Chikungunya Virus: Preparing Florida for an Emerging Threat
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Centers for Disease Control and Prevention

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Bureau of Epidemiology
Florida Department of Health

Andrea Leal
Operations Director/Entomologist
Florida Keys Mosquito Control District
## Florida Demographics

<table>
<thead>
<tr>
<th></th>
<th>Florida</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (2012 est.)</td>
<td>19,320,749</td>
</tr>
<tr>
<td>Hispanic or Latino (2012)</td>
<td>23.2%</td>
</tr>
<tr>
<td>Foreign born (2008-2012)</td>
<td>19.3%</td>
</tr>
<tr>
<td>Language other than English at home (age 5+, 2008-2012)</td>
<td>27.3%</td>
</tr>
<tr>
<td>Persons below poverty level (2008-2012)</td>
<td>15.6%</td>
</tr>
<tr>
<td>Persons per sq. mile</td>
<td>350.6</td>
</tr>
</tbody>
</table>

Florida Visitors

2013: Over 15 million international visitors; more than 7 million from dengue-endemic countries in Latin America/Caribbean

2011: 13.5 million cruise ship passengers; many ports of call in Caribbean
General *Aedes aegypti* and *Aedes albopictus* Distribution

O’Meara’s Zones (1994-2001)

Courtesy of Dr. Peter Jiang, FDACS
Imported Dengue Cases, Florida 2009-2013

n = 524
Imported Dengue in Florida, 2009-2013

Florida Imported Dengue Cases 2009-2013

Number of Imported Cases
- 0
- 1
- 2-5
- 6-10
- 11-50
- >50
## FL Local Dengue, 2009-2013

<table>
<thead>
<tr>
<th>County</th>
<th>Primary Vector+</th>
<th># Imported Cases°</th>
<th>Local Intros</th>
<th>Non-U.S. Born</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broward</td>
<td>AE</td>
<td>59 (11%)</td>
<td>1</td>
<td>31%</td>
</tr>
<tr>
<td>Hillsborough</td>
<td>AE</td>
<td>22 (4%)</td>
<td>1</td>
<td>15%</td>
</tr>
<tr>
<td>Martin</td>
<td>AA/AE</td>
<td>1 (&lt;1%)</td>
<td>2</td>
<td>16%</td>
</tr>
<tr>
<td>Miami-Dade</td>
<td>AE</td>
<td>189 (36%)</td>
<td>8</td>
<td>51%</td>
</tr>
<tr>
<td>Monroe</td>
<td>AE</td>
<td>1 (&lt;1%)</td>
<td>1</td>
<td>10%</td>
</tr>
<tr>
<td>Palm Beach</td>
<td>AA/AE</td>
<td>46 (9%)</td>
<td>2</td>
<td>22%</td>
</tr>
<tr>
<td>Osceola</td>
<td>AA</td>
<td>19 (4%)</td>
<td>1</td>
<td>20%</td>
</tr>
<tr>
<td><strong>Florida</strong></td>
<td>AA/AE</td>
<td><strong>337/524</strong>*</td>
<td><strong>16</strong></td>
<td><strong>19%</strong></td>
</tr>
</tbody>
</table>

+AA: *Aedes aegypti*; AE: *Aedes albopictus*

* Total imported cases in Florida

° Percent of total imported cases in Florida
Imported Chikungunya

- December 2006-Miami Dade
- January 2007-Volusia
- January 2010-Miami Dade
- November 2013-Miami Dade
- December 2013-Sarasota
# Reportable Disease

## Reportable Diseases/Conditions in Florida

*Practitioner* List 11/24/08

**Did you know that you are required by Florida statute** to report certain diseases to your local county health department? *Reporting requirements for laboratories differ. For specific information on disease reporting, consult Rule 64D-3, Florida Administrative Code (FAC).*

<table>
<thead>
<tr>
<th>!</th>
<th>Any disease outbreak</th>
</tr>
</thead>
<tbody>
<tr>
<td>!</td>
<td>Any case, cluster of cases, or outbreak of a disease or condition found in the general community or any defined setting such as a hospital, school or other institution, not listed below that is of urgent public health significance. This includes those indicative of person to person spread, zoonotic spread, the presence of an environmental, food or waterborne source of exposure and those that result from a deliberate act of terrorism.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>!</th>
<th>Acquired Immune Deficiency Syndrome (AIDS)</th>
</tr>
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<table>
<thead>
<tr>
<th>!</th>
<th>Haemophilus influenzae (meningitis and invasive disease)</th>
</tr>
</thead>
<tbody>
<tr>
<td>!</td>
<td>Hansen's disease (Leprosy)</td>
</tr>
<tr>
<td>!</td>
<td>Hantavirus infection</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>!</th>
<th>Meningococcal disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>!</td>
<td>Invasive pneumococcal disease</td>
</tr>
<tr>
<td>!</td>
<td>Acute Hepatitis A</td>
</tr>
</tbody>
</table>

| ! | Hepatitis B, C, D, E, and G |
| ! | Hepatitis B surface antigen (HBsAg) (positive in a pregnant woman or a child up to 24 months old) |
| ! | Herpes simplex virus (HSV) in infants up to 12 months of age |

