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Zika Webinar Series - Webinar No. 2

# **TAKING THE BITE OUT OF ZIKA**

Practicing Effective Mosquito Controls

Friday, February 5<sup>th</sup>, 2016 11:00 AM (EST)





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# WELCOME

## **MODERATOR**

Denaye Hinds

Director of Sustainability, OBM International

Director of CHTA's Caribbean Alliance for Sustainable Tourism (CAST)

## **Practicing Professional Advice Aimed at:**

- Mitigation and Vector Control
- Education and Public Relations
- Coordination and Collaboration



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# ZIKA: THE FACTS

## PRESENTER

Dr. Karen Polson-Edwards  
Medical Entomologist  
Caribbean Public Health Agency (CARPHA)

- About CARPHA
- Zika Defined
  - Transmission
    - ✓ What's Known
    - ✓ What's Speculative
  - Symptoms and Treatment



# Countries Covered by CARPHA



**CARICOM Member States: Antigua and Barbuda; The Bahamas; Barbados; Belize; Dominica; Grenada; Guyana; Haiti; Jamaica; Montserrat; Saint Lucia; St. Kitts and Nevis; St. Vincent and the Grenadines; Suriname; Trinidad and Tobago;**

**Dutch territories: Aruba, Curacao, Saba, St Eustatius, St Maarten,**

**CARICOM Associate Members: Anguilla; Bermuda; British Virgin Islands; Cayman Islands; Turks and Caicos Islands.**





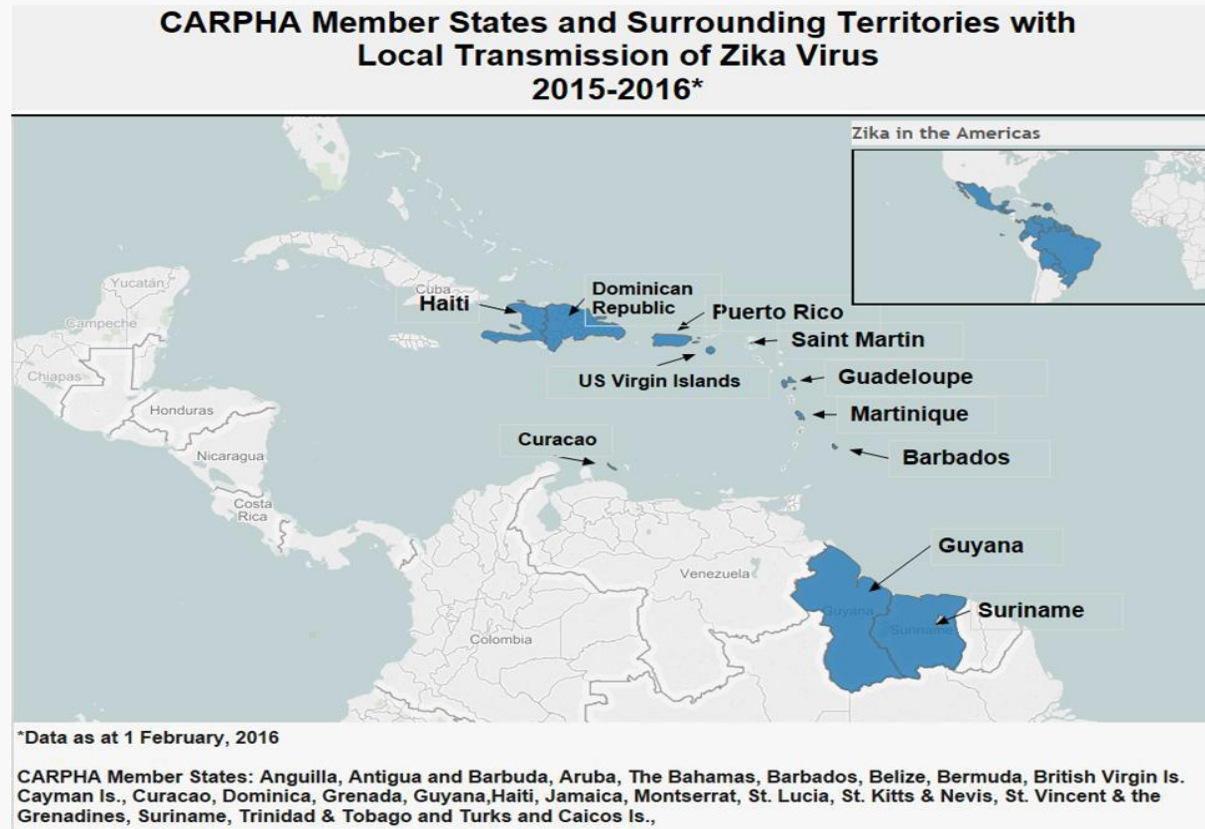
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## Current Status in CARPHA Member States and Surrounding Territories





