

The Spatial Distribution of Zika Virus Knowledge in Miami-Dade County

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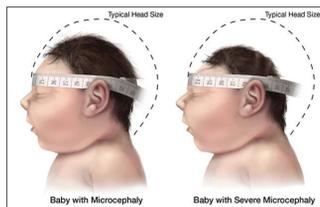
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Introduction

- The Zika virus has gone from a relatively unknown endemic mosquito-borne illness with mild symptoms in the 1960's, to being declared a Public Health Emergency of International Concern in early 2016.
- Miami's geographic position, coupled with its high volume of commercial traffic and tourism, has made it vulnerable to epidemic situations occurring in South America and the Caribbean.
- Florida's latest case count is 708 cases, representing 18% of U.S. cases (losing only to New York with 883, 22%) (CDC 2016).
- ~20% of Florida cases are locally acquired, almost all in Miami-Dade county (CDC 2016).

Aim

- This study aims to analyze the spatial distribution of Miami-Dade residents' Zika knowledge by exploring if their disease knowledge score ("K score"), or specific transmission knowledge, can be characterized by neighborhood of residence, age, and main sources of Zika information.



Microcephaly head sizes compared to healthy head size (CDC).



Main mosquito vector: *Aedes aegypti*.

Method

- 11 questions, and their demographic data, were used from a Zika Knowledge, Attitudes, and Practices (KAP) survey (conducted within thesis research).
- K Score were ranked as:
 - Low (0-2 points)
 - Medium (3-7 points), and
 - High (8-12 points)

Points were counted if respondents:

- Had heard of Zika before survey.
- Identified mosquitoes as vector.
- Identified all transmission routes (e.g., mosquito, sexual, and from mother to baby).
- Knew symptoms do not always manifest.
- Identified min. 3 symptoms or said "flu-like".
- Knew there is no current treatment.
- Identified pregnant women or their babies as the groups that can be most seriously affected by Zika.
- Identified min. 1 neurological related risk for newborn babies with infected mothers, or named Microcephaly.
- Had heard of Microcephaly before survey (those who acquired n.8 automatically acquire n.9).
- Identified neurological issues or abnormal head size as a symptom of Microcephaly.
- Had heard of Guillain Barré Syndrome before survey.
- Used min. 1 key word to explain Guillain Barré: neurological, immune system, nervous system, paralysis.

This poster is based on the data acquired in the KAP study as of 11.11.16, representing 169 respondents, in 33 Miami-Dade neighborhoods.

Results

- Respondents were predominantly of either Cuban (27.8%) or Floridian (24.3%) origin.
- Only 1.8% of respondents had no high school diploma, the majority presented either a high school diploma / some college (42%), or a bachelor's degree or higher (52.6%).
- The neighborhoods with the greatest number of respondents were Kendall (14.2%), Hialeah (8.9%), and Miami (8.3%).

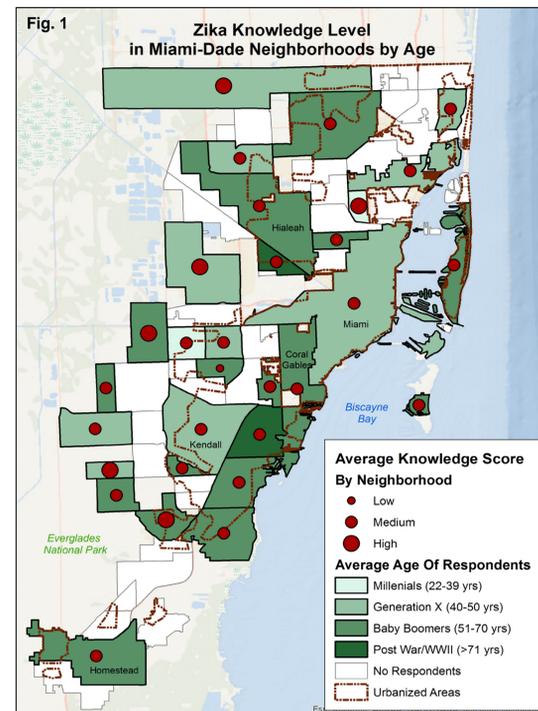


Fig 1. A significant positive correlation was found between age and selecting Microcephaly as a risk to babies whose mothers have Zika during pregnancy, $p < 0.01$.

- Mean age of respondents was 55 years, and 52% were "Baby-Boomers (51-70yrs)".

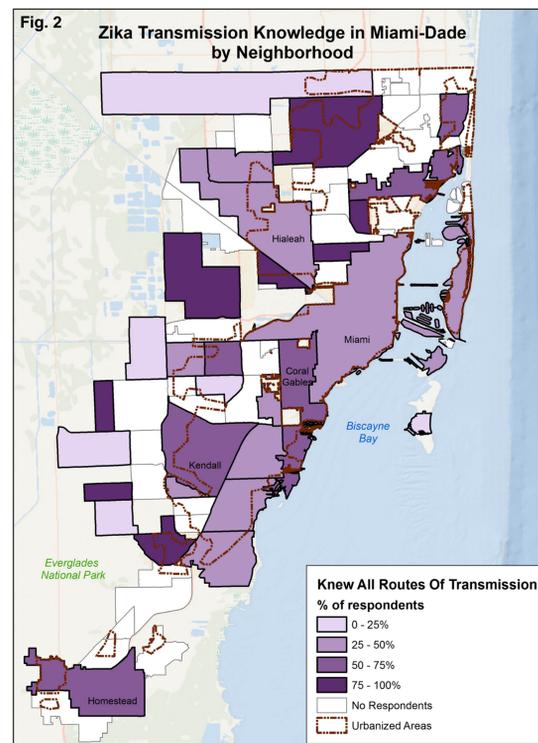


Fig 2. Shows the distribution by neighborhood of the percentage of respondents that identified all three possible transmissions: sexual, mosquito bites, and from mother to baby.

