

Zika Virus - Fight the Bite

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WHO – Public Health Emergency of International Concern



Source: Jerome Delay / AP Photo

February 2016 – Clusters of Microcephaly and Guillain-Barre Syndrome

August 2014 - Ebola

May 2014 – Polio resurgence

April 2009 – H1N1 Pandemic

On April 13, 2016, CDC scientists announced that Zika virus is a cause of microcephaly and other severe fetal brain defects

The NEW ENGLAND JOURNAL of MEDICINE

SPECIAL REPORT

**Zika Virus and Birth Defects — Reviewing the Evidence
for Causality**

Sonja A. Rasmussen, M.D., Denise J. Jamieson, M.D., M.P.H.,
Margaret A. Honein, Ph.D., M.P.H., and Lyle R. Petersen, M.D., M.P.H.

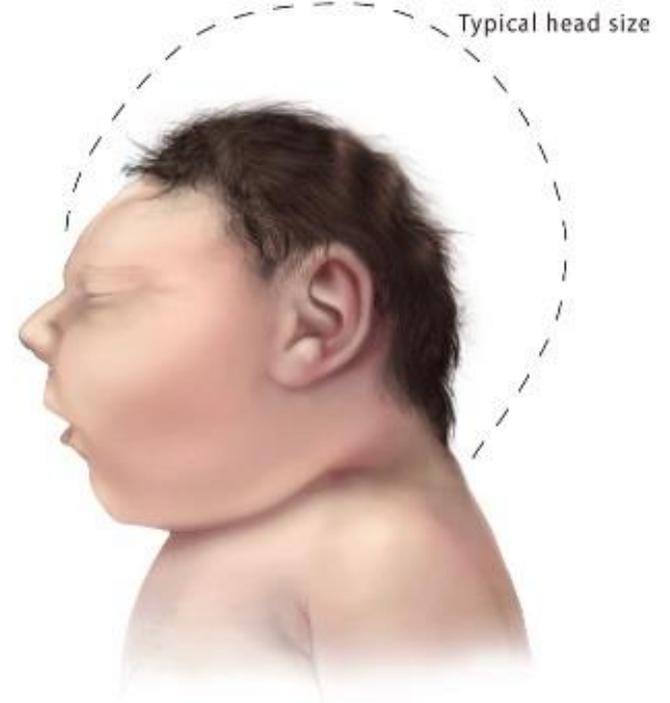
Available at http://www.nejm.org/doi/full/10.1056/NEJMSr1604338?query=featured_home