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# Profile: Matters Being Reported

**Microcephaly and Other Abnormalities**

**Guillain-Barre Syndrome**

**Transmission Through Sex**





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# Preventative Measures

## Personal Preventive Measures

### Advice for Pregnant Women





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## Looking Ahead

### **CARPHA's Ongoing Role**

**A Engagement with CARICOM, National Health Agencies,  
CTO, CHTA**







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# Integrated Mosquito Management Mitigation and Control Best Practices

## **PRESENTER**

Christopher Lubin, FDL Pest Control Solutions from St. Lucia  
Raoul Persaud, Univar  
Adelle Garbutt, Calabash Resort

- About the Aedes Mosquito  
Lifecycle, Breeding, Behaviors
- Fogging and Misting – Techniques





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# Aedes Aegypti

## PRESENTER

Raoul Persaud, Univar

- Small dark, white lyre shaped marking on thorax & banded legs
- Container Breeder
- Prefer dark colored containers
- Natural Locations – Tree holes, Axils
- Skip Ovi-position Behavior
- Egg to Adult in 7-8 days
- Egg production sites in close proximity to households
- Eggs are resistant to desiccation and can remain viable for 6 months or more
- Eggs produced depends on blood meal size
- Female can lay about 5 batches of 100 to 200 eggs in her lifetime.





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# Aedes Aegypti

- Lifespan of adults approx. 3 weeks
- Found in open septic tanks, storm drains, wells, water meters
- Can breed in as little as a teaspoon of water



## **BITING BEHAVIOUR**

- Day Biters
- Species active approx. 2 hrs. after sunrise and several hrs. before sunset.
- Approaches humans from behind and bites ankles & elbows
- Bites dogs and other domestic animals – mostly mammals



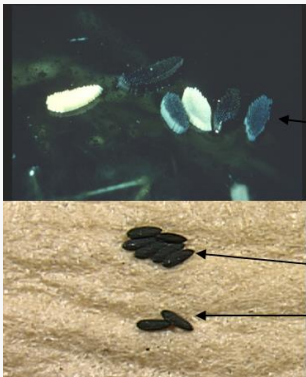
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# Aedes Aegypti



egg  
raft

eggs laid  
in groups



Larvae in the water.



Female mosquito after biting a person.



Pupae in the water.



Emerging adult mosquito.





