



Public Health
Environmental Health Services

Mosquito and Vector Control Program

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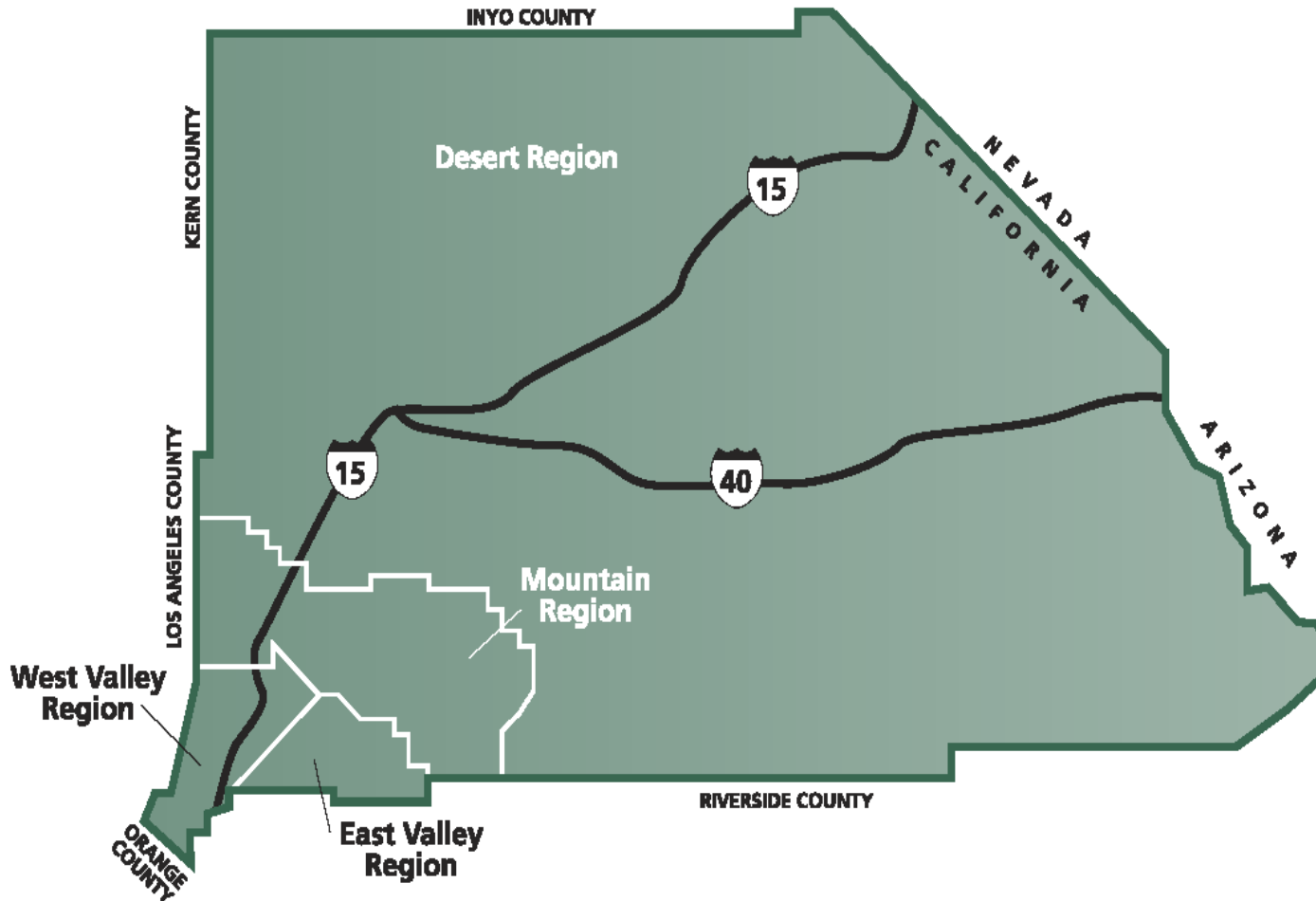
San Bernardino County



San Bernardino County

Cities in San Bernardino County

Adelanto	Montclair
Apple Valley	Needles
Barstow	Ontario
Big Bear Lake	Rancho Cucamonga
Chino	Redlands
Chino Hills	Rialto
Colton	San Bernardino
Fontana	Twentynine Palms
Grand Terrace	Upland
Hesperia	Victorville
Highland	Yucaipa
Loma Linda	Yucca Valley



Mosquito & Vector Control Program

“The mission of the San Bernardino County Mosquito and Vector Control Program (MVCP) is to protect health and enhance the quality of life of County residents through the suppression of mosquito and other vector transmitted diseases, and the reduction of annoyance levels caused by mosquitoes and other pests of public health importance.”



