

Zika

Name(s)

- Zika virus, Zika fever

Type of Virus

- Flaviviridae family ()
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- icosahedral capsid surrounded by lipid envelope (Where did this come from?)



Description/Statistics

- Zika virus is related to dengue, yellow fever, Japanese encephalitis, and West Nile viruses.
- discovered in Zika forest of Uganda in 1947
- spread throughout Africa and Asia, then to the Americas
- two lineages of Zika ()
- in US, >4,000 cases; (US territories, >30,000 cases)
 - overwhelming majority of cases are travel-associated

Outbreaks/Epidemics

- 2007 Yap Islands ()
 - ~73% of island population believed to be infected ()
- 2013-2014 French Polynesia ()
 - almost 9,000 cases reported (30,000 estimated cases)
- 2015-the present in the Americas ()
 - approaching 700,000 cases ()
 - >300,000 in Brazil (maybe as high as 1.5 million!)
 - ~3,500 cases of microcephaly
- prior to 2007, only 14 documented cases since 1947

Transmission

- female mosquitoes ()
- mother to fetus in utero
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- blood transfusions (strongly suspected but not confirmed)

Symptoms

- Up to 80% of infected people may not have any symptoms! – invisible epidemic?????
- symptoms develop in 2 - 7 days

Mild

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- Rash
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- Conjunctivitis ()

Other symptoms include:

- Muscle pain
- Headache

Symptoms can last for several days to a week. People usually don't get sick enough to go to the hospital, and they very rarely die of Zika. Once a person has been infected with Zika, they are likely to be protected from future infections.

- (CDC website)

Severe

- pregnant women, their fetuses at risk of microcephaly ()
 - mild to severe cognitive impairment, seizures, hearing loss, poor motor skills, vision problems
 - apparently only in the Americas but not in Africa? (possibly because African strain destroys early embryo resulting in spontaneous abortion – pregnancy may have been unknown!)

- Guillain-Barré syndrome
 - muscle weakness, paralysis, can be fatal
 - autoimmune disorder triggered by infection

Unknown

- adult brain cells may be infected with Zika causing?????

Prevention/Treatment

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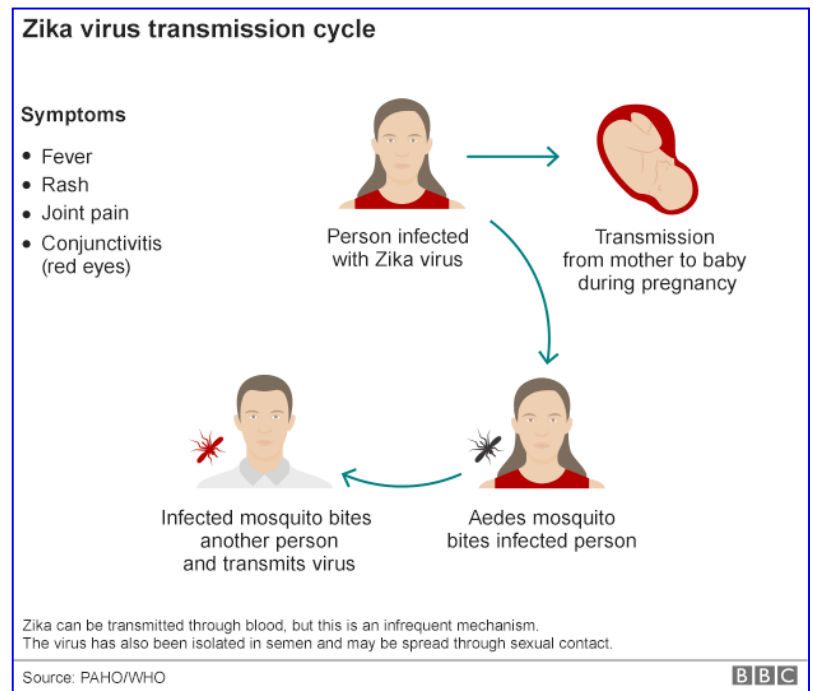
- no vaccine yet but hopefully soon

- two existing drugs may be beneficial

- insect repellants, nets, long sleeves, etc.

- avoiding areas of with infected mosquitoes

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Controversy

- religion – Latin America is predominantly Catholic
 - most Latin American countries have strict anti-abortion laws, contraceptives may also be limited
- Brazil's response to Zika = make anti-abortion laws stricter and make harsher punishments for women and their doctors
- economic cost of microcephaly – who pays?
- government recommendations for women to not get pregnant
 - puts all of the responsibility on women
- vaccinating against dengue fever could increase outbreaks of Zika
 - recent evidence suggests that dengue virus antibodies can enhance the Zika virus infection
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Study Objectives

- 1. What kind of virus is Zika?**
- 2. Where and when was Zika first documented?**
- 3. Where have the Zika outbreaks/epidemics occurred?**
- 4. Describe how Zika is transmitted?**
- 5. Describe the typical symptoms of Zika.**
- 6. How long does it take for symptoms to occur?**
- 7. Describe how to prevent the transmission of Zika.**
- 8. Describe how Zika can be treated.**
- 9. Describe the controversies surrounding Zika infection.**

