Mosquito Control Update

Board of County Commissioners
Work Session
February 16, 2016

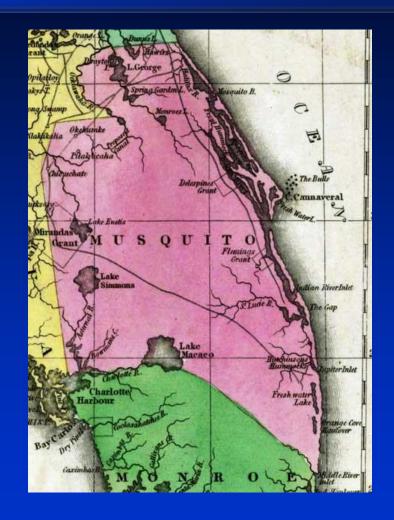


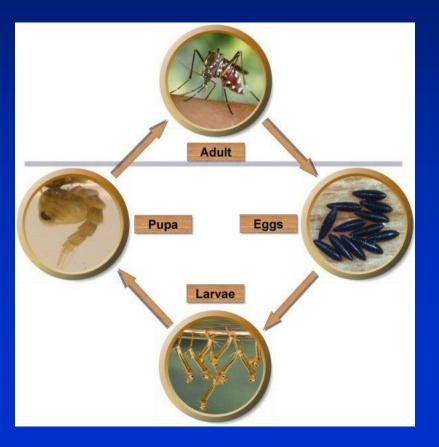
Presentation Overview

- Mosquito Control Division
- Mosquito-borne Diseases
- Control Techniques
- Outlook



Mosquito Control Division







Mosquito Control Division

- Kelly Deutsch Acting Manager
 - 30 positions
- Total Budget 2.1 M
 - Operating expenses .5 M
- 18 vehicles











Mosquito Control Division

- Surveillance and Abatement programs
 - Scheduled
 - Unscheduled
 - Larvae identification
 - Department of Health
 - Sentinel Flocks









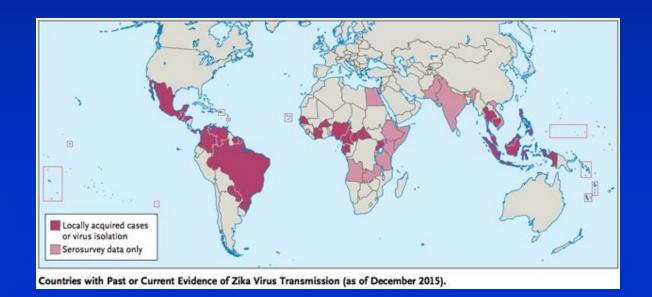


Mosquito-borne Diseases

- Established Diseases
 - -Chikungunya
 - -Dengue Fever
 - -West Nile Virus
 - -St. Louis Encephalitis
 - -**Eastern Equine Encephalitis**
 - -Malaria
- New Threat
 - -Zika Virus

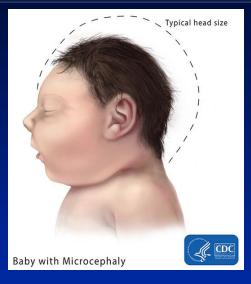


- Flavivirus
- Originally discovered in Africa
- Outbreaks in Pacific Asia
- Now spreading throughout South and Central America



