

Insect-borne diseases in the news: Chagas and Zika—what you need to know



Peter M. Piermarini, Ph.D.
Assistant Professor
Department of Entomology
330-263-3641
piermarini.1@osu.edu


1) Chagas disease

The Dallas Morning News **Nov 16 2015**

HIDDEN THREAT:  THE KISSING BUG

A deadly kiss

Chagas disease, an exotic bug-borne infection that can kill, is spreading in Texas

 Print

'Kissing bug' infections remain a problem in Texas, reports suggest

Published November 17, 2015

America's War on the Kissing Bug and Chagas Disease - The New Yorker <http://www.newyorker.com/tech/elements/> Save paper and

NOVEMBER 20, 2015

AMERICA'S WAR ON THE KISSING BUG

BY JENNIE ERIN SMITH

Triatomines, also known as kissing bugs, are responsible for transmitting the parasite that causes Chagas disease.

PHOTOGRAPH VIA THE NATURAL HISTORY MUSEUM / ALAMY

Martin Shkreli plans to raise price of drug for parasitic infection Chagas disease

BY LAURA BULT / NEW YORK DAILY NEWS / Updated: Tuesday, December 15, 2015, 12:43 PM A A A

977 SHARE THIS URL
nydn.us/1NVAXUa



Deadly 'kissing bug' reported in Indiana

POSTED 6:07 PM, NOVEMBER 24, 2015, BY TRIBUNE MEDIA WIRE, UPDATED AT 06:08PM, NOVEMBER 24, 2015



Deadly 'Kissing Bug' creeps into several states including Ohio

POSTED 4:59 PM, NOVEMBER 24, 2015, BY FOX8WEBCENTRAL

1) Chagas disease

- a chronic illness in humans and canines caused by a single-celled parasite, *Trypanosoma cruzi*
- transmitted by a group of blood-feeding insects known as kissing bugs (a.k.a. reduviid or triatomid bugs)

Pathogen (*Trypanosoma cruzi*)

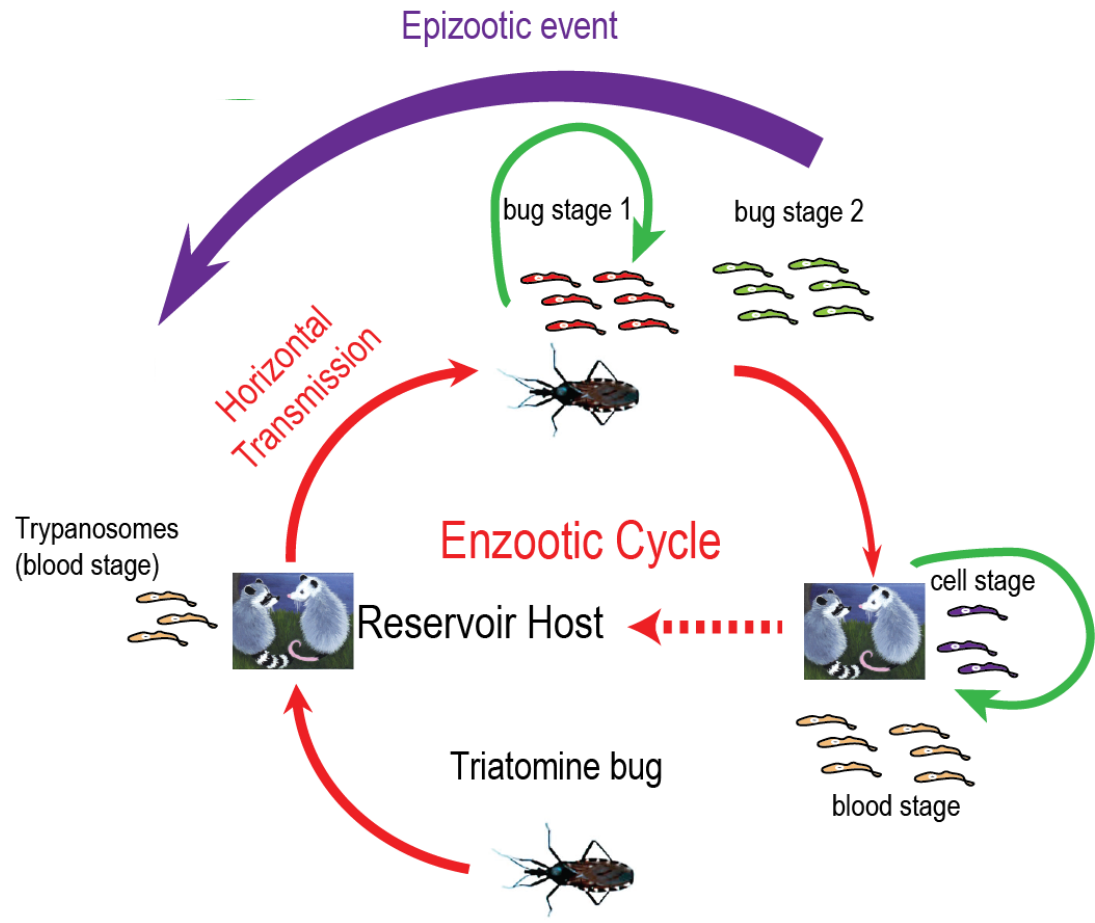


Vector (kissing bug)



