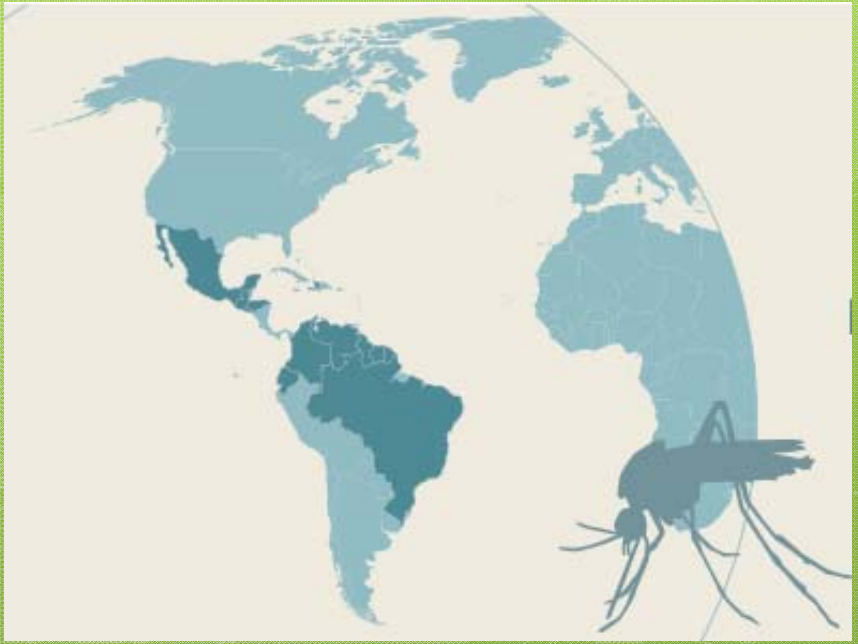

Norfolk LEPC

Norfolk Department of Public Health

Demetria Lindsay, MD
Health Director

Michelle Burnette, MPH
Epidemiologist, Sr.

Norm Grefe, MS
Environmental Health Manager

June 15, 2016

Objectives and Outline

- To provide and overview of the public health infrastructure in Virginia
- To understand the role of public health in response to an emerging public health threat
- To understand Zika virus, its means of transmission and precautions
- To provide an understanding of mosquito vectors of Zika and their control

Public Health Preparedness and Response to the Emerging Threat of Zika Virus in Virginia

Demetria M. Lindsay, MD
District Health Director
Norfolk Department of Public Health
Local Emergency Planning Committee
June 15, 2016

THE CITY OF NORFOLK

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Public Health Infrastructure

Federal

- CDC

State

- Virginia Department of Health
- Lead agency for public health activities in Virginia

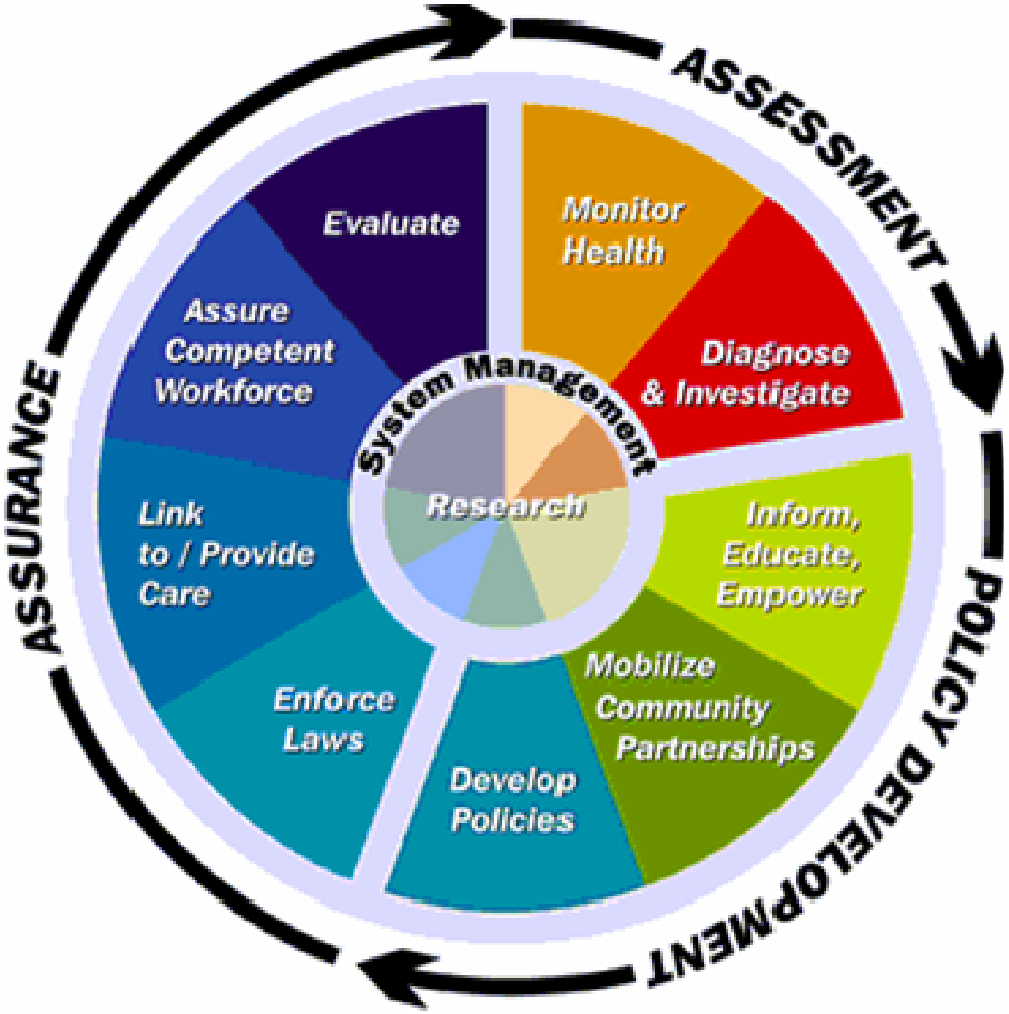
Local

- Part of centralized state public health system
- 35 local health districts
- Planning, implementation at local level

Federal Role – Centers for Disease Control and Prevention

- Surveillance and investigation
- Establish clinical guidelines/recommendations for testing and treatment
- Coordinate with state health departments and other agencies at federal and state level
- Provide expertise/consultation
- Disseminate credible information to broad audiences, professional and general public
- Provide support and resources in the US and to affected countries

10 Essential Public Health Services



VDH Response to Zika – State Level

- Virginia Zika Task Force established by Governor McAuliffe Feb., 2016
  - State agencies, municipal governments, hospitals, healthcare associations, medical societies
  - Led by VDH Commissioner, Dr. Marissa Levine
  - Virginia State Mosquito Response Plan
  - Strategies for
    - Communication and sharing information
    - Surveillance and investigation
    - Laboratory testing
    - Vector control
    - Outreach to pregnant women
    - Safety of the blood supply

Phases of Preparedness

- Preparedness → Vector present or possible in the state
- Response
  - Mosquito Season
  - Confirmed Local Transmission
  - Widespread Local Transmission
  - Local Transmission in Multiple Counties

VDH Role and Response

- Surveillance and Investigation
  - Monitor, track case counts
  - Coordinate case investigations with localities/CDC
- Develop policies and procedures
  - Guidance, procedures and training for staff
  - Communicate case definitions and testing criteria
- Raise awareness among clinicians and the general public – www.vdh.virginia.gov
  - 'Dear Colleague' letters, website, direct communication through local health depts. and state
- Coordinate with public and private partners
- Facilitate/expand lab testing capability

Local Preparedness and Response - Norfolk

- Human surveillance and investigation
  - Epidemiologist in every district. Norfolk Epi team, some districts use Communicable Disease Nurses
  - All suspected and confirmed cases are required to be reported to local health department
  - Lhd will investigate identified cases of Zika
- Support to local clinicians
  - Facilitate lab testing – approves testing, based on testing criteria; as submitter lhd receives results from DCLS and communicates to the clinician
  - Connect physicians and hospitals to information update and resources as needed
- Public education and awareness
- Mosquito Control

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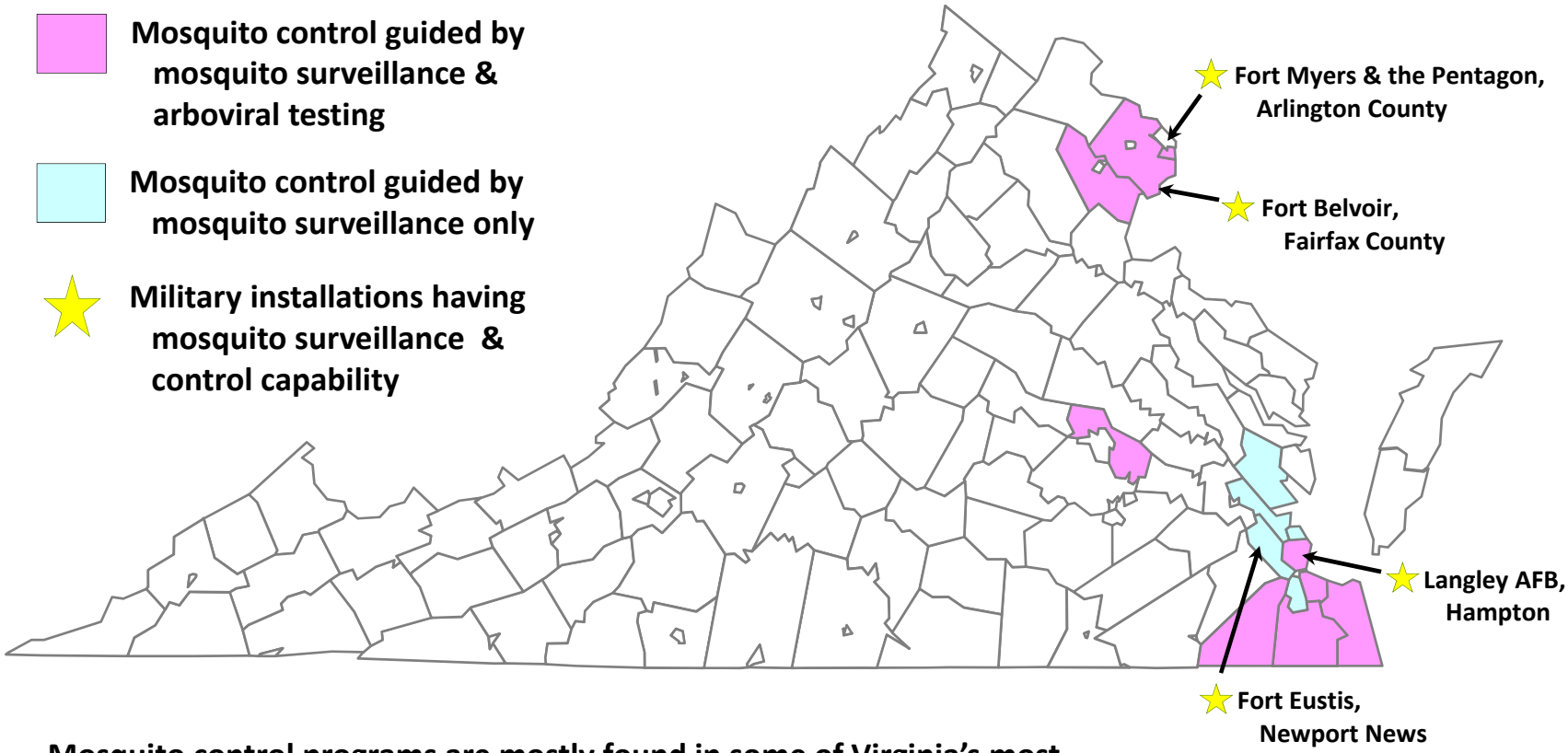
Virginia Jurisdictions &Military Installations Having Mosquito Control Capabilities



Mosquito control programs are mostly found in some of Virginia's most heavily populated jurisdictions.

