



# Chikungunya Virus

“An Emerging threat to the Americas”

# Chikungunya



- It's a viral disease transmitted to humans by infected mosquitoes.
- The disease occurs in Africa, Asia and the Indian subcontinent. In recent decades the virus have spread to Europe and the Americas.
- The main vectors of the disease are *Aedes aegypti* and *Aedes albopictus*. Both subspecies are present in Texas.
- The disease was first detected in 1952 during an outbreak in the region of the Makonde Plateau, home to the Makonde tribe. A region in Africa located between Tanzania and Mozambique.

# The Makonde Plateau is located between Tanzania and Mozambique, Africa.



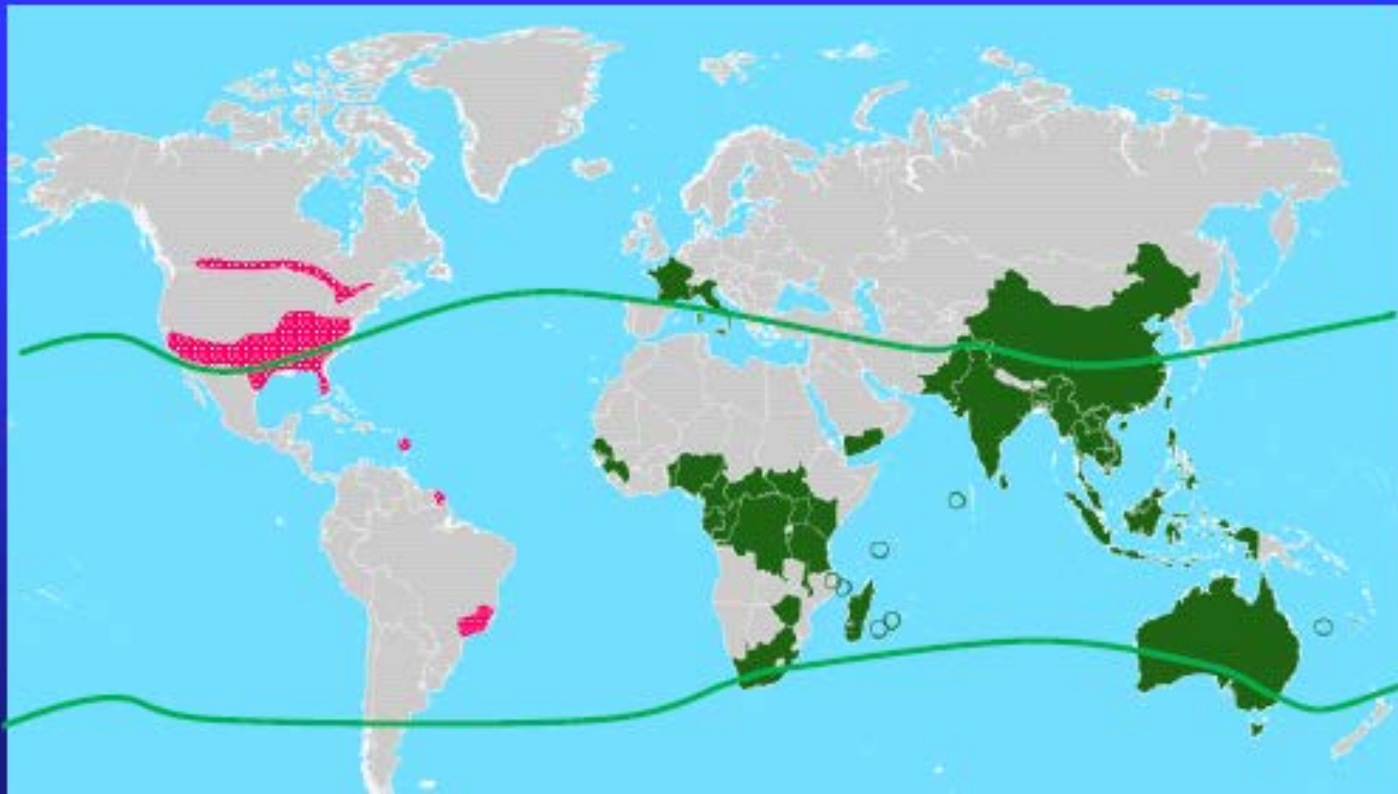
# Distribution of CHIKV outbreaks – prior to 1999

