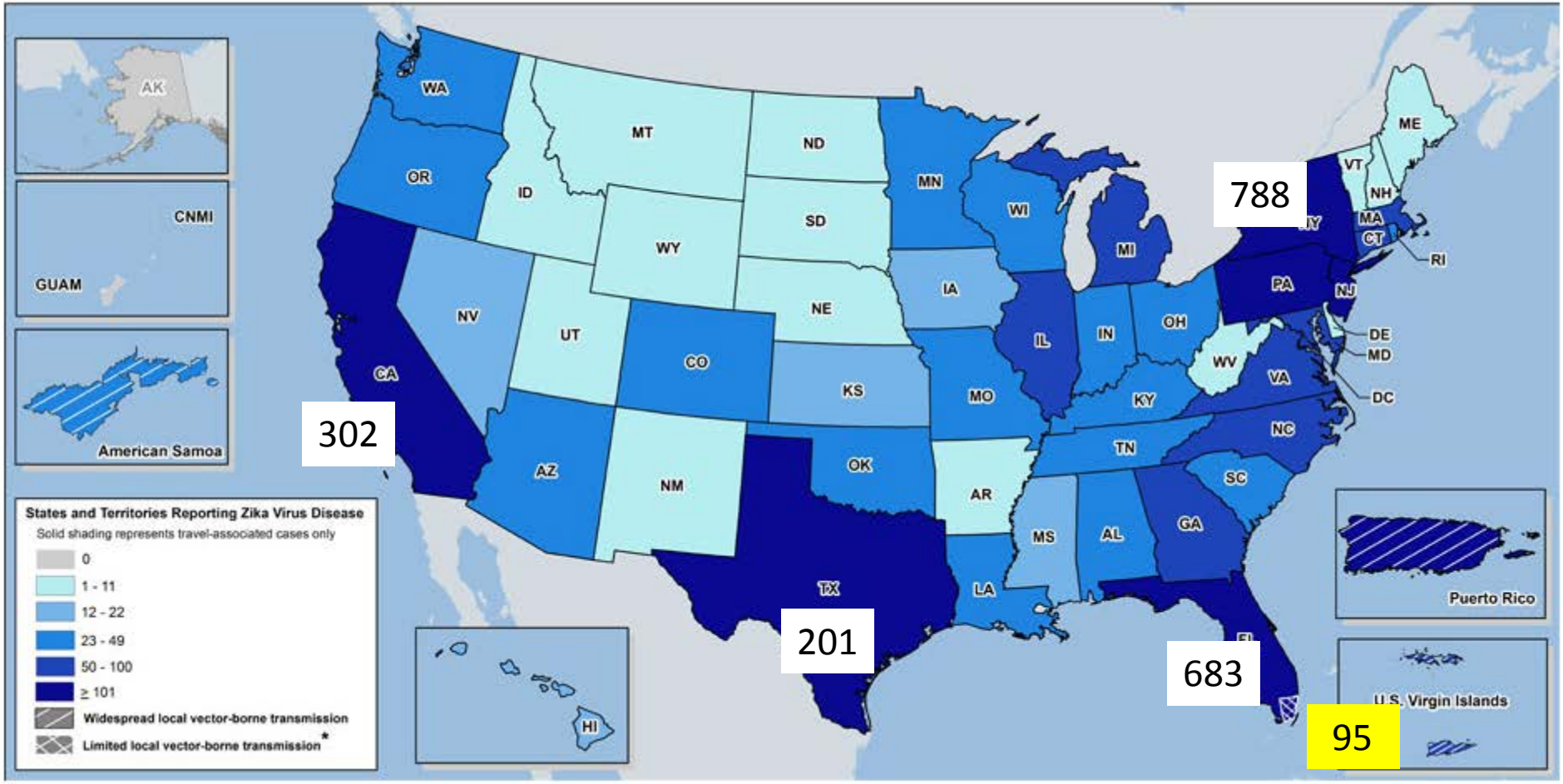
Zika, Dengue, and Chikungunya in California

Vicki Kramer, PhD and Lauren Salmo, MPH

Vector-Borne Disease Section

California Department of Public Health

Zika Virus Disease Cases
U.S. Total = 3,358*



*as of September 21, 2016

https://www.cdc.gov/zika

Public Health Surveillance in California

Reporting of notifiable diseases is mandated by state law (Title 17 CCR). Dengue, chikungunya, and Zika are reportable diseases.

Suspect dengue, chikungunya and Zika cases are reported by physicians or laboratories to their local health department (LHD). LHD follows-up and reviews cases (who, what, where, when).

LHD reports to California Department of Public Health (CDPH). Case is reviewed by subject matter expert and classification finalized.

