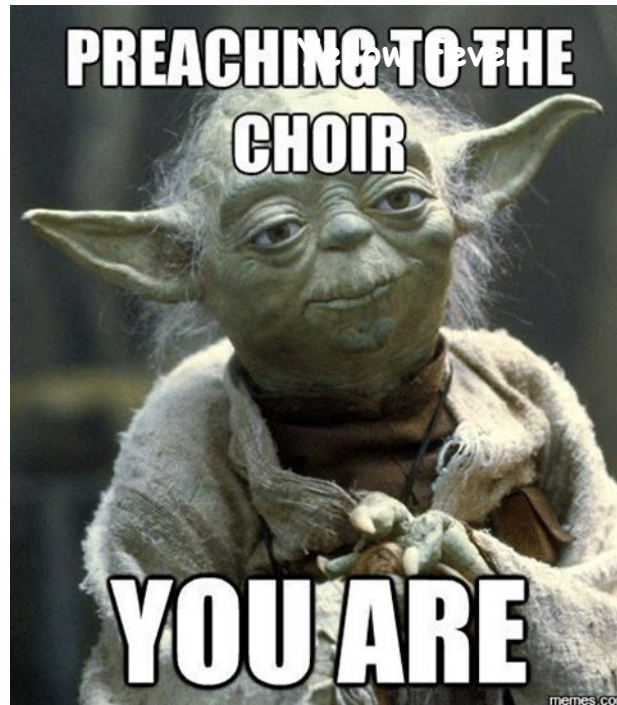
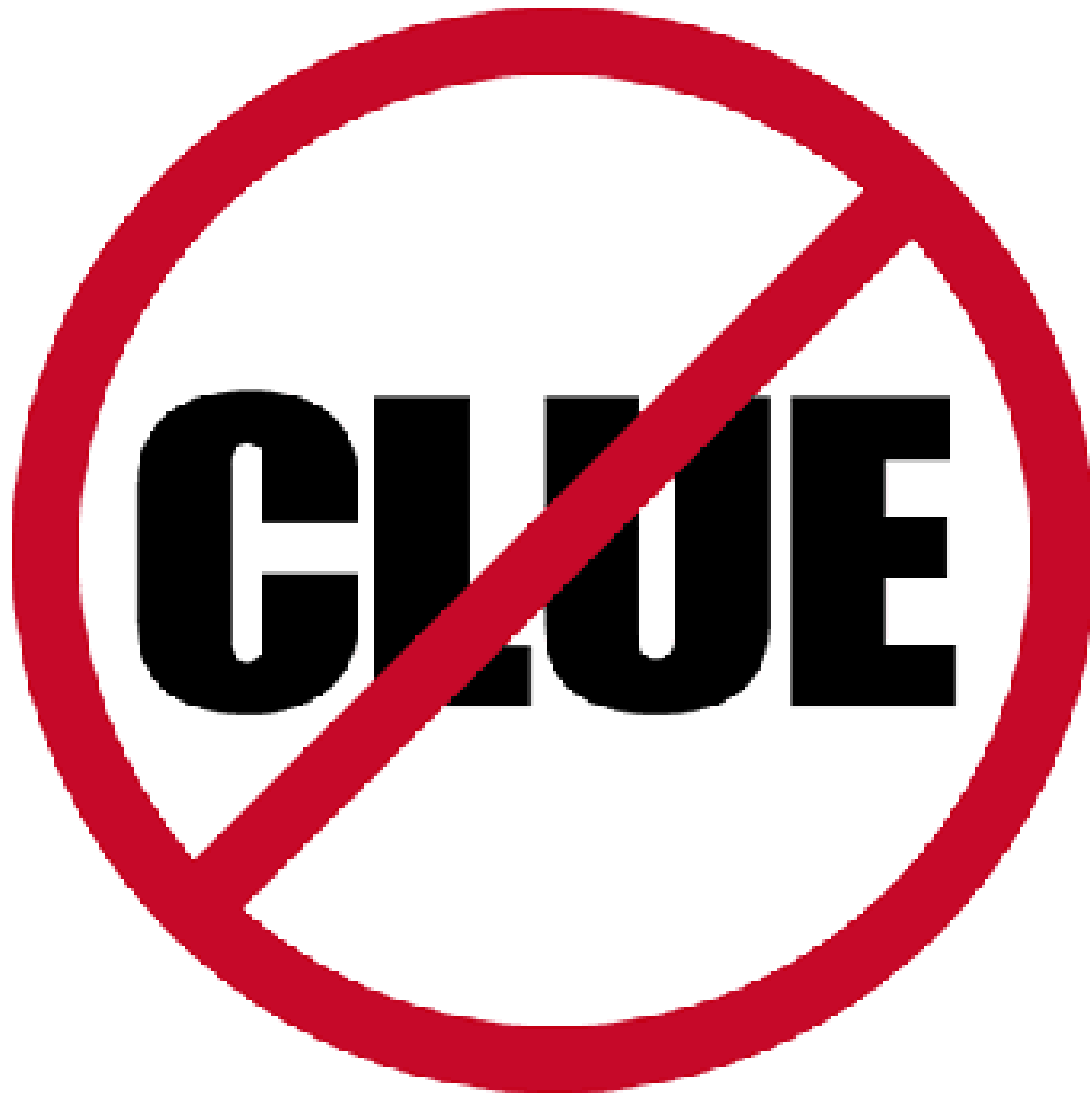


