COMMUNITY MOSQUITO SURVEY AND INTERVENTION

MARTIN COUNTY (FDOH)

Does Door to Door Mosquito (Aedes) Reduction and Personal Protection Education work?

RESEARCH QUESTION

- Does door to door education have any effect on mosquito reduction activities and/or mosquito avoidance behavior in Martin County Residents?

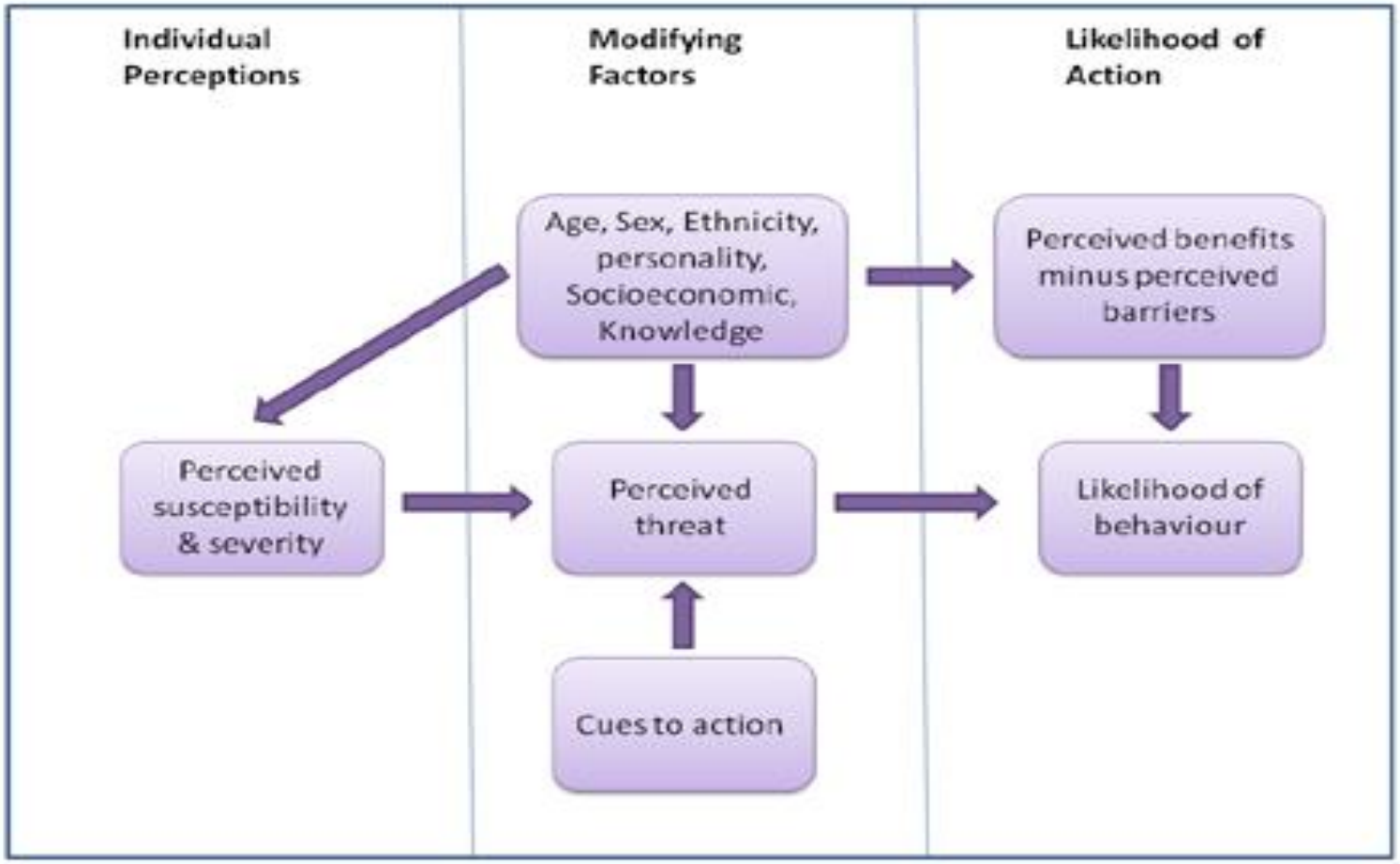
HYPOTHESIS

- **Null:** Door to door education does not have an effect on mosquito reduction activities and/or mosquito avoidance behavior in Martin County residents.