CDPH reports confirmed and probable cases to CDC

Zika Cases in California, 2015-2016*

- 302 travel-associated Zika cases reported
  - No local transmission
- 2 sexually-transmitted cases
- 36 cases pregnant at the time of diagnosis
- 197 of the cases residents of counties with *Aedes aegypti* and/or *Aedes albopictus*
- 222 case-patients potentially viremic while in California
  - Could serve as a source of infection to local *Aedes*

*As of September 23

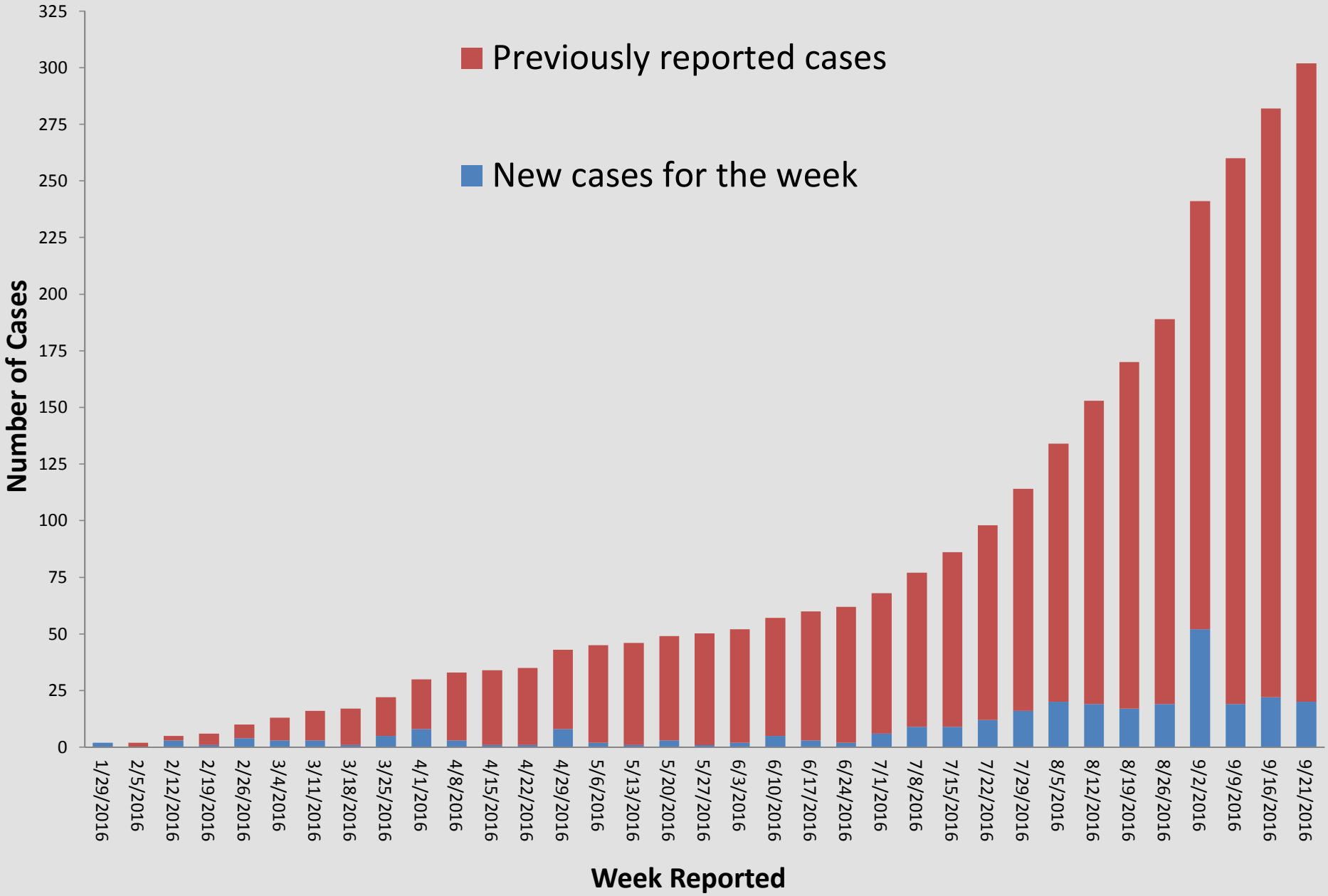
Travel-Associated Zika Cases in California 2015-2016

Variable	Value
Total number	302
Percentage of female cases	63%
Age range	0 – 73 years
Median age	36 years
Pregnant women	36
Asymptomatic pregnant women	21
Live-born infants with birth defects	2