Focus On The Future Of Mosquito-Borne Illness: What Is The Next "Zika"?



Stanton E. Cope, PhD
Atlantic Paste and Glue (AP&G) - Catchmaster
Captain (Retired), United States Navy
Past President, American Mosquito Control Association



Can't predict next disease but can examine conditions under which it may occur

- Predicting Outbreaks
- What Kills Us?
- Mosquito Numbers
- Zika Review
- Herd Immunity
- Conducive Conditions
- **Basics of Mosquito Control**
- *Aedes aegypti* = Bad Actor
- Situation in United States
- Next Threats?
- Role of Private Industry
- What Does The Future Hold?



GAME PLAN



50,000



100

> 1,000,000



475,000



10

Let's Look at Some Numbers

~3,500

~175

~ 53

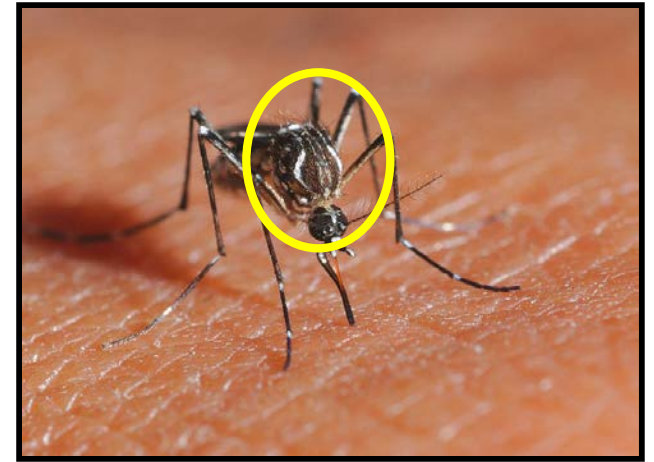
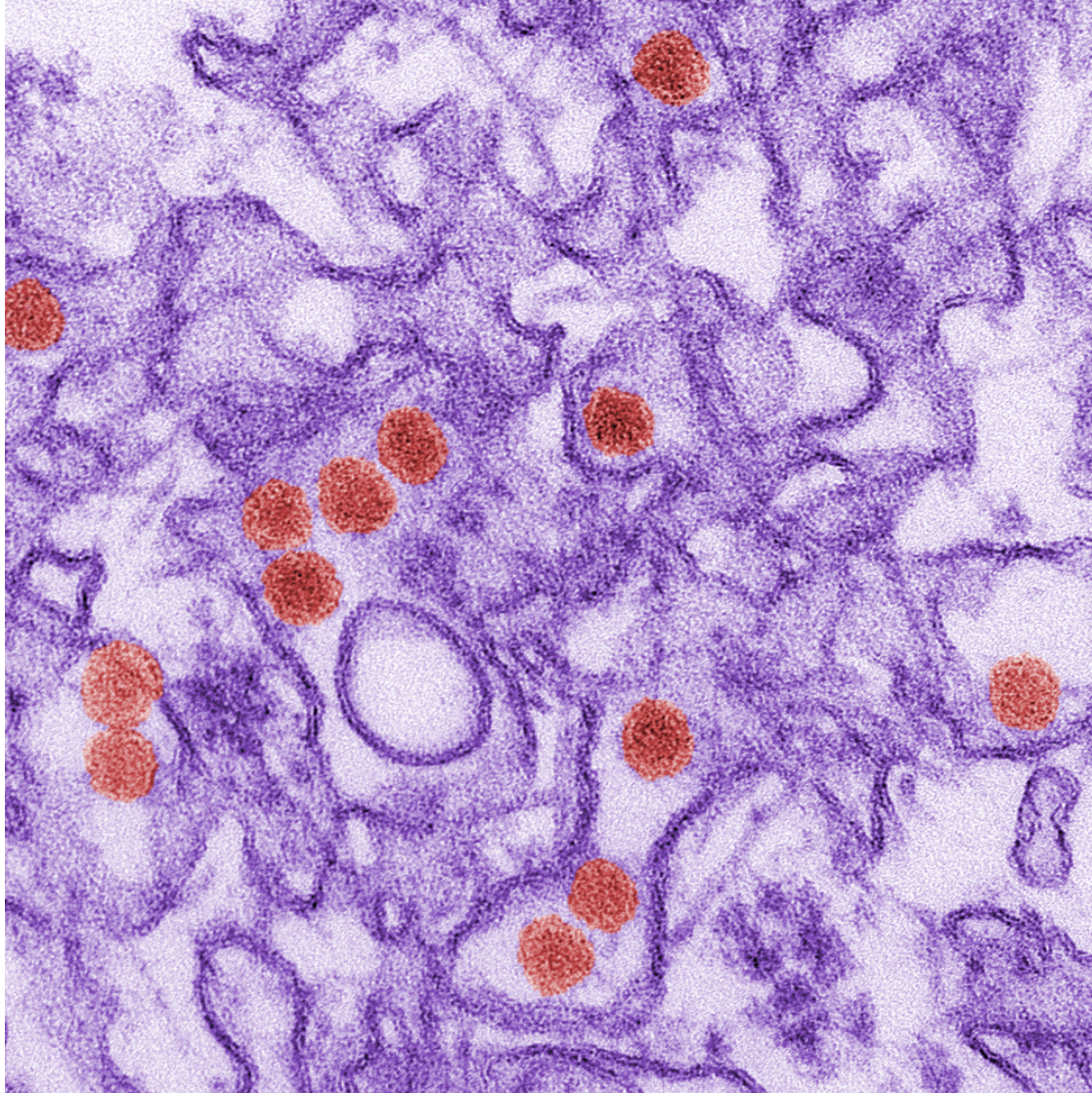