Zika Pregnancy Registry

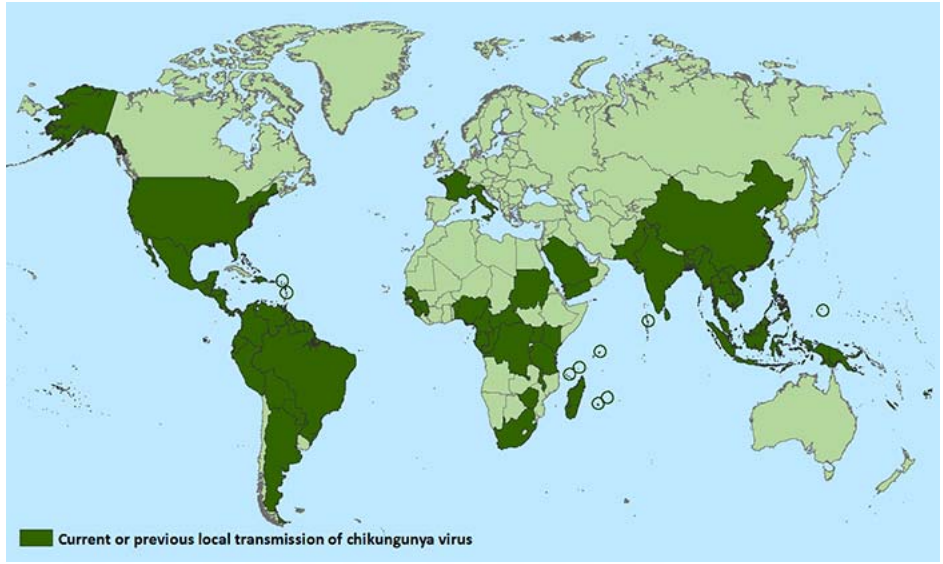
- Established by the CDC in partnership with state, local and territorial health departments
- Purpose - Contribute to better understanding of Zika virus and its affects
  - Update recommendations for clinical care
  - Plan for services for women and families affected by the Zika virus
  - Improve prevention of Zika virus infection during pregnancy
- Public Health Surveillance Activity – Essential Service
  - CDC IRB approved

Zika Pregnancy Registry Process

- Local health department to collect information directly from health provider and coordinate on collection
  - Note - Physicians are required to report
- Who
  - Pregnant women with positive or inconclusive laboratory test results for Zika infection regardless of symptoms and prenatally and perinatally exposed infants
  - Infants with laboratory results (positive or inconclusive test results) regardless of whether they have symptoms) and their mothers
- Involves registry, periodic data and lab collection
  - Mother – Initial, 2nd and 3rd trimesters, delivery
  - Infant – 2, 6, and 12 months

Chikungunya Viral Disease

- Viral disease transmitted via mosquito
- Africa, Southern Europe, Southeast Asia, and Indian and Pacific Islands
- 2013 found in the Americas – Caribbean
  - 2,800 in US (47 states) in 2014, 11 locally acquired in FL only
  - >4,600 in Puerto Rico, Virgin Is, American Somoa in 2014



Chikungunya Viral Disease

- Symptoms
  - High fever (102+), rash, myalgias, incapacitating arthritis (peripheral), rare hemorrhagic manifestations, Guillain Barre
  - Generally 7-10 days, joint sxs may persist for months to years
  - More severe in neonates, >65 yo, DM, Htn, CVD
- Infection usually confers immunity
- No vaccination or treatment

Denge Virus Disease

- Fastest growing vector-borne viral illness
  - 30 fold increase in past 50 years
  - 400 million infected yearly
  - Endemic in >100 countries in Asia, the Pacific, Americas, Africa, and the Caribbean
  - Outbreaks in Puerto Rico,) and Hawaii
  - Key West outbreak – 5% of population had Ab
  - 40% of world population in Denge affected

Denge Fever and Hemorrhagic Fever

- 4 serotypes, no cross protection
  - Antibodies from prior infection(s) enhance, subsequent infections
  - Potential risk of vaccination
- No vaccine or treatment
- Incubation 3-14 days
- Symptoms – fever followed by rash, severe incapacitating HA retro-orbital, severe myalgias, arthralgias (*breakbone fever*)
- 4-7 days @ time of fever decrease → some dev hemorrhagic signs
- Hemorrhagic fever – Petechia, purpura, bleeding gums, rare epistasis, abd pain, vomiting, alt. mental status, hypothermia, low platelets, death
  - Higher risk in 2nd , 3rd, 4th infections

Commonalities

- Transmission - Aedes mosquito
- Prevention
- No treatment except supportive
- Similar symptoms,
  - Zika generally milder
- Cross reaction
- on lab testing
- complicates
- diagnosis

So Why the Fuss Over Zika?

Clinical features: Zika virus compared with dengue and chikungunya

Features	Zika	Dengue	Chikungunya
Fever	++	+++	+++
Rash	+++	+	++
Conjunctivitis	++	–	–
Arthralgia	++	+	+++
Myalgia	+	++	+
Headache	+	++	++
Hemorrhage	–	++	–
Shock	–	+	–

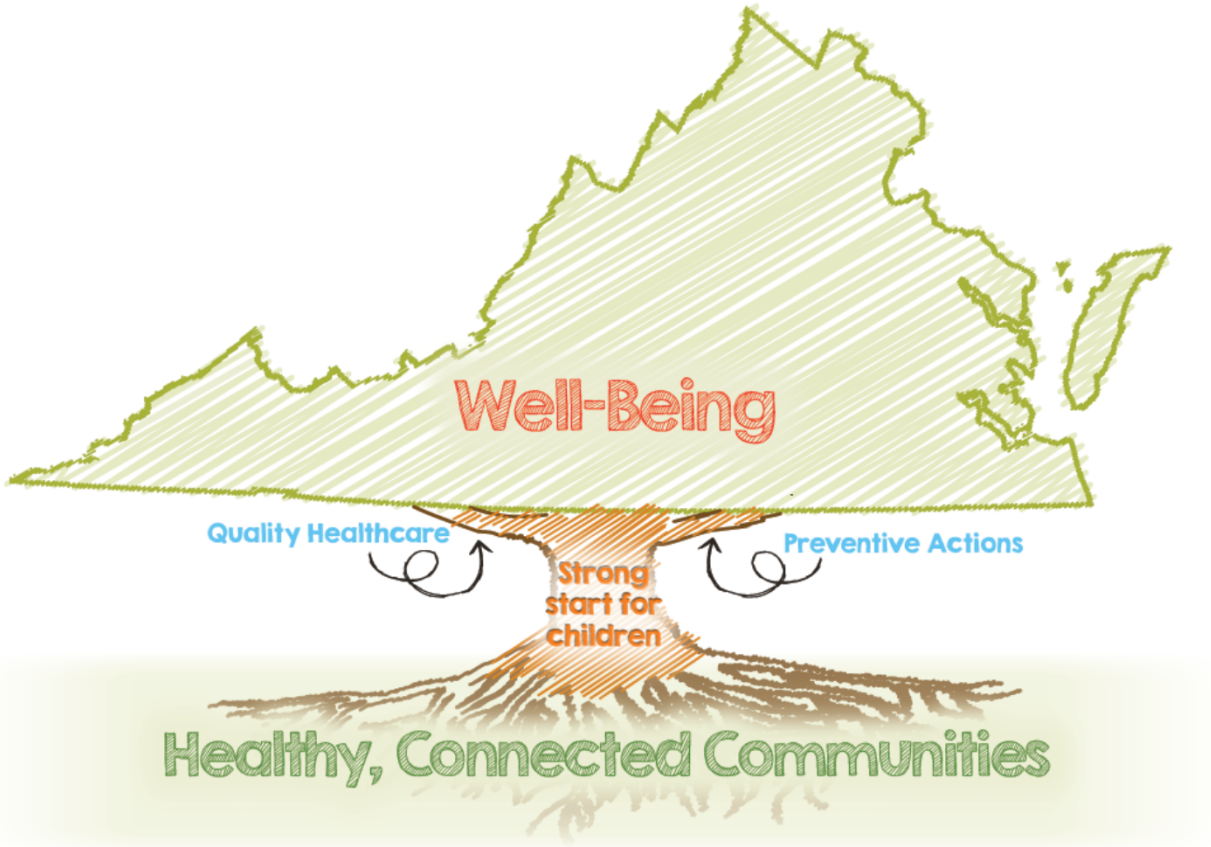
Reproduced from: Centers for Disease Control and Prevention. Zika virus - What clinicians need to know? Clinician Outreach and Communication Activity (COCA) Call, January 26, 2016. Available at: http://emergency.cdc.gov/coca/ppt/2016/01_26_16_zika.pdf (Accessed February 1, 2016).

UpToDate®

Dr. Adriana Melo, MD PhD, Obstetrician
Campina Grande, Brazil

"We've had dengue here for years, and we just haven't been that worried about that virus, and we thought this was going to be same."

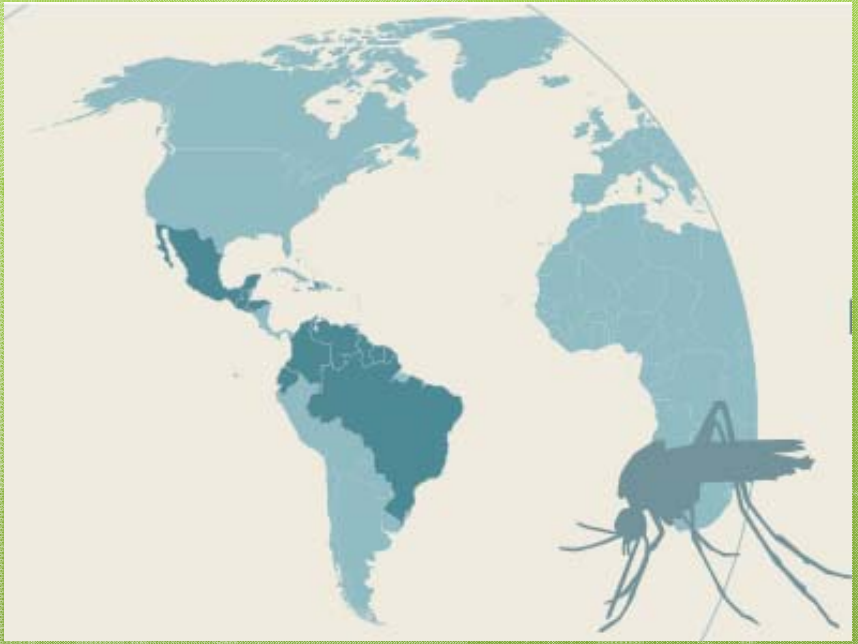
Virginia's Plan for Well-Being



Zika Virus Diagnostic Testing through DCLS

	DCLS	CDC
Chikungunya virus	RT-PCR and IgM serology	Forwarded for PRNT
Dengue virus	RT-PCR only	Forwarded for IgM serology and PRNT confirmation
Zika virus	RT-PCR (confirmatory) and (presumptive) IgM serology	Forwarded for PRNT confirmation

- Serum RT-PCR – acute ≤7 d after symptom onset
- Serology for IgM and neutralizing antibodies (>6-8 days) is presumptive for post acute phase
- Plaque reduction neutralization test (PRNT) for ≥4-fold rise in virus-specific antibodies in paired sera
- Immunohistochemical (IHC) staining for viral antigens or RT-PCR on fixed tissue



Zika Virus 101

Michelle Burnette, MPH
Epidemiologist, Sr.