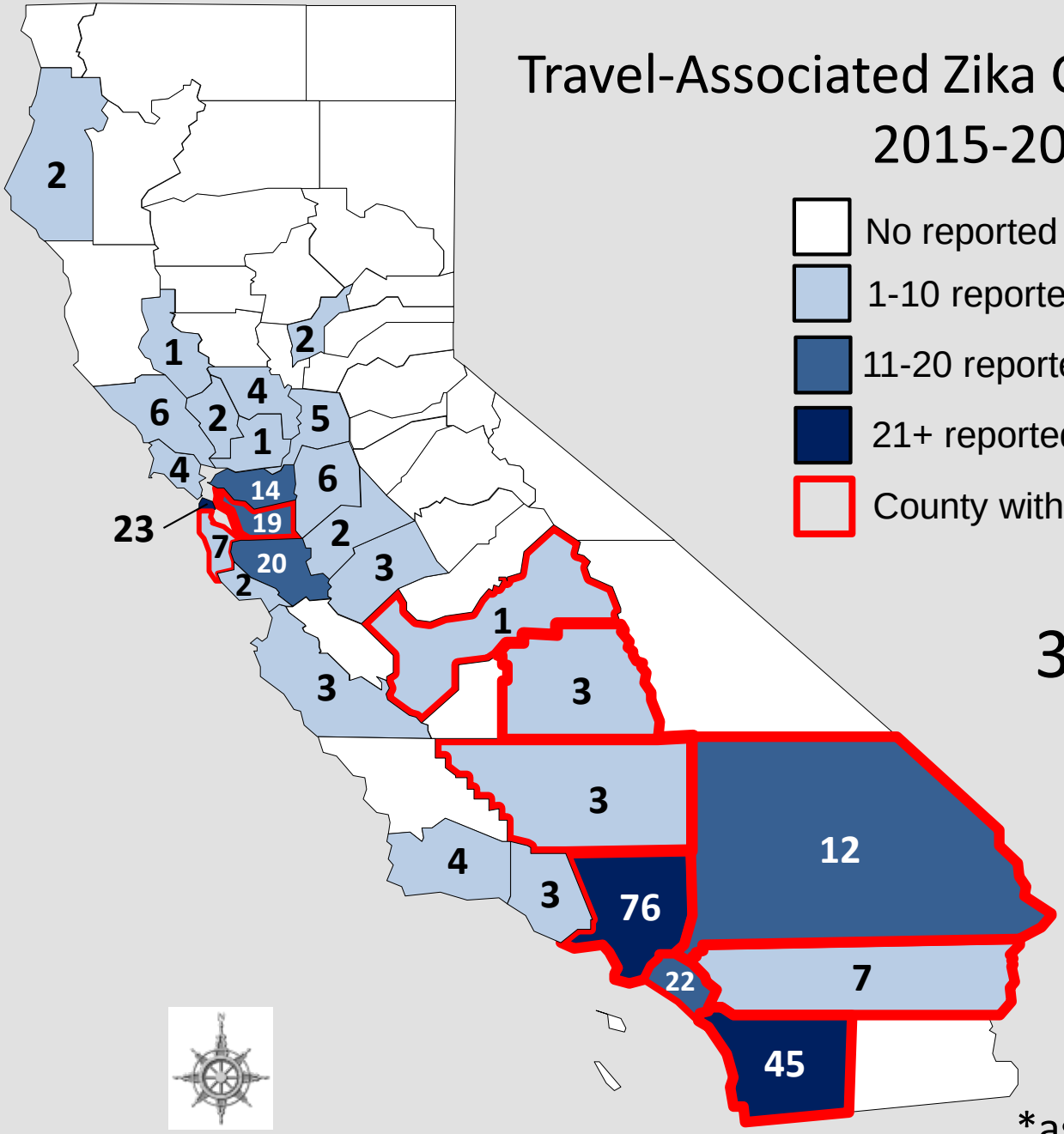
Zika Cases: Frequency of Symptoms

Symptom	Frequency of Symptom
Rash	82.5%
Fever	57.5%
Joint pain	56.4%
Muscle pain	32.9%
Conjunctivitis	31.4%

Number of Travel-Associated Cases of Zika in California by Week Reported 2015-2016



Travel-Associated Zika Cases in California 2015-2016



302 cases

*as of September 23, 2016

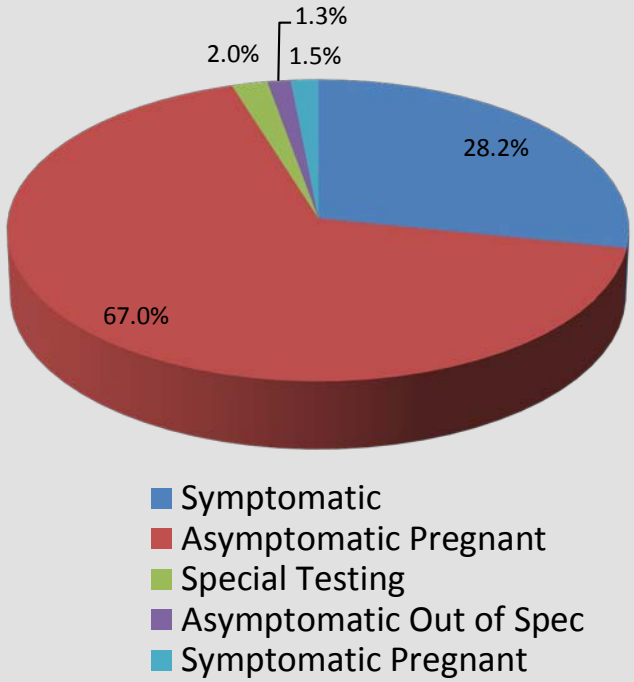
Travel-Associated Cases of Zika in California, 2015-2016
Top 10 Travel History Countries

Country	Number of Cases
Mexico	71
Nicaragua	39
El Salvador	27
Guatemala	27
Dominican Republic	20
Puerto Rico	19
Honduras	18
Costa Rica	13
Jamaica	13
Saint Lucia	6