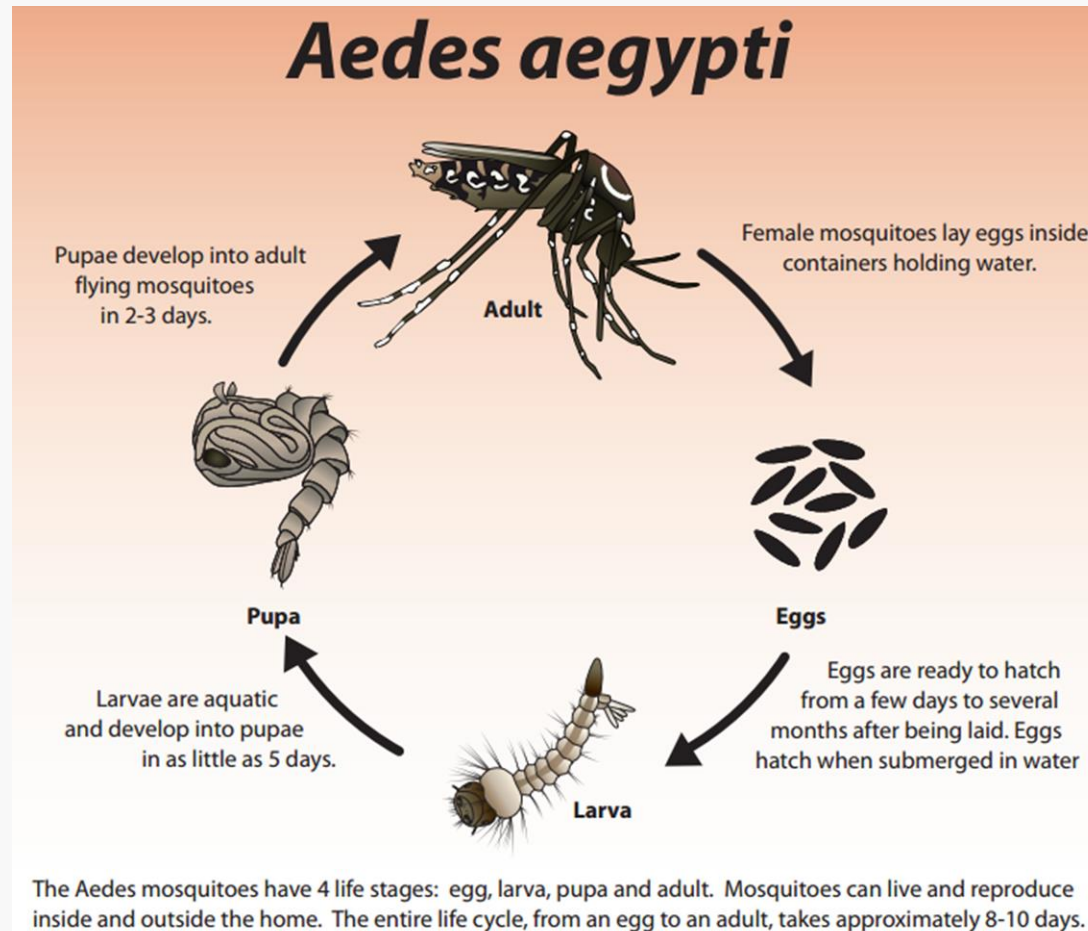
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# Life Cycle

## Complete Metamorphosis





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## PRESENTER

Adelle Garbutt, Calabash Resort

# 5

## MIN GUIDE:

# MOSQUITO PREVENTION, CONTROL & REPELLENT AWARENESS GUIDE

### COMPLETE A FULL INSEPECTION OF POTENTIAL BREEDING AREAS FOR MOSQUITOS



INVESTIGATE & CLEAN AREAS FOR POTENTIAL BREEDING  
ENSURE NETTING AND GAUZE ARE IN GOOD CONDITION  
CLOSE WINDOWS AND DOORS BEFORE DARK  
REMOVE TRASH FREQUENTLY & SECURE CONTAINERS  
EMPTY ALL CANS/BOTTLES OF LIQUIDS PRIOR TO DISCARD

### REMOVE ALL STANDING WATER



TIRES



WATERING CANS



CLEAN GUTTERS & PIPES



COVER ALL DRUMS, BARRELS, BUCKETS

### CREATE AN INTEGRATED PEST MANAGEMENT PLAN



SURVEY GROUNDS  
DETERMINE SPECIES COMPOSITION  
DEPLOY PREVENTION METHODS



### REPAIR LEAKS IN AND AROUND HOTEL SECURE ALL WATER SOURCES & CONTAINERS

ENSURE AREAS AROUND ALL TREATMENT &  
DESALINATION PLANTS DO NOT CONTAIN WATER  
POUR SALT IN ALL POTENTIAL POCKETS OF WATER  
PLACE SMALL FISH IN WATER FEATURES/PONDS  
(GUPPIES, GOLDFISH, KILLIFISH, TILAPIA)