Norfolk Department of Public Health

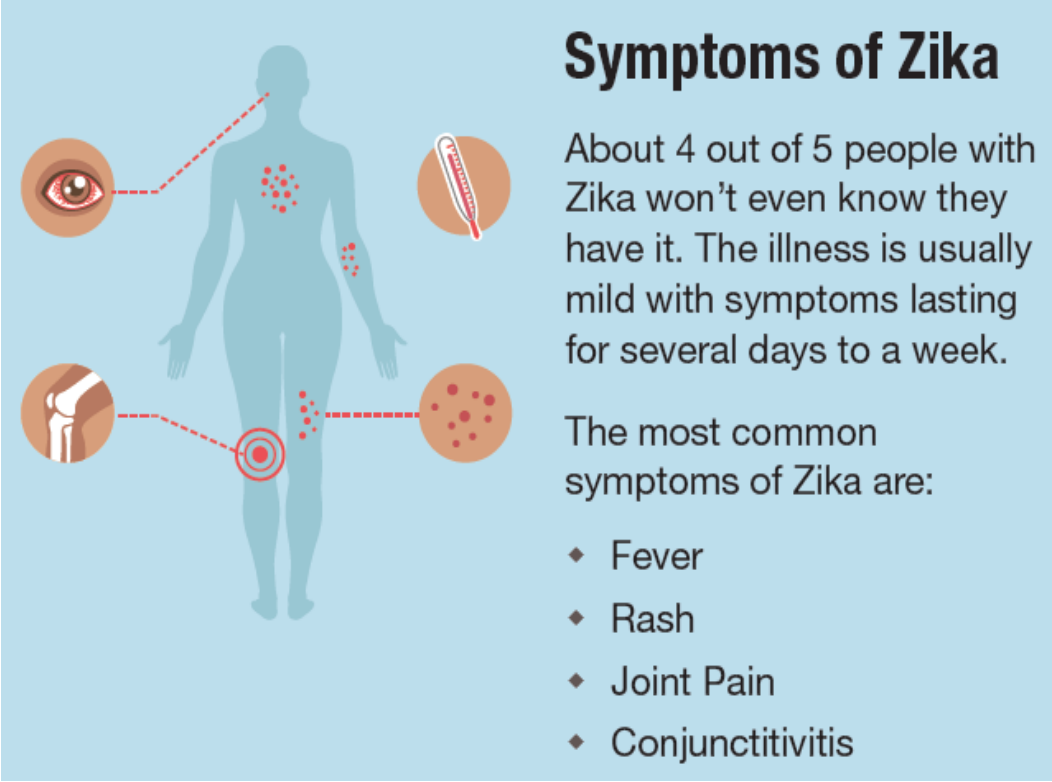
June 15, 2016

Zika Virus Disease

- Spread to people primarily through bite of infected mosquitoes (*Aedes* species)
- 1 of 5 infected persons get sick
- No vaccine or medications to prevent or treat

Symptoms

- 80% are asymptomatic
- Symptoms usually develop within several days – 2 weeks after mosquito bite

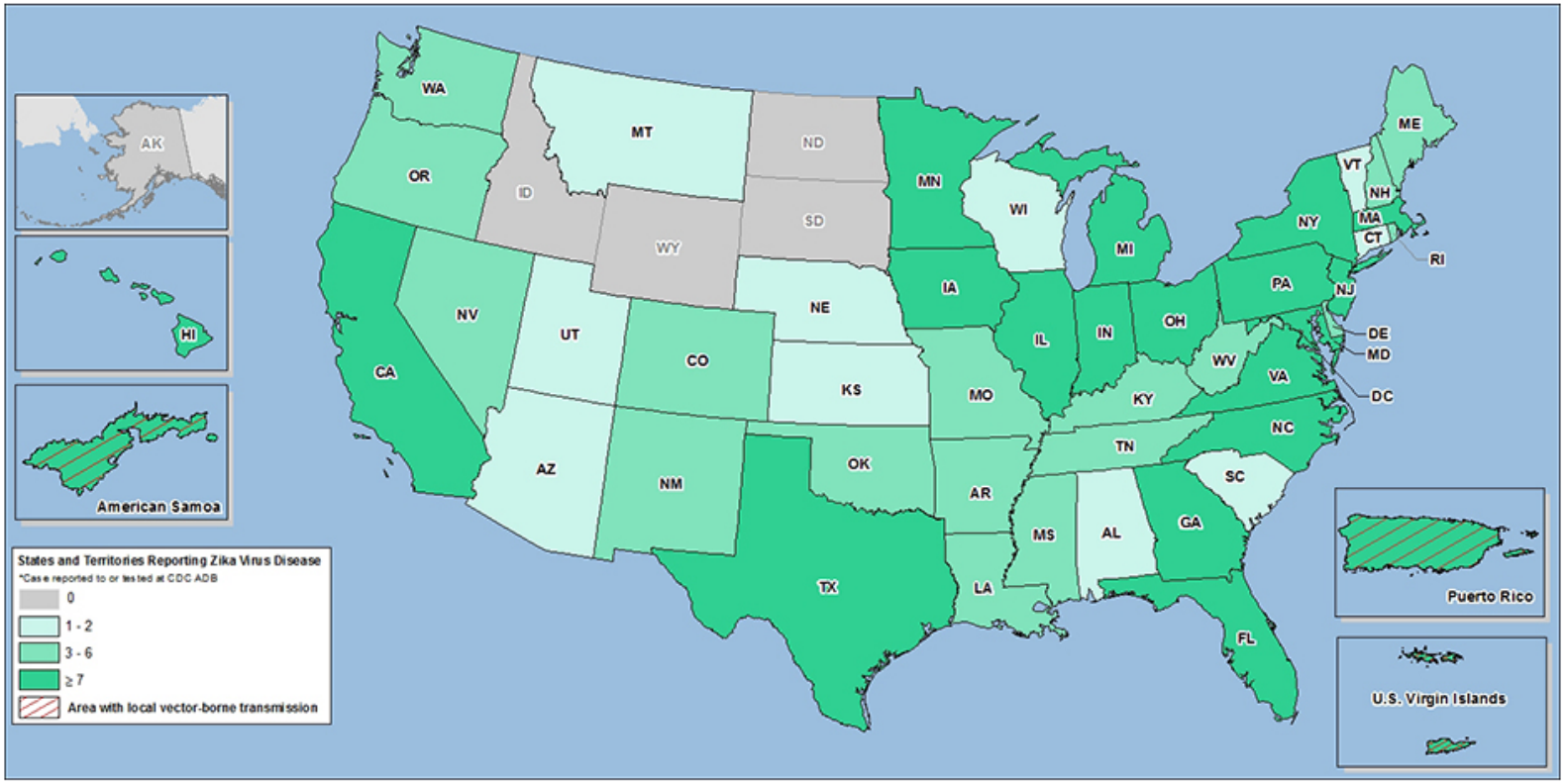


- Zika virus remains in infected person's blood for ~ 1 week
- Illness lasts several days – 1 week

Is Zika new? Where did it come from?

- 1947 1st isolated in monkeys in Zika Forest, Uganda
- 1954 Isolated in humans in Nigeria
- Sporadic cases throughout Africa and Asia until 2007
- 2007 outbreak on Yap Islands
- 2013-2014 outbreak in French Polynesia

Zika Virus Disease in US, 2015-2016



Laboratory-confirmed Zika virus disease cases reported to ArboNET by state or territory — United States, 2015–2016 (as of June 08, 2016)

- As of 6/8/2016, 45 states + DC have identified 691 travel-associated cases
- US: 0 locally acquired cases
- VA has 25 travel-associated cases (6/9/2016)

Source: CDC (as of June 8, 2016): http://www.cdc.gov/zika/geo/united-states.html

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Zika Virus Transmission

- Primarily transmitted by mosquitoes
  - Mainly by *Aedes aegypti* (Yellow fever mosquito)
  - Also by *Aedes albopictus* (Asian tiger mosquito)
  - Both also transmit dengue and chikungunya viruses
- Mosquitoes become infected by feeding on infected persons
- Zika virus remains in an infected person's blood for about 1 week
- No animal reservoir is known to be involved in Zika transmission in the Americas

Zika Virus Transmission

- Transmitted from mother to child
  - During pregnancy or at time of delivery
- Transmitted by blood or sexual contact
  - Some blood donation agencies have requested that recent travelers to Zika-affected areas defer donating blood
  - Virus can persist for several weeks in saliva and urine but it is not known if Zika can be spread from those body fluids

Sexual Transmission of Zika Virus

- 6 cases of sexual transmission of Zika virus investigated by CDC and state health departments in U.S.
- CDC continues to emphasize that primary mode of transmission is through bite of infected mosquito
- It is not known how long virus can remain in semen
- Until more known, if pregnant woman has sexual partner who traveled to affected area, then plan together to abstain from sex or use condoms correctly every time during sex for duration of pregnancy

Populations at Risk for Zika

- Currently anyone living in or traveling to area with active transmission, including pregnant women
  - Persons who have not traveled to affected country are not currently thought to be at high risk

- Potential: Parts of US, including Virginia, have mosquitoes that could spread virus if they bite infected person
  - Risk of local transmission of Zika virus is thought to be low based on historical transmission patterns of other similar viruses (e.g., Dengue and Chikungunya) spread by these species of mosquitoes

Active Zika Virus Transmission (5/26/2016)

Zika Virus Diagnostic Testing

- Testing currently available at:
  - CDC
  - DCLS
  - Quest Diagnostics and LabCorp (commercial labs)
  - Possible expansion to more labs

- For testing through CDC and DCLS, provider must consult with health department for testing

Zika Testing Algorithm (6/10/2016)

Public Health Zika Testing§ Algorithm

- Public health testing conducted by DCLS (Trioplex RT-PCR of serum and urine and IgM MAC ELISA of serum) for individuals in these categories requires approval by local health departments. CDC conducts all Zika PRNT testing to confirm positive or equivocal IgM test results.
- Commercial testing using real-time RT-PCR is available through private labs.

Revised 6/10/16

Algorithm will continue to be updated as new information becomes available

I. Pregnant women who:

- **(with or without symptoms of Zika¶)** traveled to Zika-affected area† within the past 12 weeks
- **(with or without symptoms of Zika¶)** have a sexual partner* who traveled to a Zika-affected area† and had symptoms of Zika¶ during or within 2 weeks of travel or was confirmed to have Zika
- did not travel to a Zika-affected area † and do not have an ill sexual partner who traveled, but who have a history of mosquito bite(s) and have ≥2 symptoms of Zika¶

II. Infants who:

- were born to a mother who had a positive or inconclusive test result for Zika
- were diagnosed with microcephaly or intracranial calcifications (including by fetal ultrasound)
- have ≥2 symptoms of Zika¶ in the first 2 weeks of life not explained by another etiology

III. Individuals who traveled to a Zika-affected area† and have ≥2 symptoms of Zika¶ during or within 2 weeks of travel

IV. Individuals who did not travel to a Zika-affected area † and who have ≥3 symptoms of Zika¶ not explained by another etiology AND:**

- have a pregnant sexual partner* OR are a sexual or household contact to someone suspected or confirmed to have Zika
- have a history of mosquito bite(s) within 2 weeks of symptom onset

V. A person diagnosed with Guillain-Barré Syndrome not known to be associated with another etiology

§ For persons with suspected Zika virus disease, CDC recommends that Zika virus RT- PCR testing be performed on serum specimens collected <7 days after onset of symptoms, and on urine specimens collected <14 days after onset; for RT-PCR testing at DCLS, urine must be paired with a matched serum specimen. IgM testing at DCLS can be done from ≥6-8 days up to 2 weeks after symptom onset; pregnant women with Zika exposure during pregnancy (or exposure within the 8 weeks before conception) can be tested by IgM from 2-12 weeks after exposure. Further details about timing of testing can be found on the DCLS testing instructions. Other scenarios can be discussed with the local health department on a case-by-case basis.