Zika Virus Testing in California, CDPH

Total number of patient specimens received	**5873**
Total number of patients tested	**4793**
Average number of patients tested per week	**130**

- 86% of patients tested are female
- 67% of samples tested are asymptomatic pregnant women
- ~5% of symptomatic cases tested are pregnant



Travel-Associated Cases of Dengue and Chikungunya in California, 2015-2016

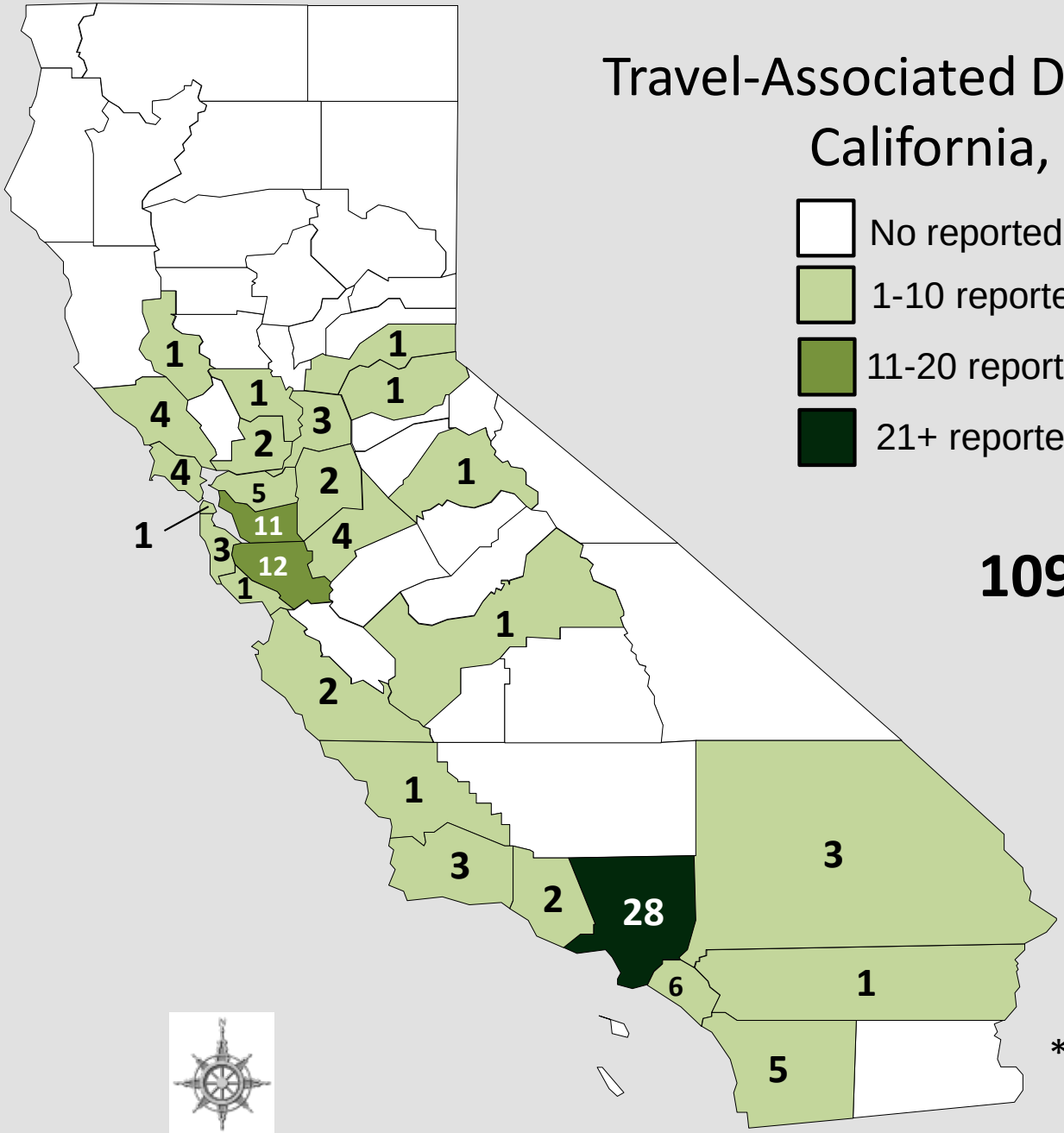
	Dengue		Chikungunya	
	2015	**2016***	**2015**	**2016***
Number of cases	137	109	275	16
Counties	23	27	30	11

*As of September 16, 2016

Travel-Associated Cases of Dengue in California, 2015

- 137 cases from 23 counties
- 95 cases returned to counties with *Aedes aegypti* and/or *Aedes albopictus* mosquitoes
  - 76% were likely viremic while in California
- 45% of cases had travelled to Latin America
  - Mexico 17%, El Salvador 12%
- 32% of cases required hospitalization