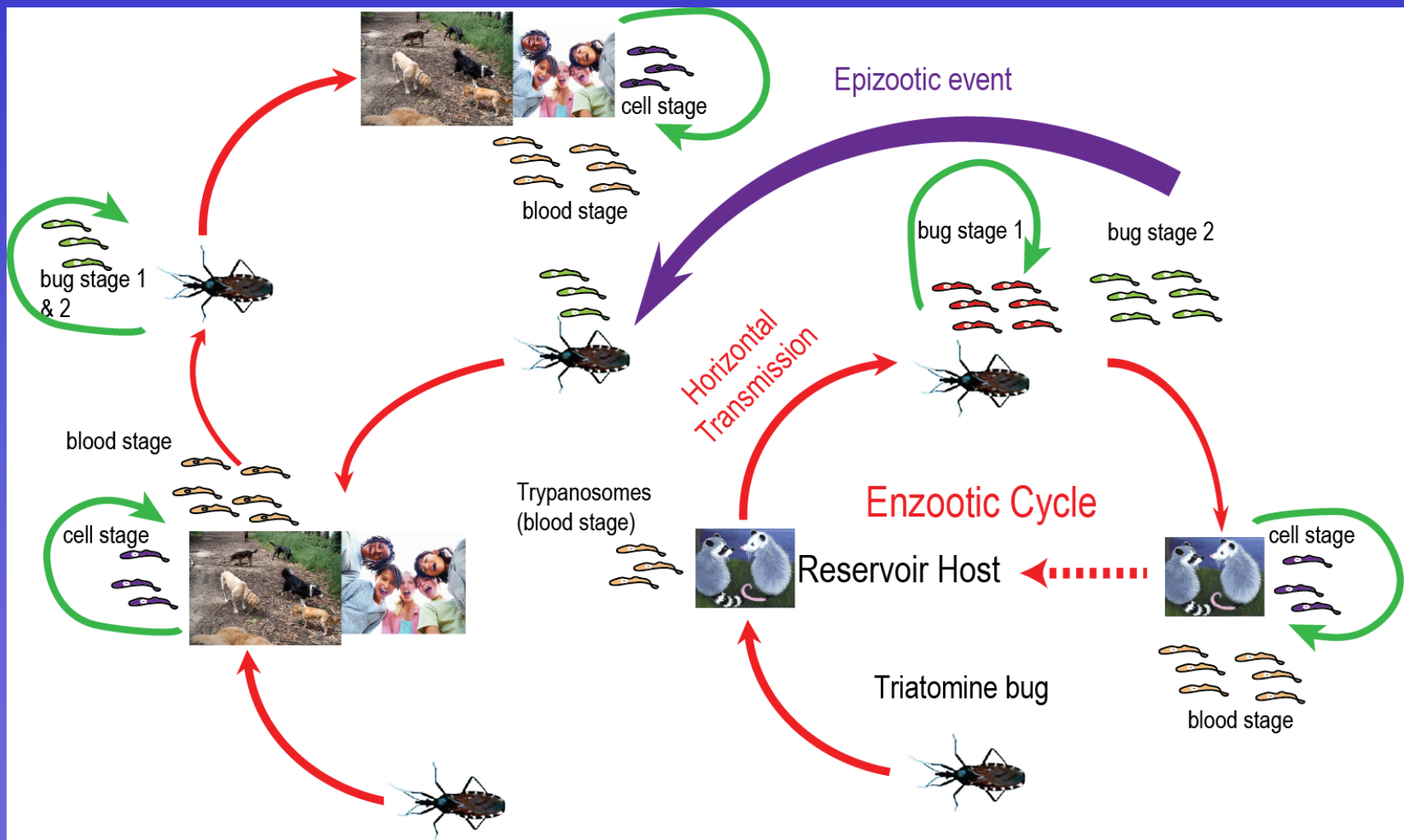
1) Chagas disease

- the pathogen normally circulates between bugs and wild animals in sylvatic habitats



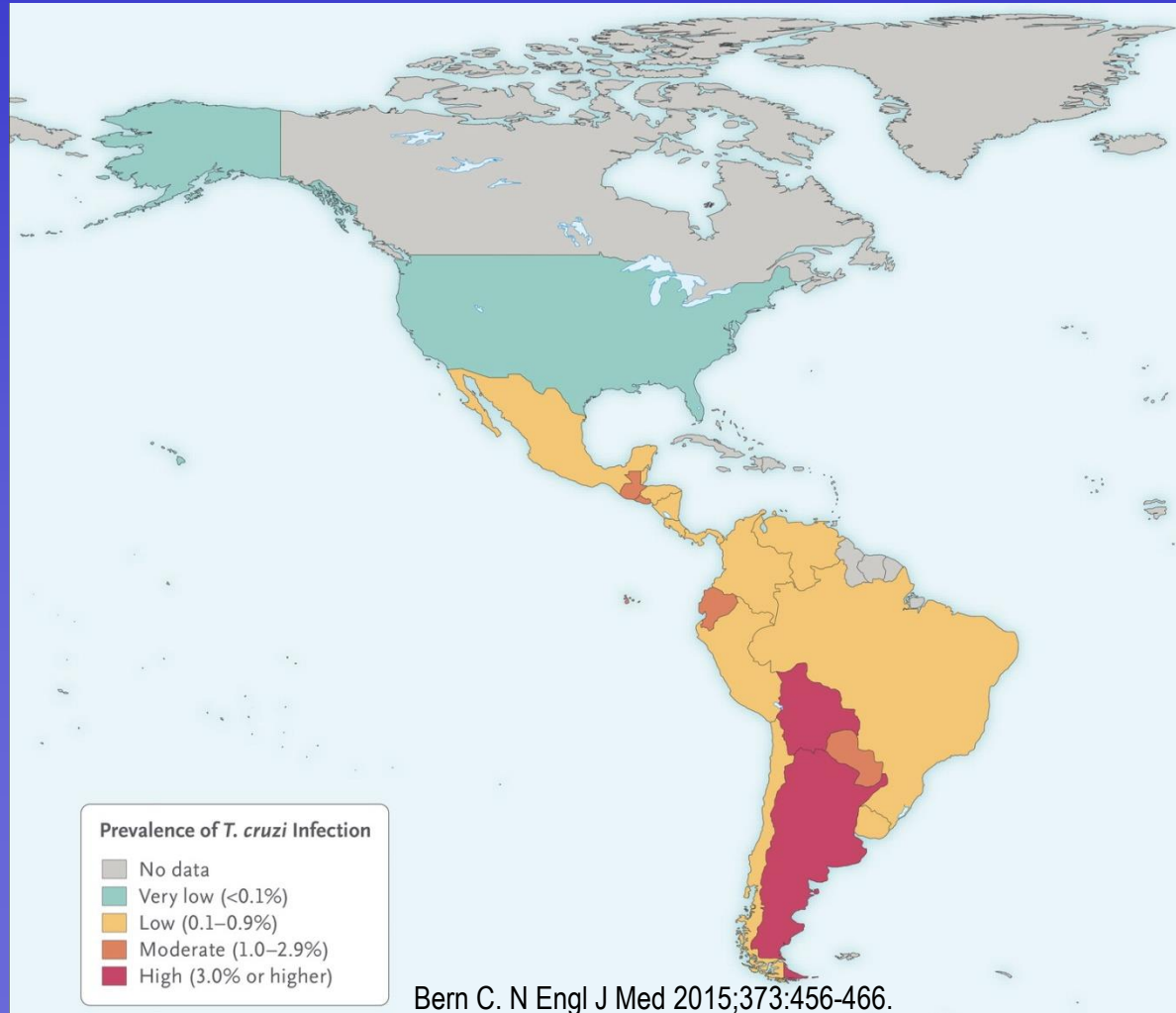
1) Chagas disease

- infected bugs in domestic habitats can transmit Chagas to humans and domestic animals (dogs, guinea pigs)



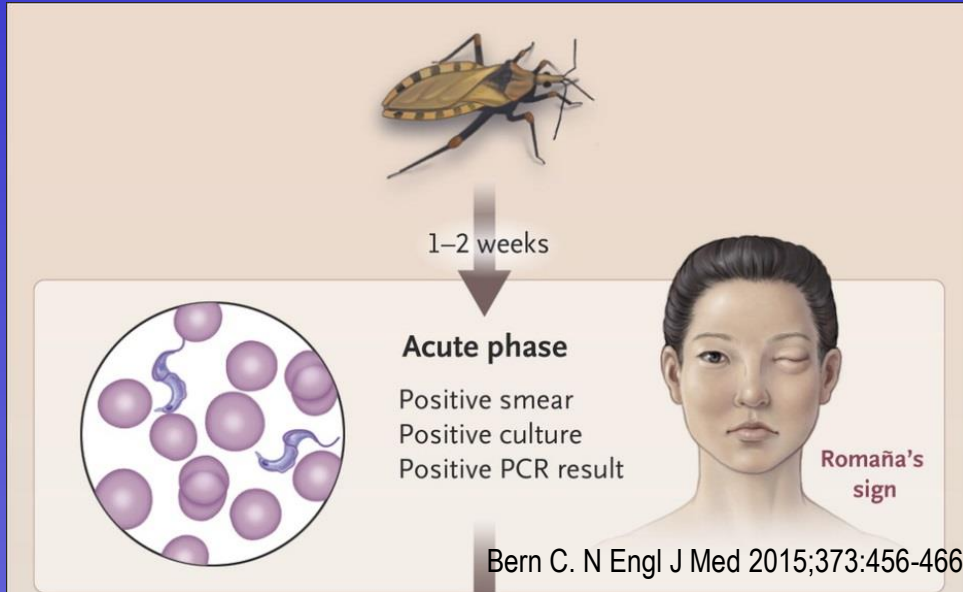
1) Chagas disease

- a significant public health issue in Latin America (~8 million cases/yr, ~16K deaths/yr, ~700K DALY)



