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Zika Virus and the Blood Supply: our Newest Crisis

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History of Zika Virus

Which of the following organisms was discovered most recently?

a. Chikungunya
b. Dengue
c. Zika
d. HIV
e. Chagas' parasite

History of Zika Virus

Which of the following organisms was discovered most recently?

a. Chikungunya
b. Dengue
c. Zika
d. HIV
e. Chagas' parasite

Answer = HIV

History of Zika Virus

Which of the following organisms was discovered most recently?

a. Chikungunya 1955
b. Dengue 1789
c. Zika 1947
d. HIV 1981
e. Chagas' parasite 1909

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Infection with Zika Virus

80% have no signs or symptoms
Symptoms:
- fever, rash, joint pain, conjunctivitis, muscle aches, headache

Incubation time = few days to one week
Severity is very mild
Sickness lasts a few days to a week
No vaccine
Treatment = rest, fluids, anti-pyretics
Avoid exposure to mosquitoes!

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Spread of Zika Virus

Mosquito bites
Sexual contact from men to partners (up to 62 days)
Probable transfusion-transmission
Mother to unborn child
- Risk of birth defects

Transmission through breast milk not reported

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Importance of Zika Virus

Why Zika is in the news now:

Recent spread to the Western Hemisphere
No one immune in these areas
Mosquito (*Aedes aegypti*) present in tropical areas
Rampant spread
Worldwide air travel in hours
Concern about pregnant women and birth defects
Report of sexual transmission in U.S.

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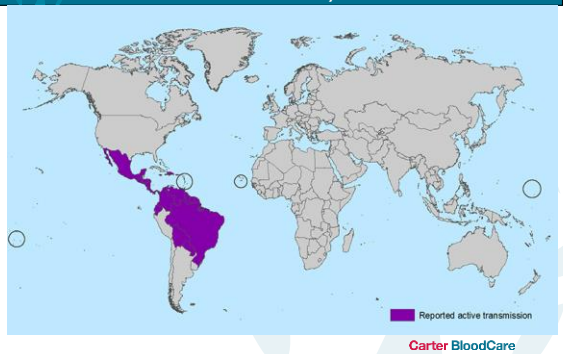
Zika Distribution, March 2016



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Areas of Zika Active Transmission

As of 3-22-16:

Americas:

- **Aruba, Barbados, Bolivia, Brazil, Colombia, Costa Rica, Cuba, Curacao, Dominican Republic, Ecuador, El Salvador, French Guiana, Guadeloupe, Guatemala, Guyana, Haiti, Honduras, Jamaica, Martinique, Mexico, Nicaragua, Panama, Paraguay, Puerto Rico, Saint Martin, Saint Vincent and the Grenadines, Sint Maarten, Suriname, Trinidad and Tobago, US Virgin Islands, Venzuela**

Oceania/Pacific Islands:

- **American Samoa, Marshall Islands, New Caledonia, Samoa, Tonga**

Africa:

- **Cape Verde**

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Mosquitoes

Culex **common house mosquito**
West Nile Virus

Anopheles
Malaria

Aedes aegypti **yellow fever mosquito**
chikungunya, dengue, yellow fever, Zika

Aedes albopictus **Asian tiger mosquito**

chikungunya, dengue, dog heartworm, yellow fever

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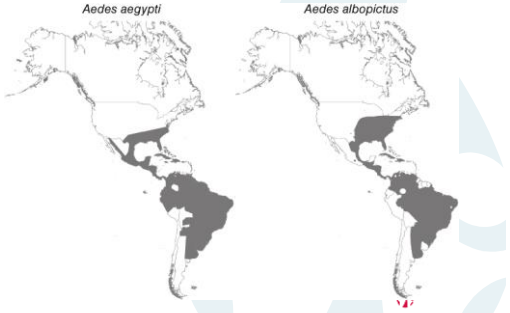

Transfusion
Volume 54, Issue 8, pages 1911-1915, 15 AUG 2014 DOI: 10.1111/trf.12790
http://onlinelibrary.wiley.com/doi/10.1111/trf.12790/full#trf12790-fig-0001

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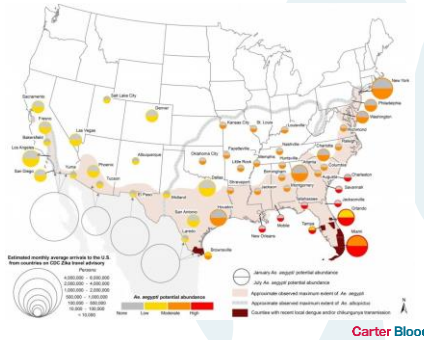
From Monaghan, Morin et al. PLOS Current Outbreaks, March 16, 2016



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Transfusion-Transmission of Zika

Transfusion-associated Zika virus reported in Brazil

December 18, 2015

The director of the Hematology Division of the Blood Center at the university of Campinas, Marcelo Addas Carvalho, said that a patient was infected by Zika virus in March after receiving a blood transfusion from a asymptomatic donor.

According to Carvalho, the donor, a 52-year old man of Sumaré, about 118 km from Sao Paulo, donated blood at the Blood Center of Unicamp without knowing he was infected. Three days later he became symptomatic.

Both donor and recipient have since recovered.

Virus isolation and sequencing was performed by the Adolfo Lutz Institute.

This is the first confirmed transfusion associated case in the country.

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AABB Bulletin #16-03 Feb 1, 2016

"Zika, Dengue, and Chikungunya Viruses"

Recommendations:

1) **"…implement self-deferral for travel to Mexico, the Caribbean, or Central or South America during the 28 days before donation…"**
2) **"Donors who do not self-defer are asked to call the blood collection facility if they travelled to Mexico, the Caribbean, Central or South America, or other tropical areas and develop unexplained postdonation illness inclusive of two or more of the listed symptoms—common to Zika, dengue, and chikungunya virus infection—in the 14 days following donation.**

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AABB Bulletin #16-03

Why these actions?

-- Will take too long to put formal questions in place

-- Will more than cover the suspected infectious period

-- Will also cover for dengue and chikungunya

-- There is no donor test for Zika

"It is expected to result in the loss of approximately 2.25% of otherwise acceptable donors during the winter months." Probably higher in Texas – up to 5% or more.

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FDA Guidance Document 2-16-16

IF NO ACTIVE MOSQUITO SPREAD:

Donor educational material (must self-defer):

- **Sexual contact risk**
- **Signs and symptoms**

Donor questionnaire:

- **Travel risk**

IF LOCAL ACTIVE MOSQUITO SPREAD:

Must do pathogen reduction, testing or import blood. If still collecting, must add questions on sexual contact and signs and symptoms

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Subsequent Regulatory Documents

AABB Bulletin #16-04 3-1-16 To match FDA rules

FDA guidance document on HCT/P 3/1/16 must defer donors for 6 months for tissue and stem cells

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QUESTIONS?

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