- **Alternative:** Door to door education does have an effect on mosquito reduction activities and/or mosquito avoidance behavior in Martin County residents.

THEORECTICAL MODEL

- Health Belief Model



METHODS

- Sampling Frame: Martin County, Florida
  - Low density residential areas in Martin County (random selection based on GIS criteria)
- Sample:
  - 6 Low density residential areas in Martin County (intervention/non-intervention matched by income-a confounder for prevention in previous studies)
    - Homes within 200 meters radius of selected mid-point (400 meters across) separated by 1,000 K buffer
      - 3 are interventional – door to door education
      - 3 are not interventional – no door to door education

METHODS-COMMUNITY SURVEY

- Survey Instrument – intervention group
  - Self-declared Mosquito avoidance and breeding reduction behavior (8/5-8/7)
    - Before intervention
  - Self-declared Mosquito avoidance and breeding reduction behavior (10/30-11/15)
    - After intervention

  Data Collection:
  - Tablet for data collection – Epi Info 7
  - Data analysis: Excel; STATA 9.2; EPI info 7.
- Intervention – Door to door video education
  - https://www.youtube.com/watch?v=ayVop5Dx0YQ

METHODS

- Outcome measurements:
  - Baseline weekly mosquito data collection in all zones (July, 2016-November 2016)
  - Weekly mosquito data collection in all zones through the study period (August-November)
    - B-G Traps
    - Oviposition traps
    - Ovum species identification (hatching eggs collected)
    - Blood meal analysis of collected *Aedes aegypti (PCR)*
  - Self-reported mosquito avoidance and reduction behavior before and after the intervention by survey.

RESULTS TO DATE: SUMMARY

- African-Americans under-represented
- Participation rate: 52%
- Survey: Personal behavior
  - 54% spent from 1-4 hours outside their home daily (30% spent < 1 hour)
  - 39% spent 1-4 hours outside at some other location daily (33% spent > 4 hours)
  - **42% remember being bitten by mosquitoes in the last month**
  - **Most were bitten at home**
  - **57% rarely or never use mosquito repellant**

RESULTS TO DATE: SUMMARY

- 78% reported that they tip and toss water outside their home at least weekly
- Beliefs about where mosquitoes that transmit Zika, Dengue, Chik-V breed:
  - 92% said that mosquitoes will breed in “standing water”
  - 40% said that mosquitoes will breed in mud
  - 32% said mosquitoes will breed in soil
  - 43% said mosquitoes breed in sewers
  - 55% said mosquitoes breed in vegetation