~25-84

3

Anopheles, Culex, Aedes

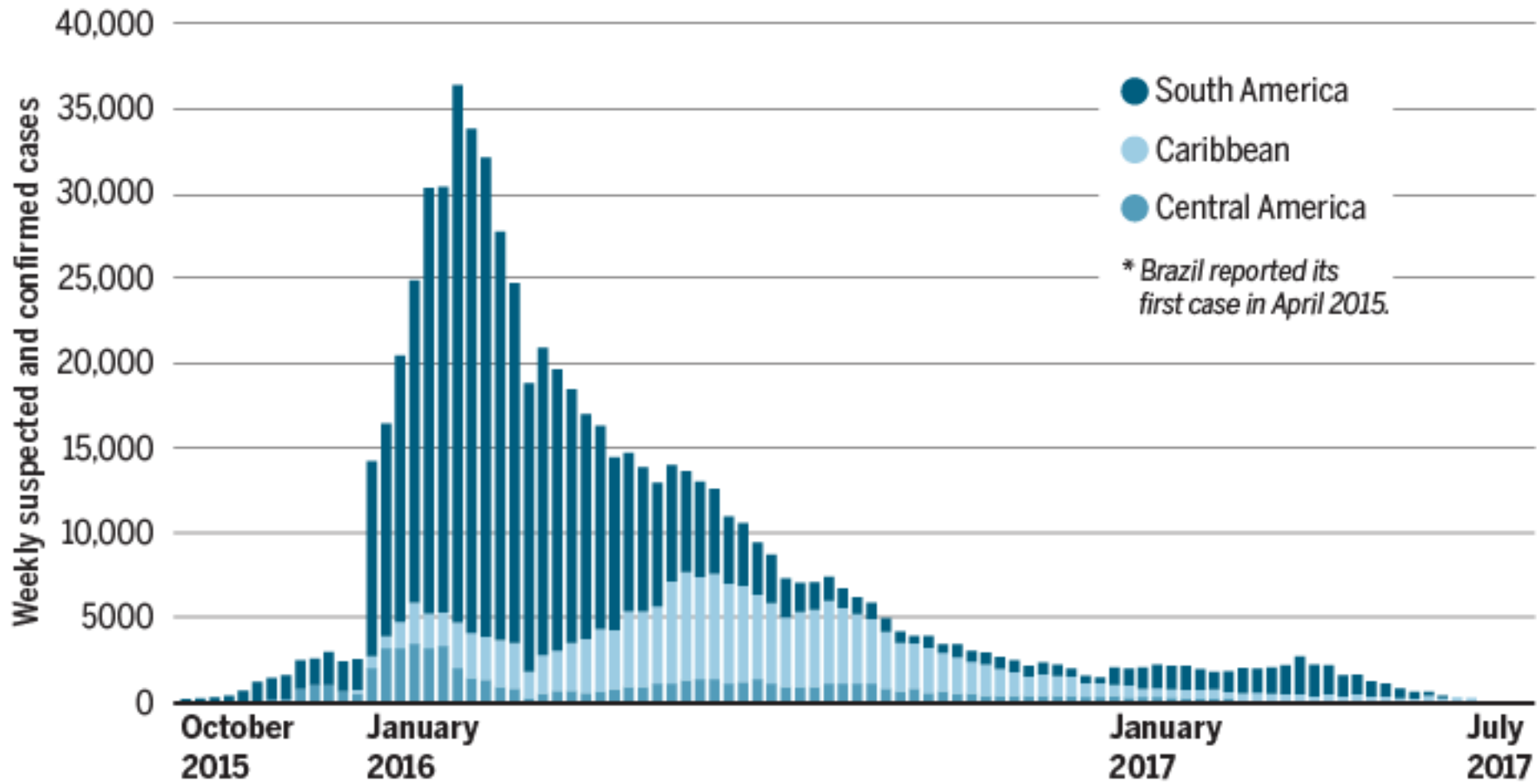
Zika Virus - The Facts



Yellow Fever Mosquito

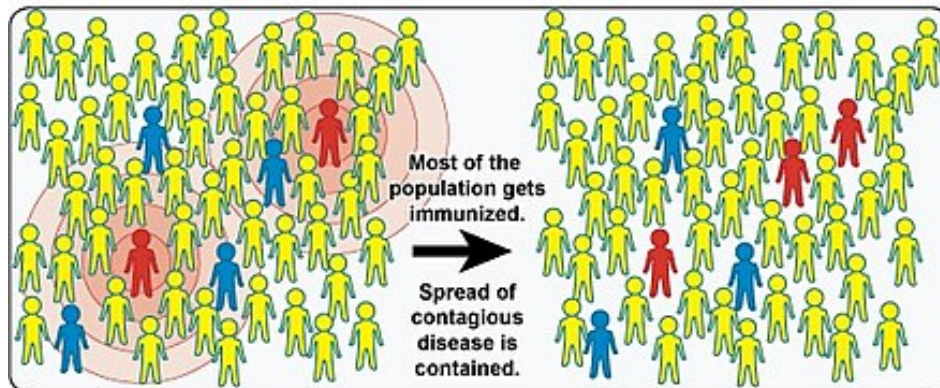
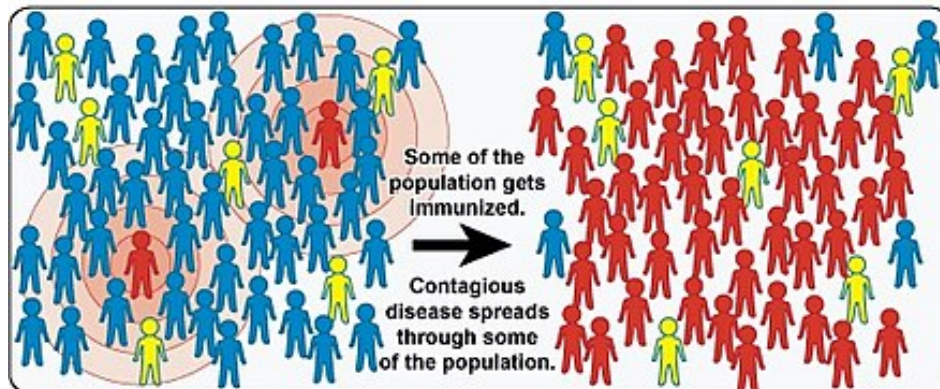
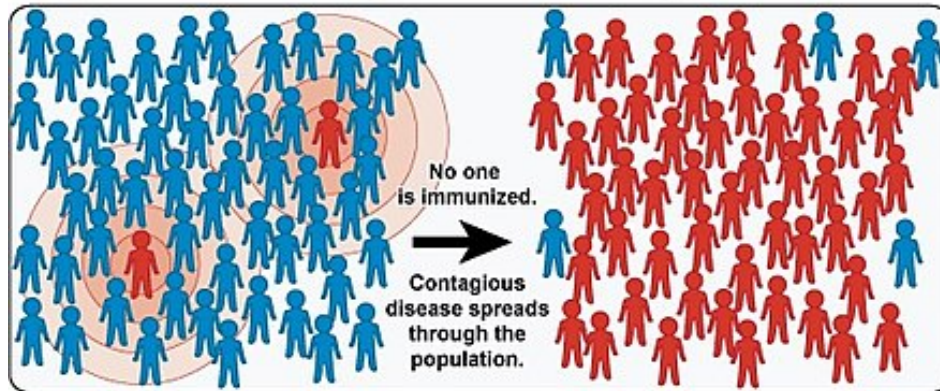


Asian tiger mosquito



Where Did Zika Virus Go???????