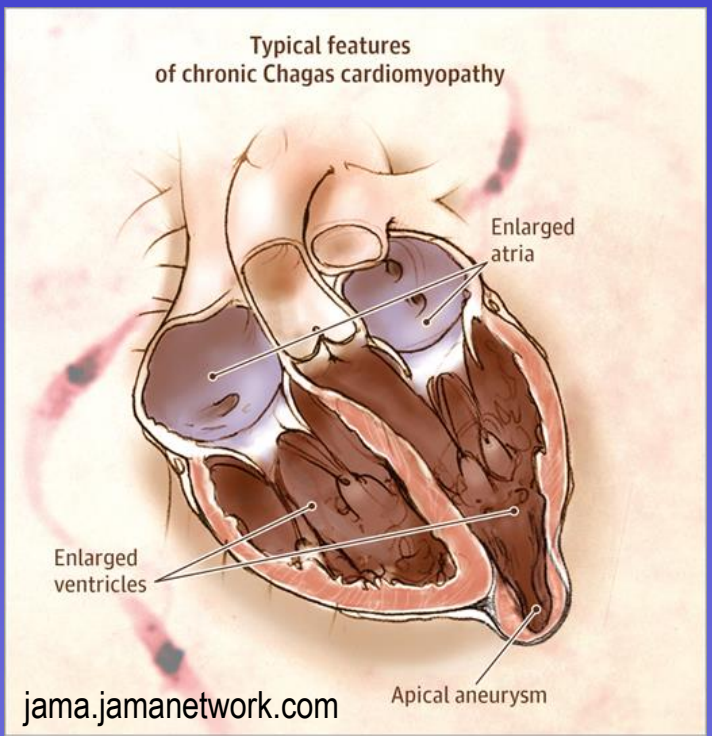
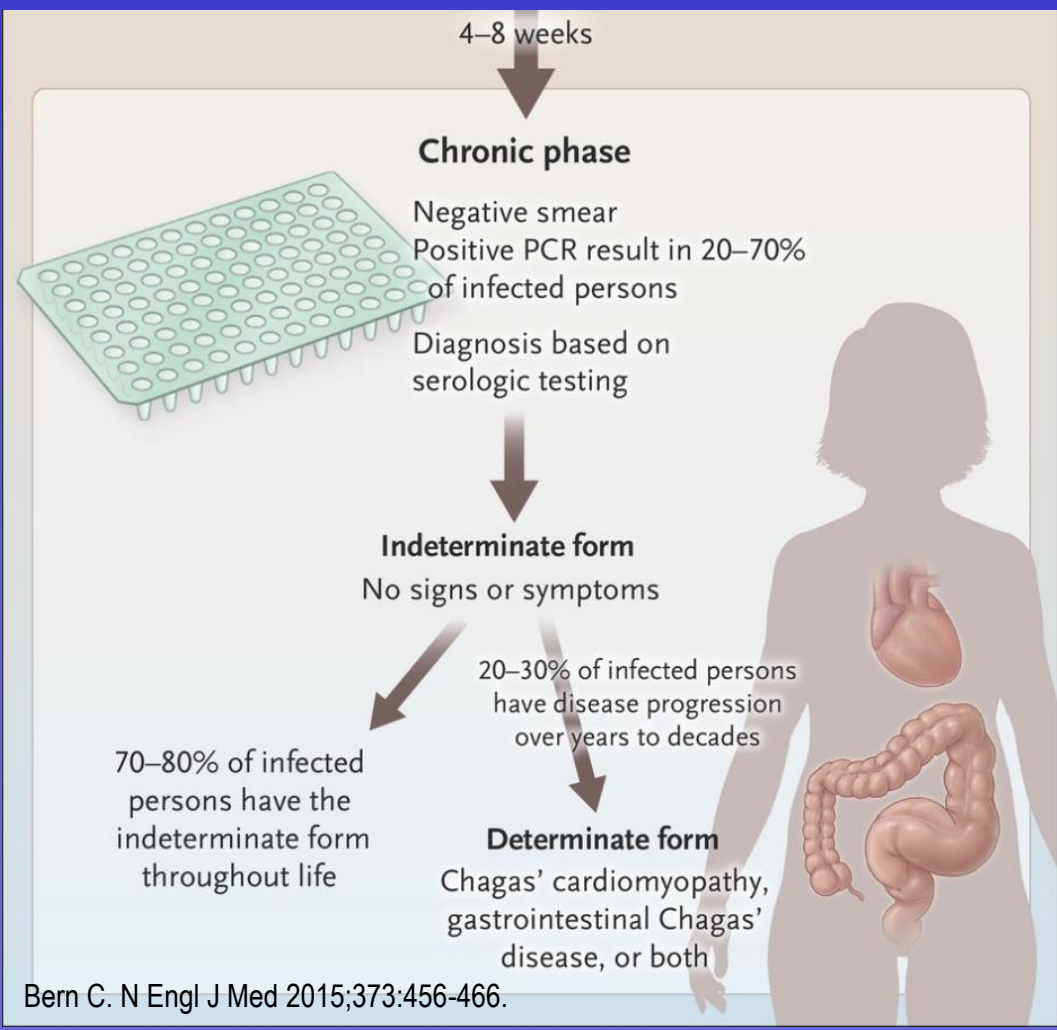
1) Chagas disease

- a 'silent killer' that leads to chronic heart and gastrointestinal disease



1) Chagas disease

- a 'silent killer' that leads to chronic heart and gastrointestinal disease



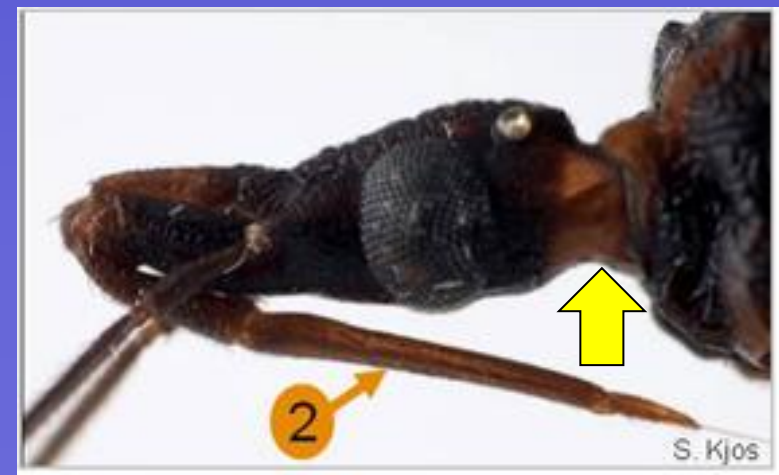
Bern C. N Engl J Med 2015;373:456-466.

1) Chagas disease

- kissing bugs are the primary vector (Order Hemiptera, Family Reduviidae, Subfamily Triatominae)



- Large bug (5-45 mm), dark coloration
- Long, conical head (cone-nose)
- Thin, thread-like antennae
- Piercing, sucking mouthparts
- Large eyes, distinct 'neck'