Baby with Typical Head Size



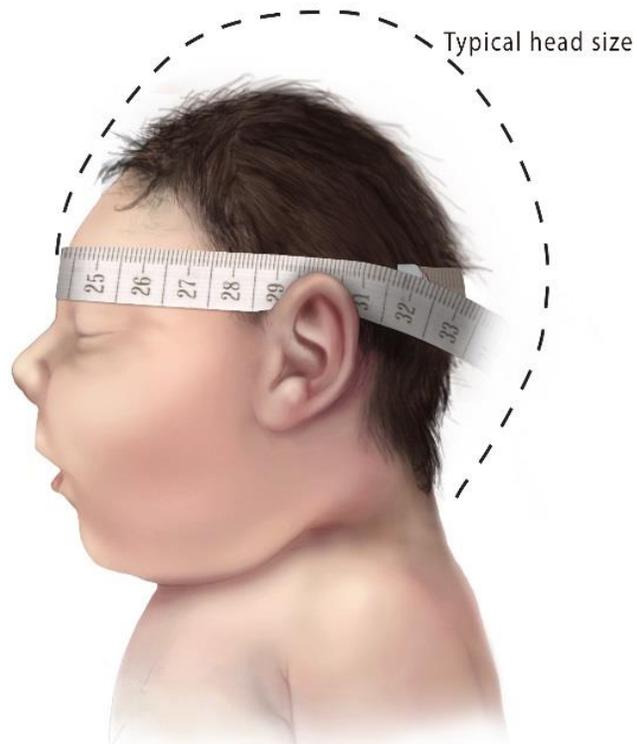
Baby with Microcephaly



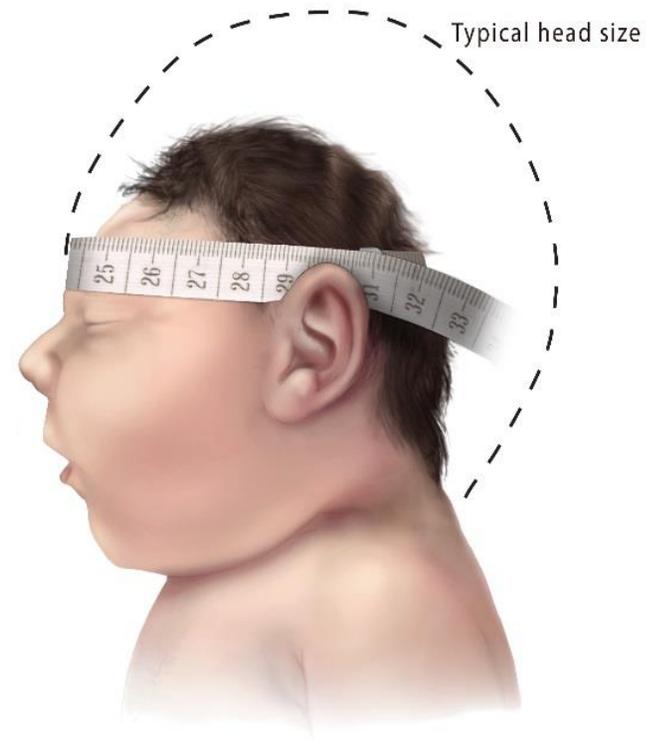
Baby with Severe Microcephaly



Baby with Typical Head Size



Baby with Microcephaly



Baby with Severe Microcephaly



NEW YORK



WASHINGTON, DC

30 45 60 75 90 120 13

ZIKA VIRUS FEARS

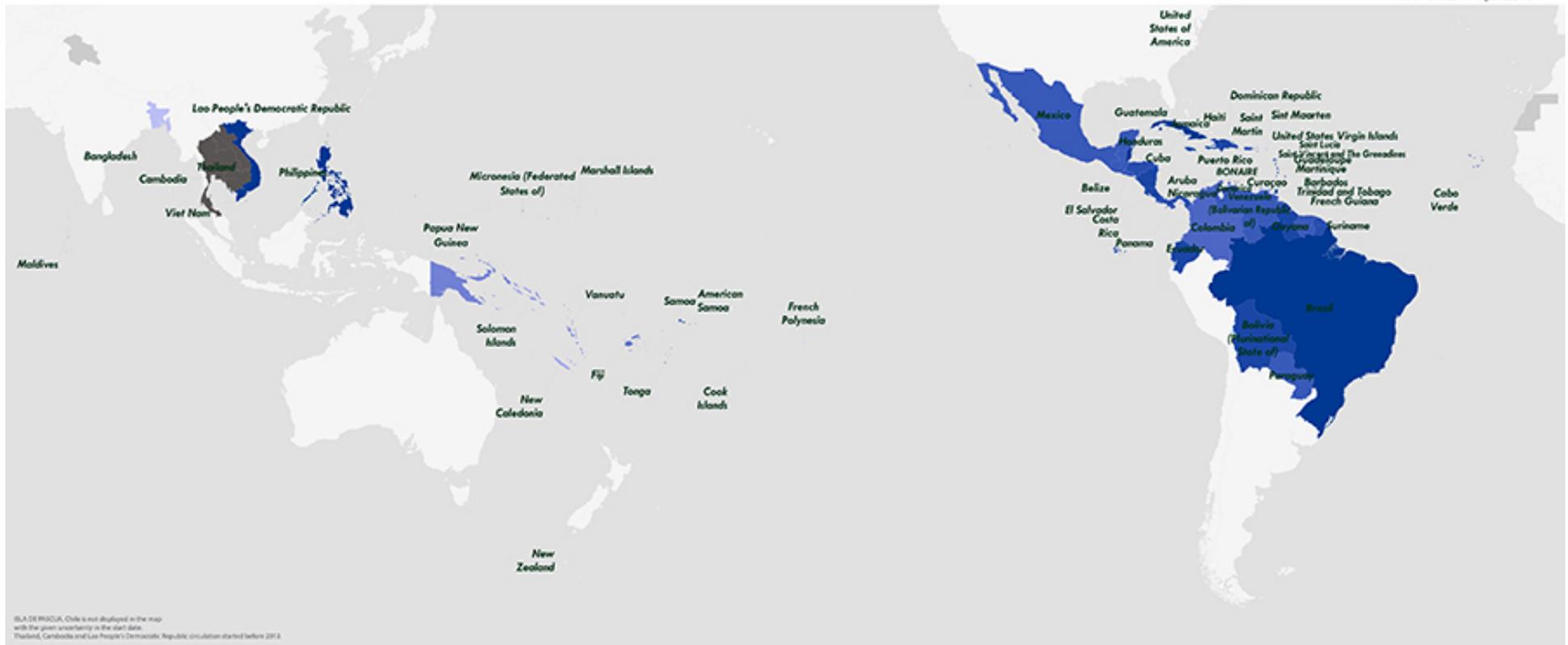
MORE AMERICANS TEST POSITIVE AFTER TRAVELING





Countries, territories and areas showing the distribution of Zika virus, 2013 - 2016

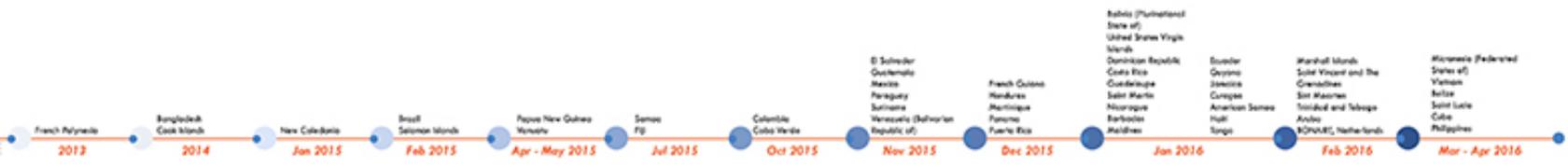
MAP DATE: 14 April 2016



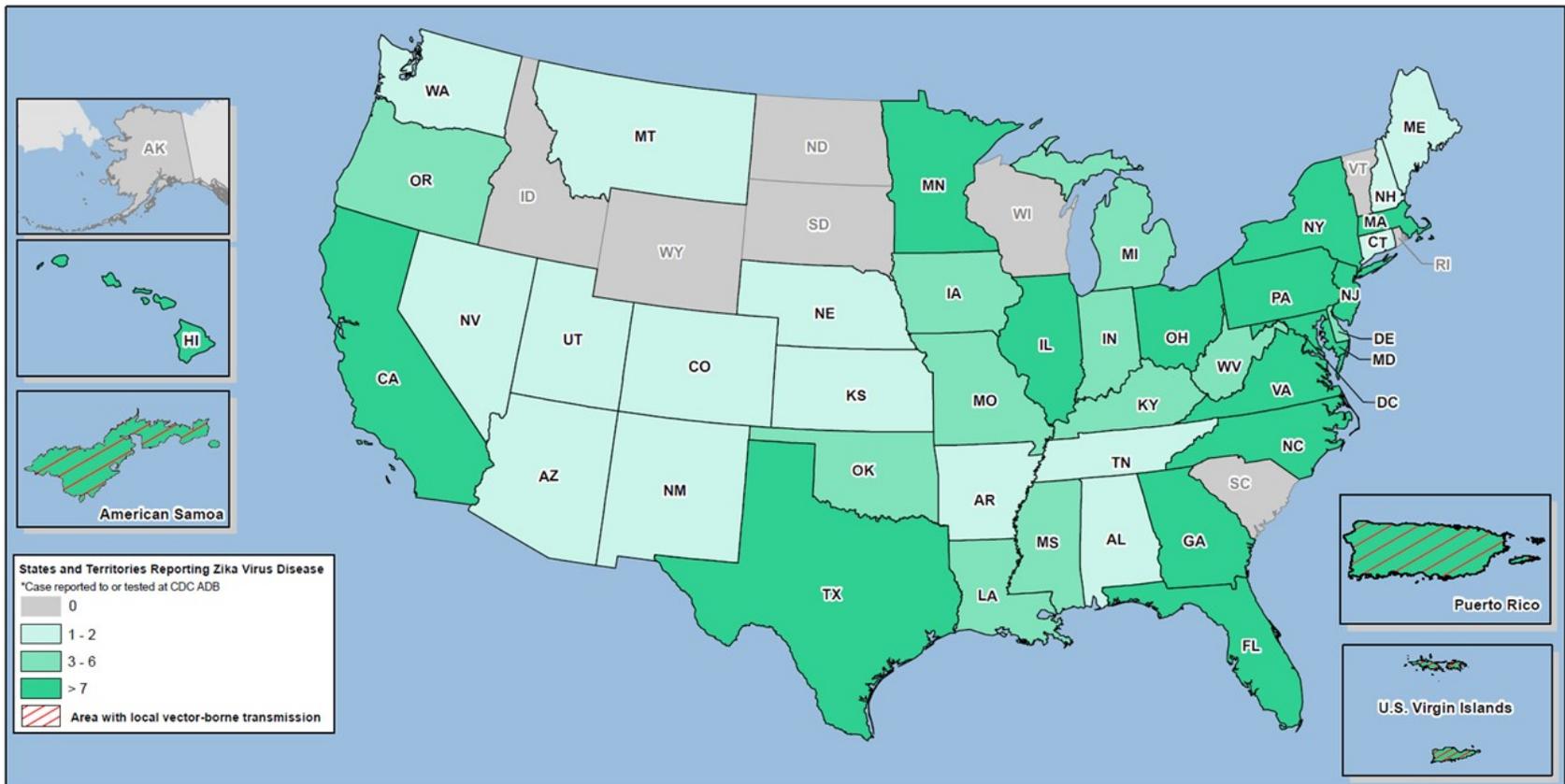
ISLA DE PASCUA, Chile is not displayed in the map with the given uncertainty in the start date. Thailand, Cambodia and Lao People's Democratic Republic circulation started before 2013.