■ = not immunized but still healthy ■ = immunized and healthy ■ = not immunized, sick, and contagious

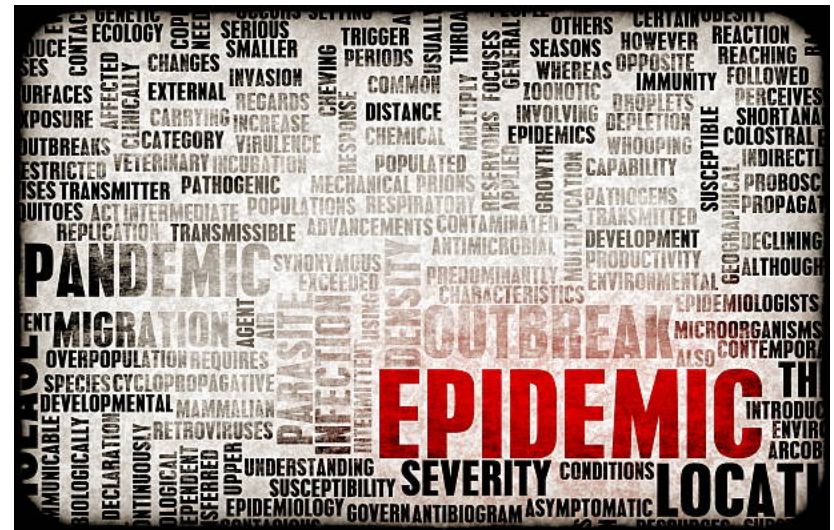


Herd immunity

The indirect protection from infection of susceptible members of a population, and the protection of the population as a whole, which is brought about by the presence of immune individuals.

