Zika virus: 1st vector (of 2-3 species) = Aedes aegypti +

4/5 patients are aSx!

No treatment, cure, or vaccine yet

US States+DC: 3,818, territories: 24,201
Preg.Zika+women: US States+DC: 837
US Territories: 1,638

Global notice: May 2015
Zika virus (Zika)

- Single stranded RNA virus
- Genus Flavivirus, family Flaviviridae
- Closely related to dengue, yellow fever, Japanese encephalitis, and West Nile viruses
- Primarily transmitted through the bite of an infected Aedes species mosquito (Ae. aegypti and Ae. albopictus)
WHO Declares Zika virus an international “Public Health Emergency” (pandemic) 2.1.2016

CDC EOC → Level 1 (highest) on 2.8.2016

ZIKV > 42 confirmed “local transmission” cases in FL


CDC: “Avoid travel…”

ZIKA TRAVEL WARNING IN THE U.S.

FL: 545/42 “local”

Miami

WHO: Zika may infect “as many as 4 million people….”
Globally, dengue infects ~ 400 million annually.
US States+DC: 3,818 [42 “local”]; US territories: 24,201
Preg. Zika+ women: US States+DC: 837
US Territories: 1,638

as of 12 Oct. 2016
www.cdc.gov/zika

CDC requires its own lab confirmation before reporting national stats

SC DHEC (10.12.2016):
50 cases (1 sexually transmitted)
Zika virus & Microcephaly: prob. mechanism


“TORCH” Complex of foetal malformations

"Traditional "TORCH" pathogens (Toxoplasma gondii, other, rubella virus, cytomegalovirus and herpes simplex virus) access the fetal compartment. Based on our current understanding of ZIKV pathogenesis and the developmental defects that are caused by fetal ZIKV infection, ZIKV should be considered a TORCH pathogen and future research and public health measures should be planned and implemented accordingly."
Based on typical clinical features, the differential diagnosis for Zika virus infection is broad. Considerations include:

- Dengue
- Chikungunya
- Leptospirosis
- Malaria
- Rickettsia
- Group A Streptococcus
- Rubella
- Measles

- Parvovirus
- Enterovirus
- Adenovirus
- Other alphaviruses (e.g., Mayaro, Ross River, Barmah Forest, O’nyong-nyong, and Sindbis viruses)

ZIKV Serum rtPCR
ZIKV Serum IgM
ZIKV Urine rtPCR

Also consider the newly-reported Mayaro virus (~ Sx)

Strong Association of Zika with GBS
**Zika virus: sexual transmission**

*First known sexual transmission of Zika virus in U.S. was eight years ago*

1. First case of sexually acquired Zika in Colorado nearly a decade ago.
2. Microbiologist Rosa Frey got Zika in Africa and gave it to her sister when she returned to the U.S. in early February. Explained around the world: Zika can be transmitted by sex.
3. Guidelines: a virus that wasn’t supposed to be a game changer in the United States took on a whole new dimension. In its own way, the Triangle of the Driving Capital and Promenade to add.

**Zika triggers Guillain-Barré syndrome**

10.5.2016

*Zika Getting on Your Nerves? The Association with the Guillain–Barré Syndrome*

Jennifer A. Freyler, M.D., and Irais R.F. da Silva, M.D., Ph.D.

**ZIKV affects both CNS & peripheral nervous system: all cranial nerves (eg, hearing, visual loss) + long tracts of both sensory and/or motor neurons**
ZIKV: prolonged shedding in internal body fluids

CDC NEW recommendations re sex: both male and female sex partners with ZIKV Sx or who traveled to a + area should abstain (good luck!) or use condoms consistently & correctly for at least 6 months IF considering pregnancy (& other concerns).

<table>
<thead>
<tr>
<th>Date collected</th>
<th>ZIKV Serum rtPCR</th>
<th>ZIKV Serum IgM</th>
<th>ZIKV Urine rtPCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 27, 2016</td>
<td>Equivocal (DHEC)</td>
<td>Equivocal (DHEC)</td>
<td>Positive result by CDC, returned on July 24</td>
</tr>
<tr>
<td>July 12, 2016</td>
<td>Cancelled by DHEC prior to urine PCR result</td>
<td>Cancelled by DHEC prior to urine PCR result</td>
<td>Not collected</td>
</tr>
</tbody>
</table>

Case report: my student in Dominican Republic 6.2016 on Zika mission trip. Returned w some Sx. Zika +, concomitant acute Dengue & Chikungunya IgM and PCR serologies were negative.
ZIKV Virus: Vaccine development underway
What communities (cities, counties) should do
1. Ensure fully-funded County mosquito control programs (larvicides, adulticides, removal of standing water, come when called for problems!)
2. Fully & continually enlighten the public via electronic & print media
3. Coordinate with local/ county/ state health departments and local gov’ts & local populations (ref: aerial spraying killing bees in Dorchester County)

What individuals should do
1. Constant removal of ALL standing water (even tiny flower pots, etc) call County Mosq. Control for problems!
2. LEARN FACTS, then continually enlighten relatives, friends, neighbors…
3. Use personal mosquito protection (eg, DEET) liberally, wear long sleeves outdoors, keep screens intact/ use air conditioner, mosquito nets in Zika+ transmission areas; observe CDC recommendations re: sexual transmission, etc…

SC: tropical/ temperate/ or ? zone

Thank you. Questions ?

“Those who carry on great public schemes must be proof against the most fatiguing delays, the most mortifying disappointments, the most shocking insults, and what is worst of all, the presumptuous judgments of the ignorant.”

- Edmund Burke (1729 - 1797)