---



# Imported to western hemisphere

- ◆ French Guiana – 2006  
(Madagascar)
- ◆ French West Indies – 2006-2009
- ◆ US – 2005 – 2012
- ◆ Canada - 2006
- ◆ Brazil – 2010





Pan American  
Health  
Organization



World Health  
Organization

REGIONAL OFFICE FOR THE Americas

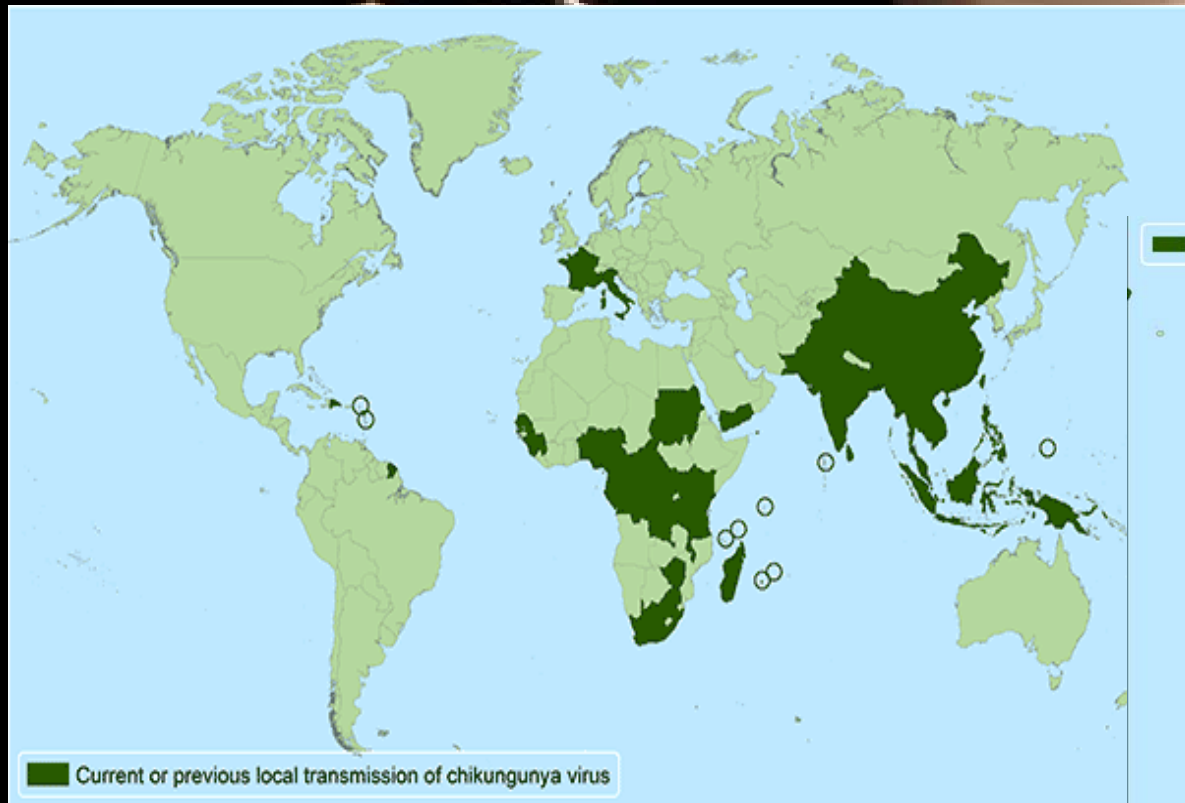
## Number of Imported Cases of Chikungunya Fever in the Americas, by Country or Territory

Weekly and Cumulative cases

Epidemiological Week / EW 25 (Updated 20  
June 2014)

Country/Territory	Week <sup>a</sup>	Weekly Imported Cases	Cumulative Imported Cases
<b>North America</b>			
United States of America	Week 25	18	57
<b>Central America Isthmus</b>			
Panama	Week 21	2	2
<b>Latin Caribbean</b>			
Cuba	Week 25	1	6
<b>Andean Area</b>			
Venezuela	Week 25	4	6
Brazil	Week 25	4	11
<b>Southern Cone</b>			
Chile	Week 22	1	2
<b>Non-Latin Caribbean</b>			
Aruba	Week 06	1	1
Barbados	Week 23	1	1
Suriname	Week 25	1	1
<b>TOTAL</b>			<b>87</b>

