Objectives

• Overview of Zika virus
• Worldwide cases
• Health effects
• World Health Organization--Public Health Emergency Declaration
• Resources
What is Zika virus?

- Family: Flaviviridae--positive, single-stranded, enveloped RNA viruses. They are found in arthropods, (primarily ticks and mosquitoes) & can infect humans.
  - Genus: a single genus, Flavivirus
  - Causes widespread morbidity and mortality
  - Mosquitoes-transmitted viruses include:
    - Yellow Fever
    - Dengue Fever
    - Japanese encephalitis
    - West Nile viruses
    - Zika virus
  - Tick-transmitted viruses include:
    - Tick-borne Encephalitis (TBE)
    - Omsk hemorrhagic fever
September 10, 2016

STTI, Institutes for Global Healthcare Leadership
Transmission

• Mosquito bites: of an infected *Aedes* species mosquito (*Ae. aegypti* and *Ae. albopictus*)
  – Aggressive daytime biters & can also bite at night
  – Mosquitoes become infected when they feed on a person infected with the virus & spread the virus to other people through bites.

• Pregnant woman to her fetus

• Sex

• Blood transfusion (very likely but not confirmed)

• Reservoir: wild and domestic animals?

Countries, territories and areas showing the distribution of Zika virus, 2013 - 2016

MAP DATE: 07 September 2016

September 10, 2016
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Symptoms

• Many people infected with Zika virus will be asymptomatic or only have mild symptoms.
  – Most common symptoms of Zika
    • Fever
    • Rash
    • Joint pain
    • Conjunctivitis

• Other symptoms include:
  – Muscle pain
  – headache
80% of those infected with Zika virus are asymptomatic.

Infection may cause mild illness for up to a week after bite by an infected mosquito; hospitalization seldom required and death is rare.

Infection early in pregnancy can cause a serious brain defect in infants (microcephaly).

Infection later in pregnancy may cause milder abnormalities.

Other neurological disorders (e.g., Guillain-Barré) syndrome have been reported.

After recovery from infection, a person is probably protected from re-infection.
Microcephaly

- Seizures
- Developmental delay, such as problems with speech or other developmental milestones (like sitting, standing, and walking)
- Intellectual disability (decreased ability to learn and function in daily life)
- Problems with movement and balance
- Feeding problems, such as difficulty swallowing
- Hearing loss
- Vision problems
Prevention

• Mosquito control
  – Environmental controls
  – Screens
  – Empty water
• Prevent mosquito bites
  – Long sleeve and pants
  – Insect repellants
• Sexual transmission
  – Condoms
• Blood
  – New FDA guidance in the United States for all donated blood to be screened for Zika virus.
Modeling predictions

- India
- China
- Philippines
- Indonesia
- Nigeria
- Vietnam
- Pakistan
- Bangladesh

Economic impact

• World Bank estimates $3.5 billion US dollars
  – Direct outlays
    • Costs of care
    • Mosquito control
    • Research
  – Lost productivity
    • Loss of work/wages due to illness
  – Loss from death
  – Impact of avoidance
    • Avoiding areas

World Health Organization
WHO—lessons from Ebola outbreak

• Strong health systems and public health infrastructure can prevent national collapse
• Preparedness—surveillance and watchfulness for imported cases and willingness to treat
• Multiple control measures
• Community engagement
WHO Response

- WHO declared Public Health Emergency: February 1, 2016
  - “Zika Strategic Response Framework”:
  - Define and prioritize research into Zika virus disease by convening experts and partners.
  - Enhance surveillance of Zika virus and potential complications.
  - Strengthen capacity in risk communication to engage communities to better understand risks associated with Zika virus.
  - Strengthen the capacity of laboratories to detect the virus.
  - Support health authorities to implement vector control strategies aimed at reducing Aedes mosquito populations.
  - Prepare recommendations for the clinical care and follow-up of people with complications related to Zika virus infection, in collaboration with experts and other health agencies.
Health topics

Zika virus

Zika virus is a mosquito-borne virus transmitted by Aedes mosquitoes. The same mosquito also transmits 3 other vector-borne diseases – dengue, chikungunya and yellow fever – across tropical and subtropical regions around the world. The most common symptoms of Zika virus are headache, muscle and joint pain, mild fever, rash, and inflammation of the underside of the eyelid. To lower the risk of being infected with Zika virus: use insect repellent; cover as much of the body as possible with long, light-coloured clothing; empty, clean or cover containers that can hold water to remove places mosquitoes can breed; and sleep under mosquito nets.

Zika virus and complications
Full coverage of the current situation regarding Zika virus, clusters of microcephaly cases, and neurologic disorders in some areas affected by Zika virus.

General Information
Fact sheet: Zika virus
Q&A: Zika virus disease
WHO Director-General briefs the media on the Zika situation
Mosquito-borne diseases

Technical Information
More on Guillain-Barré syndrome
More on microcephaly
More on Zika virus
More on research and development
Zika virus disease outbreaks

Publications
The history of Zika virus
9 February 2016
Knowledge, Attitudes and Practice surveys
24 March 2016
Lab testing for Zika virus infection
29 March 2016
The Lancet Zika virus resource centre - Mozilla Firefox

Zika virus resource centre
Home | Correspondence | Data sharing statement | Elsevier ID

Latest Updates: The Zika virus public health emergency: 6 months on

The Lancet Zika virus resource centre brings together the best evidence from across the Lancet family of journals—the largest. This resource centre offers free access to assist researchers, policy makers, and health workers in understanding the effects of the outbreak and how best to respond. Find out more about Zika virus in this Special Report.

The arguments for sharing data, and the consequences of not doing so, have been thrown into stark relief by the Ebola and Zika outbreaks. In the context of a public health emergency of international concern, there is an imperative on all parties to make any information available that might have value in combatting the crisis.

Read the statement in full

Audio
Zika virus in amniotic fluid: The Lancet Infectious Diseases: February 17, 2016

Ana de Filippis discusses research on how Zika virus has been detected in the amniotic fluid of two pregnant women in Brazil.

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“Health care is vital to all of us some of the time, but public health is vital to all of us all of the time.”

C. Everett Koop, M.D., former U.S. Surgeon General