The countries with locally acquired without vector borne transmission are not shown in the map. Available information does not allow assessment of the risk of affecting remote territories during circulation in neighbouring islands.

■ Countries where circulation started before 2013
 ■ Suspected areas
 --- Disputed borders



Laboratory Confirmed Zika Virus Disease in the US (388 cases) and US Territories (503 cases)



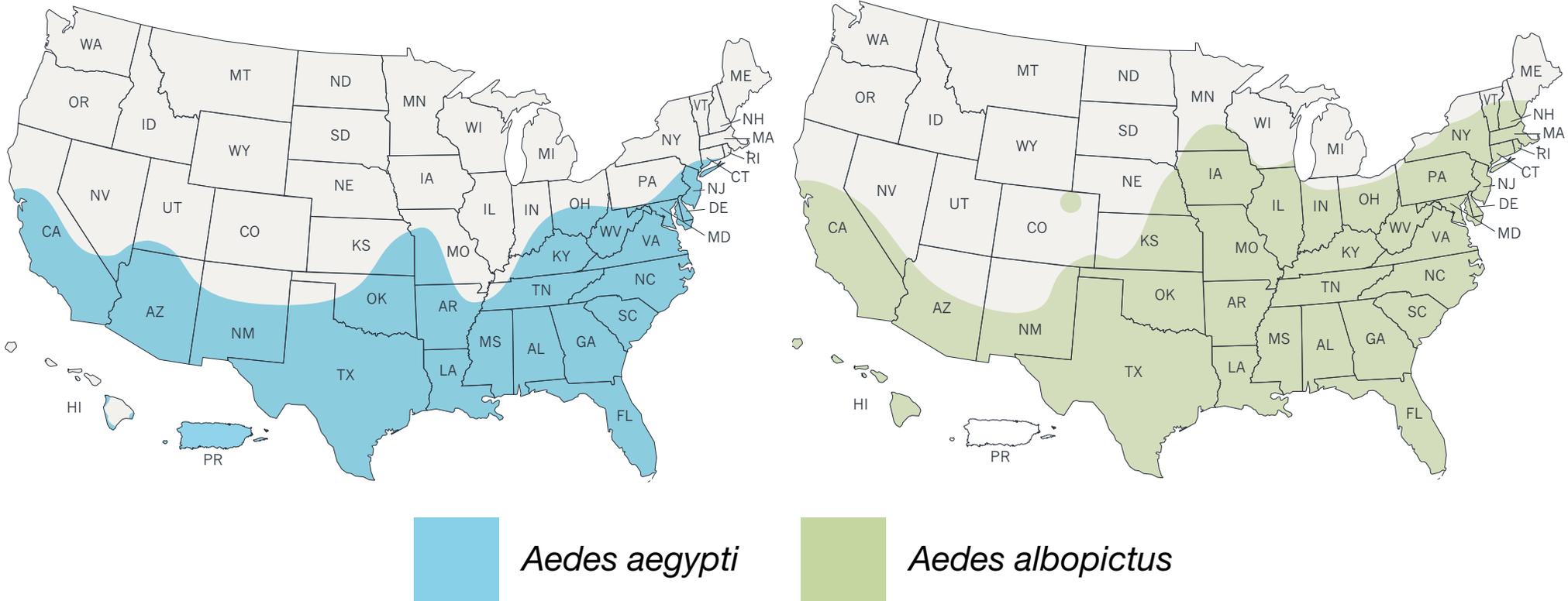
***Aedes aegypti* - Africa**
Yellow Fever Mosquito

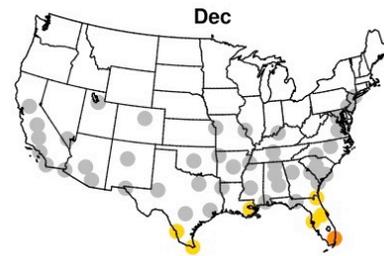
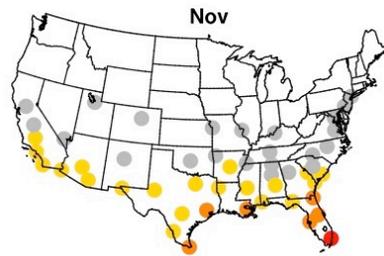
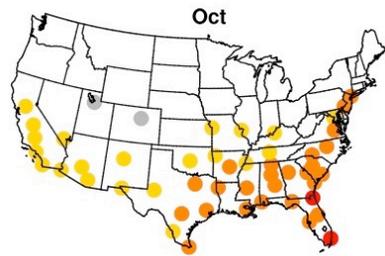
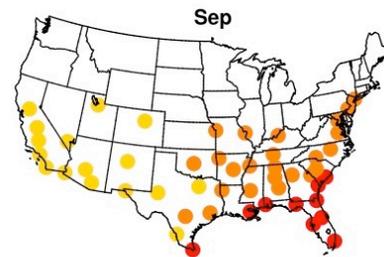
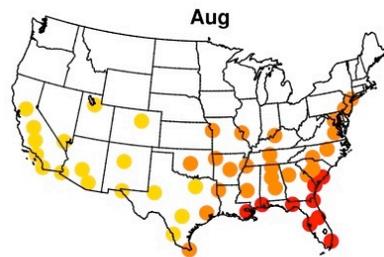
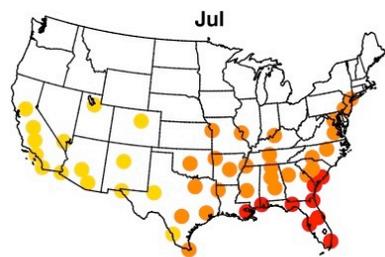
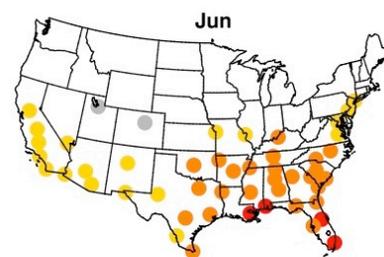
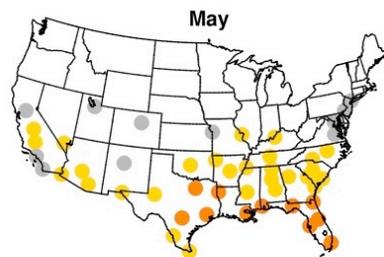
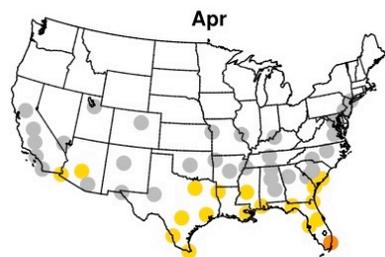
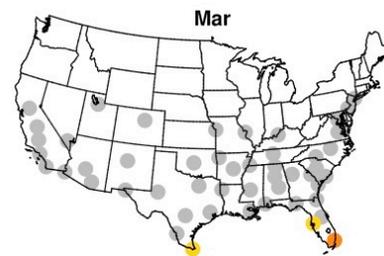
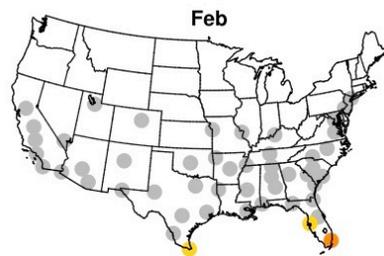
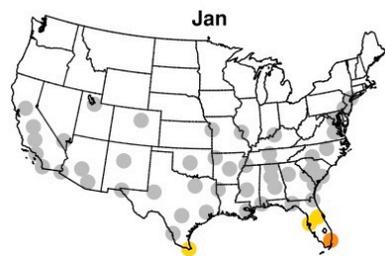