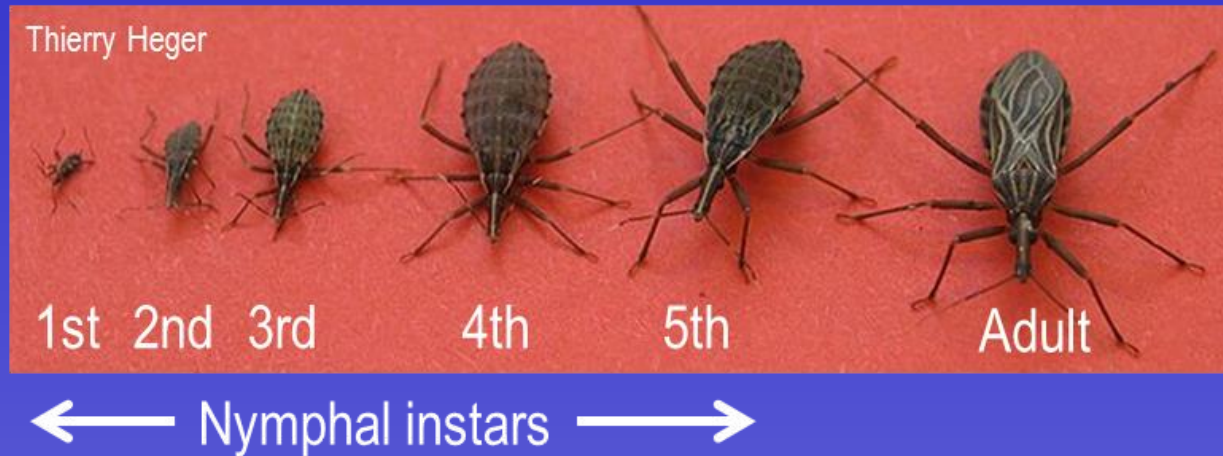
1) Chagas disease

- kissing bugs can be confused with other common bugs



1) Chagas disease

- kissing bugs are obligate blood feeders



- infected bugs transmit *Trypanosoma cruzi* via defecation when feeding



1) Chagas disease

- only one species of kissing bug is found in Ohio

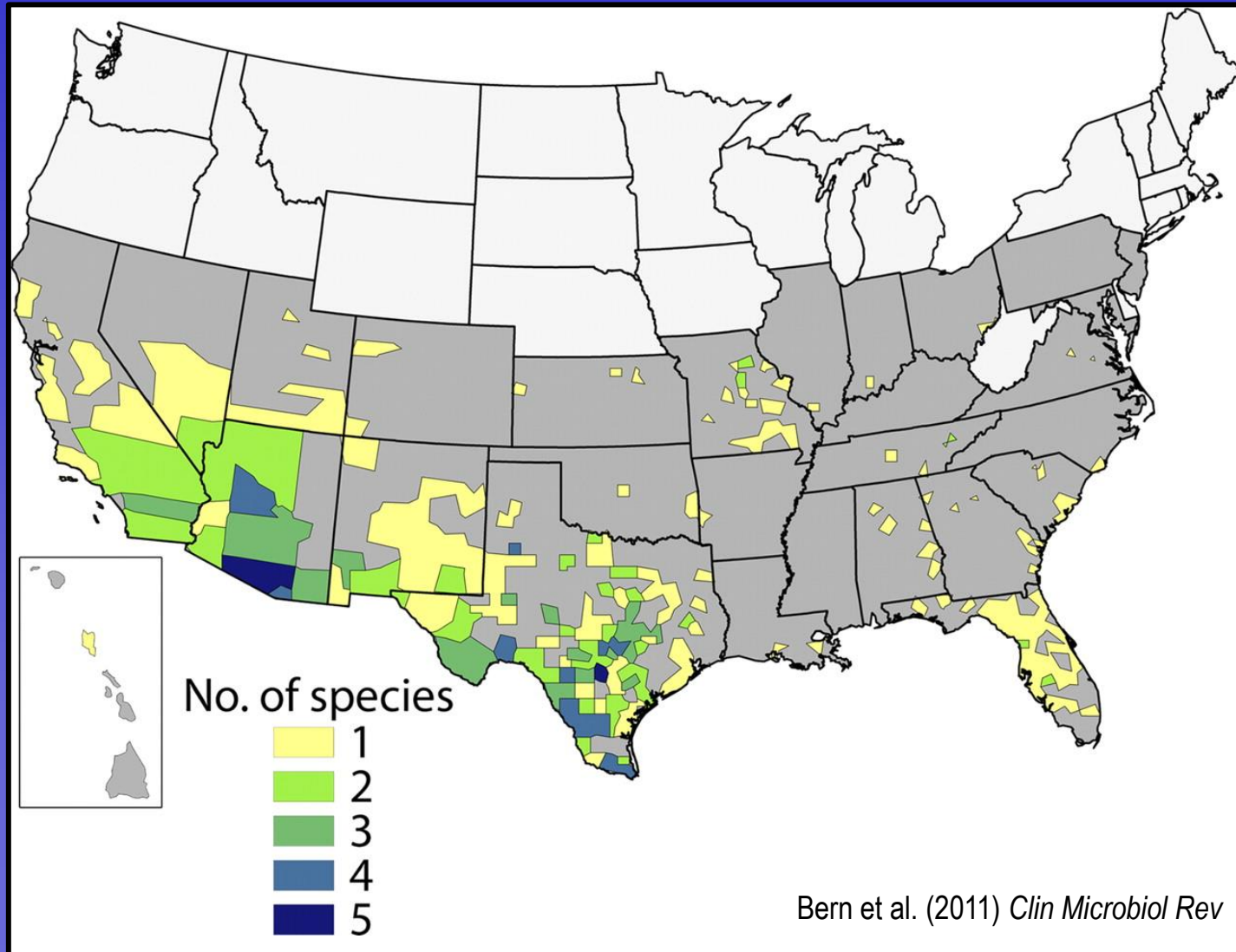
Triatoma sanguisuga



- a sylvatic species that feeds on small mammals and birds
- a potential vector of Chagas, but no evidence for transmission in Ohio

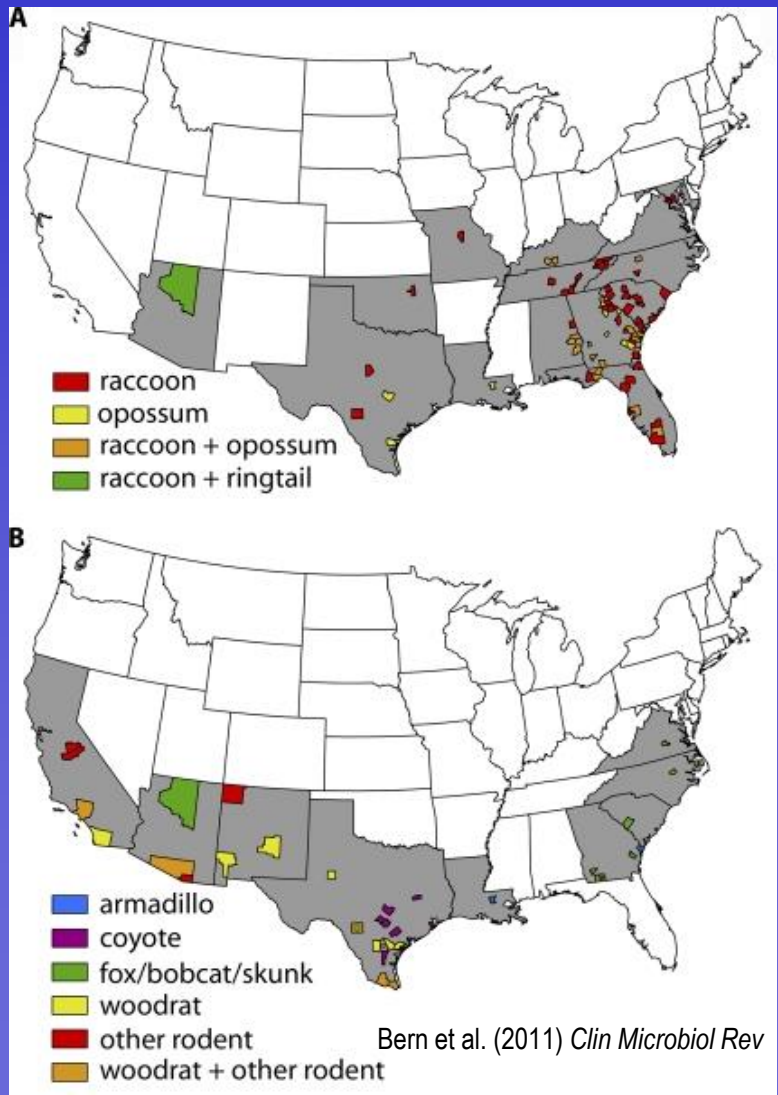
1) Chagas disease

- distribution of potential Chagas vectors in the U.S.

