WORKSHOP:
Protecting Florida from Dengue and Chikungunya through Control of *Aedes aegypti* and *Aedes albopictus*

June 3-4, 2014

THE FLORIDA MEDICAL ENTOMOLOGY LABORATORY
University of Florida IFAS
Vero Beach, Florida
GROUP V: SURVEILLANCE

Question 1. *What are the specific available methods to be employed?*

**MAJOR THEMES IDENTIFIED:**

- Communication
- Sampling methods (e.g., adult trapping, larval surveillance)
- Human (sentinel!) surveillance
- Planning & policy development
- Spatial/ GIS tools
GROUP V: SURVEILLANCE

Question 2. What are the challenges in making the available methods successful?

MAJOR THEMES IDENTIFIED:

• Funding!

• Political will (local-state-federal)

• Surveillance priorities

• Communication
Question 3. What strategies will overcome the challenges?

MAJOR THEMES IDENTIFIED:

• Research (better understanding of surveillance data)

• Appropriate education of the public & decision-makers

• Communication between responsible entities

• Enhancement of both mosquito and human surveillance tools
GROUP V: SURVEILLANCE

GENERAL RECOMMENDATIONS:

• Funding must be secured for new surveillance initiatives

  • Secure state funding for enhancement of surveillance infrastructure (currently dependent on local taxes)

  • Fund needed research to link relationship of mosquito surveillance data to actual DEN/CHIK risk

  • Fund needed research for development of more effective and inexpensive surveillance tools

• Local surveillance agencies must establish specific surveillance goals that reflect available resources and capabilities
GROUP V: SURVEILLANCE

GENERAL RECOMMENDATIONS:

• Regularly assess whether surveillance data are addressing the established surveillance goals

• Assess statewide abilities to address gaps in surveillance resources for a statewide disease threat
GENERAL RECOMMENDATIONS:

• Communication to elicit and transfer surveillance data

  • Improve across bureaucratic levels (FL Health-Tallahassee <-> County Health <-> Mosquito control)

• Communicate status and risks to legislators & educators

• Improve participation of physicians & hospitals in case detection

• Make interagency data-sharing more inclusive state-wide

• Educate local community to participate in detection of vector mosquito hot-spots and possible human cases
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Source Reduction for
Ae. aegypti & Ae. albopictus
Available Methods

- Surveillance
  - Adult & larval mosquitoes
  - Containers
  - Tires
- Tip and Toss
- Mapping
  - Inspected areas
  - History of service requests
  - Dump sites
- Public Education
Challenges

1. Public Education & Awareness
   • No incentive for public participation
   • Lack of concise, consistent message
   • Availability of good educational materials
   • Budget limitations
   • Trespass concerns
   • Regulations for enforcement
Challenges (continued)

1. Public Education & Awareness (cont.)
   • Interagency Coordination
     – Different priorities
     – Different responsibilities
     – Effective communication
2. Identifying the Problem

- Large geographic areas
- Lack of surveillance data
- Diversity (habitats, population, etc)
- Constantly changing environment
- Accessibility to sites / properties
- GIS knowledge of area
- Insufficient staff and resources
Challenges (continued)

2. Identifying the Problem (cont.)
   - Time constraints
   - Lack training
   - Agency partnerships
   - Effective communication
3. Waste Tires

• Sale of used tires
• Proper storage of tires
• Disposal of tires
• Regulations
• Enforcement
Proposed Strategies

1. Public Education & Awareness
   • Define baseline knowledge
   • Obtain rapid diagnosis
   • Create effective PSAs
   • Target specific groups
   • Utilize graphics
   • Educate travelers at airports
Proposed Strategies (Continued)

1. Public Education & Awareness (cont.)
   • Educational program focus
     — Homeowners
     — Funeral Homes/Cemeteries
     — Construction Industry
     — Nursery/Landscaping Industry
     — Tire Facilities
Proposed Strategies (Continued)

1. Public Education & Awareness (cont.)
   • Partnerships
     — Mosquito Control
     — Health Department
     — Code Enforcement
     — Waste Management
     — Community Groups/Associations
Recommendations

1. Public Education & Awareness
   • Develop clear, concise & consistent message
   • Define target demographic
   • Disseminate message
   • Communicate message effectively
     — Inspections
     — Schools, HOA and town hall meetings
     — Brochures, social media, websites
     — County fair & outdoor venues
   • Evaluate effectiveness of message
Recommendations (continued)

2. Identifying the problem
   • Develop a database
     — GIS database analysis
     — History of complaints / service requests
     — Real-time random sampling & surveillance
   • Establish partnerships
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University of Florida IFAS
Vero Beach, Florida
Team Larviciding

Dr. Barry Alto – Facilitator
Dr. Jim Cilek – Recorder
Jim McNelly – Reporting
What are the specific available methods to be employed?

