Zika virus (ZIKV) is a flavivirus related to yellow fever, dengue, West Nile, and Japanese encephalitis viruses.

Zika virus was first discovered in Africa in 1947 in the Zika forest of Uganda.

The first human Zika virus case was identified in Nigeria, Africa in 1954; only ~14 cases of ZIKV were reported before 2007.

From 1951 to 1981, testing showed evidence of human exposure to Zika virus in other African countries.

Between 1969 and 1983, Zika virus spread into Asia.

As the Zika virus spread into new territories, it has evolved into two distinct lineages known as the African lineage and the Asian lineage.
The Spread of Zika Virus

• In 2007 Zika virus caused an outbreak of relatively mild disease on Yap Island in the southwestern Pacific Ocean.

• From 2013 through 2014 there was large outbreak of Zika virus on the Islands of French Polynesia; this outbreak then spread to other island groups.
French Polynesian Outbreak
Zika Symptoms

• Zika symptoms tend to last from 2 to 7 days and most patients feel better after this short period of illness.
• Overall, Zika appeared to be a mild and self limiting illness; there were very few hospitalizations among the estimated 28,000 patients with symptoms.
• Only 70 Zika patients were hospitalized with severe illness:
  • 38 developed Guillain–Barre syndrome, a disorder in which a person’s immune system attacks their nervous system, leading to paralysis
  • 32 had various other neurological symptoms
Zika Arrives in the Americas
2014 -2015

• In May of 2015, an outbreak of Zika virus was discovered in several northeastern states of Brazil; it spread to 18 different Brazilian states by December 2015.

• A retrospective analysis of positive dengue test samples found Zika positive results in samples as early as February of 2015, although there is speculation that the virus actually arrived in Brazil in 2014.

• An analysis of the virus showed that it was of the Asian Lineage.

• Both Ae. aegypti and Ae. albopictus are thought to be playing roles in the Brazilian outbreak.

2015: Brazil declares emergency after 2,400 babies are born with brain damage, possibly due to mosquito-borne virus.
Zika Arrives in the Americas 2016

By January 2016, it was estimated that more than a million people had been infected in Brazil, and Zika cases had been seen in most countries of South America, Central America, Mexico and in numerous Caribbean countries.

CDC: First Zika Virus Case in the US Confirmed in Texas traveler – January 2016
Zika Virus Reservoir* Hosts

1. Reservoirs of Zika virus for mosquitoes are non-human primates (apes/monkeys, etc.) and people.
2. It is not yet known if other animals participate in the transmission cycle.

*A reservoir host is an organism that harbors a disease agent and remains infected for extended periods of time. Reservoir hosts serve as a source of the disease agent to vectors, but usually are not adversely affected.
How is Zika Virus Transmitted?

Mosquito bites:

- Zika virus is transmitted to people primarily through the bite of an infected Aedes species mosquito (Ae. aegypti and Ae. albopictus).
- Mosquitoes become infected when they feed on a person already infected with the virus. After ~10 days, infected mosquitoes can spread the virus to other people through bites.
How Else is Zika Virus Transmitted?

- From mother to child
- Through sexual contact
- Possibly through blood transfusion
Mosquito Control

• Although the vector is different, the public health message for Zika virus isn’t much different than the public health message for WNV

  • The 5 D’s (Drain, Discard, Dress, DAY, DEET)

• Personal Protection

  • Wear repellent
  • Stay inside when mosquitoes are bad
  • Wear long sleeves/long pants when outside

I can’t figure out why there are so many skeeters this year...
Aedes spp

**Aedes aegypti**  
(yellow fever mosquito)
- Urban mosquito
- Daytime biting mosquito
- Associates closely with people

**Ae albopictus**  
(Asian tiger mosquito)
- Suburban mosquito
- Aggressive, daytime biting mosquito
- Associated with used automobile tires
Where is the Highest Risk?

