Public Health Impact of Zika in Florida

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Division of Disease Control and Health Protection
Zika Virus

- Almost 1 million reported cases in the Americas
- Over 30,000 cases in U.S. territories
- Differences from past experiences
  - Sexual transmission
  - Link to birth defects
  - High rates of asymptomatic cases
  - Mosquito control traditionally focused on endemic arboviruses

Image courtesy of CDC
Zika Virus

- Similarities from past experiences
  - Key partnership with local mosquito control districts
  - Dengue and chikungunya
  - Targeted educational campaigns
Zika Timeline

- 1947 Discovered, Uganda
- 1952 First human case
- 2007 Outbreak Yap
- 2008 Sexual transmission documented
- May 2015-Outbreak Brazil
- July 2015-Guillain-Barré syndrome
- October 2015-Microcephaly report
- July 2016-Local transmission identified, Florida

Image courtesy of World Health Organization
Areas With Active Zika Virus Transmission

Image courtesy of CDC
Florida Preparation: Zika

- 2015: Testing capacity at Tampa and Jacksonville public health labs
- January 2016: CDC Health Alert and Florida guidance distributed statewide
- Press releases for first imported cases
- February: Public health emergency declared
- July: Testing capacity at Miami public health lab (trioplex)
Other DOH Response Activities

- Targeting health care providers
  - Hospitals
  - American Congress of Obstetricians and Gynecologists
  - Midwives/nurses
- Working with internal partners and CDC
  - Birth Defects Registry (and CDC Pregnancy Registry)
  - Maternal and Child Health
- Syndromic surveillance
  - Guillain-Barrè Syndrome
  - Microcephaly
Other DOH Response Activities, Continued

- Partnering with blood banks statewide and federal partners to ensure blood supply is safe.
- Governor Scott directed DOH to provide Zika testing to pregnant women at all county health departments at no cost (8/3/16).
- DOH continues to improve laboratory capacity in-house and through external partnerships.
- DOH notifies mosquito control upon suspicion of mosquito-borne illness.
- Deployment of DOH and CDC staff for support.
Current Status

- As of November 29, 2016:
  - 958 imported cases
  - 173 pregnant women
  - 2 sexual transmission cases
- Top 4 countries for imported cases: Puerto Rico, Dominican Republic, Nicaragua, and Jamaica
- At least 50% of cases were visiting friends/relatives

Image courtesy of CDC
Non-Pregnant Travel-Associated Zika Fever Cases as of November 7, 2016

*Note that travel-associated cases in non-Florida residents and persons tested are included by county where the case was reported.
As of November 29, 2016:

- Local cases in Miami-Dade, Broward (1), Palm Beach (5), and Pinellas (1) counties
  - 218 cases Florida residents
  - 22 cases out-of-state residents
  - Majority of cases reported in Miami-Dade
Areas of Active Transmission

Zika Transmission Areas
- South Miami Beach Area: 28th St to the North, 8th St to the South, Intercoastal Waterway on the West, Atlantic Ocean on the East.
- Little River Transmission Area: NW 79th St to the North, N Miami Ave to the East, NW 63rd St to the South, NW 10th Ave to the West.
Symptom Onset Dates for Non-Travel Related Cases

Number of Cases

Onset Week

Non-Miami

Miami
Mapping of Non-Travel Related Cases
Breeding Sites

Photos courtesy of DOH in Miami-Dade County
Vector Surveillance

- Some resistance to all pyrethroid pesticides currently being used in Miami-Dade County (Deltamethrin, Permethrin, sumithrin, etofenprox, and prallethrin)
- Limited impact in Wynwood on the population of *Aedes aegypti* mosquito vectors from initial ground-based mosquito control efforts
- Aerial adulticiding with Naled
- No observed health impacts after Wynwood spraying
- Aerial larviciding with Bti
- Buffalo turbines
- 8 positive mosquito pools in Miami Beach
Average Number of Adult Female *Aedes aegypti* Mosquitoes Collected Per Trap, by Date – Miami-Dade County, Florida, July-August 2016

Figure courtesy of Likos A, Griffin I, Bingham AM, et al. Local Mosquito-Borne Transmission of Zika Virus — Miami-Dade and Broward Counties, Florida, June–August 2016. MMWR Morb Mortal Wkly Rep 2016;65:1032-1038. DOI: http://dx.doi.org/10.15585/mmwr.mm6538e1
Wynwood Zika Activities Timeline

Total # of locally transmitted cases - 28

- Symptom Onset Date for Cases
  Note: Cases with earlier onset dates are identified through active case finding as a part of cluster investigations. Earlier onset dates close not signify when the Department became aware of the case.
  * Notice: Asymptomatic cases are not reflected as they do not have symptom onset dates

- Truck Adulticide Sprays - 8
- Truck Larvicide Sprays - 1
- Aerial Adulticide Sprays - 4
- Aerial Larvicide Sprays - 4

**Not pictured are day-to-day on the ground activities, such as source reduction and backpack spraying.
South Miami Beach Zika Activities Timeline as of November 4, 2016

Total # of locally transmitted cases - 57

- Symptom Onset Date for Cases
- Positive Mosquito Pool Test - 7
- Truck Adulticide Sprays - 8
- Truck Larvicide Sprays - 18
- Aerial Adulticide Sprays - 4
- Aerial Larvicide Sprays - 0

**Not pictured are day-to-day on the ground activities, such as source reduction and backpack spraying.**

**Graph illustrates the most recent information received detailing mosquito control efforts in Miami Beach.**

Image courtesy of Department of Health Daily Zika Update
Media Coverage and Public Perception

Photo courtesy of Miami Herald
Field Investigation of Non-Travel Related Cases and Contacts in Miami

Photos courtesy of DOH in Miami-Dade County
Investigations Continued

- Door-to-door surveys
- Business surveys
- Pop-up clinics
- Environmental health assessments
- Mosquito control inspections
- Direct education/outreach to business owners
- Public meetings
Local Case Characteristics

- Age range: 10-89 years, median 38.9 years
- 56% male
- 7% asymptomatic
- Workplace exposures
  - Approximately 30% of cases
  - Construction workers
  - Valet attendants
  - Outdoor restaurants
  - Retail workers
- 7 non-travel related cases identified through blood donor screening
Testing

- Free testing at state laboratories for pregnant women, suspected local cases, uninsured individuals
- Over 10,000 people have been tested statewide
- Almost half were pregnant women
- Over 1,900 people tested through active surveillance (urosurvey)
- Large burden on public health laboratories
Will Zika Become Endemic?

- Key West dengue outbreak 2009-2010
- Continue fight through the winter months
  - Educational campaigns
  - Surveillance for vectors
  - Surveillance for cases
- Investigate alternative control methods?

Image courtesy of CDC
Conclusions

- Only state with local Zika virus transmission—Texas announced first local transmission—11/28/16
- Lessons learned from chikungunya and dengue experiences are applicable
- Public misconceptions and education
- Preparation is key
- Battle against Zika is a concerted effort
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