Travel-Associated Dengue Cases in California, 2016*



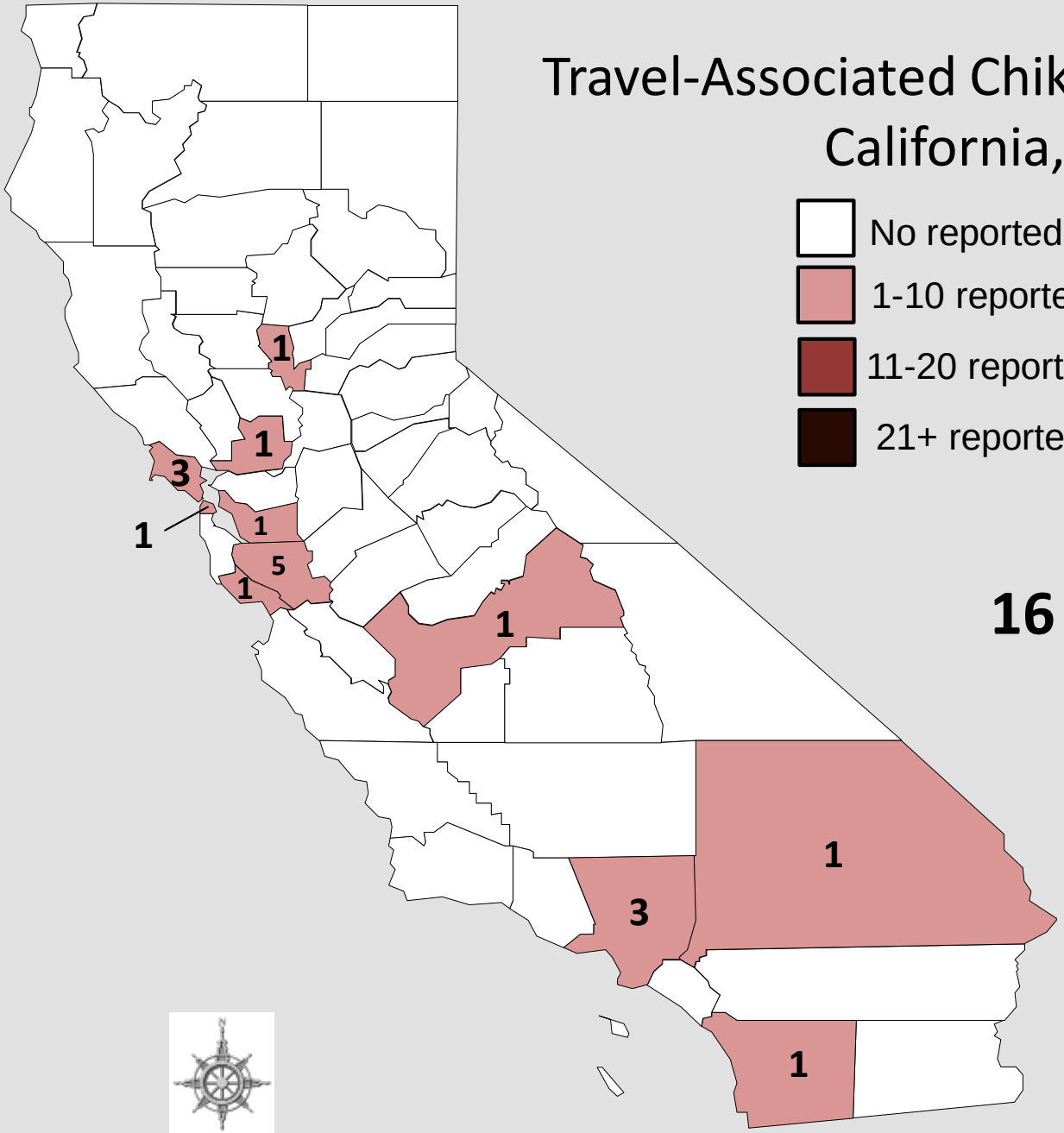
109 cases

*as of September 16, 2016

Travel-Associated Cases of Chikungunya in California, 2015

- 275 cases from 30 counties
  - 140 cases in 2014
- 199 cases returned to counties with *Aedes aegypti* and/or *Aedes albopictus* mosquitoes
  - 53% were likely viremic while in California
- 91% of cases had travel to Latin America
  - Mexico 40%, El Salvador 16%, Guatemala 13%
- 8% of cases required hospitalization