Mosquito & Vector Control Program

Vectors are animals or insects capable of transmitting diseases to humans, such as mosquitoes, ticks, fleas and rodents.

Components within the MVCP Program:

- Disease Surveillance
- Operations
- Education



Disease Surveillance

Mosquito-borne

- West Nile Virus
- St. Louis Equine Encephalitis
- Western Equine Encephalitis
- California Encephalitis
- Zika Virus
- Dengue
- Chikungunya



Tick-borne

- Lyme Disease

Rodent-borne

- Hantavirus
- Plague



Operations



- Vector Surveys
- Facility Inspections
- Water Source Reduction
- Mosquito Abatement
- Mosquito Service Requests
- Bee/Wasp Service Requests
- Rodent Service Requests
- Miscellaneous calls to include the control of cockroaches, bed bugs, spiders, etc.

ZIKA VIRUS

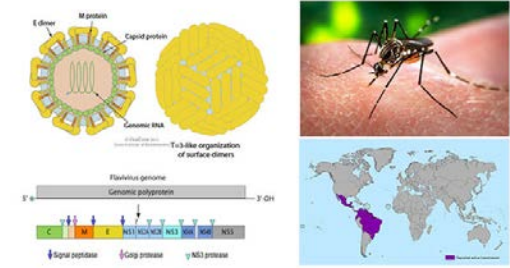


Zika Virus History

- First detected in 1947, named after the Zika forest in Uganda.
- First human cases of Zika Virus were detected in 1952.
- First large outbreak in 2007 on the island of Yap
- South America Outbreak in 2015



- **Etiology**: Zika virus
- **Symptoms**: most infections are asymptomatic, ~80%
 - fever, rash (pruritic, maculopapular), joint pain, conjunctivitis, muscle pain, headache
 - Death is rare
 - Guillain-Barré syndrome reported following Zika infection, incidence increases with age
- **Incubation period**: unknown, *currently estimated 3-14 days*
- **Infectious period**: found in blood for about a week (longest in literature is 11 days)
 - Found in other bodily fluids such as semen, urine, amniotic fluid, breastmilk
- **Transmission**: mainly through the bite of an infected mosquito (*Aedes*)
 - Mother to child
 - Sexual contact
 - Blood transfusions



