboviral diseases common in same endemic areas
- Differential: Dengue, Chikungunya, Leptospirosis, Malaria, Rickettsia, Rubella, Measles, Group A Strep, Parvovirus, Enterovirus, Adenovirus
- Most common signs and symptoms:
  - Fever (often low-grade)
  - Maculopapular rash
  - Arthralgia
  - Conjunctivitis
  - Myalgia
  - Headache
  - Retro-orbital pain
  - Vomiting

# Clinical Features of Zika Fever vs. Dengue and Chikungunya

Features	Zika	Dengue	Chikungunya
Fever	++	+++	+++
Rash	+++	+	++
Conjunctivitis	++	-	-
Arthralgia	++	+	+++
Myalgia	+	++	+
Headache	+	++	++
Hemorrhage	-	++	-
Shock	-	+	-

Rabe, Ingrid MBChB, MMed “Zika Virus-What Clinicians Need to Know?”  
 (presentation, Clinician Outreach and Communication Activity (COCA) Call, Atlanta,  
 GA, January 26 2016)



# Zika Fever (continued)

- Symptomatic treatment
  - Typically resolves within a week
  - Coinfections with other flaviviruses possible and should be considered, so avoid aspirin and similar drugs (e.g., NSAIDs)
- Severe disease requiring hospitalization is uncommon and fatalities are rare
- Infection during pregnancy (especially in first and second trimesters) is associated with microcephalic infants and/or other poor pregnancy outcomes
- Increasing evidence of association with Guillain-Barré Syndrome (GBS) post infection

# Zika Virus Link to Microcephaly?

Baby with Microcephaly



Baby with Typical Head Size



<http://www.cdc.gov/ncbddd/birthdefects/microcephaly.html>

# Recommendations for Testing

- Guidance is subject to change
- At least one symptom (fever, rash, joint pain, red eyes) during/within two weeks of travel to areas with ongoing Zika virus transmission
- Pregnant women with/without symptoms should be tested if travel to or reside in endemic areas (including areas of concern in FL)
- Suspect local cases
  - Common differential diagnoses have been ruled out
  - Three of the four major symptoms
  - Epi-linked to a confirmed or probable case (e.g., a household or other close contact)