# CURRENT AND PREVIOUS LOCATIONS



# Possible Factors That Could Contribute to the Introduction in the Americas

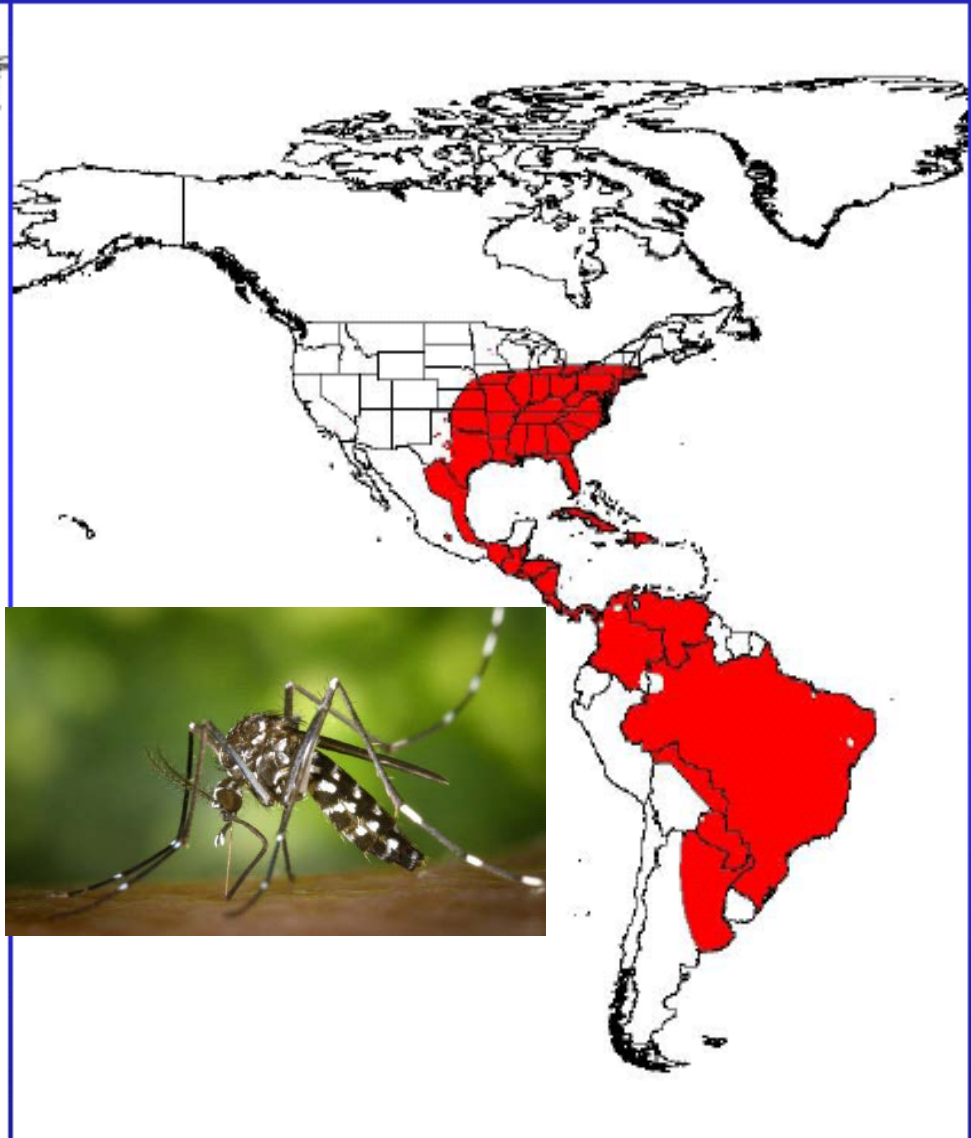
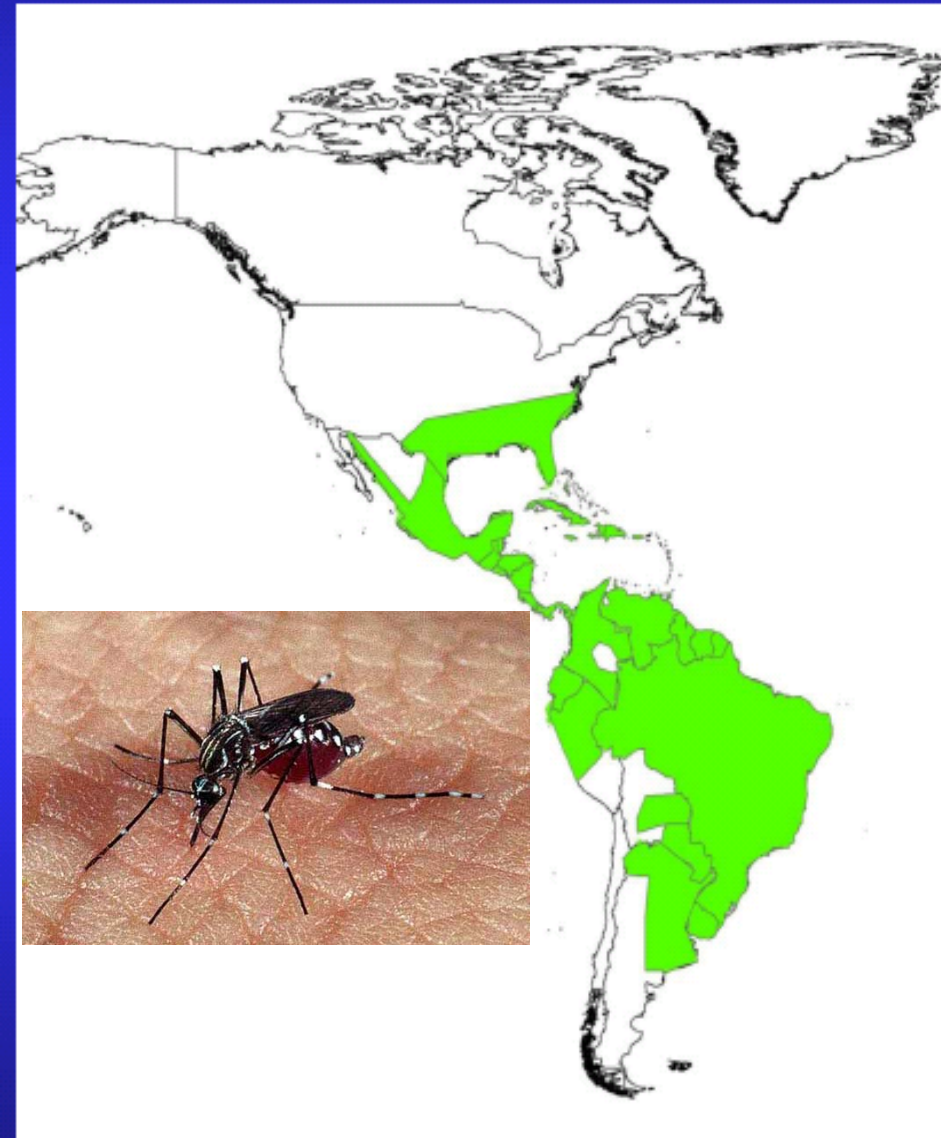
- Population not previously exposed to the virus
- Social factors
- Environmental/ecological conditions
- Insufficient/unavailable public health response
- Infected humans have high levels of the virus in their bodies
- Presence of both known mosquito vectors