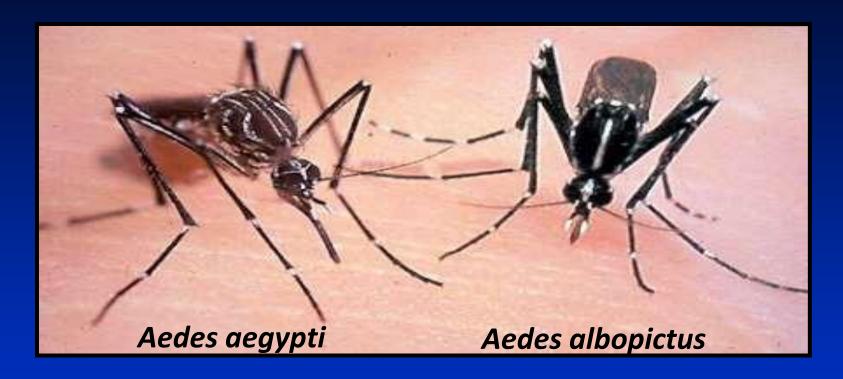


- Transmission
 - Mosquito bite
 - Maternal-fetal
 - Rarely sexually transmitted
- Clinical Presentation
 - Usually mild
 - Rash, fever, arthralgia, conjunctivitis
 - Recently linked to microcephaly, fetal demise, and Guillian-Barre Syndrome
- Symptoms occur 2-12 days after infection, resolve in 7-10 days
- Blood tests required for confirmation
- No treatment or vaccine available



Main source of protection is mosquito bite prevention

Zika Virus



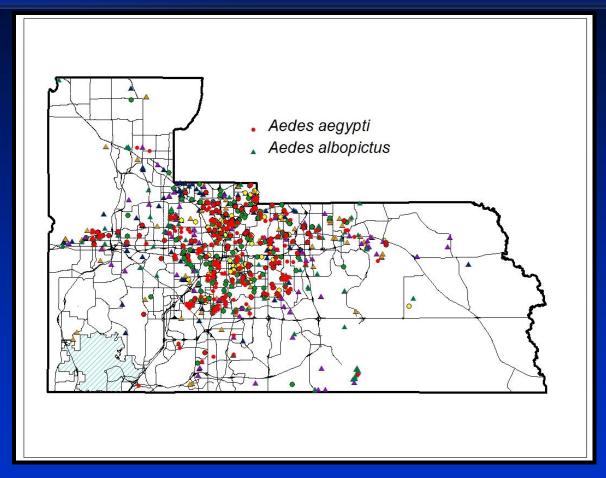
- Adapted to urban environments
- Day-time biters
- Difficult to control

Zika Virus



- Seek out standing water in containers
- Can grow from eggs to mature (biting) adults in 7 days during summer months

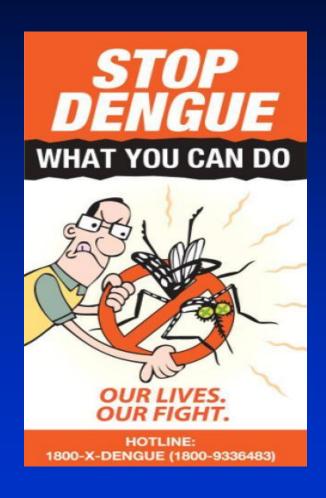
Zika Virus

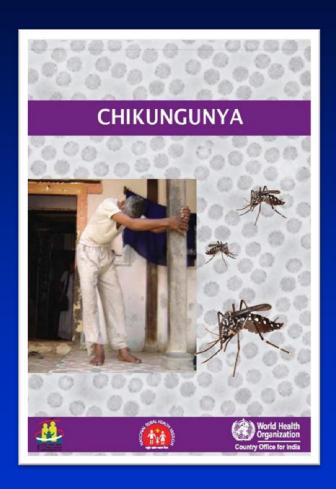


Total parcels	Residents home	Percent at home	Permission to inspect	Percent home inspected	% Total Parcels Inspected	# of Houses with containers of water	Total # of containers with water	Total # of containers with larvae	Percent insp. w/ cont.	Percent cont. w/ larvae	Staff Hours
10,716	2,461	23%	1,669	68%	16%	771	1,640	507	46%	31%	2,514



Mosquito-borne Diseases





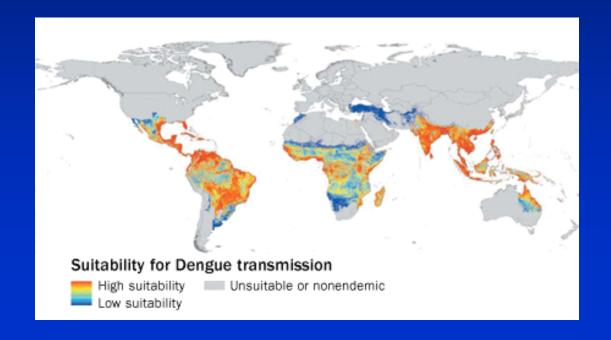
Chikungunya

- High fever, rash, arthralgia
- Effects may linger for months
- Quickly spreading throughout region