- Biological control agents.
  - Microbial: $Bti$, $Bs$
  - Predators: $Toxorhynchites$, Copepods

- Extended Release Formulations re. longevity.
Larviciding

What are the specific available methods to be employed?

• Homeowner access to larvicides.

• Application equipment
  – Aerial (Helicopter), Ground – Truck/ATV based re. ULV, LV, Backpack and Hand application.
Larviciding

What are the challenges in making the available methods successful?

- Legal
  - Access to homeowner property
  - Homeowner access to larvicides

- Insecticide resistance.

- A wary public.
What are the challenges in making the available methods successful?
- Abundant and dynamic larval sites.
- Application methodology.
- Re-allocation/prioritization of resources.
- Balance residual with selection sustainability, new modes of action and novel products.
Larviciding

• What are the challenges in making the available methods successful?

• Sustainability of predators (*Tox.*, Copepods) and organizational capacity to contend with.

• Lack of buy in:
  – Public awareness, acceptance, perception (of larviciding benefits) and participation.
  – MCDs as above.
Larviciding

• What are the challenges in making the available methods successful?
• Government ordinances and potential conflict with Mosq Control.
• Lack of political will.
  – Relationship with local Health Dept.
• Timing and scope of larviciding.
Larviciding

What strategies will overcome the challenges?

1) Access

  • Local ordinances, State Law – clarify, new laws.
  
  • Mobilization of public.
    – Supporting MCD access to “producers”.
  
  • Political will, to develop:
    – Resources and funding.
Larviciding

What strategies will overcome the challenges?

• 2) Resources!

• Timing and scope of coverage guidance, labor support.

• State funds need to be available.

• Develop Response Teams.
Larviciding

What strategies will overcome the challenges?

• 2) Resources!

• Develop standard Emergency Plan based on local demographics with local Health Dept.

• Define how to declare Emergency specific for Chik V.

• Develop Tiered Response, with standards, based on local situation.
What strategies will overcome the challenges?

3) **Advocacy** for an integrated, larviciding program (versus waiting to adulticide).
   - Stakeholders, community.
   - Public Participation.
   - MCDs.
   - Consistent message.
   - Preventative/proactive versus reactive.
   - Address public concern for use of insecticides.
What strategies will overcome the challenges?

4) Empower public to participate and own some aspect of control:

“You can access off the shelf products at your local ... such as ... and ...”
ACKNOWLEDGEMENTS

- Team Larviciding
- FMEL
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Vero Beach, Florida
Adulticidesing

Group III: Available Tools, Challenges and Solutions for Protecting Florida from Dengue and Chikungunya through Control of Adult Aedes aegypti and Aedes albopictus Mosquitoes
First Response: Killing the adult mosquitoes that are actively spreading the virus to people is the first line of defense in preventing the further spread of these diseases to people. This is accomplished through adulticiding.
Current Practices

- Many Florida mosquito control districts are not actively engaged in routine surveillance or adulticiding for domestic mosquitoes on a large scale, but some are and we can learn from their experiences.
- Most of the existing adulticiding techniques used by mosquito control districts are applicable to domestic mosquito control but must be employed in ways to account for the unique biology and behavior of *Aedes albopictus* and *Aedes aegypti*. 
# Aerial Ultra Low Volume Spray

## Challenges
- Efficacy
- Non-targets (bees)
- Public acceptance
- Resources (aircraft)
- Focused vs wide-area
- Meteorology
- Resistance

## Solutions
- Late dusk application timing
- Timing and communication
- Notification and education
- Contracting
- Helicopters
- Weather stations, media, web
- Test for, vary materials
Ground ULV Spray, Truck or Hand Held