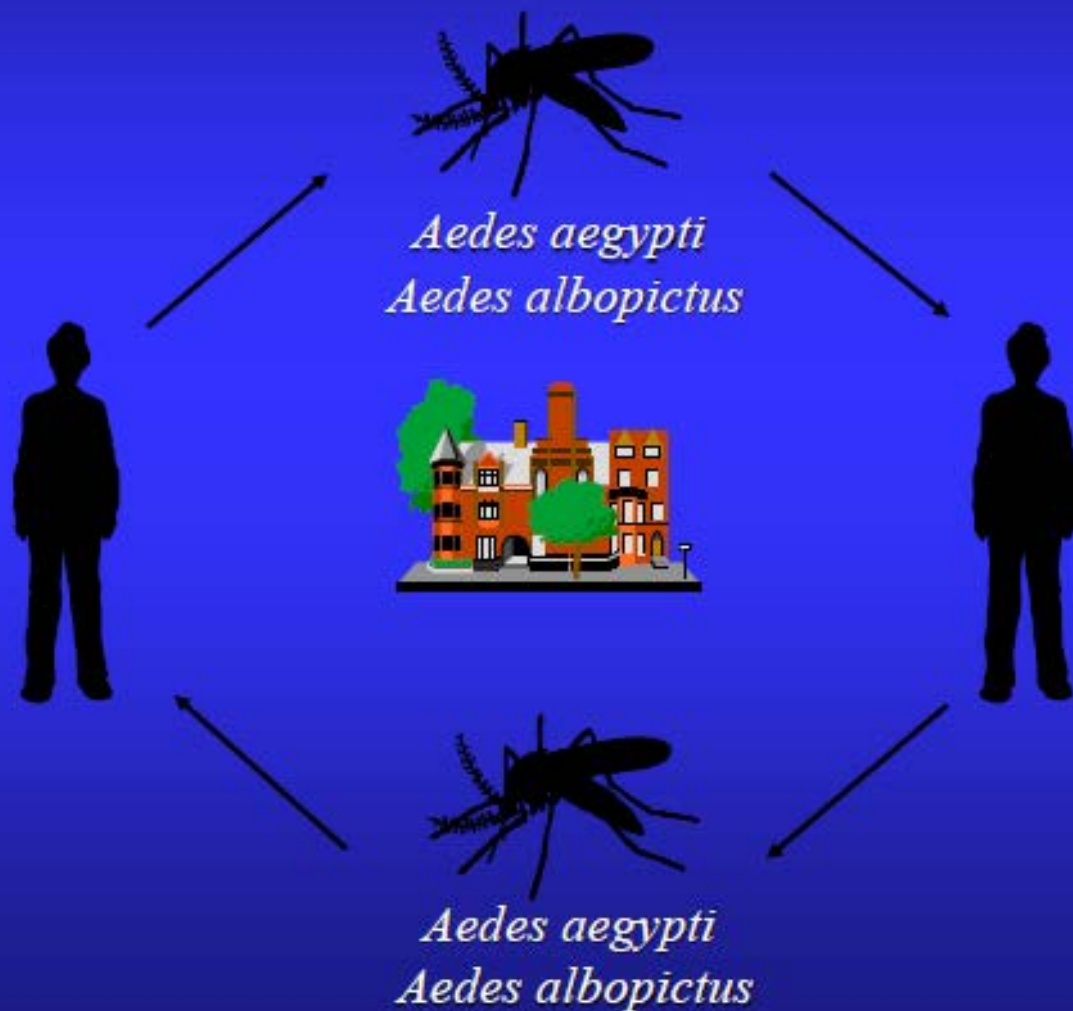
# Vector Presence in the Americas

*Ae. aegypti*

*Ae. albopictus*



# Common CHIK Transmission Cycle



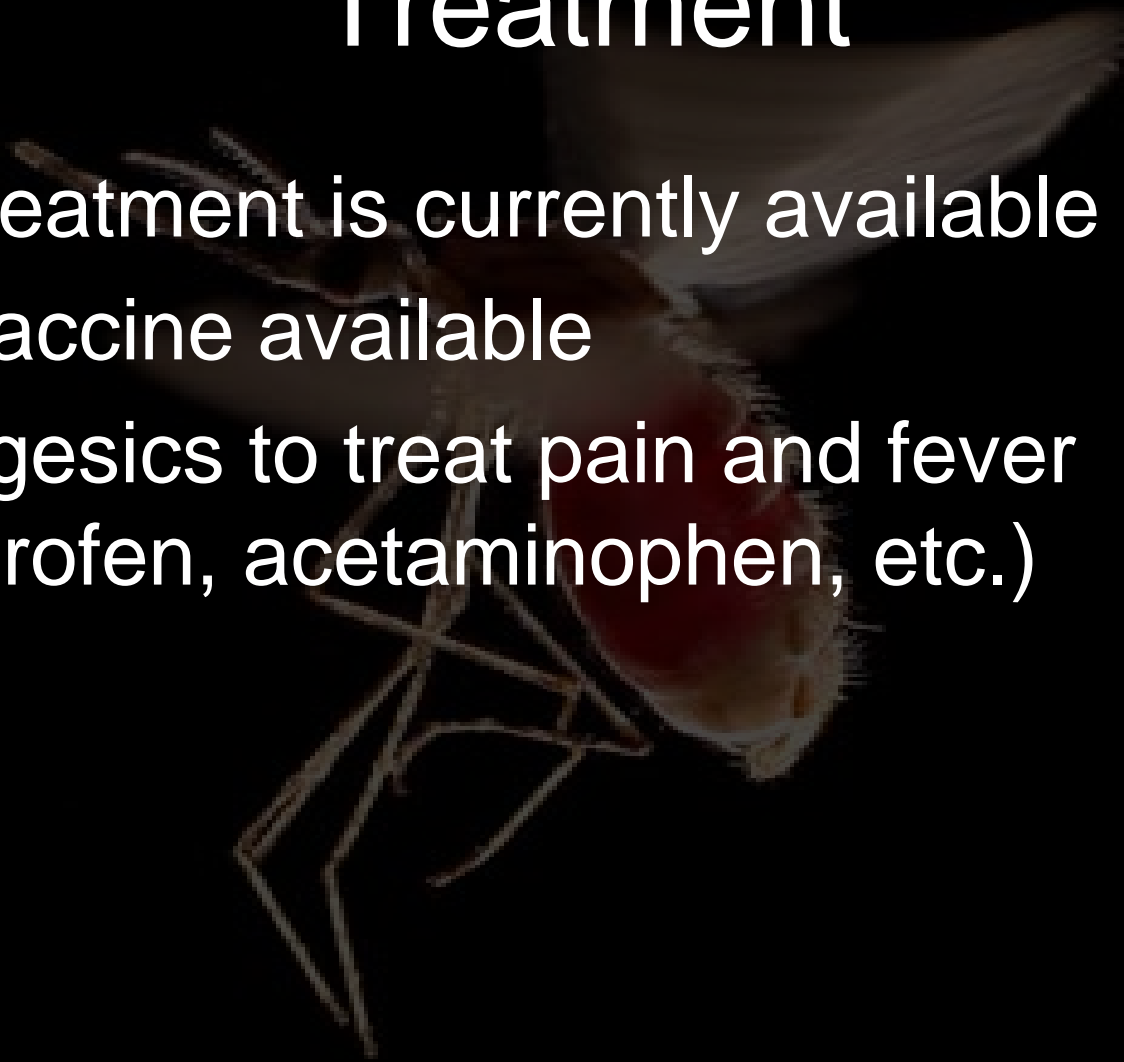
# Symptoms



- Symptoms are similar to other mosquito borne diseases such as West Nile
- They usually begin 3–7 days after being bitten by an infected mosquito.
- Self-limiting- usually last 5-7 days
- May become chronic in the elderly and immunocompromised
- Not life-threatening
- 72-97% of infected persons develop symptoms

# Treatment

- No treatment is currently available
- No vaccine available
- Analgesics to treat pain and fever (ibuprofen, acetaminophen, etc.)



# Important Differences Between West Nile Virus and Chikungunya Virus

## West Nile Virus

1. Transmitted primarily by *Culex* mosquitoes.
2. Birds are the primary reservoir.
3. Humans are incidental targets.
4. Transmission cycle is from birds to mosquito to humans.
5. Lab testing is readily available to municipalities.
6. Disease can be fatal.
7. Lifetime immunity is acquired after infection.

## Chikungunya Virus

1. Transmitted primarily by *Aedes* mosquitoes.
2. Humans are the primary reservoir.
3. Humans are the primary target.
4. Transmission cycle is from humans to mosquito to humans.
5. Lab testing not readily available to municipalities.
6. No fatalities have been reported.
7. Lifetime immunity is acquired after infection.

# Prevention and Control



- **Avoiding mosquito bite (mosquito repellents, protective clothing, mosquito nets)**
- **Public education.**
- **Elimination of mosquito breeding sites.**
- **Follow CDC and DSHS guidelines and recommendations as they become available.**

# City of Grand Prairie Vector Control Activities



The City of Grand Prairie Vector Control Program is designed to prevent and control any mosquito borne disease. The program consists of 5 primary objectives:

## 1. Surveillance

- 44 Trapping sites, 5 fixed sites, year round trapping.

## 2. Larviciding

- Spring larviciding, storm drains, ditches, culverts.

## 3. Complaints

- Source reduction and larviciding.

## 4. Education

- Brochures, website, billboards, news media, 4 D's.

## 5. Adulticiding

- When positive human cases or mosquito samples are reported.