Conducive Conditions For An Outbreak (Wynwood)

- Pathogen
- Vectors - present/numbers
- Reservoir
- Environmental conditions
- Socioeconomic conditions
- Public health conditions
- Political factors
- Control capabilities
- Impact Of Media



Aedes aegypti - The Yellow Fever Mosquito

A Tough Customer



Aedes aegypti - The Yellow Fever Mosquito

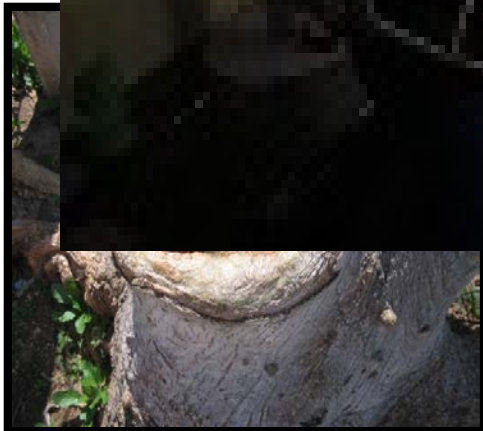
A Tough Customer

- Lim
- Dro
- Dif



magnified

ay)



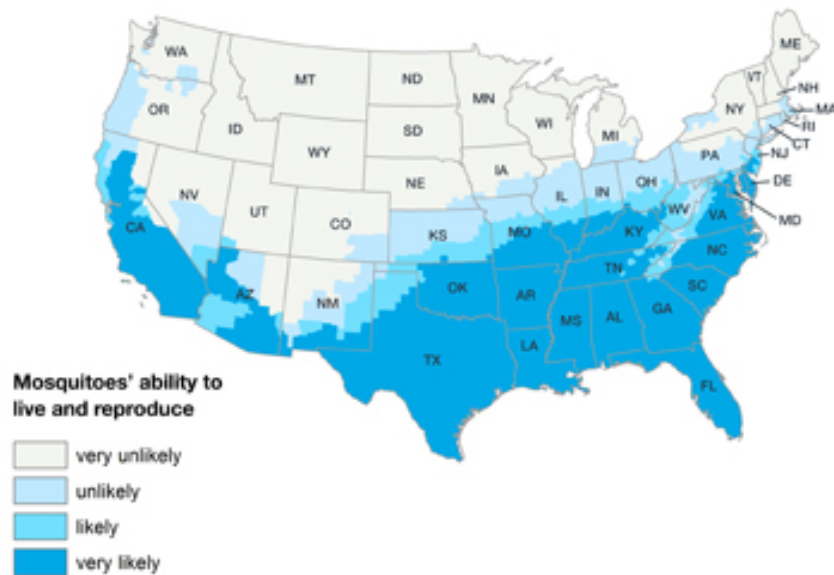
On July 5, 2013,
6,346 mosquito larvae & pupae were found
in this rainwater-filled frying pan.