Travel-Associated Chikungunya Cases in California, 2016



16 cases

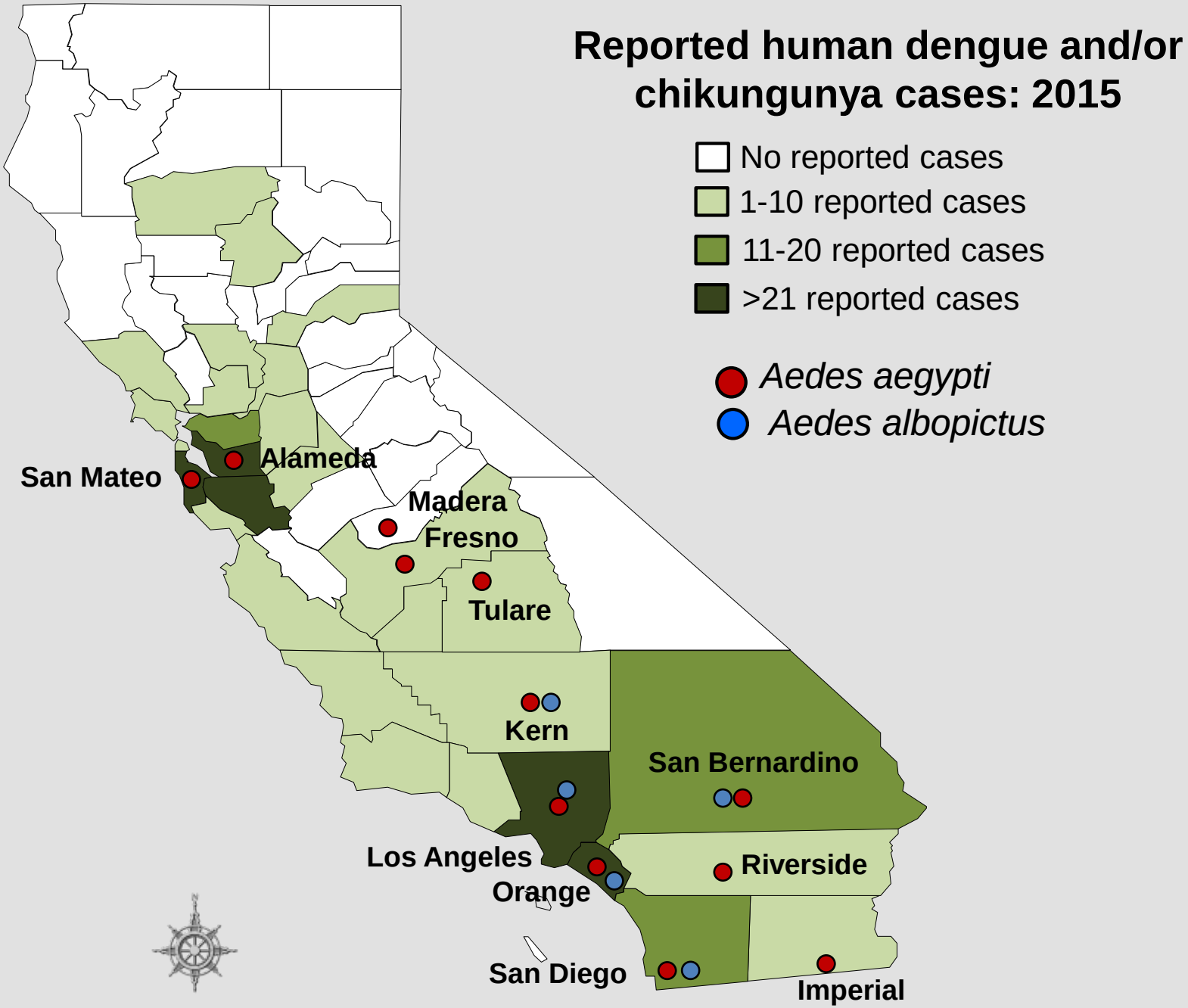
*as of September 16, 2016

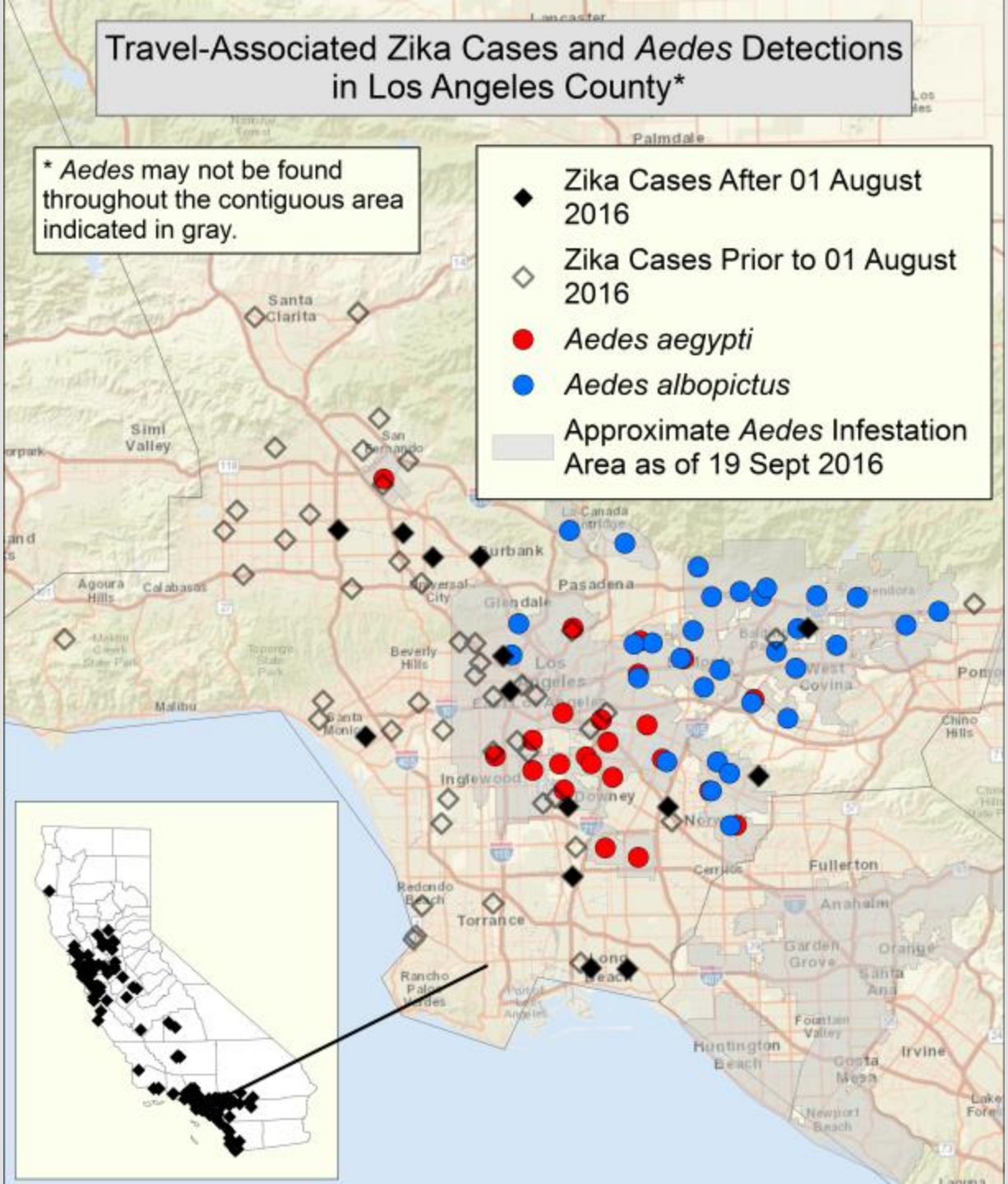
Aedes aegypti and *Aedes albopictus* Mosquito Detections by County, California, 2011-2016*