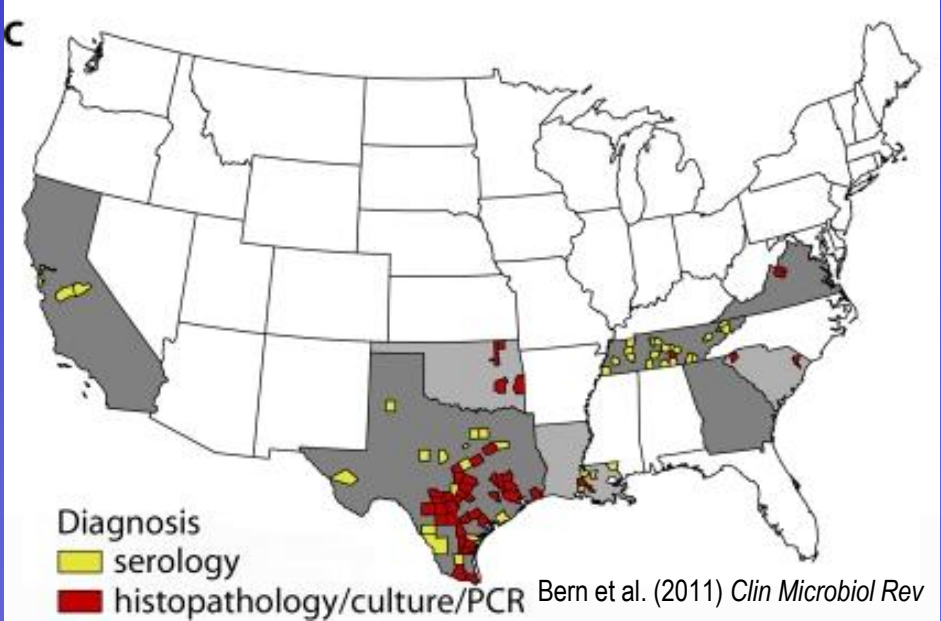


1) Chagas disease

- no evidence for Chagas in animal reservoirs of Ohio

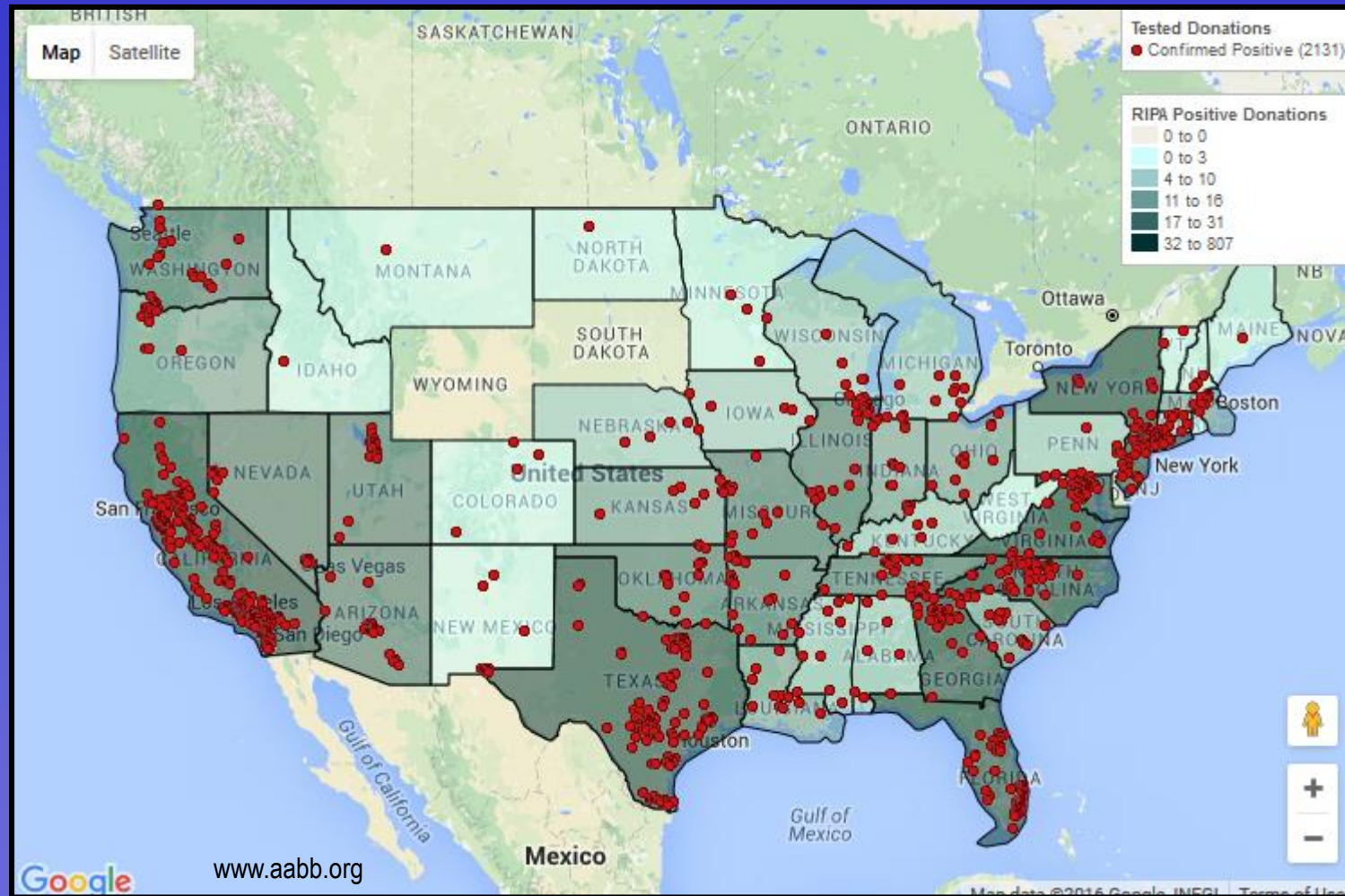


Canine cases



1) Chagas disease

- the U.S. blood supply is screened for Chagas



- nearly all positive samples are imported cases from Latin America

1) Chagas disease

- don't lose any sleep over kissing bugs in Ohio

The Columbus Dispatch

Search

» Hot Links:

No need to worry about kissing bug hype, experts say

HEALTH HEADLINES

- » Benefits of outdoors reinforced
- » Signs point to spike in Columbus-area flu cases
- » Ohio State performs 800th liver transplant, aims to grow program

HEALTH RESOURCES

Hospital / Urgent Care Locator

Keywords

Time

By **Kelly Lecker**
The Columbus Dispatch • Saturday December 26, 2015 5:59 AM

292 1 1525

Worry about the West Nile virus if you want. Lie awake at night thinking about Lyme disease.

But please, two Ohio State University bug experts say, don't believe the hype about the kissing bug.