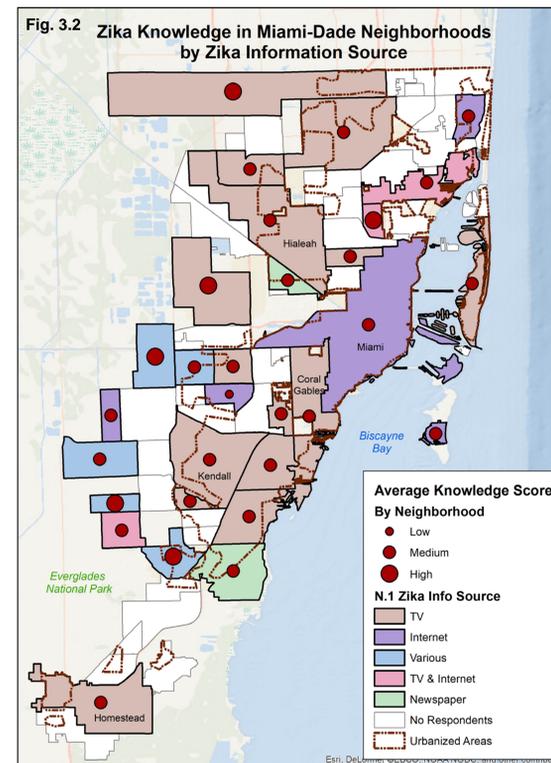
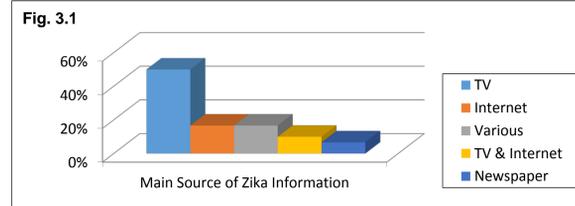


Fig 3.1 & 3.2. A significant positive correlation was found:

- Between naming TV as the main information source, and knowing that Zika can be sexually transmitted, $p < 0.01$.
- Having either TV or Internet as your main information source significantly correlated with characterizing Zika symptoms as "flu-like", $p < 0.05$.

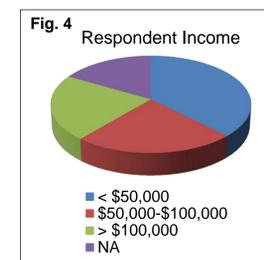


Fig 4. Significant correlations, $p < 0.05$, were found between income and the following:

- Knowing that Zika can be sexually transmitted,;
- Characterizing Zika symptoms as "flu-like";
- Proposing "being born with a smaller head than a healthy baby" as a symptom of Microcephaly;
- Having heard of the Guillain Barré Syndrome;

 No significant correlation was found between K scores and self-identifying as Hispanic or Latino.

Other knowledge related findings have been summarized in the table below.

Table 1. Zika Knowledge in Miami-Dade	
Respondent:	
Knew Zika could be transmitted by mosquitos.	94%
Knew Zika could be transmitted sexually.	64.5%
Knew symptoms do not always manifest.	43.8%
Described symptoms as "flu-like".	34.9%
Knew there is currently no treatment for Zika.	55%
Identified pregnant women as those at risk of suffering the "worst consequences" if they contract Zika.	52.7%
Identified "being born with a smaller head than a healthy baby" as a risk for babies whose mother's contract Zika during pregnancy.	87.6%
Named Microcephaly when asked what the risk was for babies whose mother's contract Zika during pregnancy.	32.5%
Had heard of Microcephaly before survey.	34.9%
When specifically asked about Microcephaly, identified "being born with a smaller head than a healthy baby" as a symptom.	12.4%
Had heard of Guillain Barré Syndrome before survey.	25.4%
Used at least one key word in attempting to explain GBS: neurological, immune system, nervous system, paralysis.	7.7%

Conclusions

- While the general public appears conscious of the role of mosquitos as vectors of the Zika virus, awareness of its sexual transmission is still wanting.
- Very few respondents knew the symptoms of Zika.
- While almost 90% knew "abnormal head size in babies" was a possible consequence of Zika, only 1/3 suggested Microcephaly on their own, or had heard of it before the survey, and a little over 12% specifically named this a symptom of Microcephaly. This may suggest confusion between what is caused by Zika and what is caused by Microcephaly.
- Contrary to past findings, thus far no significant correlation has been found between K scores and self-identifying as Hispanic or Latino.
- Initial correlations suggest that income, information source, and age, have a role in access to knowledge, however study completion with a larger number of respondents is still needed before attempting any generalizations,

Acknowledgments

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