Challenges
- Efficacy
- Public acceptance including commercial outdoor venues
- Receiving notification of human case location
- Property access
- Staffing

Solutions
- Timing
- Public education and applicator training
- Work with local Public Health Department for info
- Ask nicely, code enforcement
- Cross training, contracting
# Residual Barrier Spray

## Challenges
- Access
- Coming label restrictions not allowing use on vegetation
- Resistance
- Equipment for large scale use
- Public acceptance
- PPE requirements and public perception
- Workload, staffing

## Solutions
- Ask, persistence, education, code enforcement
- Apply for SLN State label and seek public health exemption
- Very few non pyrethroids
- Modify larviciding equipment and PCO contracting
- Education
- Education?
- Contracting, cross training
Ground Thermal Fogging

Challenges

- Public perception
- High volume, low concentrate
- Traffic interference
- Highly visible (good/bad)
- Fire hazard
- Mosquito control perception

Solutions

- Education, notify fire dept.
- Smaller targeted areas
- Avoid if possible, educate
- Surrounding awareness
- 911
- Try it, you’ll like it!
## Other Adulticiding Methods

<table>
<thead>
<tr>
<th>Method</th>
<th>Applicability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sugar baits</td>
<td>Island, oasis, small area</td>
</tr>
<tr>
<td>Insecticide treated net/screen</td>
<td>Homeowner, personal</td>
</tr>
<tr>
<td>Bait stations</td>
<td>Focal</td>
</tr>
<tr>
<td>Traps</td>
<td>Focal</td>
</tr>
<tr>
<td>Sterile Insect Technique</td>
<td>Promising but difficult overcome negative public perception and NGO lobby</td>
</tr>
</tbody>
</table>
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Public Relations

Group 4
**Message:** To Raise Awareness and Change Behavior

**Senders**
- Public Health Community
- Mosquito Control Community

**Goal:** 3 C’s
- **credible**
- **consistent**
- **cogent**

**Receivers**
- Different Publics
- Demographics
- Generations (Age, Gender, etc.)
  - Education
  - Environmental groups
  - Libraries
  - Churches
  - Tattoo Parlors
  - Bikers
  - Farm workers
2. Challenges

**Noise**
- Funding
- Staffing
- Adversaries
- Inaccurate information
- Apathy
- Hysteria
- Illiteracy
- Distrust of experts

**Means**
- Traditional (radio, television, posters, etc.)
- Social Media
- YouTube
What can we do to meet these challenges?

Feedback

- Learning how to listen
- Learning from the past
- Identification of Stakeholders
- Alliances with allied groups
- Key speaking points
- Establishing good relationships with political leaders
Recommendations:

1. MC and PH Community should identify and share what they can and cannot do. MOVs  SOPs  Factsheets
2. A centralized data archive
3. Use Hurricane Preparedness as a Model or
4. Logo
5. Universal literacy documents
6. Out of this meeting a series of action plans mapping out strategies for 30/60/90 day plan and 360 Day Plan

If we do nothing, then shame on us.
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Developing the Message (reporters)

- Three-point message we can all agree on
- What’s the problem?
  - FL has a eminent threat with BB and CHIK fever
  - Officials are taking this seriously; we are making efforts to prevent these diseases from causing epidemics; causing arthritic diseases
  - Mosquito are everyone’s business; don’t let these diseases infest your household
  - Is your yard breeding dangerous disease-carrying mosquitoes? It is against the law
- We need the public’s help; public responsibility
  - Empower the public to solve the problem
  - We have met the enemy and he is us
- Here’s what you can do
  - No flood, no blood
  - No water, no worries
  - Report mosquito breeding sites
  - Let us have access to your property
The Message

- Choice of words – avoid those with several meanings (vector, bloodmeal, etc.)
- Slogans
  - Fight the fever
  - No water, no worries
  - You may have a killer in your backyard
  - We control the mosquitoes, you control the disease
  - Fite the bite
- 3 point
  - FL, we have a problem
  - Two types of mosquitoes; two diseases
    - Breakbone; broke back; tiger mosquitoes;
  - Look in your backyard
    - Tip, dump, repellents
Our response plan

- What is mosquito control/public health going to do?
- What are you going to do that will have a chance of affecting the situation?
- How to avoid/correct apathy?