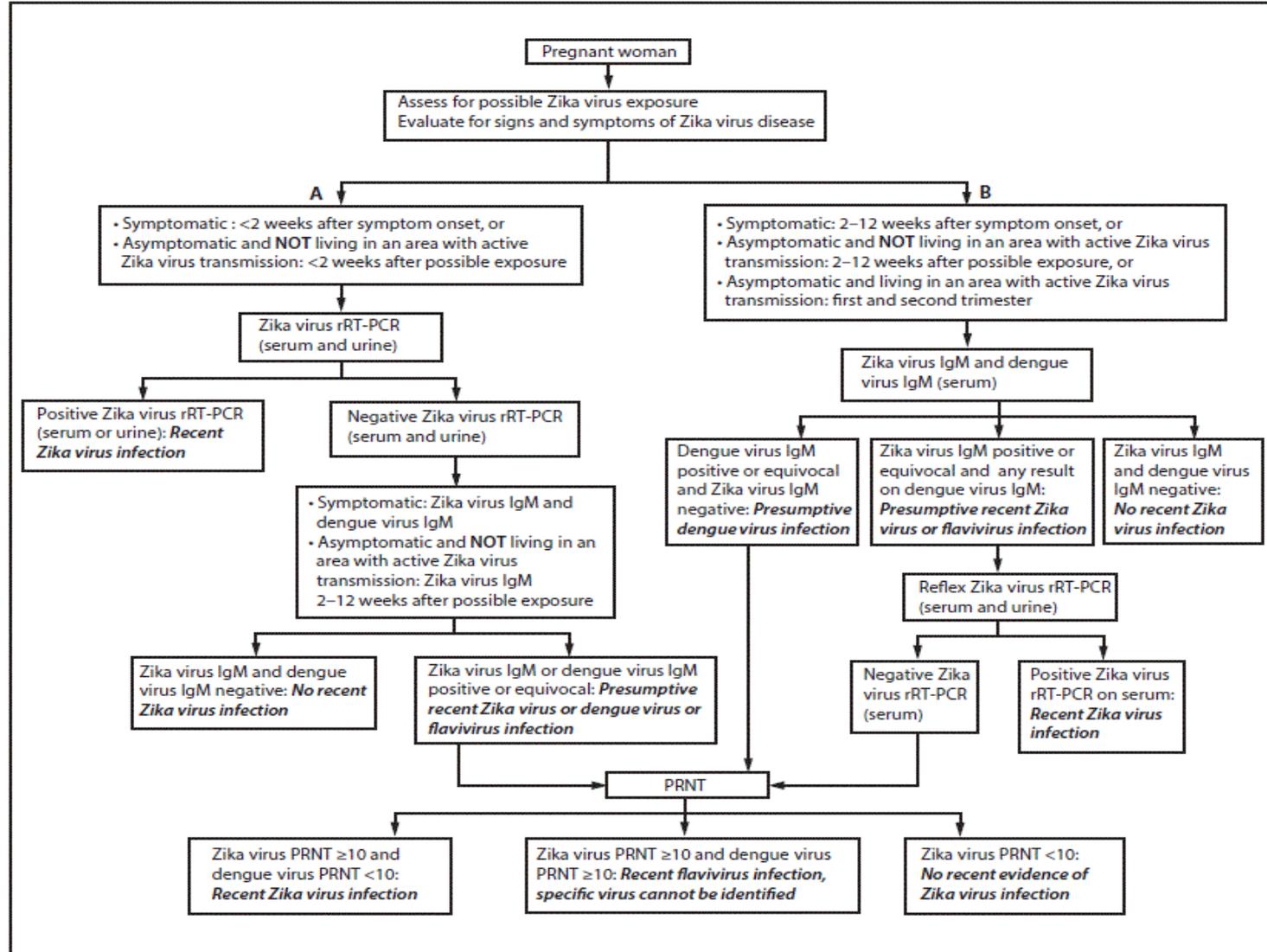
# Laboratory Testing

- Commercial testing now available for PCR and IgM
- rRT-PCR detects virus in serum < 7 days and/or urine samples  $\leq$  14 days after illness onset
- Serology for IgM and neutralizing antibodies in serum collected  $\geq$  4 days and up to 12 weeks after illness onset
- Plaque reduction neutralization test (PRNT) for virus-specific neutralizing antibodies done at CDC
  - Addresses cross-reactivity with related flaviviruses
  - Serum sample collected  $\geq$  4 days of illness onset
  - Convalescent specimen may be needed

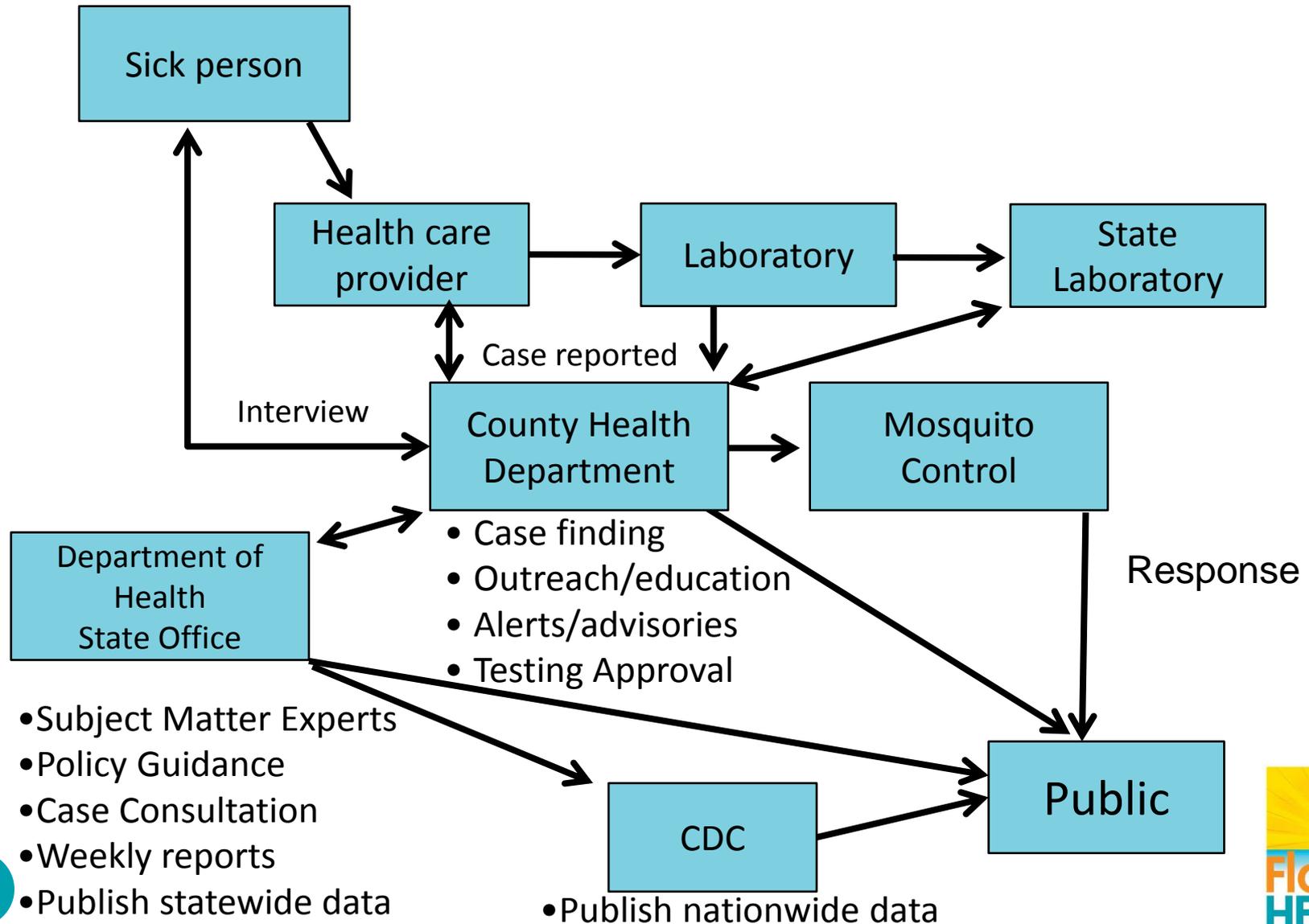
# Testing (continued)

