

Zika Virus

Fred A. Lopez, MD, MACP

Richard Vial Professor

Department of Medicine

Section of Infectious Diseases

What is the incubation period for Zika virus infection?

“ Unknown but likely to be several days to a week

CDC

What are the symptoms?

- “ Most people are asymptomatic (75-80%)
- “ Most common symptoms
 - . Fever (low-grade)
 - . Rash (maculopapular; pruritic)
 - . Conjunctivitis (nonpurulent)
 - . Joint pain (feet; hands)
- “ Other symptoms
 - . Headache, fatigue and muscle pain

CDC

A Hard palate



B Injected sclera



Courtesy of Amit Garg, MD
Department of Dermatology
Hofstra Northwell School of Medicine

A Exanthem on trunk



B Exanthem on foot



Courtesy of Amit Garg, MD
Department of Dermatology
Hofstra Northwell School of Medicine

Zika Virus

- “ Illness usually mild
 - . Hospitalization and death very rare
- “ Most people will not seek medical attention
- “ Illness usually lasts from 2 to 7 days
 - . Zika virus typically cleared from blood after one week
- “ Once infected, individual likely immune from infection in future

CDC

Clinical Features: Zika Virus Compared to Dengue and Chikungunya

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

http://emergency.cdc.gov/coca/ppt/2016/01_26_16_zika.pdf

Complications

How does Zika affect pregnant women?

- Zika virus can pass from a pregnant woman to her fetus during pregnancy or around the time of birth.

CDC



How does Zika affect pregnant women?

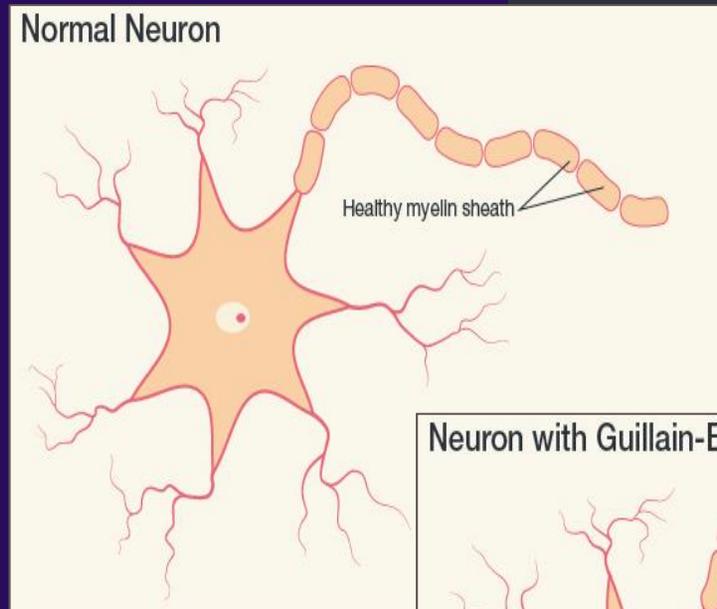
- Zika infection in pregnancy is a cause of microcephaly and other severe fetal brain defects.
 - Microcephaly: birth defect in which a baby's head is smaller than expected when compared to babies of the same sex and age.
 - Previous infection will not affect future pregnancies.

CDC

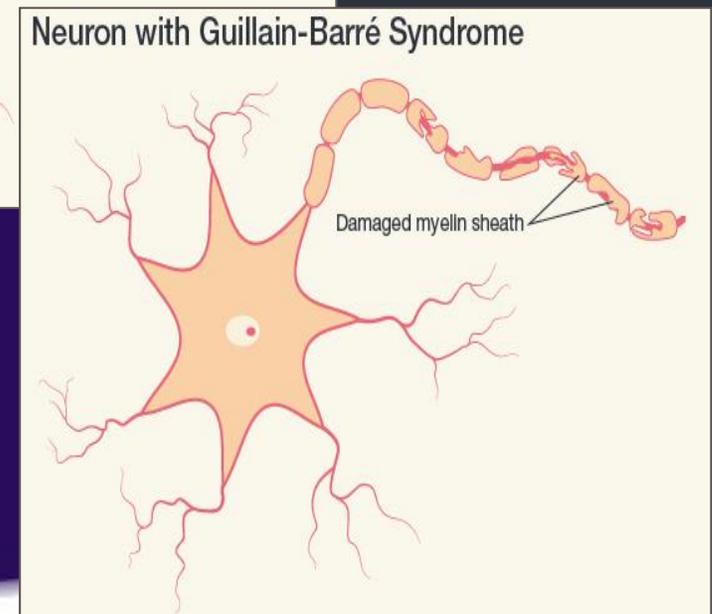


Does Zika cause Guillain-Barré Syndrome (GBS)?

- GBS is very likely triggered by Zika in a small proportion of infections, much as it is after a variety of other infections.
- GBS is an uncommon sickness of the nervous system in which a person's own immune system damages the nerve cells, causing muscle weakness, and sometimes, paralysis.