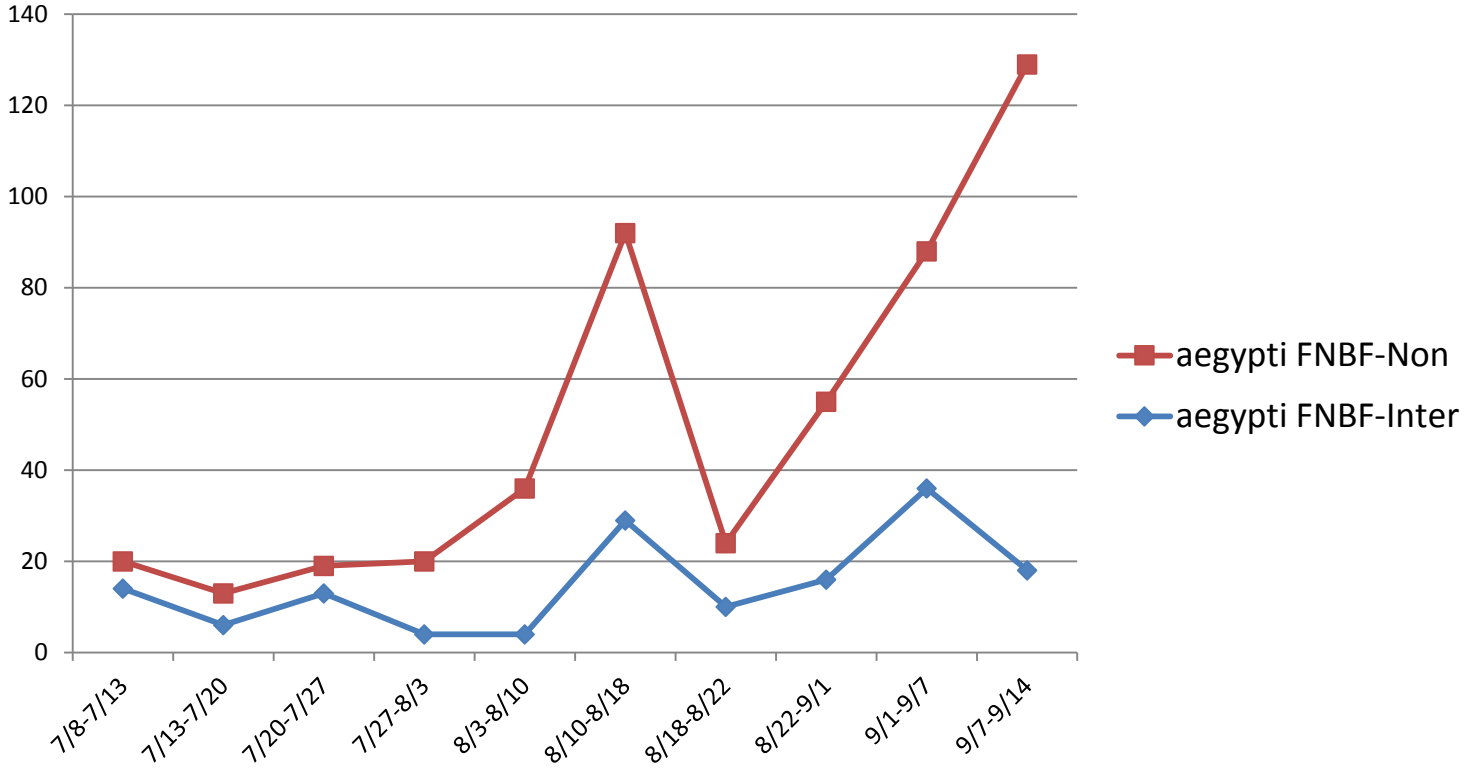
DATA SO FAR:

- People are spending a lot of time outside, mostly at home and the majority are not using repellent
- People report that they are tipping and tossing at least weekly
- People do not understand that “standing water” by itself is not a risk factor for Aedes breeding
  - *Culex messages about eliminating standing water have been very effective but are different than Aedes control measures*