***Aedes albopictus* – Asia**
Asian Tiger Mosquito



Aedes aegypti and *Aedes albopictus* in the United States

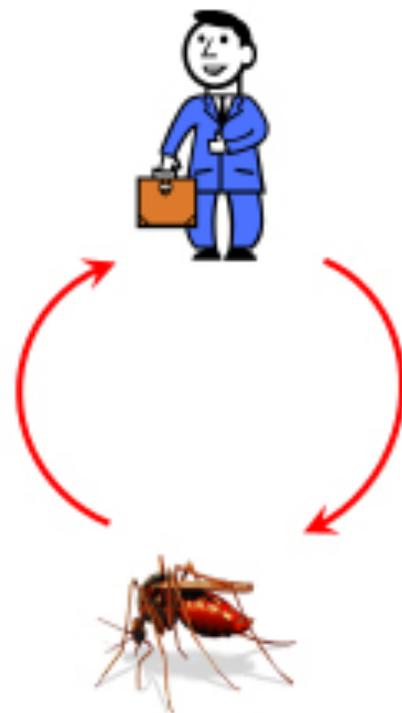




***Ae. aegypti* potential abundance**

- None to low
- Low to moderate
- Moderate to high
- High

In the United States, people serve as primary vertebrate hosts



Viruses

- Chikungunya
- Dengue
- Yellow fever
- Zika

Vectors

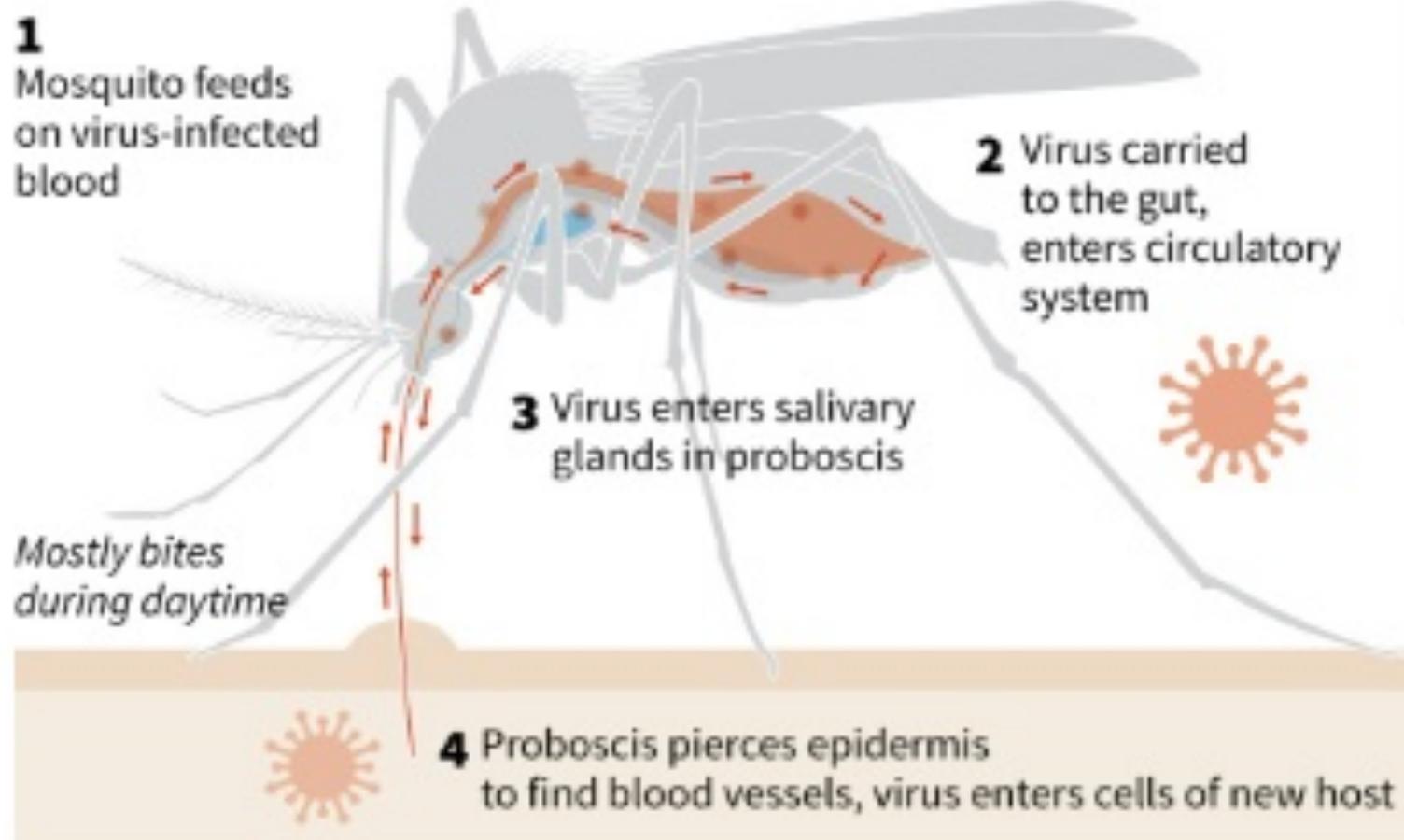
- *Aedes aegypti*
- **Aedes albopictus*

* Unproven vector of Yellow fever virus



The Zika mosquito

How *Aedes aegypti* picks it up and spreads it





CHIKUNGUNYA, DENGUE, or ZIKA: What is local transmission?



A person who has not traveled recently gets bitten by an infected mosquito where they live, work, or play.



A mosquito bites a person who is sick. The mosquito gets infected.

Infected mosquitoes can then bite healthy people and spread the infection.

Within 3–7 days, the person may become sick. Other mosquitoes can bite the sick person, become infected, and bite more people.

CHIKUNGUNYA, DENGUE, or ZIKA: What is an imported case?

A person who was bitten by an infected mosquito while traveling away from home.



A person gets bitten by an infected mosquito while traveling.