In the past month, some news outlets have been reporting that the kissing bug, which can carry a serious and sometimes deadly



REQUEST TO BUY THIS PHOTO
PHOTO COURTESY S. KJOS, CDC

- be aware of risk factors when travelling to areas of Latin America with endemic Chagas (rural areas, poor housing quality, raw foods)

2) Zika virus

- an arthropod-borne (arbo) virus that causes an acute febrile illness in humans
- transmitted by mosquitoes of the genus *Aedes* (*Aedes aegypti*, *Aedes albopictus*)
- sexual transmission between humans is also possible

Aedes aegypti

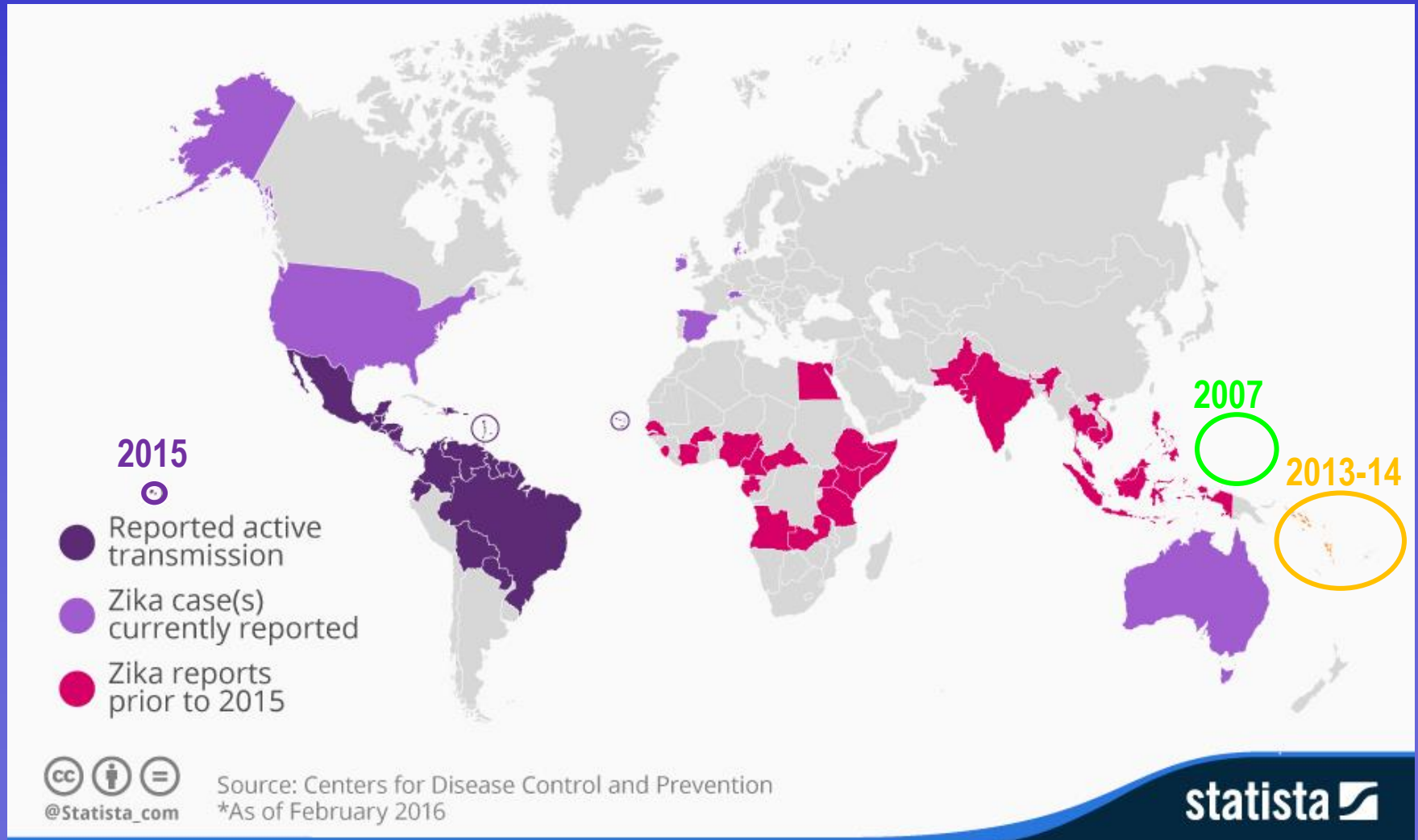


Aedes albopictus



2) Zika virus

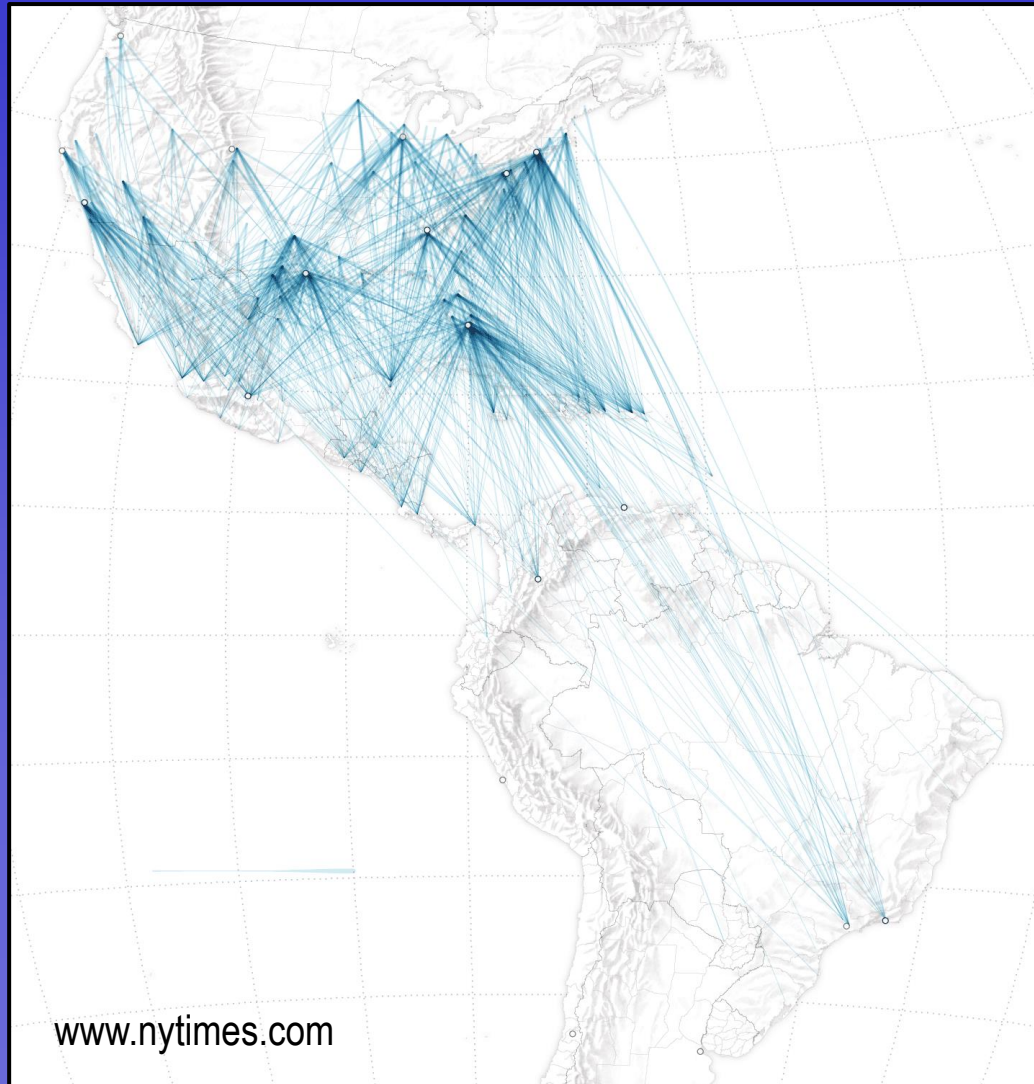
- is the most recent exotic arbovirus to reach the Western hemisphere (after West Nile & chikungunya)