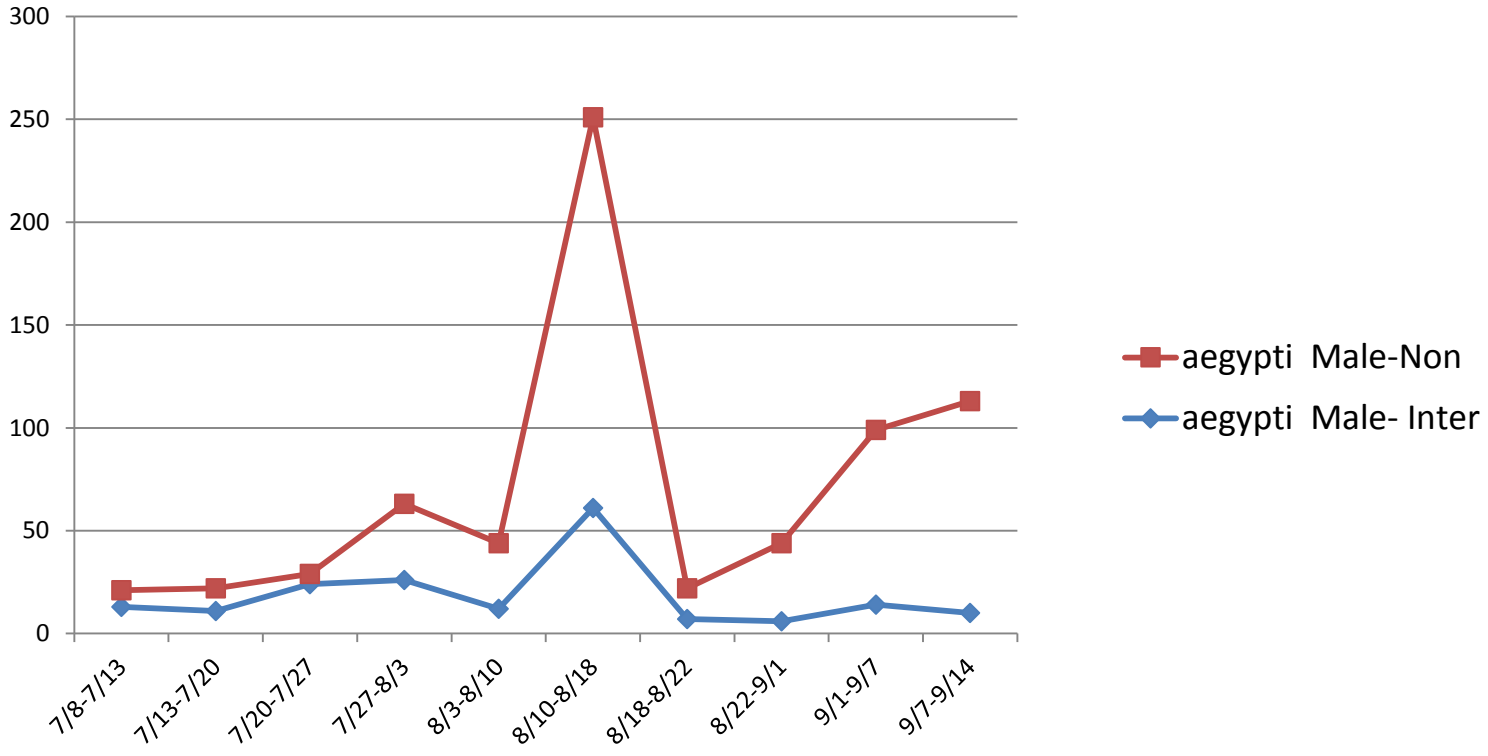
MOSQUITO DATA SO FAR:

- *While mosquito populations appear to be lower in the intervention group, the role of “super-breeders” is not clear. (P=0.02)
- Both intervention and nonintervention groups have “super-breeders”.
- Data still in preliminary analysis phase
  - Data analysis with and without super-breeders
  - Matched pair analysis between intervention and non-intervention groups matched on income
  - Data analysis of before and after behavior analysis

NUMBER OF FEMALE NON-BLOOD FED AE. AEGYPTI BY WEEK AND INTERVENTION GROUP COMPARE TO THE NON-INTERVENTION GROUP



NUMBER OF MALE AE. AEGYPTI BY WEEK IN THE INTERVENTION GROUP COMPARED TO THE NON-INTERVENTION GROUP



NEXT STEPS/DISCUSSION

- Explore the role of “super-breeders” in communities
  - Potential opportunity to participate in a new study that will be exploring this topic
- Change messaging from solely advising about “standing water” and add messaging about the role of containers for breeding Ae. Agypti

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- Dr. Ben Jacob, Research Professor, Department of Global Health at USF
- Ben Klekamp, FDOH-Orange

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