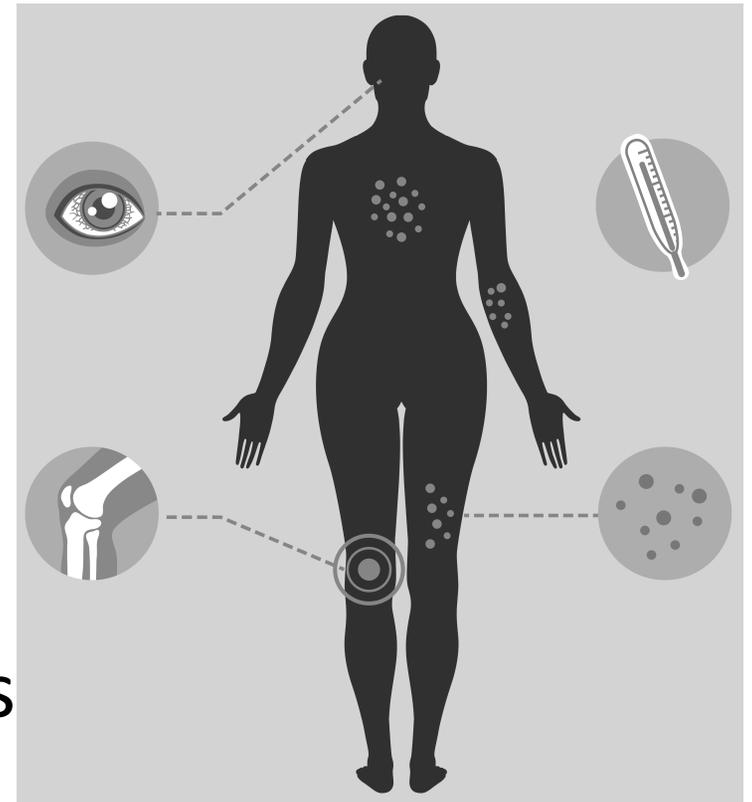
Symptoms may begin 3–7 days after being bitten by an infected mosquito.



U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

Zika Clinical Symptoms

- Fever
- Rash
- Joint Pain
- Conjunctivitis (Red Eyes)
- Similar to Dengue and Chikungunya and Zika – nationally notifiable conditions





Sick with CHIKUNGUNYA, DENGUE, or ZIKA?

Protect yourself and others from mosquito bites during the first week of illness.

Protect family and friends

- During the first week of illness, chikungunya, dengue, or Zika virus can be found in the blood.
- A mosquito that bites you can become infected.
- An infected mosquito can bite a family member or neighbor and make them sick.



Watch for these symptoms

See your doctor if you develop a fever with any of the following symptoms:

- Muscle or joint pain
- Headache, especially with pain behind the eyes
- Rash
- Conjunctivitis (red eyes)

For more information:

www.cdc.gov/chikungunya
www.cdc.gov/dengue
www.cdc.gov/zika



Protect yourself from mosquito bites

- Wear long-sleeved shirts and long pants.
- Use door and window screens to keep mosquitoes outside.
- Use insect repellent.



U.S. Department of
Health and Human Services
Centers for Disease
Control and Prevention

Protect yourself from mosquito bites



Daytime is most dangerous

Mosquitoes that spread chikungunya, dengue, and Zika are aggressive daytime biters. They can also bite at night.



Use insect repellent

It works!

Look for the following active ingredients:

• DEET • PICARIDIN • IR3535



Wear protective clothes

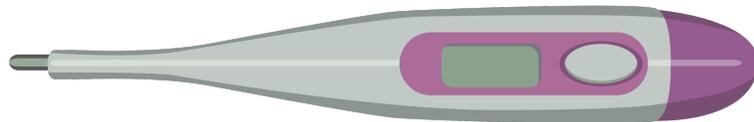
Wear long-sleeved shirts and long pants and use insect repellent. For extra protection, treat clothing with permethrin.



Mosquito-proof your home

Use screens on windows and doors. Use air conditioning when available. Keep mosquitoes from laying eggs in and near standing water.

Zika Prevention Kit for Pregnant & Reproductive Age Women



CDC's Response to **Zika**

PREGNANT and living in an area with Zika?



Zika Prevention Kit for Pregnant Women

Your Zika Prevention Kit contains products to help prevent spread of Zika. Please use these items to protect yourself against Zika virus.



Bed net

- Keep mosquitoes out of your room day and night. If your room is not well screened, use this bed net when sleeping or resting.
- Mosquitoes can live indoors and will bite at any time, day or night.
- Please note, this netting may be insecticide-treated, see label, for added protection.



Standing water treatment tabs

- Use standing water treatment tabs to kill larvae in standing water.
- Always follow instructions on the package.
- When used as directed, these tabs will not harm pets.



Insect repellent

- Use only an EPA-registered insect repellent like the one provided in this kit.
- Always follow the product label instructions.
- Reapply insect repellent as directed.
- Do not spray repellent on the skin under clothing.
- If you are also using sunscreen, apply sunscreen first and insect repellent second.
- When used as directed, these insect repellents are proven safe and effective even for pregnant and breastfeeding women.



Permethrin spray

- Use permethrin to treat clothing and gear (boots, pants, socks, tents, and other fabrics).
- Always follow instructions on the bottle. Reapply as directed.
- Do not use permethrin products directly on skin.



Thermometer

If you feel sick and think you may have Zika:

- Use the thermometer to find out if you have a fever.
- If you do have a fever and a rash, joint pain, or red eyes, talk to your doctor or nurse.