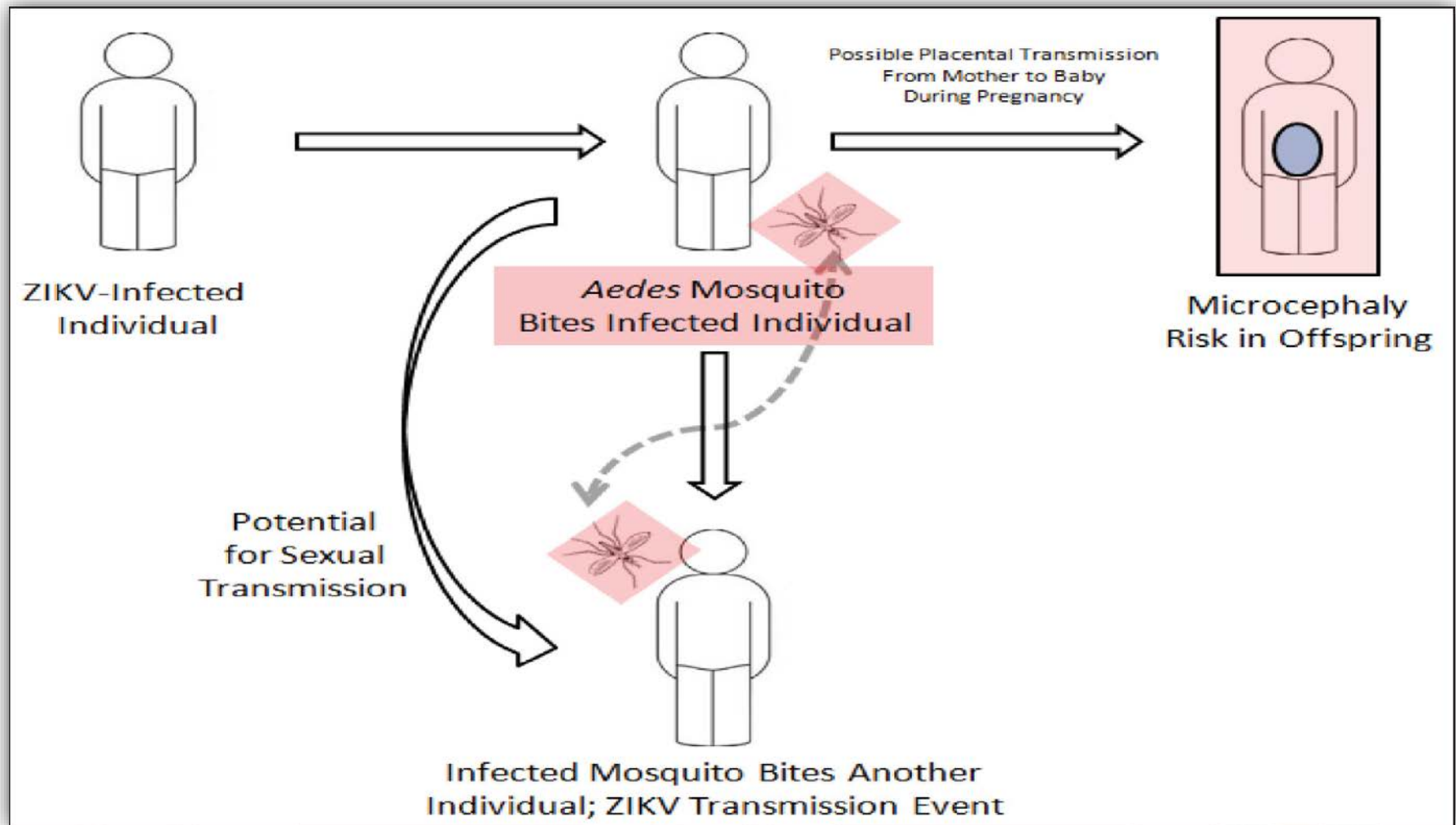
Diagnosis

- See your provider if you develop symptoms of Zika, and let them know if you recently traveled to an area where Zika is found.
- They may order blood tests for dengue and chikungunya diseases since they can mimic Zika.

Treatment

- There is no vaccine or medicine to prevent or treat Zika virus.
- Get plenty of rest, drink plenty of fluids, and follow the recommendations of your medical provider.

Zika Virus Cycle



Zika Virus activity YTD

United States

- 5,676 Zika infections in the US (229 Locally acquired mosquito-borne cases and 5,392 travel-associated cases)
- 55 sexually transmitted/other

California

- 645 travel associated infections since 2015 in 35 **California** Counties. **Zero mosquito to human transmission reported**
- 8 sexually transmitted
- 174 infections in pregnant women
- 11 infants with birth defects

San Bernardino County

- 7 cases (travel related). **Zero mosquito to human transmission reported**
- Aedes aegypti mosquitoes identified in 10 cities including Colton



Aedes Mosquito Habitat

- Artificial or natural water -filled containers that are within or around the home are ideal habitats for this mosquito
- They prefer backyard urban environments, including anything that can hold water for more than a week
- Female mosquitoes can lay eggs in any open container holding as little as a teaspoon of water (plant saucers, cups, bird baths, old tires).



Vector Control Aedes Surveillance Program

- AGO traps used specifically for the *Aedes* mosquitoes
- CO2 traps
- Prevalence of Zika virus in mosquito samples is determined
- Amount and species of mosquitoes in an area is enumerated
- Human Cases data is collected



Autocidal Gravid Ovitrap (AGO)



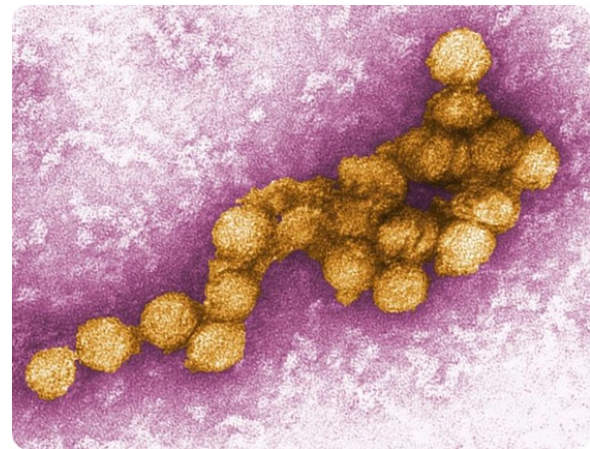
Carbon Dioxide (CO2)