¶Symptoms of Zika are: fever, rash, arthralgia, or conjunctivitis; OR complications of pregnancy (e.g., fetal loss in 2nd or 3rd trimester, microcephaly, intracranial calcifications).

†An updated list of Zika-affected areas can be found here: http://www.cdc.gov/zika/geo/index.html

*For this algorithm, "sexual partner" refers only to individuals who had sex without using barrier protection (during vaginal intercourse, anal intercourse, or oral sex).

**Persons with only suspected local mosquito exposure will be offered RT-PCR testing (i.e., the timing of symptom onset must be appropriate for RT-PCR testing).

Treatment for Zika

- No specific vaccine to prevent or specific medicine to treat
- Supportive treatment includes:
  - Get plenty of rest
  - Drink fluids to prevent dehydration
  - Take medicine, such as acetaminophen, to reduce fever and pain
  - Do not take aspirin or other non-steroidal anti-inflammatory drugs until Dengue is ruled out
- Infected persons should stay indoors or wear protective clothing and mosquito repellent during 1st week of illness to prevent local transmission during mosquito season

Special Concerns for Pregnant Women and Zika

- Zika virus can spread from pregnant woman to fetus
- CDC scientists have concluded that Zika virus is a cause of microcephaly and other severe fetal brain defects.
  - Remember, not all women who have Zika virus infection during pregnancy will have babies with problems.
- Studies are still underway to learn more about health conditions associated with Zika virus and the effects of Zika virus infectionduring pregnancy.

Special Concerns for Pregnant Women and Zika

- CDC advises that pregnant women avoid travel to Zika-affected countries
- If travel unavoidable, protect against mosquito bites

- Testing is available for pregnant women who traveled to affected area within the past 12 weeks*

- If pregnant woman has male sexual partner who traveled to affected area, then abstain from sex or use condoms correctly every time during sex for duration of pregnancy

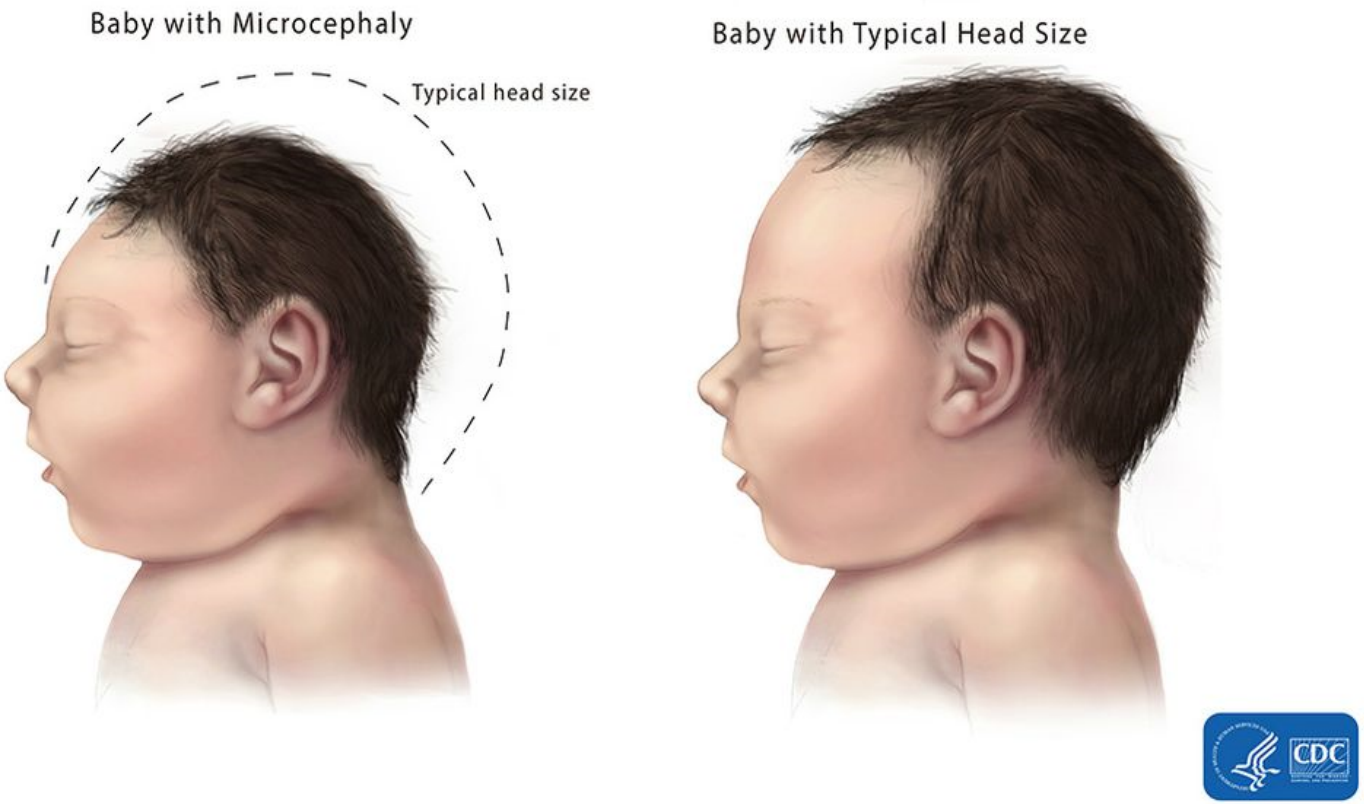
- No evidence that Zika virus affects future pregnancies if fetus conceived after Zika infection leaves body

***The type of test that will be performed depends on whether or not a woman developed symptoms of Zika and the length of time after symptom onset relative to the date of testing.**

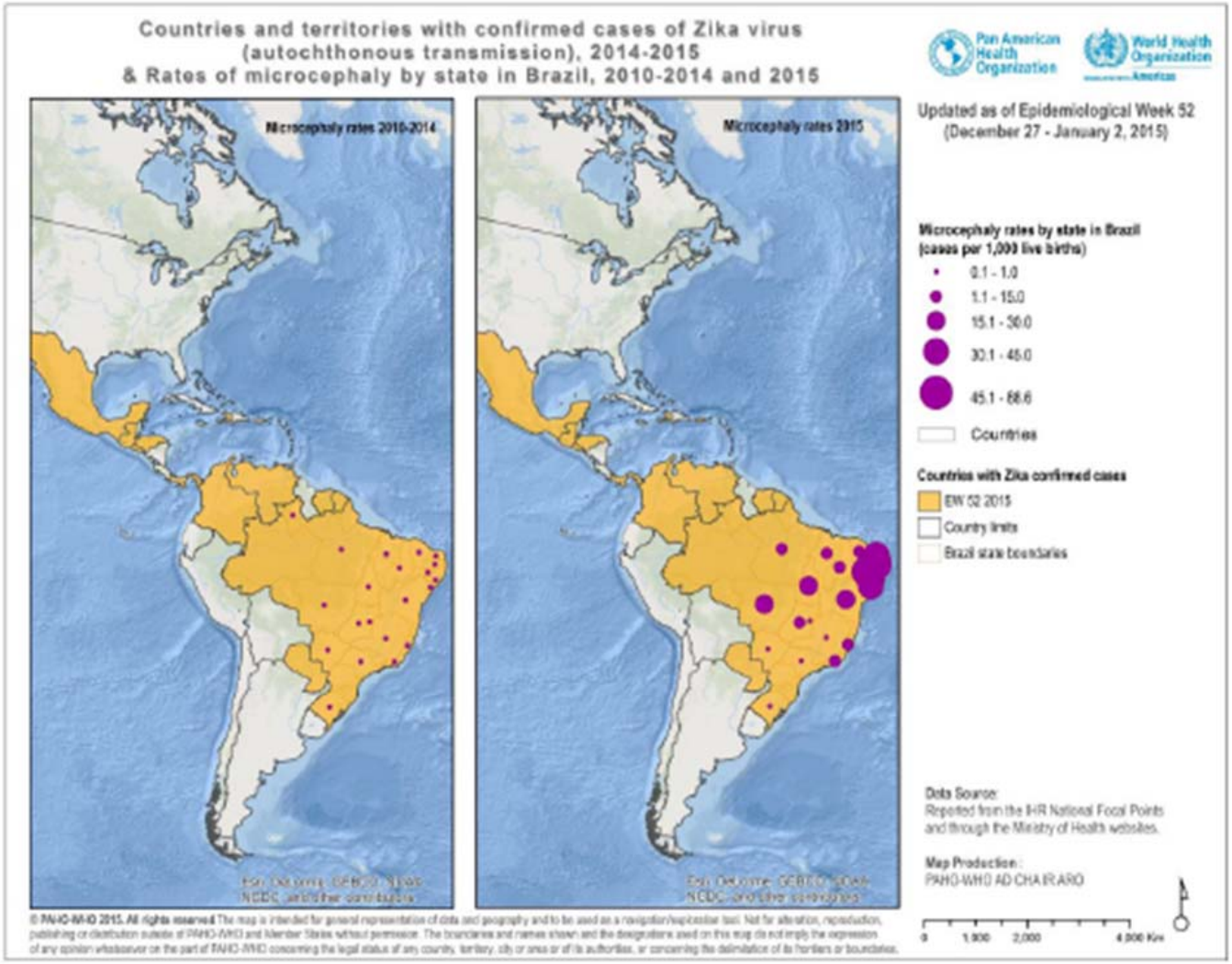
Microcephaly and Zika

- Defined by having a smaller than normal head or brain circumference
- Prognosis varies depending on severity of microcephaly
- Brazil reporting increase in number of babies with microcephaly and some have had lab-confirmed Zika

AP Photo/Felipe Dana


Baby with Microcephaly
Typical head size
Baby with Typical Head Size
CDC

Rates of Zika & Microcephaly in the Americas



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Prevention Strategies: Avoid Mosquito Bites

- All travelers, especially pregnant women, should take steps to avoid mosquito bites
  - Choose an EPA-registered insect repellent and use according to product label
  - Use permethrin-treated clothing
  - Cover exposed skin by wearing long sleeves, pants, and hats
  - Sleep indoors in rooms screened windows or air-conditioning, or use bed net if sleep in rooms exposed to outdoors
- Infected persons should stay indoors or wear protective clothing and mosquito repellent during 1st week of illness to prevent local transmission
- Reduce mosquito breeding areas by eliminating standing water

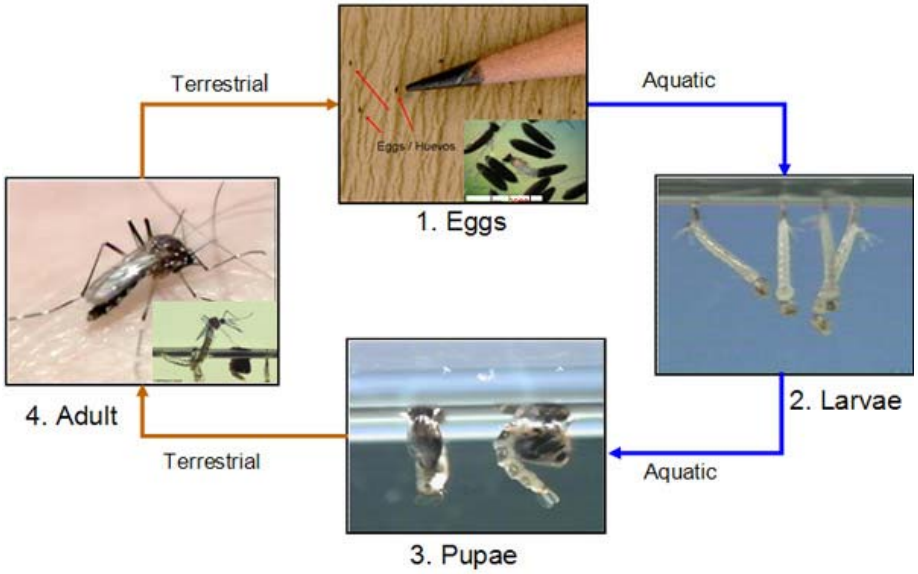
Zika and Mosquito Control

Norman Grefe, MS
Environmental Health Manager
Norfolk Department of Public Health
June 15, 2016