- ***Aedes aegypti***
- ***Aedes aegypti* and *Aedes albopictus***

"Container Breeders"

*As of September 2016


Reported human dengue and/or chikungunya cases: 2015
No reported cases
1-10 reported cases
11-20 reported cases
>21 reported cases
Aedes aegypti
Aedes albopictus
San Mateo
Alameda
Madera
Fresno
Tulare
Kern
San Bernardino
Riverside
Los Angeles
Orange
San Diego
Imperial


Travel-Associated Zika Cases and *Aedes* Detections in Los Angeles County*
* *Aedes* may not be found throughout the contiguous area indicated in gray.
Zika Cases After 01 August 2016
Zika Cases Prior to 01 August 2016
Aedes aegypti
Aedes albopictus
Approximate *Aedes* Infestation Area as of 19 Sept 2016
Lancaster
Palmdale
Santa Clarita
Simi Valley
San Fernando
Burbank
Pasadena
Glendale
Agoura Hills
Calabasas
Malibu
Beverly Hills
Inglewood
Downey
Torrance
Redondo Beach
Rancho Palos Verdes
Long Beach
Fullerton
Anaheim
Garden Grove
Orange
Santa Ana
Huntington Beach
Fountain Valley
Irvine
Costa Mesa
Newport Beach
West Covina
Chino Hills

CDPH Guidance for Surveillance of and Response to Invasive *Aedes* Mosquitoes and Dengue, Chikungunya, and Zika in CA

- **Introduction** on *Aedes aegypti* and *Aedes albopictus* mosquitoes and the exotic viruses they can transmit
- **Recommended surveillance and response actions** for local vector control agencies and health departments under four possible scenarios:
  1. Pre-detection of *Aedes aegypti/albopictus*
  2. Post-detection of *Aedes aegypti/albopictus*
  3. Detection of *Aedes aegypti/albopictus* positive for Zika, dengue, or chikungunya before local human infection documented
  4. Detection of locally acquired human infection with Zika, dengue, or chikungunya
- **Discussion of the recommended actions**

California Zika Response Activities and Resources

- Supplement to "Guidance for Surveillance of and Response to Invasive *Aedes* Mosquitoes and Dengue, Chikungunya, and Zika in California"
- Recommends key activities and provides resources in 10 categories

Vector Control and Surveillance	**Maternal and Child Health Surveillance and Response**
Public Health Surveillance and Epidemiological Investigation	**Rapid Birth Defects Monitoring and Follow-up**
Laboratory Testing	**Travel Health News**
Prevention of Sexually Transmitted Zika Virus Infections	**Clinician Outreach and Communication**
Prevention of Blood Transfusion–transmitted Zika Virus Infections	**Risk Communication/Community Education**

Public Education

http://www.cdph.ca.gov/Zika

Zika

Zika virus is transmitted by *Aedes aegypti* mosquitoes (also known as yellow fever mosquitoes) and *Aedes albopictus* mosquitoes (also known as Asian tiger mosquitoes). These mosquitoes are not native to California. However, since 2011 they have been detected in several California counties. An *Aedes* mosquito can only transmit Zika virus after it bites a person who has this virus in their blood. Thus far in California, Zika virus infections have been documented only in people who were infected while traveling outside the United States or through sexual contact with an infected traveler. To date there has been no local mosquito-borne transmission of Zika virus in California.