2) Zika virus

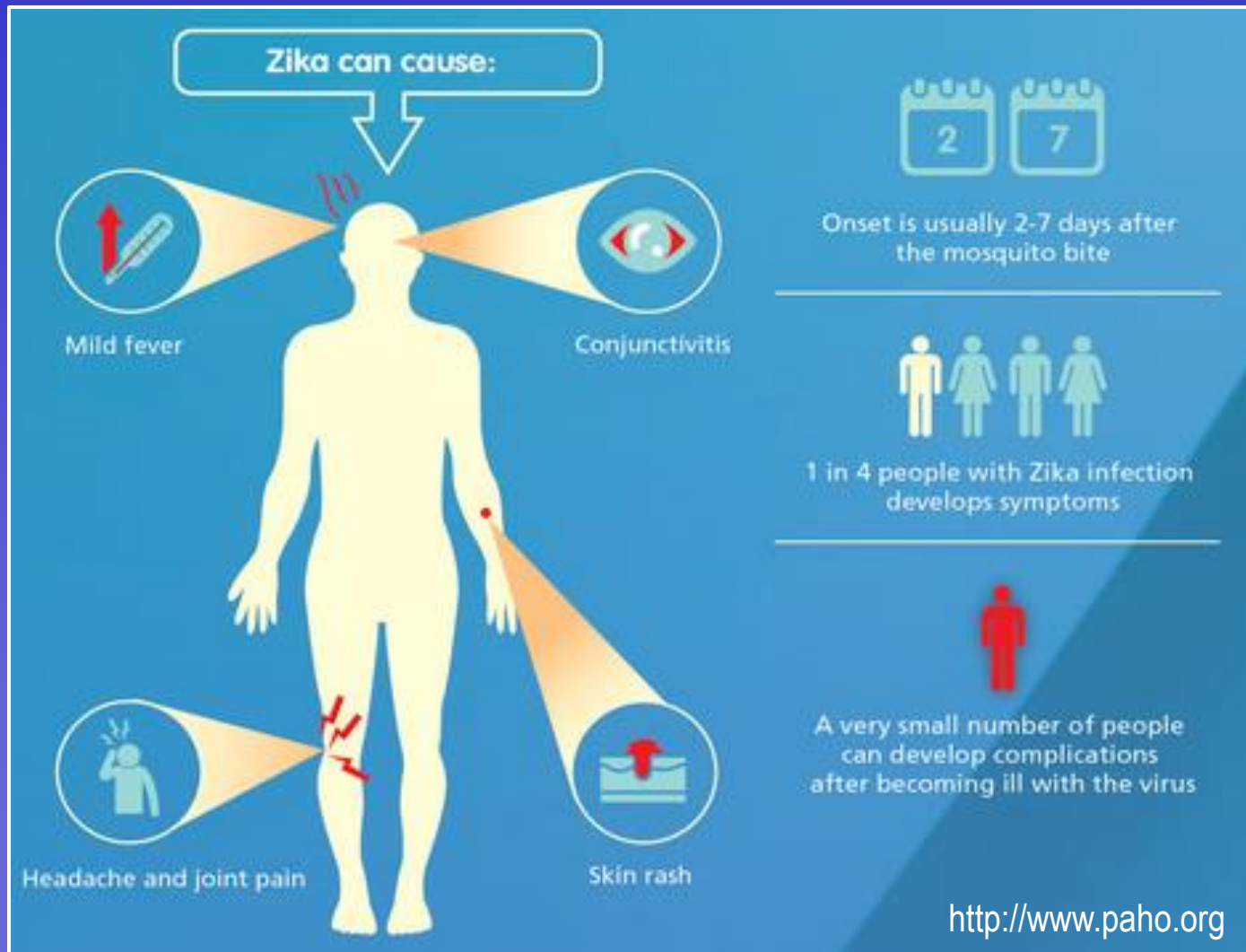
- so far, all cases in the U.S. are travel/sex related

Zika-related flight routes



2) Zika virus

- usually is asymptomatic or causes minor symptoms



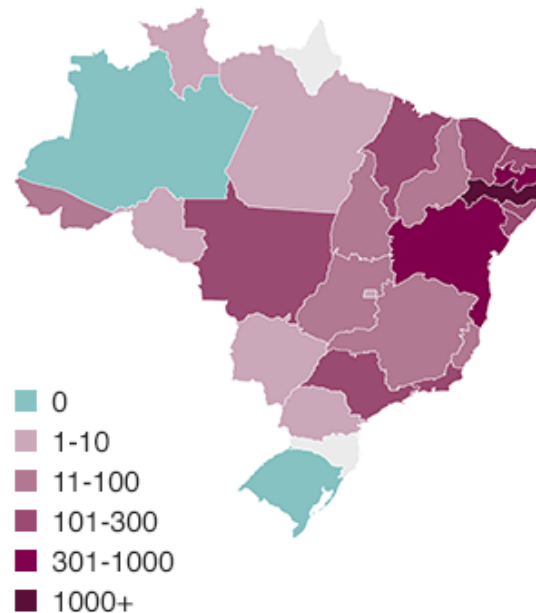
2) Zika virus

- however, emergence of Zika in Brazil has coincided with elevated reporting of a rare birth defect (microcephaly) and autoimmune disorder (Guillan-Barre syndrome)