Mosquito Biology 101

Order: Diptera
Family: Culicidae

- Mosquitoes undergo complete metamorphosis- 4 life stages:
  - Egg
  - Larvae (4 stages)
  - Pupae
  - Adult
- Females require blood meal for egg production
- (Males do not bite)
- Globally, there are approximately 3,200 known mosquito species



http://www.cdc.gov/dengue/entomologyEcology/m_lifecycle.html

PROTECT YOUR FAMILY AND COMMUNITY:
HOW ZIKA SPREADS

Most people get Zika from a mosquito bite

A mosquito bites a person infected with Zika virus

The mosquito becomes infected

A mosquito will often live in a single house during its lifetime

The infected mosquito bites a family member or neighbor and infects them

More mosquitoes get infected and spread the virus

More members in the community become infected

Other, less common ways, people get Zika:

During pregnancy
A pregnant woman can pass Zika virus to her fetus during pregnancy. Zika causes microcephaly, a severe birth defect that is a sign of incomplete brain development

Through sex
Zika virus can be sexually transmitted by a man to his partners

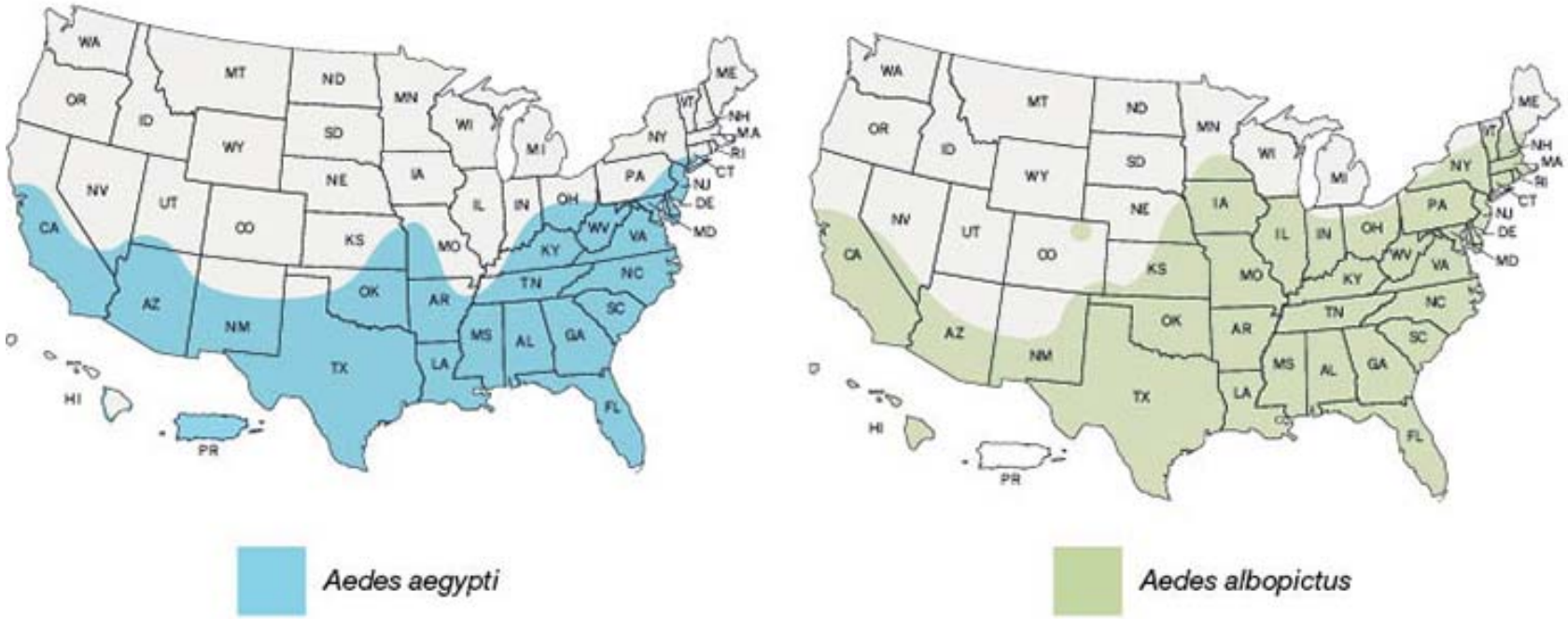
Through blood transfusion
There is a strong possibility that Zika virus can be spread through blood transfusions

CDC

Mosquitoes and Zika…

- In terms of Zika virus transmission, there are two mosquito species of concern….
  - *Aedes aegypti* (the Yellow Fever Mosquito)
  - *Aedes albopictus* (the Asian Tiger Mosquito)
- Only *Aedes albopictus* occurs locally…..

Estimate range of *Aedes aegypti* and *Aedes albopictus* in the United States, 2016



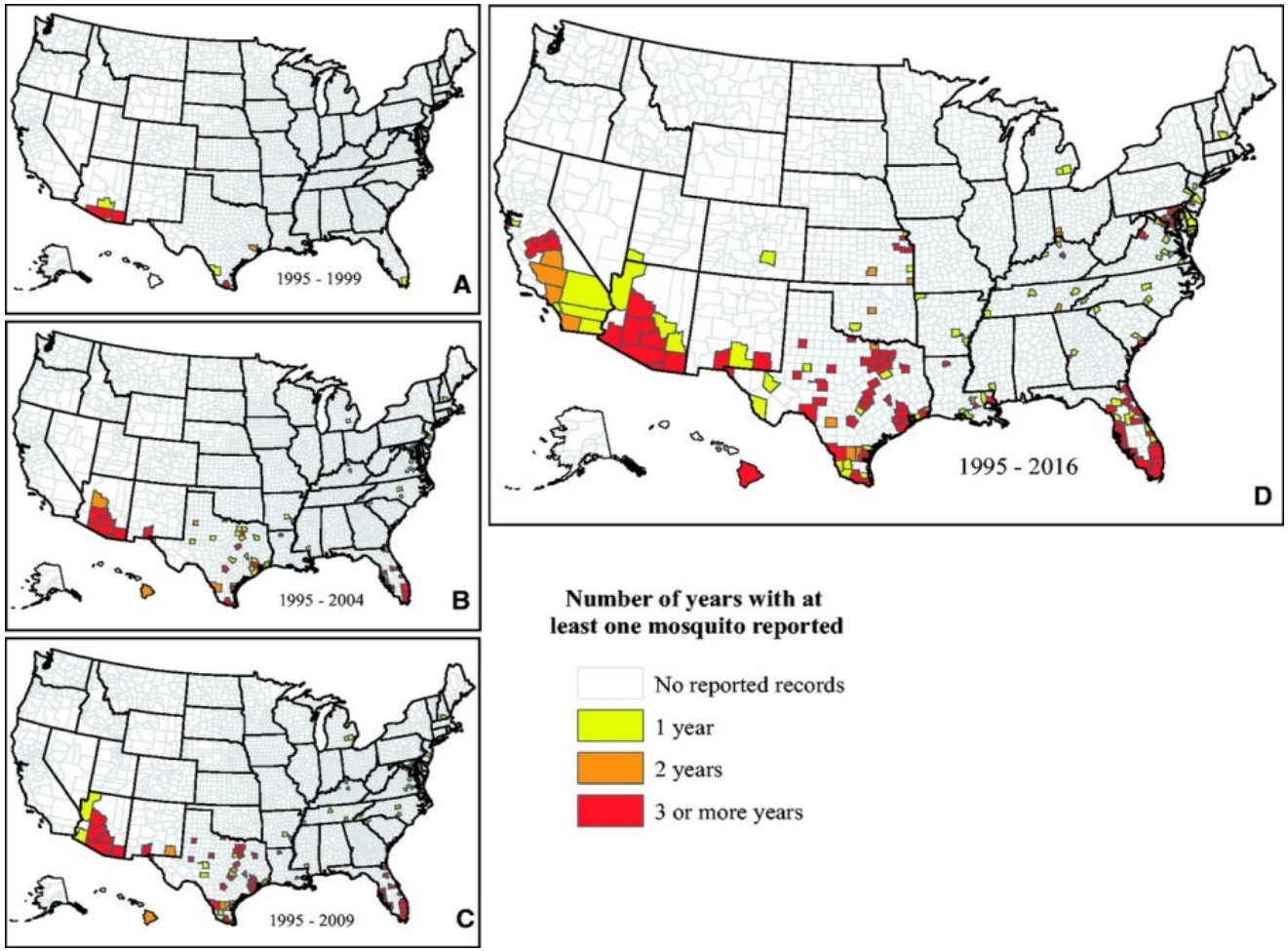
http://www.cdc.gov/zika/vector/range.html

Aedes aegypti in Virginia

- Historical range of *Aedes aegypti* extends northward through Virginia
- Surveillance and collection data indicate this is a rare mosquito in Virginia
  - Collected sporadically and in low numbers
  - Last record of collection in Norfolk?
- Limiting factor may be temperate climate
  - *Aedes aegypti* more common further south

http://www.cdc.gov/chikungunya/resources/vector-control.html

Aedes aegypti distribution in the US



Reported Distribution of Aedes (Stegomyia) aegypti and Aedes (Stegomyia) albopictus in the United States, 1995-2016 (Diptera: Culicidae)

Micah B. Hahn, Rebecca J. Eisen, Lars Eisen, Karen A. Boegler, Chester G. Moore, Janet McAllister, Harry M. Savage, John-Paul Mutebi

DOI: http://dx.doi.org/10.1093/jme/tjw072 tjw072 First published online: 9 June 2016

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Aedes albopictus

Invasive species (first record in continental U.S. - Harris County, Texas in 1985)

Accidental introduction probably via shipments of scrap tires from northern Asia

Readily colonizes container habitats

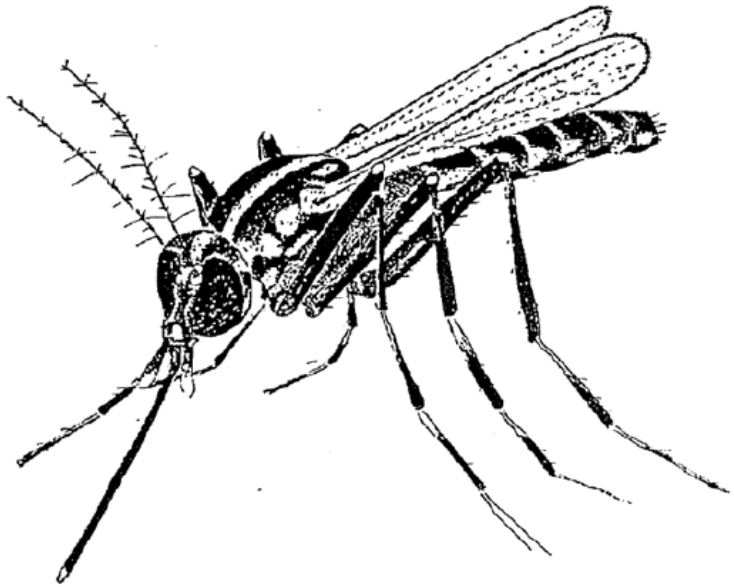
Known vector of dengue, Chickungunya, West Nile virus, among others