Zika virus is not spread through casual contact, but can be spread by infected persons to their sexual partners. Zika virus infection in pregnant women can cause fetal microcephaly (abnormally small head and brain) and other poor pregnancy outcomes. Additionally, there is an association between Zika and Guillain-Barré Syndrome (GBS), a disease affecting the nervous system.

News

- End of Summer Travelers Urged to Take Precautions to Prevent Zika !New
  August 19, 2016
- CDPH Reports Two Cases of Zika-Related Birth Defects in California
  August 4, 2016
- Public Health Officer Cautions Californians to Avoid Mosquito Bites While Traveling
  May 26, 2016
- HEALTH and TRAVEL ADVISORY - Zika, Chikungunya, and Dengue in Latin America and the Caribbean (PDF, New Window) ⚠Alert
  May 26, 2016

Updates

- CDPH Weekly Update on Number of Laboratory-Confirmed Zika Cases in California (PDF, New Window)
  Updated September 23, 2016
- Interactive Map of Invasive Aedes Mosquito Detections in California !Updated
  As of September 21, 2016
- Aedes aegypti and Aedes albopictus Mosquitoes in CA, 2011-2016 (PDF, New Window)
  Updated weekly on Fridays as new infestations are detected. Updated September 23, 2016
- Zika Virus
  Get the most up-to-date information from the U.S. Centers for Disease Control and Prevention
- CDC Zika Travel Notices

Fact Sheets

- Zika Questions and Answers (PDF, New Window) !Updated
  Updated September 2, 2016
- Zika Preguntas y Respuestas (PDF, New Window)
  Actualizada el 2 de septiembre de 2016
- Zika Virus Information for Pregnant Women
  U.S. Centers for Disease Control and Prevention

Mosquito and Disease Surveillance and Control Information

- Guidance for Surveillance of and Response to Invasive Aedes Mosquitoes and Dengue, Chikungunya, and Zika in California (PDF, New Window)
  Revised August, 2016
- CA Zika Response Activities and Resources (PDF, New Window)
  This is a supplemental plan to the Guidance document above. May 27, 2016
- Operational Checklist for Local Health Departments,Local Vector Control Districts, and California Department of Public Health In the Event of Local Dengue, Chikungunya, or Zika Transmission (PDF, New Window) !New
  August 24, 2016

Information for Health Professionals and Blood Centers

- Zika Information for Health Professionals
  This webpage contains Zika information for health care providers, public health professionals, and blood centers.

Zika Communication and Resources Toolkits for Healthcare Professionals

- Zika and Pregnancy Outreach Toolkit
  This toolkit contains posters, talking points for those who provide information to women who are pregnant or planning pregnancy, Facebook posts and Tweets, and the accompanying graphics that can be shared on social media sites.
- Zika and Sexual Transmission Toolkit
  This toolkit contains posters, talking points for sexual health educators, Facebook posts and Tweets, and the accompanying graphics that can be shared on social media sites.
- Zika Travel Outreach Toolkit
  This toolkit contains posters, travel talking points for healthcare providers, Facebook posts and Tweets, and the accompanying graphics that can be shared on social media sites.
- Zika Toolkits Outreach Posters Order Form (Word, New Window)

Organization

- Vector-Borne Disease Section
- Center For Family Health
- Viral and Rickettsial Disease Laboratory Branch

Resources

- Aedes aegypti and Aedes albopictus Mosquitoes
  CDPH Vector-Borne Disease Section webpage
- Mosquitoes and Mosquito-Borne Diseases
  CDPH Vector-Borne Disease Section webpage
- Zika virus
  U.S. Centers for Disease Control and Prevention
- Workplace Safety and Health - Zika virus information
  U.S. Centers for Disease Control and Prevention - National Institute for Occupational Safety and Health
- Zika News and Resources
  Center for Infectious Disease Research and Policy - University of Minnesota
- Zika virus resource centre
  The Lancet
- Zika virus
  World Health Organization
- Mexican Ministry of Health website
  Zika Information

Potential for Local Transmission is Low

- A viremic person would need to return to a region where there are *Aedes* mosquitoes and be bitten by an *Aedes* that would live long enough to be come infectious and bite another person who then becomes infected
- Mitigating factors:
  - Patchy *Aedes aegypti* and *albopictus* distribution in CA
  - Use of AC, window and door screens
  - Better water management than in other countries
  - Good mosquito control
- If an outbreak were to occur, it would likely be limited in scope and duration
- Outbreaks of dengue and chikungunya elsewhere in the US have been contained
- Therefore the US is unlikely to experience the same extensive outbreaks currently being experienced in Latin America; to date, local transmission in Florida is limited in scope

Key Messages

- Risk of local transmission in California is low
- However, transmission is possible and we must be prepared to aggressively respond once a case without travel history has been reported
- Ongoing surveillance and control of *Aedes* are critical
- Public health risks associated with travel to countries where Zika is circulating must be conveyed to California residents; pregnant women should not travel
- Individuals with Zika/dengue/chik should be informed to take extra precautions to avoid mosquito bites during illness to avoid initiating local transmission

Questions?

Vicki.Kramer@cdph.ca.gov

916-552-9730