**Eliminate
Standing
Water!**

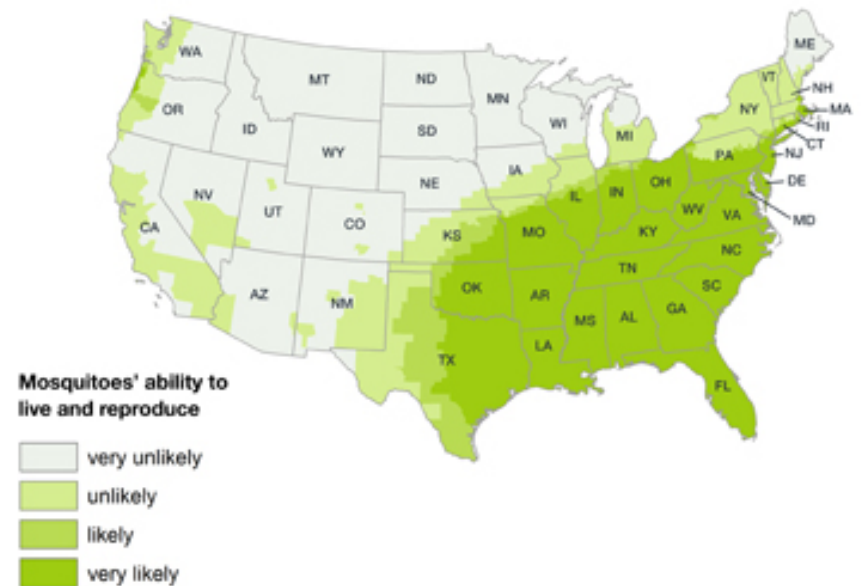




Estimated Range of *Aedes aegypti* in the United States, 2017



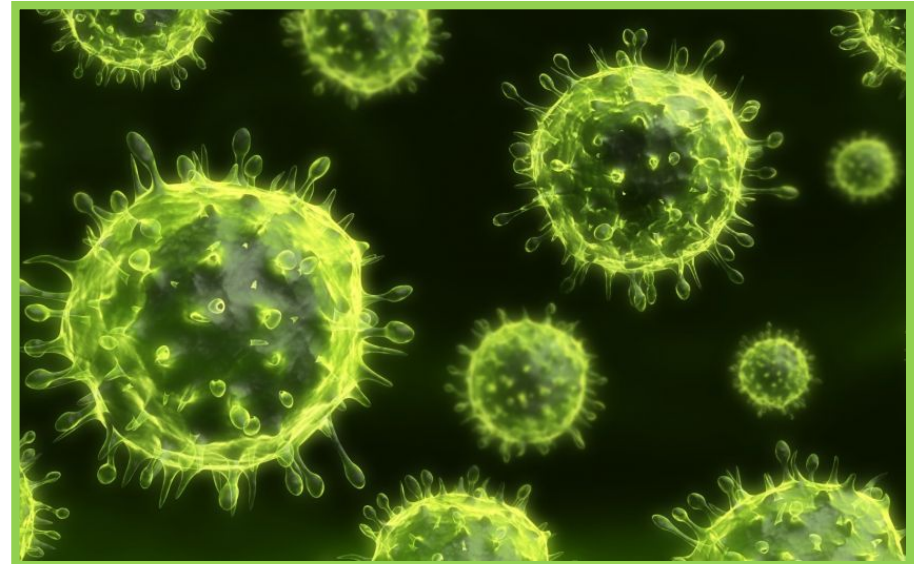
Estimated Range of *Aedes albopictus* in the United States, 2017