Common summertime mosquito species in Norfolk

http://www.cdc.gov/chikungunya/resources/vector-control.html

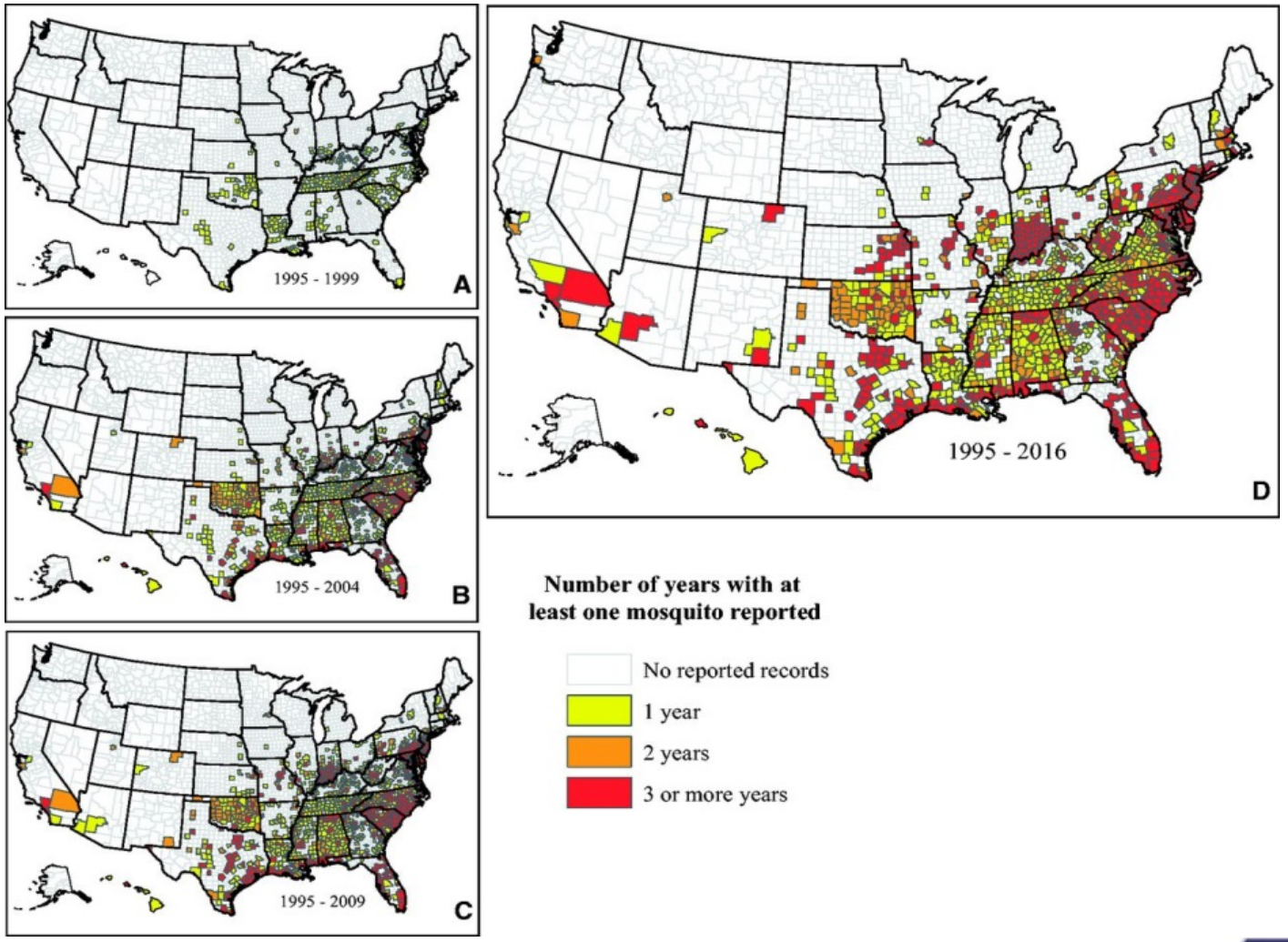
First recorded occurrence locally….

- Virginia Mosquito Control Association Newsletter details first occurrences of *Aedes alb*
  - June 14, are collecte



HAVE YOU SEEN THIS MOSQUITO?

Aedes albopictus distribution in the US



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Aedes albopictus behavior….

- Lay eggs in containers
  - Natural
    - Tree holes
  - Artificial
    - Tires, bird baths, flower pot saucers, garbage cans, clogged gutters, buckets, etc.
- Note: this species does not lay eggs in ditches, standing water on ground, other surface waters

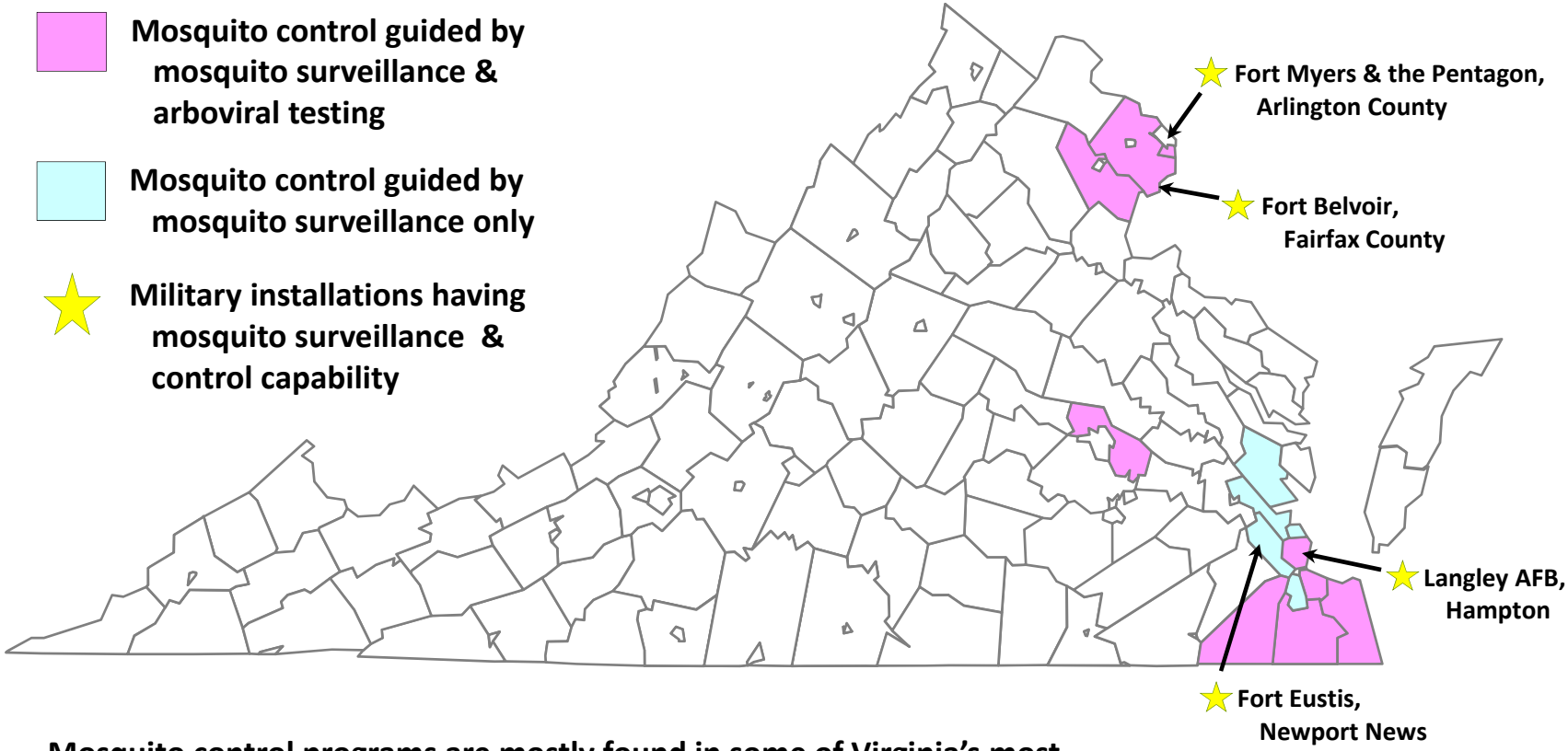
M. J. Rau

Zika and *Aedes albopictus*

- Factors of concern:
  - Abundant in mid to late summer
  - Long-lived (up to 30-40 days in the wild)
  - Peridomestic and have a short flight range
  - Competent vector of more than 30 viruses in lab setting
  - BUT indiscriminate feeders, which reduced role in virus transmission cycle
    - By contrast, *Aedes aegypti* demonstrate a strong preference for feeding on humans

Mosquito control…..

Virginia Jurisdictions and Military Installations having Mosquito Control Capabilities



Mosquito control programs are mostly found in some of Virginia's most heavily populated jurisdictions.

Norfolk's Vector Control Program

- Vector Control is a Division of the Norfolk Health Department's Environmental Health Services

- Vector Control is responsible for:
  - Mosquito surveillance and control (free service)
  - Rodent surveillance and control (on city property)

- Environmental Health:
  - Regulatory/enforcement activities

- **City of Norfolk Code of Ordinances**
- **Chapter 36**
- Sec. 36-16. - Collections of water in which mosquitoes may breed.
- (a)
- It shall be unlawful for the owner, agent, occupant or person in control of any premises in the city to dig any hole wherein any rain may settle, or to cause, allow, suffer or permit any collection of standing or flowing water in which mosquitoes breed, or which is favorable to the breeding of mosquitoes on such premises, unless such collection of water is treated in a manner prescribed by the director of public health, or his designee, so as to prevent the breeding of mosquitoes therein. Water so collected without being treated is hereby declared to be a nuisance detrimental to the public health and welfare.
- (d)
- Any person who shall be responsible under the terms of this section for the existence of any condition which gives rise to or is favorable to the breeding of mosquitoes or who shall fail or refuse to take all necessary measures ordered by the director of public health, or his designee, to prevent the such conditions in accordance with the terms of this section, shall be deemed guilty of a Class 1 misdemeanor.

Vector Control Activities

- Utilizes a variety of evidence-based methods to control mosquito populations, with focus on prevention:
  - Surveillance
  - Habitat Management and Source Reduction
  - Mosquito Control
    - Larval
    - Adult
  - Public Outreach

Understanding of vector mosquito species guides control practices

- **Surveillance:** long-term systematic monitoring of mosquito populations, disease activity, and related variables to assess the risk of disease transmission
  - Mosquito trapping/collection
    - Population densities guide targeted control efforts
  - Sentinel chicken flocks (WNV and EEE)
  - Laboratory testing of mosquito specimens (WNV and EEE) Currently, there is no commercially-available Zika test for mosquito specimens
  - Climate data (predictive value)

sentinel chickens

tested for the presence
of West Nile Virus and
Eastern Equine Encephalitis.

Mosquito Identification…..