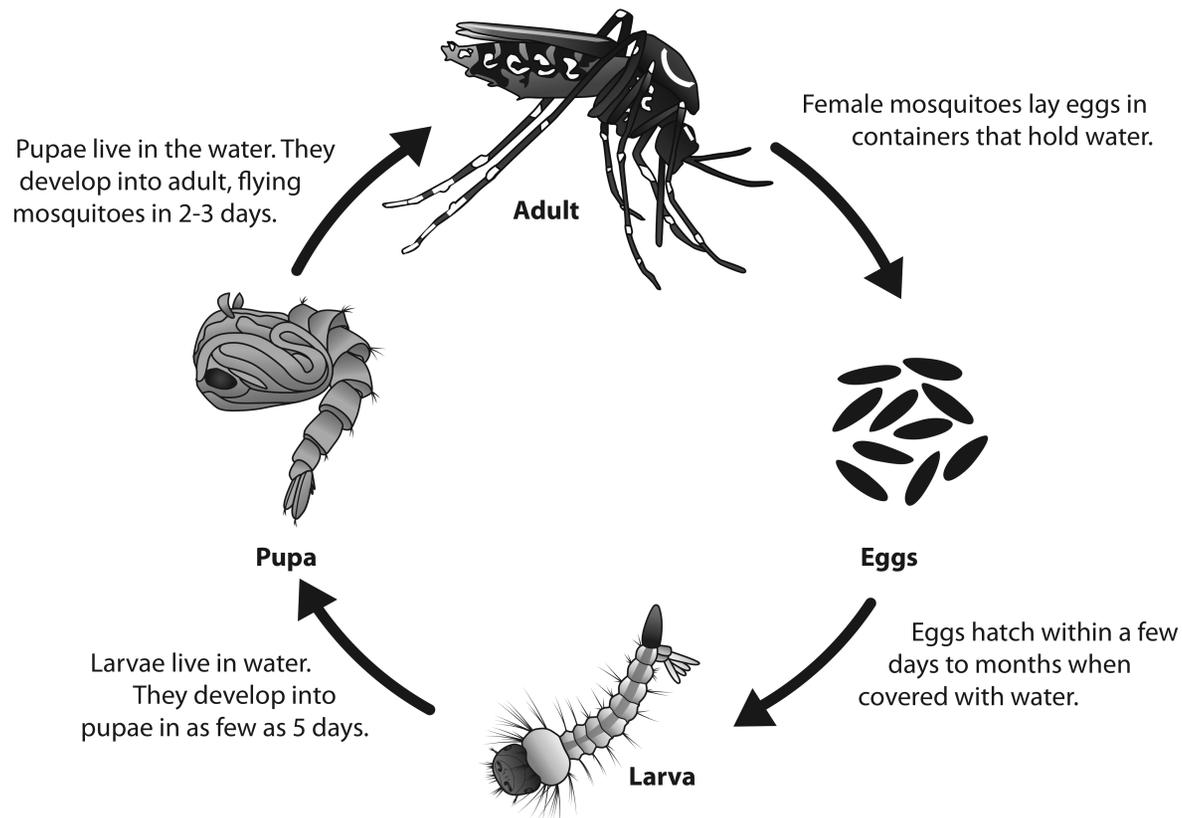
Condom

- Sexual transmission of Zika virus from a male partner is possible.
- If you have sex (vaginal, anal, or oral) with a male partner, you should use condoms the right way every time.
- Follow directions on the box.
- Condoms can also help prevent HIV and other sexually transmitted diseases.

CDC is not responsible for any adverse reactions or injuries arising from use of the items in this kit. These kits are not intended to replace the advice of a medical professional. This kit includes donations made to CDC and/or items purchased using funds donated to the CDC. CDC is providing the products in this kit as a public health service, but this does not imply any endorsement by CDC or the US Department of Health and Human Services of any product, service, or enterprise.

Use this bag to carry your items that will help you prevent mosquito bites and protect yourself against Zika.

Mosquito Life Cycle: 7-10 days





Eggs look like black dirt.



Larvae in the water.



Pupae in the water.



An adult mosquito emerges from a pupae.



An adult mosquito bites a person.

Help Control Mosquitoes



Put plants in soil, not in water.



Drain water from pools when not in use.



Recycle used tires or keep them protected from rain.



Drain & dump any standing water.



Weekly, scrub vases & containers to remove mosquito eggs.



Keep rain barrels covered tightly.



Weekly, empty standing water from fountains and bird baths.



Install or repair window & door screens.

Mosquito Surveillance Programs

- Estimate mosquito abundance
- Use estimates to indicate levels of risk
- Compare over time and location by using maps

Estimate Mosquito Abundance

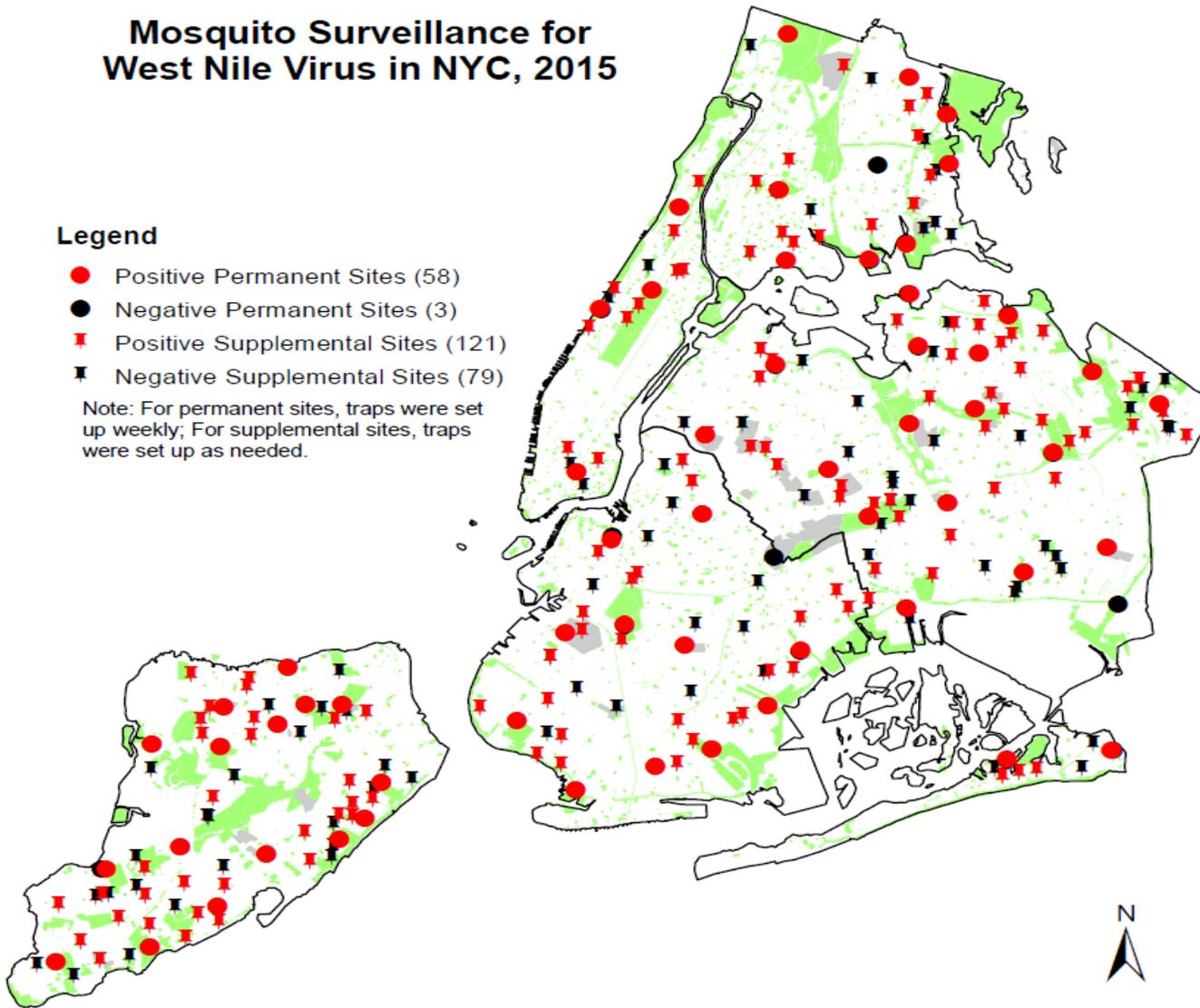
- Larval and Pupal surveys
 - containers of water, % of houses with at least one positive container with larvae/pupae
- Larval and Pupal surveys
 - Identify types of containers that produce adult mosquitoes
- Eggs per ovitrap per day
 - 2 ovitraps per house, count number of eggs per day
- Female adults per sticky trap per day
 - 2 sticky traps per house, count number of females per day

Mosquito Surveillance for West Nile Virus in NYC, 2015

Legend

- Positive Permanent Sites (58)
- Negative Permanent Sites (3)
- ✠ Positive Supplemental Sites (121)
- ✠ Negative Supplemental Sites (79)

Note: For permanent sites, traps were set up weekly; For supplemental sites, traps were set up as needed.