<table>
<thead>
<tr>
<th>!</th>
<th>Rabies (possible exposure)</th>
</tr>
</thead>
<tbody>
<tr>
<td>!</td>
<td>Ricin toxicity</td>
</tr>
<tr>
<td>!</td>
<td>Rocky Mountain spotted fever</td>
</tr>
<tr>
<td>!</td>
<td>Rubella (including congenital)</td>
</tr>
<tr>
<td>!</td>
<td>St. Louis encephalitis (SLE) virus disease (neuroinvasive and non-neuroinvasive)</td>
</tr>
</tbody>
</table>

| ! | Salmonellosis |
| ! | Saxitoxin poisoning including paralytic shellfish poisoning (PSP) |

| ! | Severe Acute Respiratory Syndrome-associated Coronavirus (SARS-CoV) disease |
| ! | Shigellosis |

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* = Report immediately 24/7 by phone upon initial suspicion or laboratory test order

** = Report immediately 24/7 by phone

+ = Report next business day

Other reporting timeframe
Notification

If there is a suspected case:

• Medical providers should immediately contact their county health department.

• County health departments should immediately contact the local mosquito control district and the Vector-Borne Surveillance Coordinator.

• If suspect case was potentially viremic while visiting another Florida county, corresponding county health department should be notified immediately.
Information-sharing MOA

Agreed protocol for reporting arbovirus human cases to Mosquito Control jurisdictions by County Health Departments

HIPAA BUSINESS ASSOCIATE AGREEMENT

The Florida Department of Health and its xxxxxxxx COUNTY HEALTH DEPARTMENT, hereinafter Covered Entity, and xxxxxxxxxx (mosquito control), hereinafter Business Associate agree to the following terms and conditions in addition to an existing agreement to perform services that involve the temporary possession of protected health information to develop a product for the use and possession of Business Associate. After completion of the contracted work all protected health information is returned to the Covered Entity or destroyed as directed by the Covered Entity.
State Lab Testing

DOH Bureau of Public Health Laboratories (BPHL):

- BPHL Tampa and Jacksonville
  - RT PCR ≤ 8 days post onset

- BPHL Jacksonville
  - IgM EIA ≥ 4 days post onset
  - IgG EIA >8 days post onset

RT PCR: reverse transcriptase polymerase chain reaction
EIA: enzyme-linked immunosorbent assay
State Lab Testing

• At least 2 ml of serum (red or tiger top)
• Cerebral spinal fluid (CSF) and autopsy tissues as appropriate
• Virus isolation/detection-placed on dry ice immediately after collection and kept frozen on dry ice while in transit
• Convalescent samples ship chilled
State Lab Testing

- All specimens that come to BPHL for dengue testing with travel to the Caribbean will also be tested for chikungunya and vice versa.
- Suspect local dengue cases will also be tested for chikungunya.
Case Definition

Clinically compatible illness

• Fever or chills as reported by the patient or a health care provider, AND
• Arthralgia or arthritis involving two or more joints, AND
• Absence of a more likely clinical explanation
Case Definition

Confirmed case

• A person with a clinically compatible illness and one or more of the following:
  • PCR
  • PRNT
  • IgM antibodies with confirmatory virus-specific neutralizing antibodies
Case Definition

Probable case
• A person with a clinically compatible illness and IgM antibodies with no virus-specific neutralizing antibody testing

Suspect case
• A person with a clinically compatible illness and no testing
Investigation

Assess for possible travel-associated versus locally-acquired infection:

• **Recent travel**: specific dates and locations of travel in the two weeks prior to illness onset

• **No recent travel**: any household contacts (household members or visitors) have traveled one month prior to illness onset
Investigation

Specimen collection:

• Forward acute serum to the BPHL for testing of chikungunya and dengue viruses.
• Arrange for a convalescent sample to be collected.
  • 10-14 days after the acute serum
Investigation

During acute stage of illness recommend:

• Case-patient stay in air conditioned or screened accommodations; use repellant when outside.

• Reduce mosquito breeding sites in and around the home.
# Merlin

## Outbreak Info

<table>
<thead>
<tr>
<th>Outbreak ID: 1806</th>
<th>Outbreak Name: STATE - CHIKUNGUNYA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outbreak Date: 12/11/2013</td>
<td>County: STATE</td>
</tr>
<tr>
<td>Outbreak Type: DISEASE</td>
<td>Outbreak Status: OPEN</td>
</tr>
</tbody>
</table>

## Outbreak Summary

| Outbreak Name: STATE - CHIKUNGUNYA |
| Outbreak Case Definition: ALL SUSPECT, PROBABLE, AND CONFIRMED CASES OF IMPORTED OR LOCALLY ACQUIRED CHIKUNGUNYA (SEE SURVEY QUESTIONS FOR CASE DEFINITIONS) |
• Mosquito-Borne illness risk level (1-5)
  • Awareness
  • Advisory
  • Alert
  • Threat
• County health department issues advisories and alerts in consultation with mosquito control district and Vector-Borne Disease Surveillance Coordinator.
COVER

Protect yourself from mosquito bites & the diseases they carry.

DRAIN

Feeling the sting of mosquitoes? Then it’s time to drain and cover.
Resources

• Weekly report
• State guide
• Clinician one-pager
• Educational materials (multiple languages) and press release templates
• State Arbovirus Advisory Committee

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Andrea.Bingham@flhealth.gov