- Traps set in afternoon and collected the following morning
- Sort mosquitoes to species level to understand what species is occurring where and at what densities
- These collection data allow us to select the intervention appropriate to the species of concern

Zika Vector Control

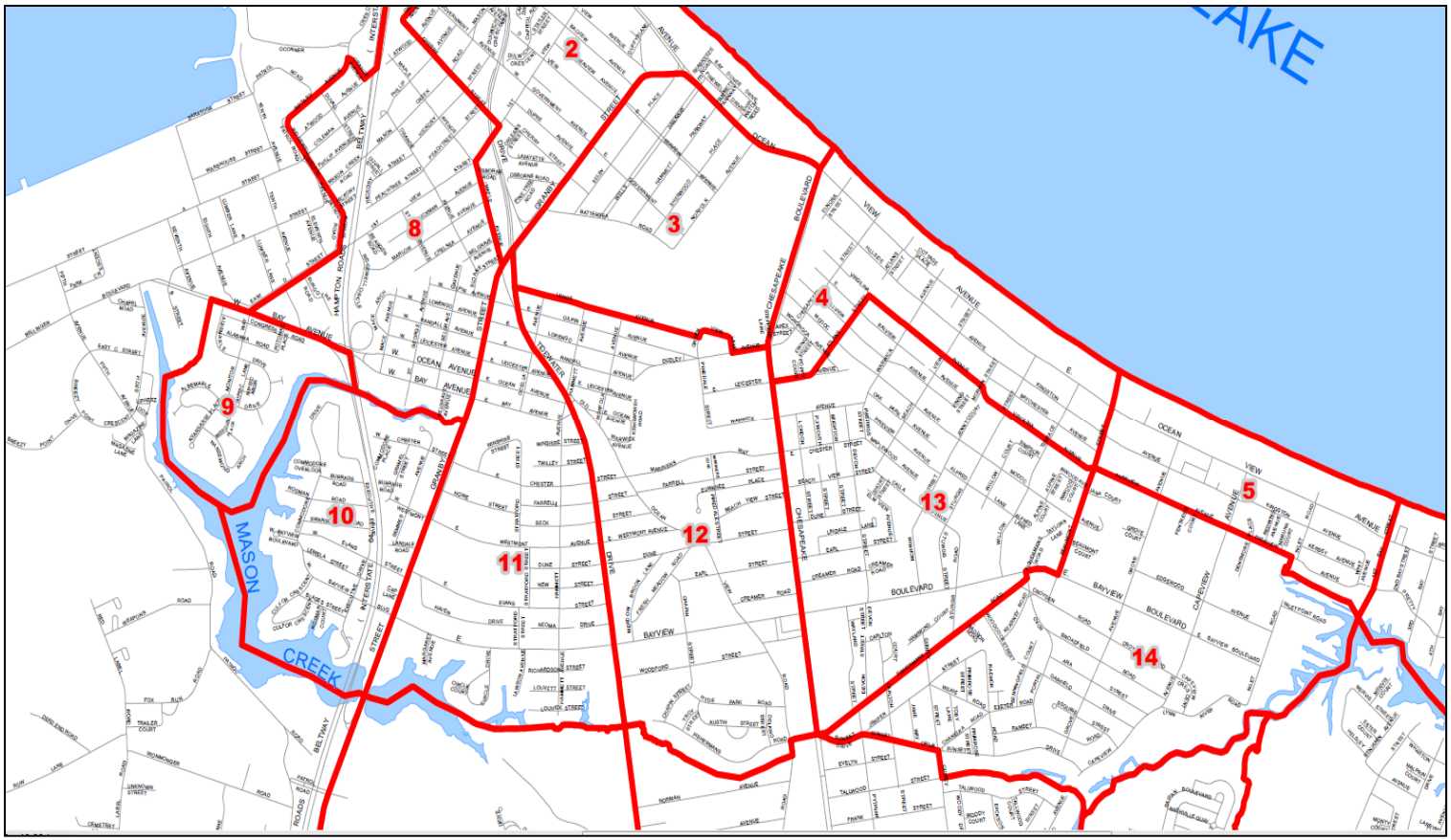
- *Aedes albopictus* is the mosquito species responsible for most mosquito complaints in Norfolk

- **Source reduction** is the most effective form of *Aedes albopictus* control
- Preventive control: removal of containers and/or dumping of standing water in containers **eliminates the problem before it becomes one**

Backyard Inspection: source reduction and education

- Backyard inspections
  - Systematic door-to-surveys
    - Inspect for mosquito breeding
    - Take larval sample
    - Empty or treat standing water
    - Talk with residents about mosquito breeding
  - Also conducted as complaint response

Systematic backyard inspections….



Larval Control

- Larvicides useful to treat standing water that cannot be dumped or otherwise eliminated
  - Many formulations: surface oils, juvenile growth regulators, biological control such as *Bacillus thuringiensis israelensis* (Bti)

- Vector Control personnel treat:
  - Storm drains (primary breeding source for *Culex* mosquitoes-WNV vector)
  - Ditches
  - Woodland pools and other temporary water sources
  - Junkyards

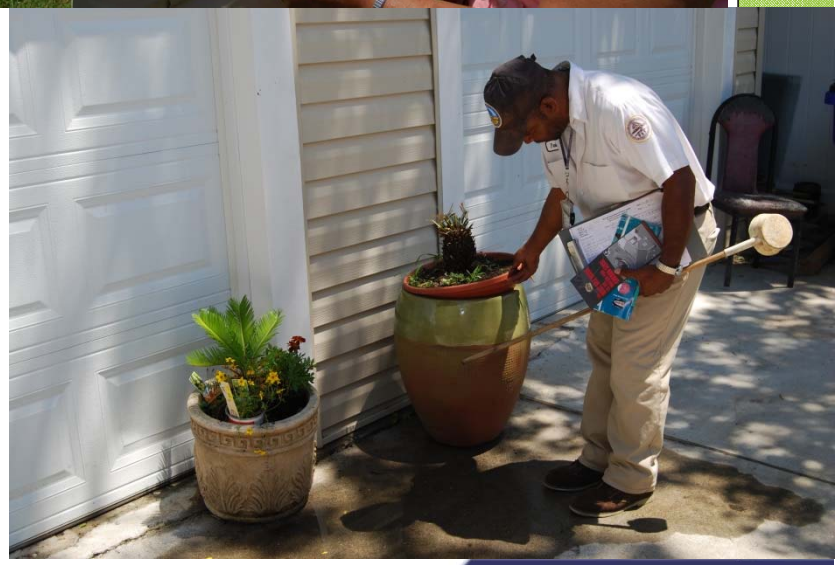
Mosquito Fogging

- Traditional truck-mounted mosquito fogging operations not particularly effective against *Aedes albopictus* due primarily to:
  - Daytime biter (fogging usually done at night)
  - Fogging effective against mosquitoes out seeking blood meals

- Fogging remains an important control method for other vector mosquito species (EEE and WNV)
  - GPS tracking units on fogging trucks
    - Routes and application parameters (speed, chemical flow rate, etc.)

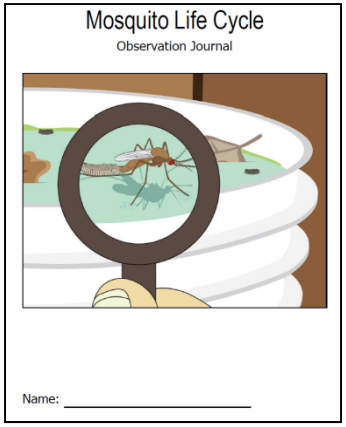
Public Education and Partnerships

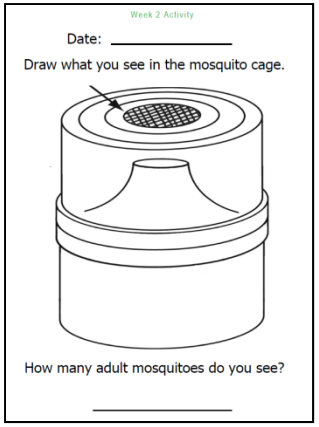
- Education during backyard inspections
- Educational outreach to civic groups and schools
- Augmenting volunteers, ODU/EVMS community-based learning and MRC
- Partnerships with other city/state agencies
  - Serve as eyes and ears and conduits for information



Public Outreach

- Public education
  - Individual residents
  - Civic leagues and community organizations
- Developing educational program for elementary schools
- GIS application:
- Mapping of neighborhood canvassed





Summary

- The frontlines of battle against Zika is in neighborhoods and in yards/spaces around our homes

- The objective is to reduce populations of Asian Tiger mosquitoes via:
- Larval Control
  - Habitat management and source reduction
  - Utilization of chemical and biological control to treat larval habitats
- Public education
- Partnerships

What can you do to help?

- Ensure that your employees are aware of Zika and their risks
- For employees whose occupations involve outdoor activity, ensure that they take precautions to avoid mosquito bites
- For occupations involving home or neighborhood visitation, observe for potential mosquito breeding hazards and report to the Environmental Manager at 683-2824
- Building and property managers, periodically survey properties for standing water and abate.

Questions?

What stage of pregnancy is at risk for Zika?

- First trimester has been the highest risk period; however, there have been congenital abnormalities at all stages of pregnancy.

If I get Zika now, will it affect my future pregnancies?

- No

I think I was exposed to Zika. How long should I wait to get pregnant?

Suggested timeframe to wait before trying to get pregnant		
Possible exposure via recent travel or sex without a condom with a man infected with Zika		
	Women	**Men**
Zika symptoms	Wait at least 8 weeks after symptoms start	Wait at least 6 months after symptoms start
No Zika symptoms	Wait at least 8 weeks after exposure	Wait at least 8 weeks after exposure. Talk with your healthcare provider
People living in areas with Zika		
	Women	**Men**
Zika symptoms	Wait at least 8 weeks after symptoms start	Wait at least 6 months after symptoms start
No Zika symptoms	Talk with doctor or healthcare provider	Talk with doctor or healthcare provider

VDH VIRGINIA DEPARTMENT OF HEALTH
Protecting You and Your Environment

Should women breastfeed if they have Zika?

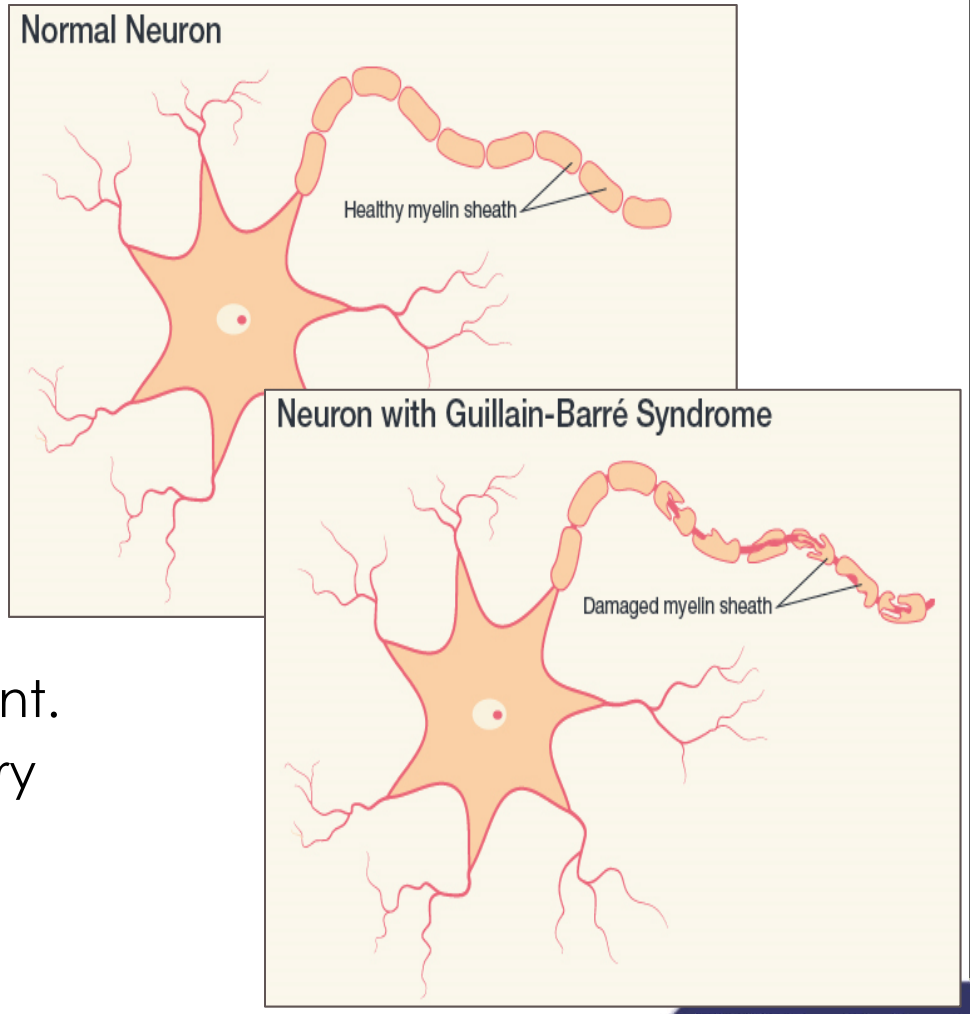
- There are no reports of infants getting Zika through breastfeeding.
- Because of the benefits, women are encouraged to breastfeed even in areas where the Zika virus is found.