• *Aedes albopictus* is found in every county in Georgia

• This is one of Georgia’s top pest species after the saltmarsh mosquitoes

• Because it feeds on a variety of hosts, the greatest risk of disease transmission occurs in urban and suburban areas where humans are the most abundant host

• **This just in:** For the first time in the Western Hemisphere, researchers have detected the Zika virus in *Aedes albopictus*, the mosquito species known as the “Asian tiger,” a finding that increases the number of U.S. states potentially at risk for transmission of the disease. (Washington Post, 29 April 16)
Specific activities for source reduction for Aedes mosquito are:

• Removal, disposal, burying or burning of all unnecessary items that can collect and hold water.

• Keeping all other items that can hold water in sheltered areas protected from rainfall.

• Emptying containers at least once a week.

• Arranging clean up campaigns once or twice a year in order to collect and remove all unused containers in and around houses.

Use larvicides and adulticides appropriately where source reduction fails to control all the mosquitoes.
DPH – EHS Plan

The prevention or reduction of transmission of dengue, Zika, and Chikungunya is dependent on the control of mosquito vectors and limiting person–mosquito contact.

• Functions of mosquito surveillance programs:
  • Determine presence or absence of *Ae. aegypti* and *Ae. albopictus*
  • Identify what types of containers are producing the most mosquitoes
  • Develop detailed maps to track larval sites if *Ae. aegypti* or *Ae. albopictus* are detected in an area
  • Collect mosquito population data and identify geographic areas of high abundance (high-risk)
  • Monitor effectiveness of vector control efforts
  • Collect data on mosquito infection rates (viral testing)

• Work with other agencies and organizations to provide education to the public
Vector Surveillance Coordinator

This position has primary responsibility to conduct and coordinate mosquito surveillance for arboviral diseases such as West Nile Virus, Eastern Equine Encephalitis, Lacrosse Encephalitis, Zika and other arboviral diseases in a multi-county region. Duties will include:

- establishing surveillance locations throughout the PH Districts,
- setting up traps and collecting mosquitoes,
- mosquito identification,
- community assessments, and
- education programs.

When necessary, this position will coordinate mosquito control activities with existing city/county/contracted mosquito control agencies and assist with localized control efforts.

In addition, this position supports the EH Team by assisting with surveillance for other public health issues of concern, including agents of bioterrorism (BT), tickborne diseases, rabies, bedbugs, and participates in outbreak detection and emergency response activities.
Message for the Public – Terminate the Tiger
Practice the 5 Ds

Discard – get rid of anything you don’t need that can hold water
  • Cleanup containers around your house
  • Cleanup containers in your neighborhood (Community clean up)

Drain – dump out containers after every rain
  • Tip ‘n Toss containers after each rainfall
  • Don’t put saucers under your outdoor plants
  • Use larvicides where you can’t dump out water

DEET – wear repellent when outdoors
  • Follow label directions
  • Apply when outdoors

Dress – wear light-weight clothing, long sleeves and long pants

Daytime – be aware of mosquitoes that bite during the day
  • Asian tiger mosquitoes bite during the day
  • They also bite at dawn and dusk
Zika Travel Campaign

• 14 domestic and international concourses
• Countries with ongoing Zika transmission
• EPA registered insect repellents with DEET sold on the concourse
• Wear long sleeves, pants
• Air conditioning or screened in locations
• Use a mosquito net

Zika Virus
Protect & Prevent

Protect yourself from mosquito bites
Prevent the spread of Zika infection

Heading to one of these countries?

Use EPA registered insect repellents containing DEET (available in shops on the concourse).
Use while you travel and for three weeks after returning home.
Wear protective clothing (long sleeves, long pants, and socks).
Stay in places with air conditioning or window and door screens.
Sleep under a mosquito net.

Find out what it takes to stop Zika
Please visit dph.georgia.gov/zika

We Protect Lives.
Zika Community Campaign
ANY QUESTIONS?