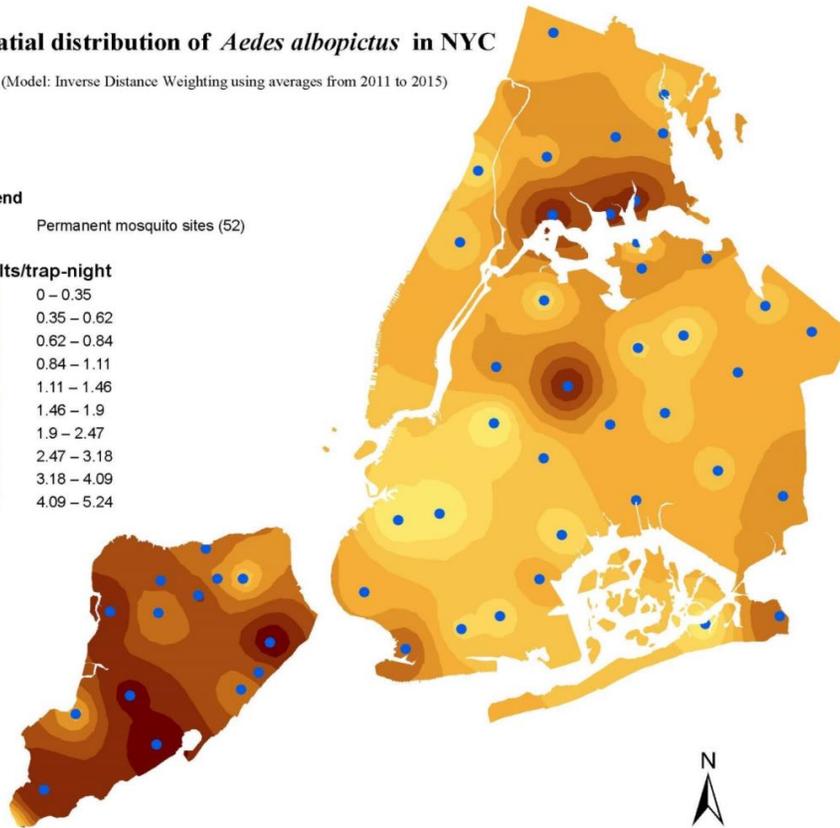
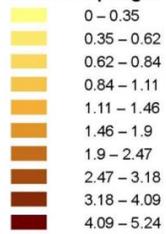
Spatial distribution of *Aedes albopictus* in NYC

(Model: Inverse Distance Weighting using averages from 2011 to 2015)

Legend

● Permanent mosquito sites (52)

Adults/trap-night



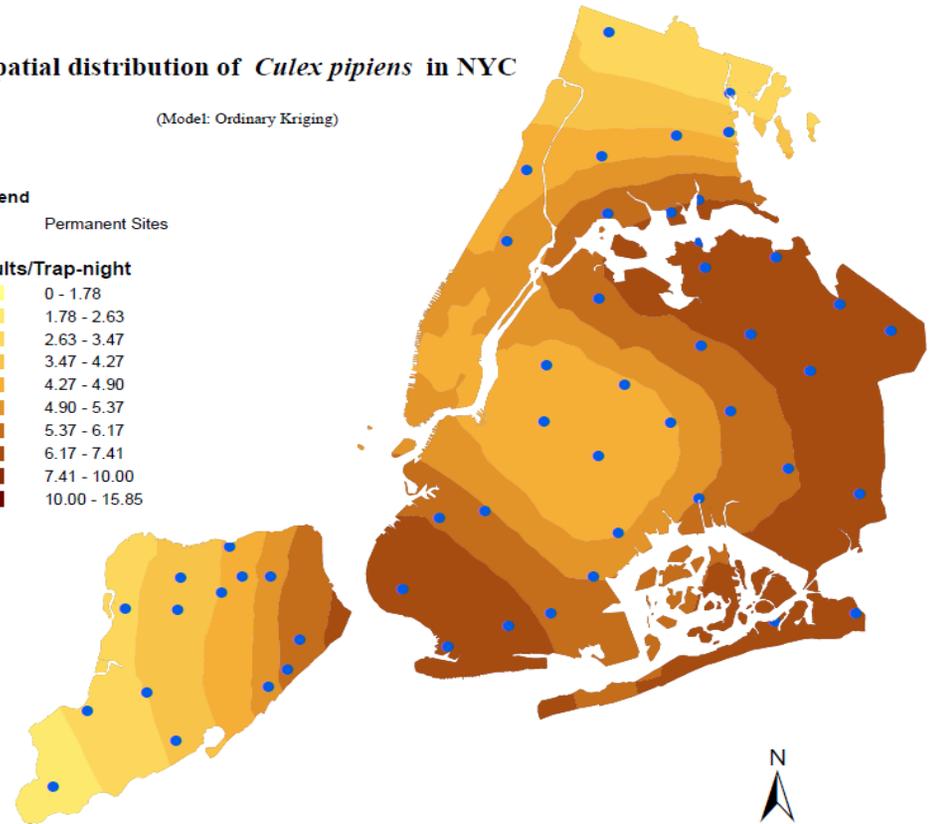
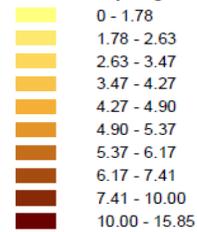
Spatial distribution of *Culex pipiens* in NYC

(Model: Ordinary Kriging)