If someone has Zika virus, can I catch it from them?

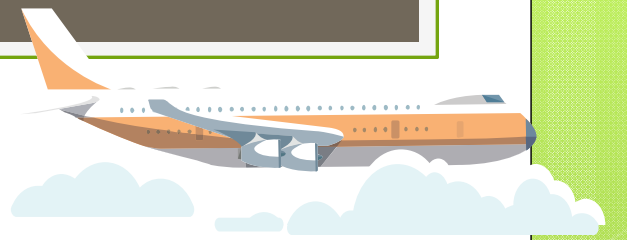
- Zika virus cannot be spread person to person through casual contact.
- During the viremic phase an individual who is bitten by a mosquito can pass the infection to the mosquito, which in turn can bite a health individual and spread the infection. Therefore, it is important that the individual limit outdoor activity as much as possible and state steps to eliminate mosquitoes in and around the home.
- There are documented cases of transmission through:
  - Sexual contact – Male to female and male to male

What is Gullain Barre and how is it related to Zika?

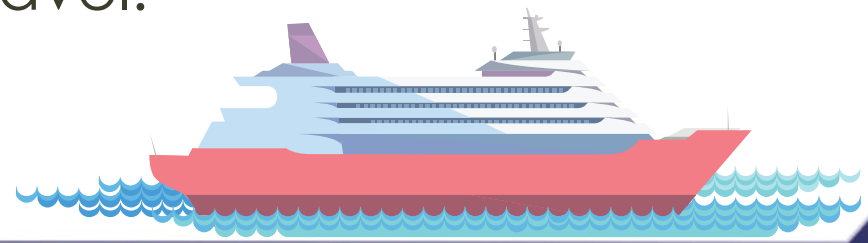
- GB is an rare autoimmune syndrome that affects the nervous system
- It is characterized by weakness and paralysis, described as an ascending paralysis.
- Symptoms are usually temporary but some may have permanent impairment.
- Some experience respiratory system paralysis requiring a ventilator
- Increase cases have been documented in adults in some areas affected by Zika.



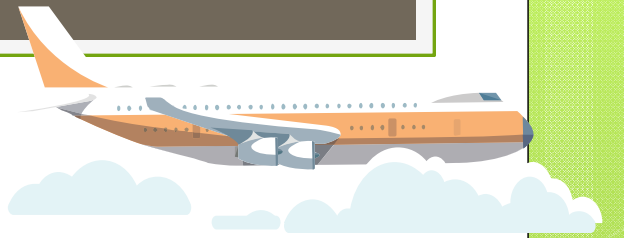
I need to travel to a Zika-affected area. What should I do?



- Do your homework first!
- Check CDC Travel Notices
- If you are pregnant, do not travel to areas with Zika. If you must travel, talk to your doctor before your trip.
- If you are trying to get pregnant, talk to your doctor or other healthcare provider before you travel.

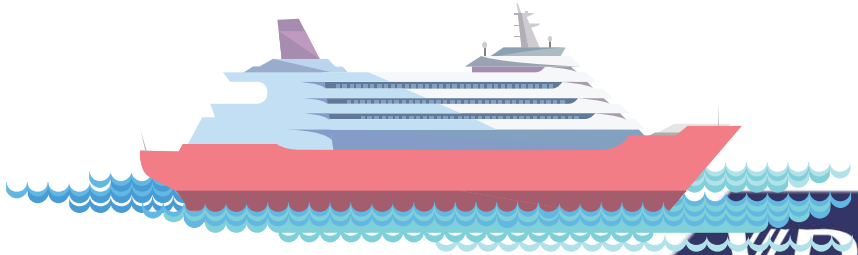


If you choose to travel:



- Strictly follow steps to prevent mosquito bites to protect yourself and your family.
  - Wear insect repellant
  - Stay in air conditioned or screened-in rooms
  - Use bed nets while sleeping in no a/c or screens

- Even if you do not feel sick, travelers returning to the US from an area with Zika should take steps to prevent mosquito bites for 3 weeks so they do not spread Zika to uninfected mosquitos.



What should I tell my employees who work outside?

- Inform employee of the risk
- Encourage them to protect themselves:
  - Use insect repellant
  - Wear long, lightweight, loose-fitting clothing
- Reduce sources of standing water
- Also, consult with your HR department about policy for your agency

http://www.cdc.gov/niosh/topics/outdoor/mosquito-borne/pdfs/osha-niosh_fs-3855_zika_virus_04-2016.pdf

How will I be informed if there is a case of Zika in my neighborhood?

- VDH has policies in place to protect the confidentiality of patients. Disease reporting is only reported at the regional level.
- Patients are counselled on recommendations to protect others and avoid mosquito bites.
- Also, focused environmental assessment and treat are performed as indicated.

When will my neighborhood be fogged this season?

- Fogging is conducted on evidence-based need. If surveillance data indicate high mosquito counts in a neighborhood, this may trigger fogging operations, based on the type of mosquito involved.
- It is important to note that traditional truck-mounted fogging is not particularly effective again Asian Tiger mosquitoes, which reinforces the importance of prevention-eliminating containers and dumping of standing water around your home every five to seven days.

How can I control mosquitoes without using insecticides around my home?

- The best way to control mosquitoes around your home without using pesticides is source reduction: dumping standing water from containers or treating standing water with a biological control such as BTI (mosquito dunks).
- Additionally, you can fill in low spots in your yard to eliminate standing water and also keep gutters clean and free of obstructions.
- Additionally, you might want to ensure that screens are in good repair which would prohibit mosquitoes from flying into your home.

What mosquito repellents are safe for my children?

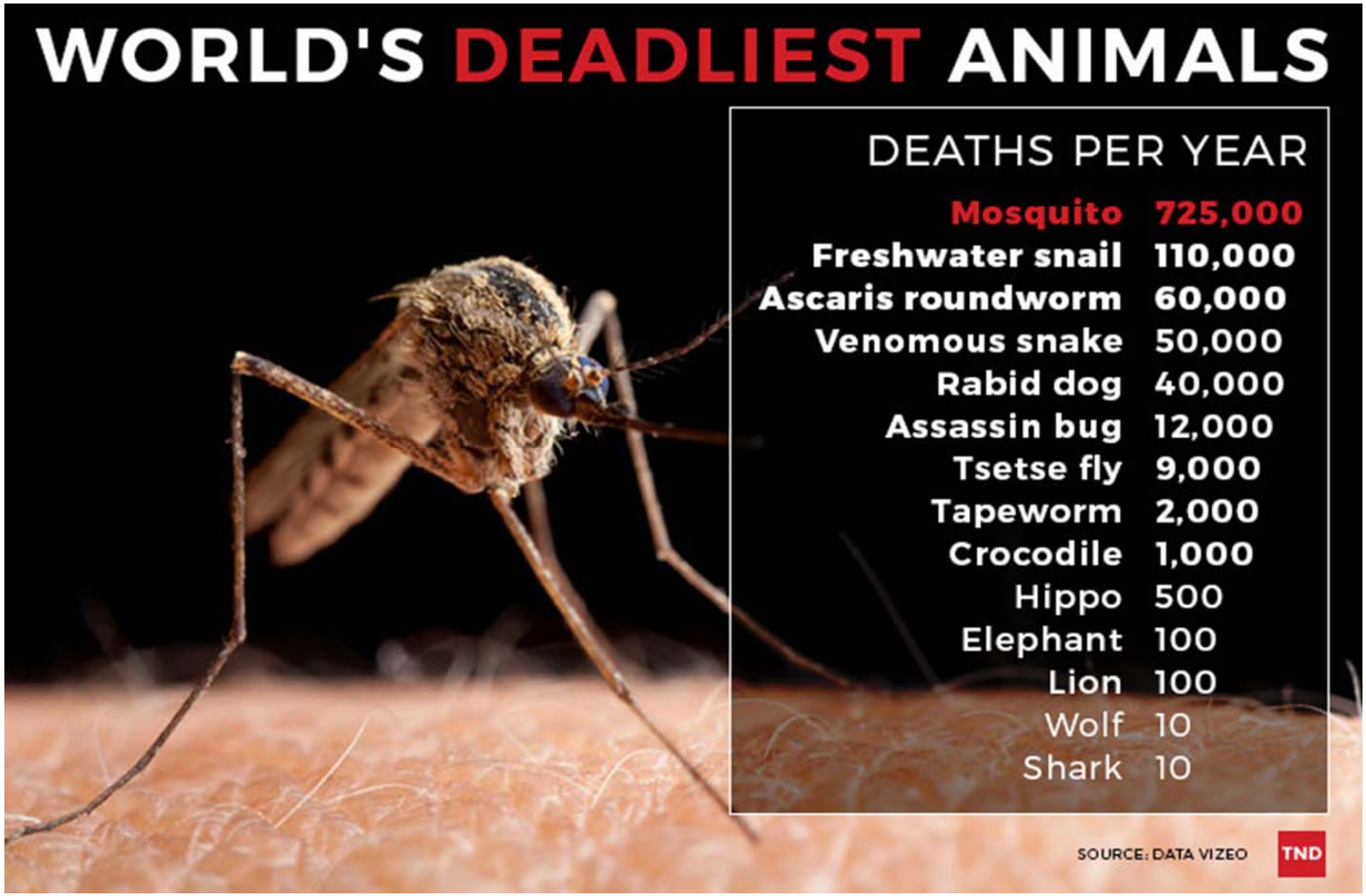
- DEET is safe for children over 2 months old. Use no more than 30% DEET.
- Do not use insect repellent with lemon eucalyptus on children under the age of 3 years.
- IR3535 can be used on children > 6mo. Caution – eye irritant.
- Always apply repellent to your hands to apply to the child.
- Do not put insect repellent on babies younger than 2 months of age.
- Protect small babies under the age of 2 months by placing a fitted mosquito net around their infant seat or carrier.

How do I keep Rover safe from Zika?

- At this time, animals do not appear to be involved in the spread of Zika virus.
- There is no evidence that Zika virus is spread to people from contact with animals.
- There have not been any reports of pets or other types of animals becoming sick with Zika virus. However, more research is needed to better understand Zika virus in animals.
- Animals in the United States are not at risk of becoming sick with Zika virus.

What should I do if I think I have Zika infection?

- Ask yourself:
  - Do I have Zika symptoms?
  - Have I traveled to a Zika affected area within the last 2 weeks?
- Talk to your doctor
  - Your doctor may want to test you for Zika or other similar mosquito-borne illnesses


WORLD'S DEADLIEST ANIMALS
DEATHS PER YEAR
Mosquito 725,000
Freshwater snail 110,000
Ascaris roundworm 60,000
Venomous snake 50,000
Rabid dog 40,000
Assassin bug 12,000
Tsetse fly 9,000
Tapeworm 2,000
Crocodile 1,000
Hippo 500
Elephant 100
Lion 100
Wolf 10
Shark 10
SOURCE: DATA VIZEO
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