CDC



Other Potential Neurologic Associations

- “ Myelitis
- “ Meningoencephalitis
- “ Brain Ischemia
- “ Acute disseminated encephalomyelitis

CDC

WHO Case Definitions

“ Suspected case

- . A person presenting with rash and/or fever and at least one of the following signs or symptoms:
 - “ arthralgia;
 - “ or arthritis;
 - “ or conjunctivitis (non-purulent/hyperemic)

“ Probable case

- . A suspected case with presence of IgM antibody against Zika virus and an epidemiological link

WHO

World Health Organization Case Definitions

“ Confirmed case

- . A person with laboratory confirmation of recent Zika virus infection:
 - “ presence of Zika virus RNA or antigen in serum or other samples (e.g. saliva, tissues, urine, whole blood); or
 - “ IgM antibody against Zika virus positive and PRNT₉₀ for Zika virus with titer ≥ 20 and Zika virus PRNT₉₀ titer ratio ≥ 4 compared to other flaviviruses; and exclusion of other flaviviruses

WHO

Diagnostic Testing

- “ Preliminary diagnosis based on clinical features, dates and places of travel, and activities
- “ Lab confirmation usually includes testing plasma or serum to detect virus, viral nucleic acid, or virus-specific immunoglobulin M and neutralizing antibodies
- “ Zika virus infection is a nationally notifiable condition
- “ Providers should report suspected cases to state or local health departments to assist with diagnosis and mitigate risk of transmission

CDC

Diagnostic Testing

“ In the first week after symptoms begin, diagnosis can often be made with real-time reverse transcription-polymerase chain reaction (rRT-PCR) on serum

- . Viral levels decrease over time and a negative rRT-PCR on serum obtained 5 to 7 days after onset of symptoms does not rule-out Zika virus infection
- . Additionally, urine samples should be collected <14 days after symptom onset for rRT-PCR testing

CDC

Diagnostic Testing

- “ Virus-specific IgM and neutralizing antibodies usually develop toward end of first week of illness
 - . Cross-reaction with related flaviviruses like dengue and yellow fever viruses may be difficult to differentiate
 - . Plaque-reduction neutralization (PRNT) testing measures virus-specific neutralizing antibodies and can be use to discriminate between cross-reacting antibodies in primary flavivirus infections

CDC

Diagnostic Testing

- “ Presentation 8-14 days after symptom onset
 - . Zika virus serologic testing (Zika virus IgM and neutralizing antibody titers) and urine rRT-PCR for Zika viral RNA detection
- “ Presentation ≥ 15 days after symptom onset
 - . Zika virus serologic testing (Zika virus IgM and neutralizing antibody titers)

Diagnostic Testing

- “ Testing semen, blood, or urine is NOT recommended to evaluate how likely an individual is to transmit Zika virus through sexual activity
- “ Specimens should not be submitted directly to CDC but through the local or state health department
- “ Test results should be available about 3 weeks later and will be reported to local or state health department

CDC

Who should be tested?

- “ Pregnant women with possible exposure to and symptoms of Zika virus infection
- “ Asymptomatic pregnant women who traveled to areas where Zika virus infection can be offered testing 2 to 12 weeks after returning
- “ Recommended within first week after symptom onset for pregnant women living in areas with ongoing infections and who have symptoms compatible with Zika infection

CDC

Who should be tested?

- “ Infants born to women potentially infected with Zika virus during pregnancy and who were diagnosed with microcephaly at birth, Intracranial calcifications detected prenatally or at birth, or other abnormalities consistent with congenital Zika virus infection;
- “ Or if the mother’s possible Zika exposure occurred within 2 weeks of delivery and the infant develops symptoms compatible with Zika virus infection within 2 weeks of birth;
- “ Or if the mother had a (+) or inconclusive perinatal or prenatal Zika virus test result

CDC

Who should be tested?

- “ Pregnant woman with possible sexual exposure to Zika virus should be tested if either she or male partner develop symptoms compatible with Zika virus infection
- “ Individuals who who may have been exposed to Zika virus through sex and who have symptoms compatible with Zika virus infection

CDC

Treatment

- “ Currently no vaccine to prevent Zika virus infection
- “ Currently no medicine to treat Zika virus infection
- “ Symptomatic treatment
 - . Rest
 - . Fluids to prevent dehydration
 - . Acetaminophen (Tylenol®) for pain and fever
 - “ Avoid aspirin/non-steroidal anti-inflammatory drugs until dengue virus infection is excluded

CDC

Treatment/Prevention

“ If infected with Zika virus, prevention of mosquito bites during the first week of illness is important.

- Zika virus is in blood during that time and can be passed from an infected individual to a mosquito

“ Infected mosquito can then transmit to another person

“ Prevention of sexual transmission from an infected man to male/female partner(s) is important

CDC