Travel-Related Arboviral Infections: Chikungunya, Dengue, and Zika Viruses — March 29, 2016

With its emergence in the Western hemisphere, chikungunya virus infection quickly became another significant source of travel-related arboviral infection among Philadelphia residents along with dengue virus, the most common arboviral infection worldwide. The introduction of Zika virus in Brazil during 2015 and its subsequent spread throughout the Americans and Caribbean make it another travel-related arboviral infection of concern. These infections can cause febrile illness in travelers returning from tropical and subtropical regions, with polyarthralgia occurring in most with chikungunya. Dengue infections can progress to more severe illness (hemorrhagic fever or shock syndrome) that can be fatal. While most individuals infected with Zika virus have mild illness or remain asymptomatic, infection in pregnant women may lead to congenital infection that results in neurologic abnormalities or fetal loss.

Chikungunya, dengue, and Zika viruses are spread by *Aedes spp.* mosquitoes, which are daytime biters and found around homes due to their short flight range. *Aedes aegypti,* a principle vector for transmission of these viruses is not found in Philadelphia. *Aedes albopictus* (Asian tiger mosquito), a less efficient vector are present and active during warmer months in Philadelphia. PDPH will continue to assess the presence of *A. albopictus* in Philadelphia and closely monitor human surveillance data to promptly identify local transmission should it occur.

Chikungunya, Dengue and Zika Infections, Philadelphia, 2011—2016

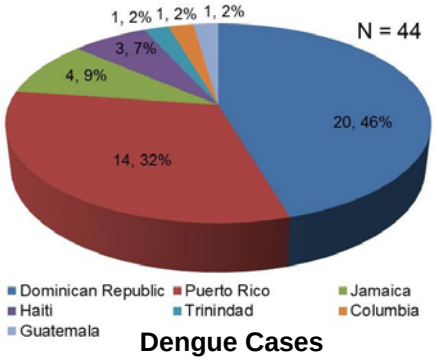
	Travel-Related Arboviral Infections		
	Chikungunya	Dengue	Zika
Year, n	44	20	2
2016[a]	0	2	2[b]
2015[a]	2	5	—
2014	42	0	—
2013	0	11	—
2012	0	1	—
2011	0	1	—
Median Age (Range), y	42.5 (5–78)	41.5 (10–79)	—
Female, n (%)	34 (77)	11 (55)	—
Foreign Born, n (%)	31 (70)	5 (25)	—
Hospitalized, n (%)	9 (20)	13 (65)	0 (0)
Death, n (%)	0 (0)	1 (5)	0 (0)

[a]Preliminary year to date data

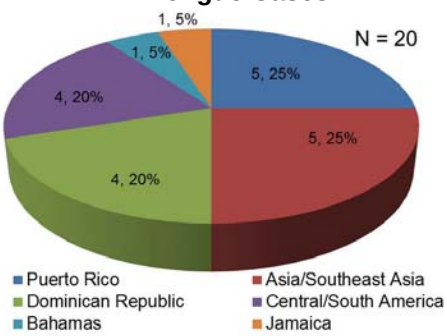
[b]Adult residents who traveled to the Caribbean or South America

Travel Destinations

Chikungunya Cases



Dengue Cases



Worldwide Distribution Reports:
Chikungunya | Dengue | Zika

Prevention:

- Advise patients traveling to tropical/subtropical regions to take mosquito-bite prevention measures.
- Advise patients at risk for severe disease (pregnant women or women planning to become pregnant, >65 years, persons with underlying conditions) to postpone or cancel travel to areas with ongoing outbreaks.
- Advise cases to stay indoors and avoid mosquitoes for the first 7 days of illness.
- From April/May to October, asymptomatic returning travelers should continue taking bite precautions for 3 weeks after their return.
- Men who traveled to Zika-endemic countries, particularly those with pregnant sexual partners, should be counseled on the prevention of sexual transmission of Zika.

Testing, Treatment, and Reporting:

- If either chikungunya, dengue, or Zika is suspected, collect serum and test for all three pathogens.
  - Order PCR between day 1 and 8 of illness
  - Order IgM & IgG if ≥ day 4 of symptom onset
- Testing is available through the PA Department of Health's Bureau of Laboratories and for chikungunya and dengue, through Focus Diagnostics. Quest Diagnostics and LabCorp will forward orders to Focus.
- Pregnant women who have traveled to areas with ongoing Zika outbreaks should be screened for Zika infection. See CDC's testing algorithm.
- Manage chikungunya and Zika as dengue with acetaminophen recommended for initial treatment.
- If dengue has been ruled out, NSAIDs or narcotics may be considered to manage fever and pain.
- Report suspected and confirmed infections to PDPH by telephone at 215-685-6740 (215-686-4514 after hours). or fax at 215-238-6947.

Department of Public Health
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