### FILL DEPRESSION AREAS WITH SOIL TO AVOID CREATING STANDING WATER

DRAIN ALL LOW PLACES  
KEEP GRASS CUT SHORT  
SCREEN ALL TANKS  
SEAL ALL TANKS (WATER/SEPTIC)  
CLEAR COCONUT SHELLS & CONTAINERS



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## Eliminating Breeding Grounds

- Commonly overlooked breeding places – Tires, Tarps & Tanks
- Look up – frequently check your gutters
- Check odd places – like small spaces, brick work on the top of walls and in plants that hold water like Bromeliads





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## Eliminating Breeding Grounds

- The best thing to do is to get rid of the water. Permanently.
- When you can't eg drains– pour salt into the water
- Or add fish to the water, like guppies







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# Good Ground Keeping Practices

- **Assessment of Grounds** - to determine all possible breeding sources – scheduled walks
- **Source Reduction**
  - **Drainage** - scheduled cleaning of drains on the property
  - **Leaf Litter** removal in storm drains and guttering
  - **Exclusion** - proper sealing of man holes, water tanks and other receptacles that hold water
  - **Cleaning of Guttering and Roofs** (a good time is before the start of the rainy season)
  - **Treatment of Crab Holes and Tree Holes** with a mono molecular film
  - **Pruning Deciduous Tree Branches** - breeding sites in storm drains and guttering
  - **Clippings in Drains** – guards on weed eaters to reduce the spread of clippings.
  - **Removal of Matter** and unwanted items that can serve as sources on property



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# Fogging

## **PRESENTER**

Christopher Lubin, FDL Pest Control Solutions





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## ULV Application





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## Barrier Treatments







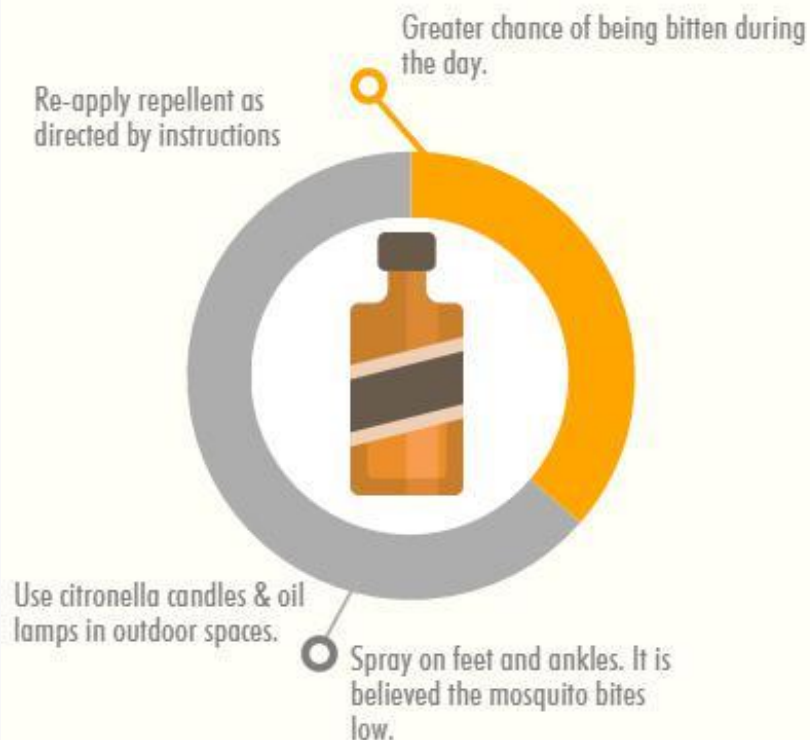
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## REPELLENT GUIDE