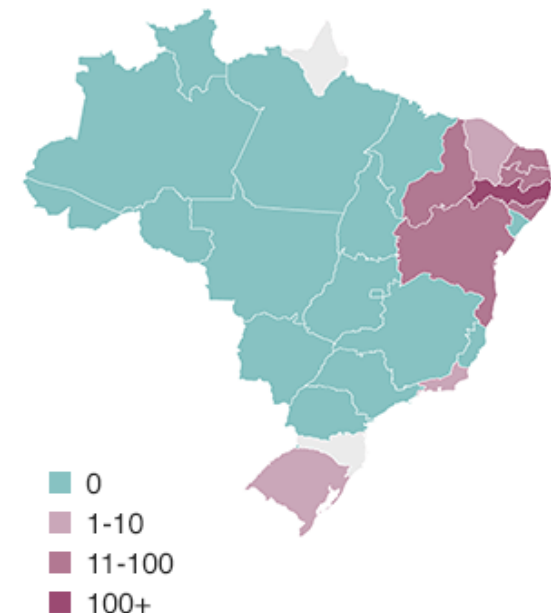


Microcephaly in Brazil

Suspected cases of Microcephaly
3,670



Confirmed cases of Microcephaly
404



Note: Figures from 22 Oct 2015 - 30 Jan 2016

Source: Brazilian Ministry of Health

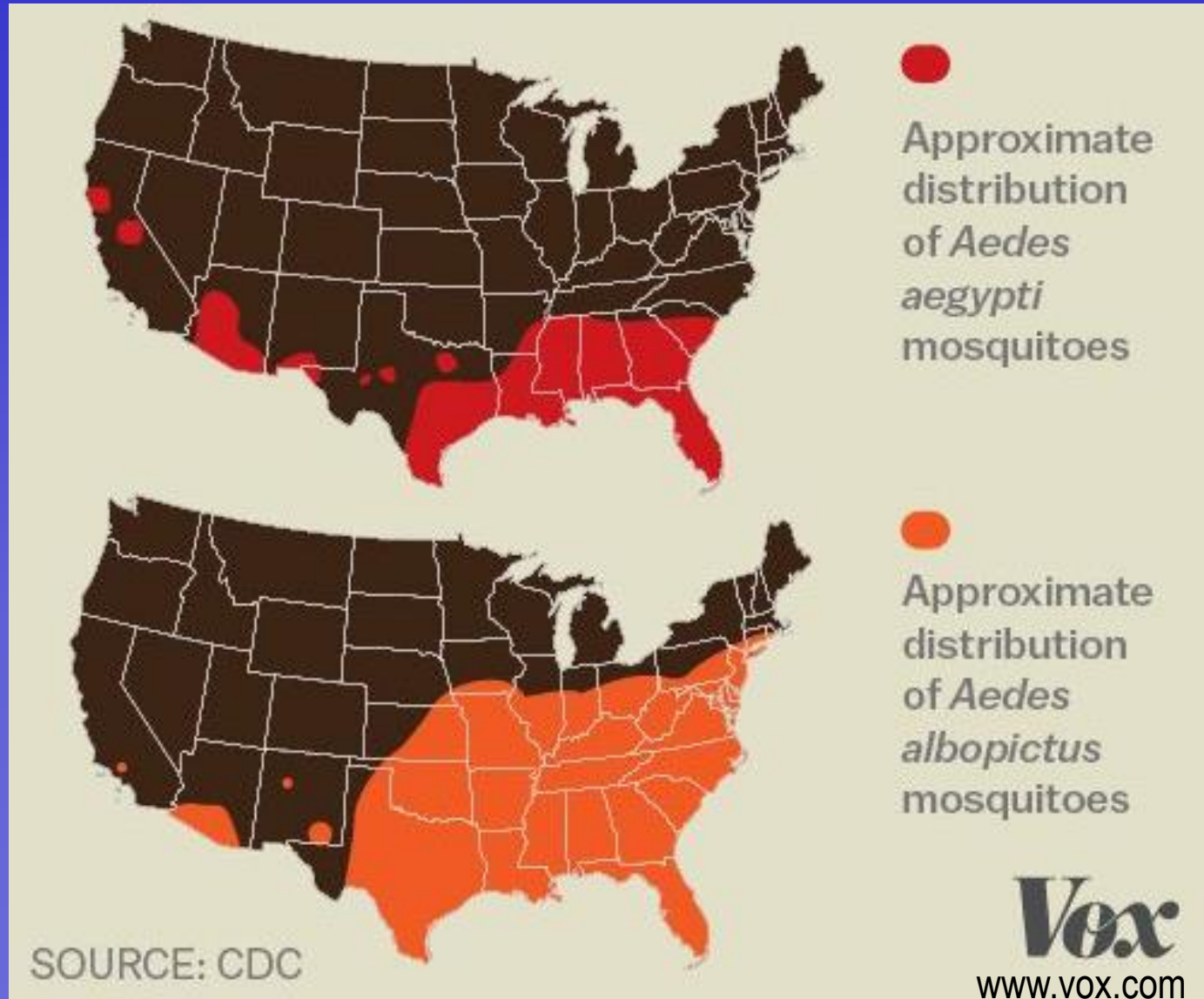
2) Zika virus

- CDC has issued travel alerts for women who are pregnant or planning a pregnancy (male partners also)



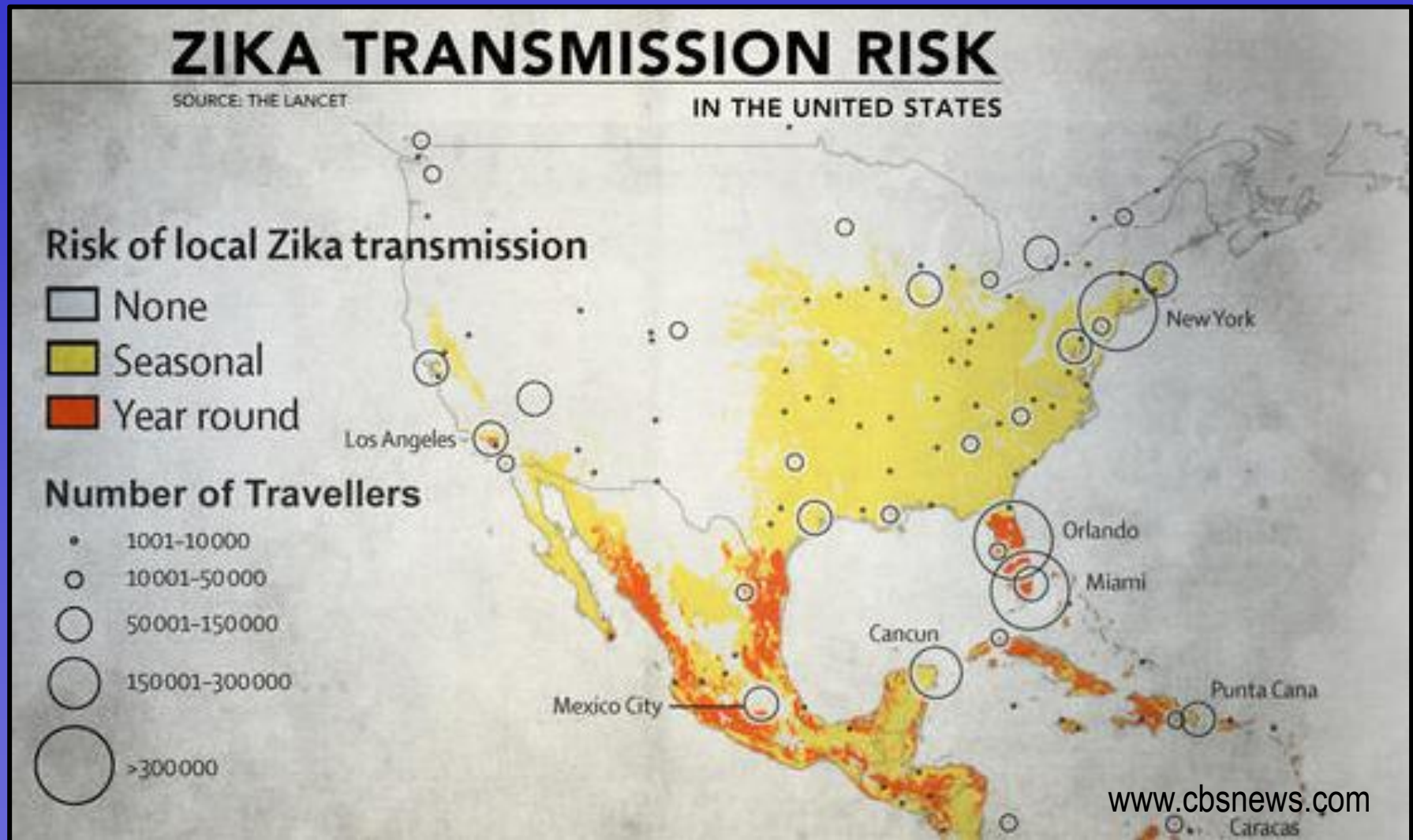
2) Zika virus

- What is the risk of Zika transmission in Ohio?



2) Zika virus

- risk of transmission in the U.S. is greatest in the south



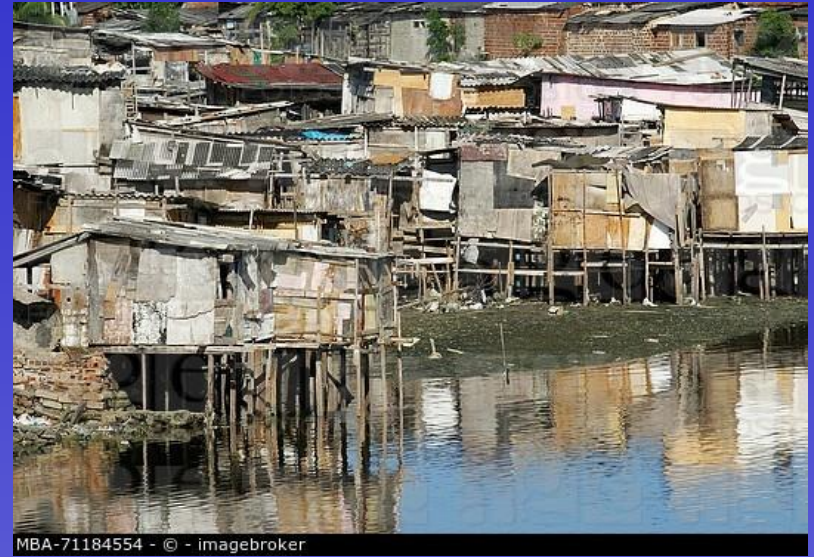
2) Zika virus

- exercise vigilance during mosquito season



- avoid mosquito bites if travelling to areas of Latin America with endemic Zika and within 1 week of returning

For both Chagas and Zika, socioeconomic is a major contributing factor



Questions?