WEST NILE VIRUS

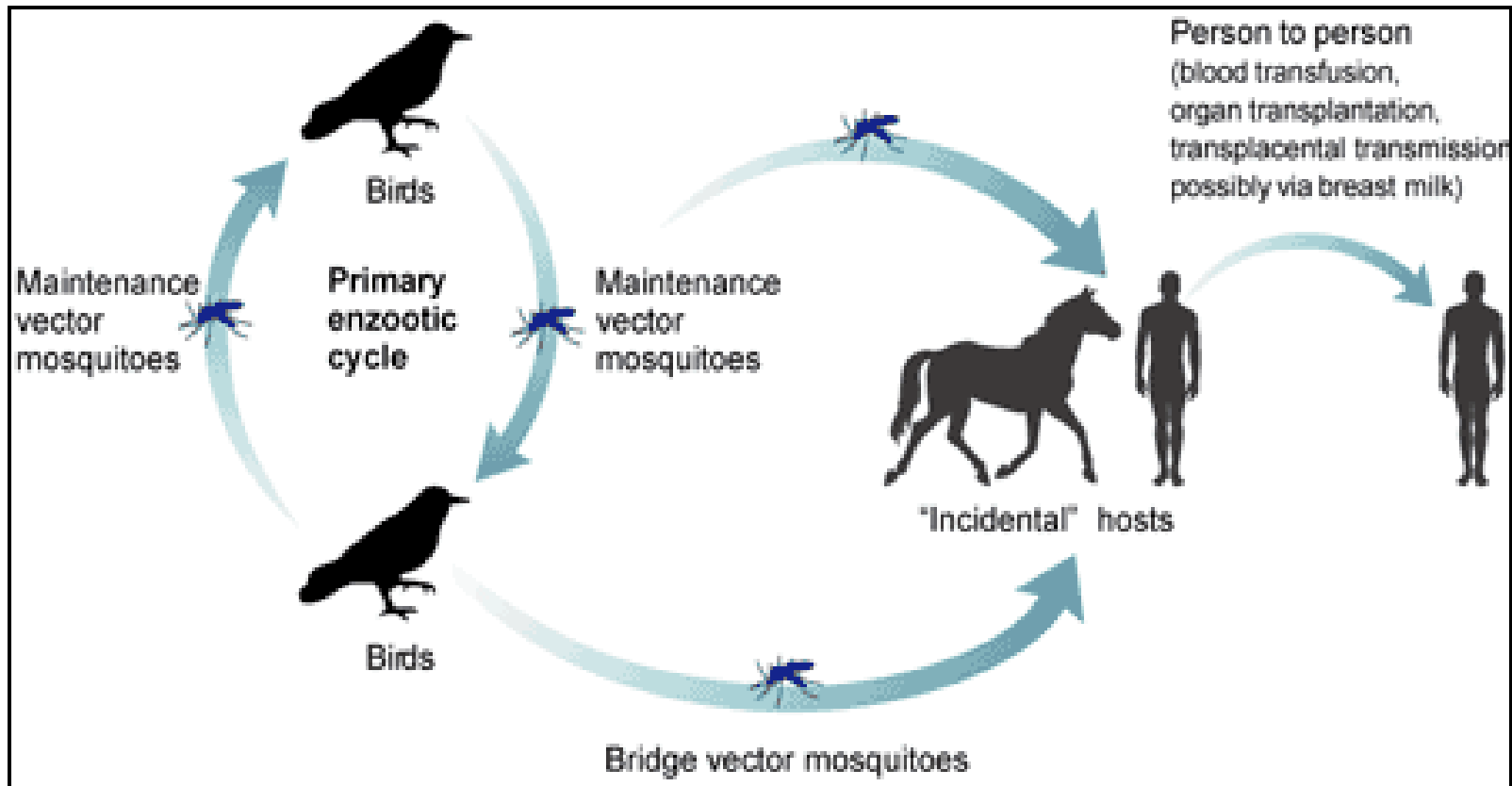


West Nile Virus History

- Considered minor risk to humans until 1994 outbreak in Algeria followed by a large scale outbreak in Romania in 1996.
- First detected in the U.S. in 1999 in NY.
- First detected in CA in 2002.