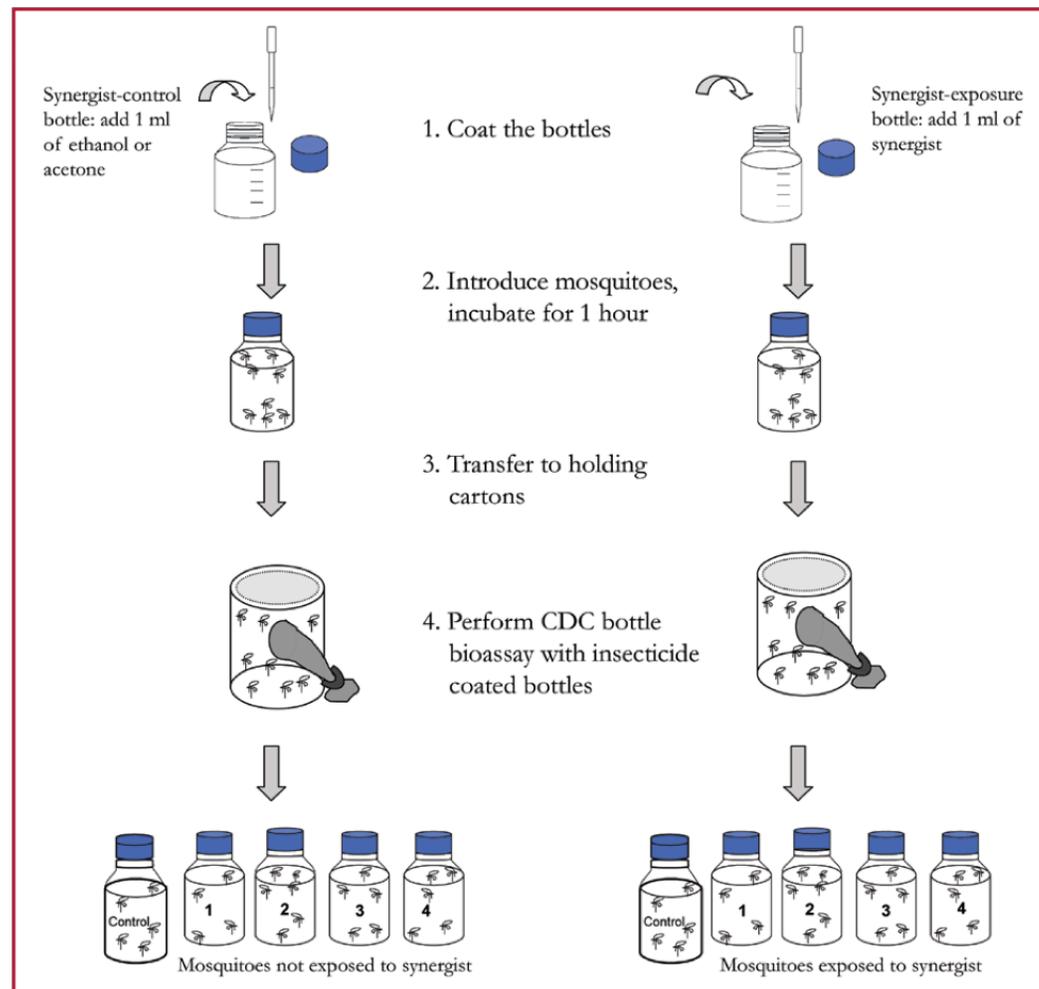
Legend

● Permanent Sites

Adults/Trap-night



Test for Mosquito Resistance to Insecticides





Eggs laid on plant cuttings rooting in water.



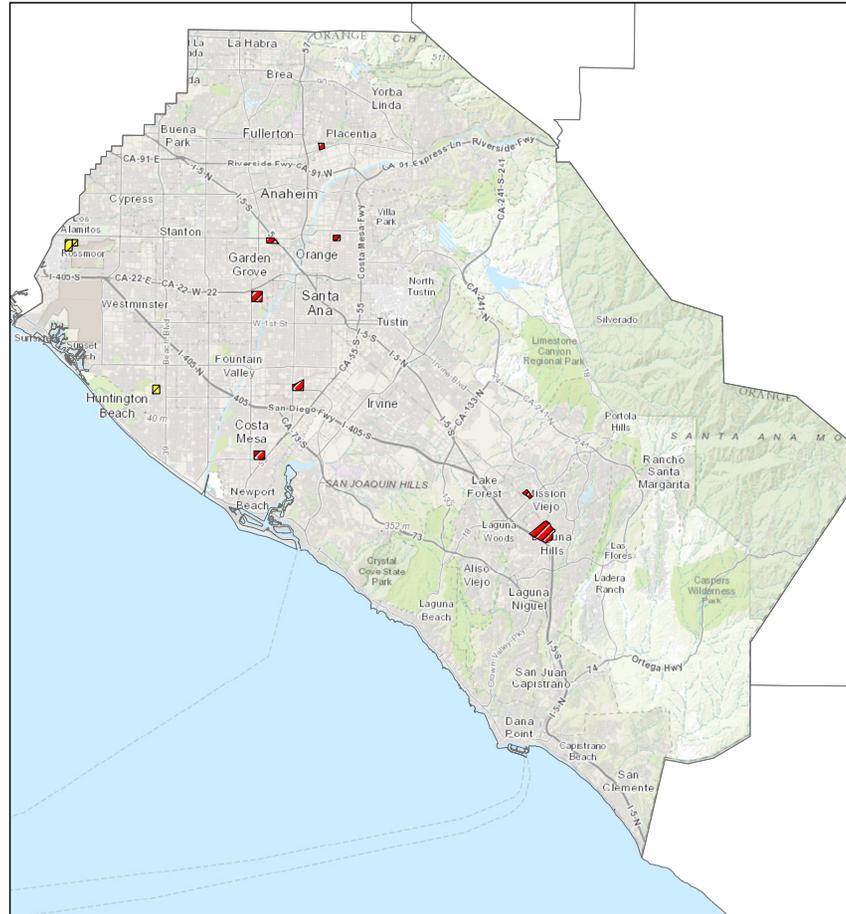
Yellow fever mosquito on dime.

We Need Your Help!

Report ALL daytime mosquito attacks to the Orange County Mosquito & Vector Control District at: Phone: (714) 971-2421 (Monday–Thursday: 7:00 am to 4:30 pm, Friday: 7:00 am to 3:30 pm)
Website: www.ocvcd.org (Request Service Button) Email: ocvcd@ocvcd.org

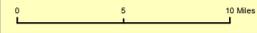
NIH Zika Reporting Tool

ID	1
Full Name	Chris Reichart
Email Address	Chris@iformbuilder.com
Phone Number	(703) 855-8613
Who owns the property where the insect was found?	My Property
Are there dogs on the property?	No
Where exactly was insect found? Detailed Description, not address.	Around the oak trees
Photo of Insect	
Tap here to capture location	Latitude:40.256077, Longitude:-77.022034, Altitude:126.738132, Speed:0.000000, Horizontal Accuracy:10.000000, Vertical Accuracy:4.000000, Time:5:41:15 PM EDT
Your 3 Words	{"words":["lollipop","emulate","leaning"],"position":[40.256078,-77.022035],"language":"en"}
What3Words Address	lollipop.emulate.leaning



**Aedes Infestation
Countywide Infestation Areas
Orange County, CA
February 2, 2016**

-  **Area of *Aedes albopictus* Infestation**
 Huntington Beach: Talbert & Gothard
 Los Alamitos: Los Alamitos & Orangewood
-  **Area of *Aedes aegypti* Infestation**
 Anaheim: Orangethorpe & Glassell
 Anaheim: Katella & Haster
 Costa Mesa: Fairview & Wilson
 Garden Grove: Harbor & Westminster
 Lake Forest: El Toro & Jeronimo
 Mission Viejo: La Paz & Chrisanta
 Orange: Collins and Glassell
 Santa Ana: Flower & MacArthur



Zika – What We Know



Zika can be spread from a pregnant woman to her fetus during pregnancy.



Infection during pregnancies is linked to birth defects in babies.



Zika is spread mostly by the bite of an infected *Aedes* species mosquito.

These mosquitoes are aggressive daytime biters. They can also bite at night.

Zika – What We Know



Zika is not currently found in the continental US. The mosquitoes that can carry Zika are found in some areas of the US.



Because the mosquitoes that spread Zika virus are found throughout the tropics, outbreaks will likely continue.



There is no vaccine or medicine for Zika.

Zika – What We Don't Know



If there's a safe time during your pregnancy to travel to an area with Zika



If you do travel and are bitten

- How likely you are to get Zika
- How likely it is that your baby will have birth defects from the infection

It's Easier than Ever to
**Communicate, Collaborate,
Connect**

... and it's essential