### EPA-REGISTERED REPELLENTS TO CONTAIN:

- PICARIDIN
- OIL OF LEMON EUCALYPTUS (OLE)
- IR3535
- NEEM
- DEET

### CLOTHING & APPLICATION

- LOOSE LONG SLEEVES & PANTS
- LIMIT SPANDEX
- CLOSED IN SHOES
- SPRAY CLOTHING W/ DEET REPELLANT
- USE PERMETHRIN-TREATED CLOTHING

*\*do not apply permethrin directly to skin*

12 Caribbean Countries have reported cases of Zika virus (as of 2.1.16)



**\*PREGNANT / ASSUMED PREGNANT WOMEN ARE URGED TO TAKE EXTRA PRECAUTION. WOMEN IN AFFECTED AREAS, CONSULT DOCTOR ABOUT PREGNANCY**





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# Environmental Sanitation

## (Habitat Modification)

- **Mechanical Control Measures** (exclusion)
  - Netting
  - Dressing for Protection
- **Repellants**
  - Citronella Candles
  - Lanterns
  - Coils
  - Bug Shields



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# Environmental Sanitation

(Habitat Modification)

- **Larviciding**
  - Chemical Larvicides
  - Biological Larvicides
  - Monomolecular films & Oils
- **Growth Regulators**
  - Repellants
- **Chemical Control**
  - Barrier Spraying (residual pesticides)
  - Space Spraying



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# Innovations In Mosquito Control





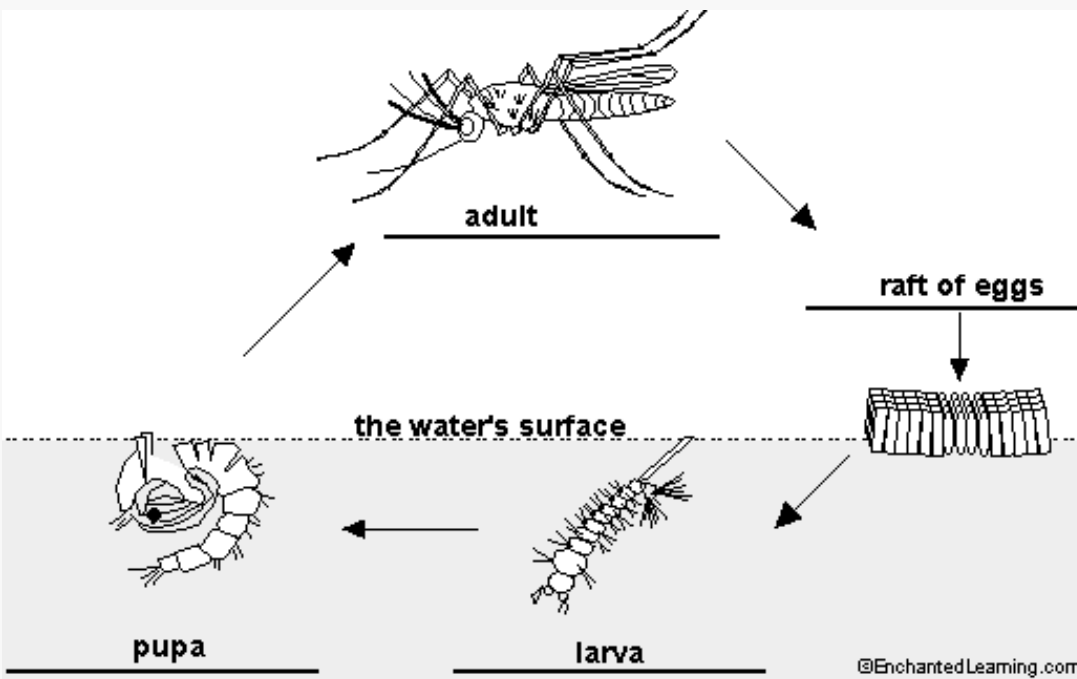


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## Aquatain AMF – How it Works