- All persons with positive lab results for Zika need to be reported to public health regardless of symptoms
- Pregnant women who meet the criteria for testing but cannot obtain testing by a commercial lab (e.g., uninsured or under-insured) may be referred to the county health department (CHD) for testing
- Pregnant women who do not meet the criteria for testing (no exposures or symptoms) but still request testing, may be referred to the CHD for testing after discussing the risks and benefits of testing

# Testing/Interpretation for Pregnant Women with Possible Exposure to Zika Virus – United States



# Suspected Zika Fever Case Investigation



# Emergency Rules Noticed

- Noticed February 5, 2016
- 64DER16-1 (64D-3.029) Diseases or Conditions to be Reported
  - Requires immediate reporting to DOH of suspected or confirmed cases of the Zika virus by physicians, hospitals, and laboratories. Reporting should occur immediately as soon as infection is suspected but does not need to occur after hours.
  - Reporting should occur upon initial suspicion of infection (prior to testing) to ensure effective mosquito control efforts can begin as soon as possible, to reduce the possibility of local transmission.

# Suspect Zika Infection?

**Infection with Zika should be suspected in:**

- 1. All persons**, including pregnant women, with two or more of the following **signs/symptoms**: fever, maculopapular rash, arthralgia or conjunctivitis (GBS could follow) **and a history of travel** to an area with Zika virus activity **in the two weeks prior to illness onset**
- 2. Mother of an infant or fetus with microcephaly or intracranial calcifications or other abnormalities, or poor fetal outcome** diagnosed after the first trimester **and history of travel** to an area with Zika virus activity during pregnancy (Testing of both the mother and infant is recommended)

# Suspect Zika Infection?

3. Infants of symptomatic or asymptomatic pregnant women who traveled to an area reporting Zika virus activity while pregnant (testing of both mother and infant is recommended)
4. Suspect local cases in a county/area with no reported local Zika virus infections and three or more of the following signs/symptoms: fever, maculopapular rash, arthralgia or conjunctivitis
5. Suspected Zika virus associated GBS cases

# Florida Case Example 1

- Female, early 40s
- Office visit on 1/26/2016
  - CC: red eyes, hives generalized, pain fingers (joints), fatigue
  - Travel history (Haiti) for two weeks (1/11 – 1/25)
  - Rash started on 1/22 resolved before (mild pruritus), arthralgia 3 days, fatigue and malaise
  - Recalls mosquito bites while overseas
  - Physical unremarkable
- Laboratories
  - ZIKAV PCR/RNA Amplification (serum) Negative
  - ZIKAV PCR/RNA Amplification (urine) Positive
  - DENGUE FEVER ABS, IGG = 11.46 (H)

# Florida Case Example 2

- Female, late 50s
- Office visit on 2/2/2016
  - CC: fever, joint pain, headache, nausea, and rash (onset 1/30/16)
  - Travel history to PR (returning 1/29/2016)
    - Family member in PR diagnosed with Zika (Dx on 1/25/16?)
  - No information on physical
- Laboratories
  - ZIKAV PCR/RNA Amplification (serum) Equivocal
  - ZIKAV PCR/RNA Amplification (urine) Positive

# Available Resources

- Zika fever guidance document
- Clinician one-pager
- Information for obstetricians
- Mosquito bite prevention in travelers handouts
- FAQs document
- DOH Zika Virus webpage: <http://www.floridahealth.gov/diseases-and-conditions/zika-virus/index.html>
- CDC Zika Virus webpage: <http://www.cdc.gov/zika/>

# Mosquito Bite Prevention

- **DRAIN** water from any containers where water has collected.
- **CLOTHING:** If you must be outside when mosquitoes are active, cover up. Wear shoes, socks, long pants, and long sleeves.
- **REPELLENT:** Apply mosquito repellent to bare skin and clothing. Always use repellents according to the label. Repellents with DEET, picaridin, oil of lemon eucalyptus, para-menthane-diol, and IR3535 are effective. Use netting to protect children younger than 2 months.

See: Mosquito Bite Protection in Florida

[www.floridahealth.gov/zika](http://www.floridahealth.gov/zika)

# To Cure Disease is Glory

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# To Prevent Disease is Victory