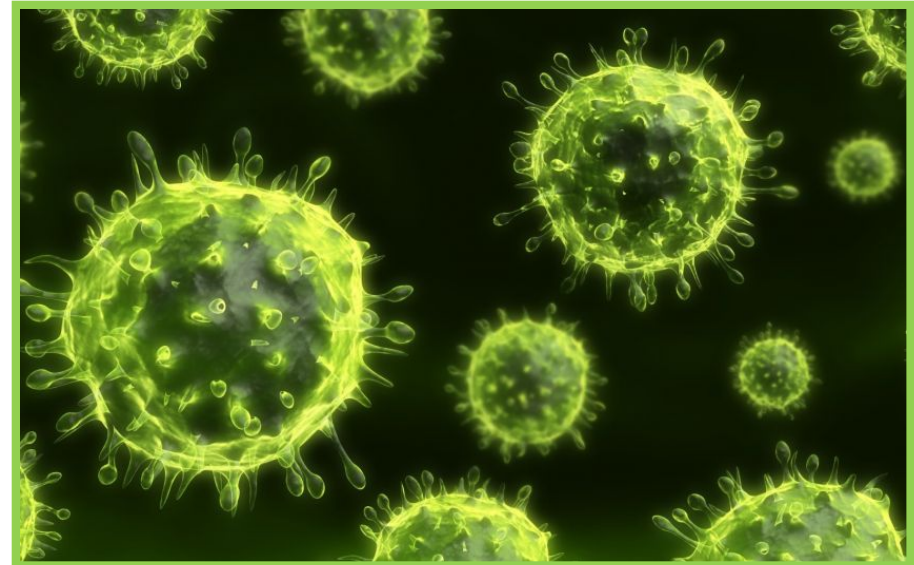
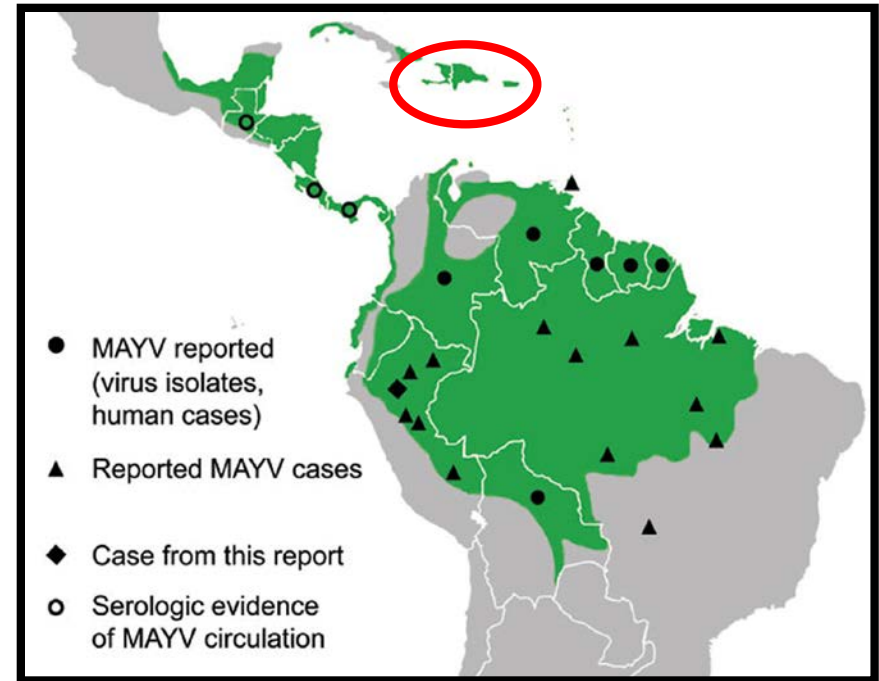
Mayaro virus

- Similar to dengue fever
- Acute febrile illness - 3-5 days
- Headache
- Pain behind eyes
- Joint and muscle pain
- Vomiting
- Diarrhea
- Rash
- Severe joint pains - 1 year
- Multiple infections?



Mayaro virus

- Humid forests - South America
- Zoonotic pathogen/sylvatic cycle
- Reservoir - wild monkeys
- Vector - canopy mosquitoes
- Urban transmission
- Hemorrhagic reports
- Lab evidence - vectors
- Imported cases
- Haiti - 2015



Role of Private Industry in Mosquito Control

- Area-wide mosquito control
- Access to yards/businesses
- Control aimed at day biters
- Protect non-target organisms
- Inspections - conducive conditions



- A
- U
- R
- C
- Partner with local WAD

A photograph showing a person from behind, wearing a green long-sleeved shirt, brown pants, and a backpack sprayer. They are standing on a wooden deck and spraying a garden area with various plants. The sprayer is orange and white. The scene is outdoors with lush greenery in the background.

Cool, Dark, Moist, Out of Wind



What Does The Future Hold?

- Ship/Air Travel (Victims, Viruses and Vectors)



hogens)



Unique Training Opportunities

- CDC/AMCA Training - BMP Manual and Modules

www.mosquito.org

- CDC COE/UF/Consultants - 11 Modules

<https://ifas-mosquitoceus.catalog.instructure.com/>



Certificate of Completion

This is to certify that

Your Name Here

has successfully completed the e-Learning Modules for
the Integrated Mosquito Management Curriculum

Understanding and Controlling the Zika Virus

Module 1: Overview

Module 2: Behavior

Module 3: Surveillance

Module 4: Control

Awarded the 14th day of September, 2018

Signed: Heather Gosciniak
Heather Gosciniak, Executive Director of AMCA



- <https://www.catchmaster.com/>
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