- Forms a thin fast spreading physical barrier over the water surface
- Pupae and larvae are killed as they find it more difficult to attach to the surface to breathe
- Discourages females from laying eggs

**Aquatain AMF**  
LIQUID  
MOSQUITO FILM



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## Added Tips

Keep your drains clear and flowing

Scrub water containers to get rid of the eggs



Create a “Zone of Safety” around your property





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## PRESENTER

Adelle Garbutt, Calabash Resort

# Institutionalizing Procedures and Practices

## Development of an integrated mosquito management protocol at resorts

- **Form a Grounds Management Action Group** to include staff from:
  - Maintenance
  - Landscaping
  - Management
- **Fortnightly Meetings** to report on daily walks and action taken to deal with breeding sources found



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# Institutionalizing Procedures and Practices

- **Installation of an Integrated Mosquito Control Program** to include use of the following methods:
  - Larviciding
  - Monomolecular films & Oils
- **Growth Regulators**
- **Repellents**
- **Chemical and Non Chemical Controls**
  - Barrier Spraying (residual pesticides)
  - Space Spraying
- **Mosquito Traps** as part of an overall surveillance program



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# Education and Public Relations

## **PRESENTERS**

Johnson Johnrose, Communications Specialist, Caribbean Tourism Organization  
Frank Comito, CEO, CHTA

- Getting It Right on the Inside First
  - Employee Awareness and Training
    - General Information About Vector Control in the workplace and at home
    - Inter-Departmental Communications
    - Health and Safety Guidelines for Suspected Cases
    - Effective Communications with Guests and Potential Guests
      - CARPHA Tips for Guests
      - CTO/CHTA FAQs



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## Help Control Mosquitoes that Spread Dengue, Chikungunya, and Zika Viruses

**Protect Yourself, Your Family, and Community from Mosquitoes**

- 1. Eliminate standing water in and around your home...**
- 2. If you have a septic tank, follow these steps....**
- 3. Keep mosquitoes out of your home...**
- 4. Prevent mosquito bites...**

For more information visit:

[www.cdc.gov/dengue](http://www.cdc.gov/dengue), [www.cdc.gov/chikungunya](http://www.cdc.gov/chikungunya), [www.cdc.gov/zika](http://www.cdc.gov/zika)

<http://carpha.org/Media-Centre/Health-Topics>

CHTA Zika Resource Center:

[http://caribbeanhotelandtourism.com/CAST-Zika-Resource\\_center.php](http://caribbeanhotelandtourism.com/CAST-Zika-Resource_center.php)



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# Education and Public Relations

## PRESENTERS

Johnson Johnrose, Communications Specialist, Caribbean Tourism Organization  
Frank Comito, CEO, CHTA

- Public Awareness About Zika Preventative Measures
  - Employees Are Your Best Reach to the Extended Community
  - Media and Communication Tools You Can Use
  - Enlisting Media Support
  - Collaboration Works



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# Coordination and Collaboration

## **PRESENTERS**

Karolin Troubetzkoy, President, CHTA

Frank Comito, CEO, CHTA

- Engagement with the Community Surrounding Your Property
- Community Clean-Up Campaigns
- Working with National Hotel and Tourism Associations, Ministries/Boards of Tourism, Health Departments/Ministries
- Regional Resources: CARPHA; CTO; CHTA





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## ZIKA ADVICE



FOR HOTELIERS  
GIVE GUESTS FACTS &  
RESOURCES  
REMOVE STANDING WATER



FOR COMMUNITIES  
ENGAGE IN ISLAND-WIDE  
CLEAN-UPS OF BREEDING  
HABITATS



FOR GOVERNMENTS  
DUTY-FREE PRODUCTS  
ISLAND-WIDE MISTING



FOR PR/MEDIA  
COMMUNICATE MITIGATION &  
PREVENTION MEASURES



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# Q&A

For Additional Information Visit:  
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