Primary Transmission Cycle & Incidental Transmission



West Nile Virus

80% asymptomatic (subclinical)

19% West Nile Fever

- Fever, headache, fatigue, muscle pain, malaise nausea, vomiting, myalgia and rash

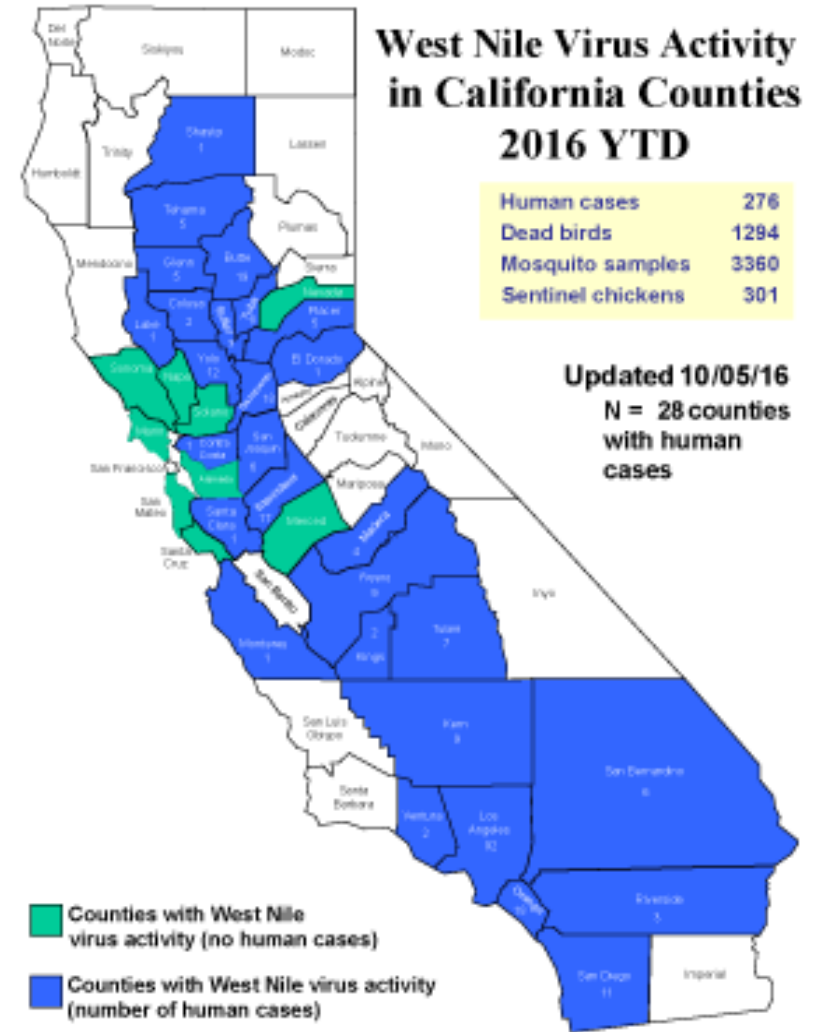
1% Neuroinvasive disease

- Type of encephalitis
- Sometimes permanent neurological damage
- Sometimes death

No vaccine or cure for humans



- California as of 4/16/2018
 - 0 human cases in 0 counties
- San Bernardino County
 - 0 Cases
 - 0 Asymptomatic
 - 0 WNV Fever
 - 0 Neuroinvasive



Vector Control Mosquito Abatement

Methods

- Inspect and inventory water breeding sources
- Eliminate mosquito breeding by source reduction, biological control or treatment



West Nile Virus: Prevention

- **DAWN and DUSK** – Avoid spending time outside when mosquitoes are most active.
- **DRESS** – Wear shoes, socks, long pants and long-sleeved shirts that are loose fitting and light colored.
- **DRAIN** – Remove or drain all standing water around your property where mosquitoes lay eggs (birdbaths, ponds, old tires, buckets, clogged gutters or puddles from leaky sprinklers).
- **DEET** – Apply insect repellent containing DEET.
- **DOORS** – screen doors & windows
- **REPORT** – Report green or neglected pools by calling **1 (800) 442-2283**
 - Report dead birds to the state’s WNV toll-free hotline at (877) WNV-BIRD (968-2473) or at www.westnile.ca.gov.



Questions?



"He's lucky, Mrs. Buzzez - many young bugs experiment with insecticide and never buzz again..."



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