Dengue Fever

- High fever, rash, headache, myalgia
- Hemorrhagic variant may be fatal
- Established in Central and South America





- Surveillance
 - Trap and identify larvae or adult mosquitos







- Removal of standing water
- Barrier protection
 - Repellents (DEET)
 - Clothing
 - Screens





Requires manpower and public engagement



- Larvacide/adulticide
 - Timing is important
 - Ultra Low Volume
 - Less effective for Aedes species



Active ingredient: opinests (a misture of Spinesyr A and Spinesyr 3; Other Ingredients

Keep Out Of Reach Of Children

First Aid

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Application Directions

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Storage and Disposal

Do not contaminate water food or food by storage and disposal Pesticide Storage: Since is now dry place merigion encurrer cale ide Disposal: Wasles fels, lint from the use on the product war the disposed of on site or at an approved waste disposal trail to.

Container Handling: Nonevillable container. Do not reuse or refit this container. Other for recepting if available, or dispose of onety begins a sentary lendfit or syllable.

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Mosquito-borne Diseases

West Nile Virus and St Louis Encephalitis

- Fever, headache, myalgia, meningitis, encephalitis
 - Many are asymptomatic, higher mortality in elderly
- Transmitted by *Culex* Species
- Birds are "amplifying" hosts

Eastern Equine Encephalitis

- Fever, nausea, vomiting, encephalitis
 - Highest mortality of the arboviruses
- Transmitted by Aedes vexans, Coquillettidia perturbans, Ochlerotatus canadensis and Ochlerotatus sollicitans
- Birds are amplifying host



- Surveillance Sentinel Flocks
 - Chickens strategically housed around the county
 - Blood samples are taken weekly
 - Results dictate level of threat
- Prevention and abatement
 - Insecticides
 - Aerial spraying





Mosquito-borne Diseases

Malaria

- Among the leading causes of death by infectious disease worldwide
- Transmitted by the Anopheles species
- Chemoprophylaxis exists for travelers
- Rare local transmission in Florida





- Zika CDC/DOH guidance for testing and travel warnings
- Aedes species control
 - Difficulties (plastic and rubber waste, access to property)
 - Chikungunya threat looming
- Boots on the ground







Orange County Mosquito Control

- Increasing Surveillance (door-to-door, traps)
- Utilizing special equipment and insecticides
- Increasing public outreach

Health Emergency

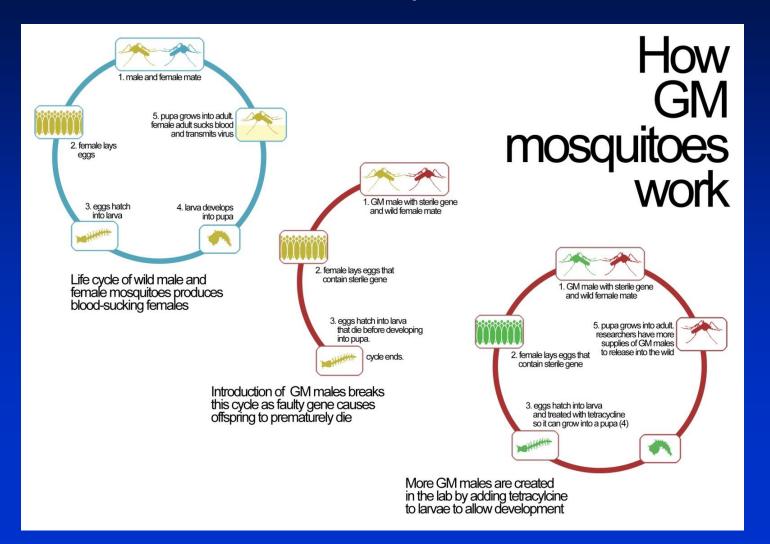
- Gather Stakeholders
 - FL Department of Health in Orange County
 - Emergency Management
 - Communications
 - Code Enforcement

Citizens

- Use screens and air conditioning
- Manage standing water on property



The future of Mosquito Control?



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