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**PUBLIC HEALTH ADVISORY**  
**MOSQUITO BORNE DISEASE UPDATE**  
**MAY 7, 2018**

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### **Zika Virus Disease (ZVD) Update**

As of April 30, 2018 no locally acquired mosquito borne Zika cases have been reported in the United States. California has reported 645 travel associated ZVD cases since 2015. There have been nine cumulative infections due to sexual transmission. The monthly Zika virus infections report is posted at:

<https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/TravelAssociatedCasesofZikaVirusinCA.pdf>

Three travel associated ZVD cases were reported in Riverside County in 2017. No confirmed cases have been reported to date for 2018.

### **Zika and Pregnancy**

Zika virus infection in pregnant women has potentially serious consequences for the baby which include fetal loss, microcephaly, and other birth defects. As of April 6, 2018, 174 infections in pregnant women have been reported in California resulting in 11 live births with birth defects. It is recommended that pregnant women be evaluated for possible Zika virus exposure during each prenatal care visit. Current recommendations are located at <https://www.bit.ly/CDPHGuidance>

### **Laboratory Testing for Zika**

Laboratory testing for Zika is available through approved commercial laboratories in addition to the California Department of Public Health (CDPH) Viral and Rickettsial Disease Laboratory (VRDL). Serum, whole blood, CSF, urine, and amniotic fluid specimens can be tested for Zika if done within the specific time frame. Whole blood, CSF, urine, or amniotic fluid specimens must be accompanied by a serum. CDPH guidance for non-pregnant symptomatic suspect patients and asymptomatic pregnant women located at:

[https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/ZikaLaboratoryTestingGuidance\\_VRDL.pdf](https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/ZikaLaboratoryTestingGuidance_VRDL.pdf)

Suspected Zika cases must be reported to Disease Control prior to submitting specimens to the Public Health laboratory. Hospital laboratories should coordinate with the Infection Preventionist on reporting suspected cases. Patients must meet the clinical and travel history criteria to be approved for Zika testing. The CDPH Zika screening algorithm and VRDL submittal form are located

at: [https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/VRDL\\_General\\_Purpose\\_Specimen\\_Submittal\\_Form.pdf](https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/VRDL_General_Purpose_Specimen_Submittal_Form.pdf). The VRDL form should be submitted to the RUHS PH Lab with the specimen. Specimens should also be considered for testing for chikungunya and dengue. Questions on specimen collection and submission should be directed to the Public Health Laboratory Director at (951) 358-5070.

Zika virus resources for health care providers:

CDPH: <https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/ZikaInformationforHealthProfessionals.aspx>

CDC: <https://www.cdc.gov/zika/hc-providers/index.html>

### **West Nile Virus (WNV) Update**

West Nile Virus is endemic in Riverside County, which was first identified in the county in 2003. As of April 30, 2018, no human cases of West Nile Virus were reported in California. There were 600 infections of WNV reported in 2017 compared to 483 infections in 2016, with 44 and 19 fatal cases respectively. Locally, 35 WNV infections and one WNV related death were reported in 2017. This is a significant decrease compared to 2015, with 138 WNV cases and six related deaths identified.

### **WNV Clinical Description and Incubation Period**

The incubation period for WNV infection ranges from 2 to 14 days after a bite from an infected mosquito and may be longer in immunosuppressed individuals. Clinical syndromes ranging from febrile headache to aseptic meningitis, encephalitis, or acute flaccid paralysis may occur. Rash, myalgia, lymphadenopathy, and weakness may also be prominent. However, 70-80% of infections may be asymptomatic.

Disease activity will be posted on the Public Health website's Disease Watch section located at: <http://www.rivco-diseasecontrol.org/>

An interactive WNV map is also available on this site.

## **Actions Requested of All Clinicians**

The diagnosis of WNV infection is based on a high index of clinical suspicion and specific laboratory tests. It is highly recommended that clinicians test for WNV whenever there is a history of unexplained encephalitis, meningitis or unexplained febrile illness > 7 days. This is especially important if the fever is accompanied by a headache, rash, swollen lymph nodes, eye pain and nausea or vomiting.

What specimens are needed?

- Acute serum ( $\geq 2$  mLs) and,
- If a lumbar puncture is performed, 1-2 mLs of cerebrospinal fluid are required for testing
- Convalescent specimens may be requested, at least 3-5 days after acute serum

Clinician information is available at: <http://www.westnile.ca.gov/resources.php>.

## **Dengue and Chikungunya**

Certain regions of Mexico and Latin America have experienced an increase in chikungunya cases and ongoing dengue infections. Both viruses are transmitted by *Aedes albopictus* and *Aedes aegypti* mosquitos. These two mosquitos are aggressive day biters which can potentially transmit the virus after biting an infected person.

Currently in California the risk of local dengue or chikungunya transmission is very low. There have been no reported cases of either dengue or chikungunya that have been acquired in California. Chikungunya fever occurs 3-7 days (range 1-12 days) after the bite of an infected *Aedes* mosquito; unlike dengue, most people infected with chikungunya virus (CHIKV) become symptomatic. Chikungunya is usually characterized by acute onset of fever (typically  $>39^{\circ}\text{C}$  [ $102^{\circ}\text{F}$ ]) and polyarthralgia. Joint symptoms are usually bilateral and symmetric involving the hands and feet, and can be severe and debilitating. Other symptoms may include headache, myalgia, arthritis, conjunctivitis, nausea or vomiting, or maculopapular rash.

## **Laboratory Diagnosis for Dengue and Chikungunya**

Dengue and chikungunya can be diagnosed by serological or molecular methods. For serologic testing, DENV or CHIKV-specific IgM antibodies are often detected by the sixth day after onset of symptoms. Acute and convalescent sera (2 to 3 weeks between samples) for detection of dengue or chikungunya-specific IgM and

IgG antibodies are encouraged for generating the most accurate evidence of acute arbovirus illness. Antibodies to dengue and chikungunya may cross-react with other flaviviruses and alphaviruses respectively in serologic assays. DENV and CHIKV can also be detected with molecular methods in blood (serum) and CSF from patients using reverse-transcription-polymerase chain reaction (RT-PCR) during the first seven (for DENV) to eight (for CHIKV) days of symptoms.

Information on the clinical presentations and laboratory diagnosis for chikungunya and dengue is posted at: <https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/MosquitoesandMosquitoBorneDiseases.aspx>

### **Aedes Mosquitos**

*Aedes* mosquitos have been discovered in 13 cities in Riverside County. To date none of these mosquitos have tested positive for Zika virus. These mosquitos have the potential to transmit Zika virus as well as dengue, chikungunya and yellow fever. Unlike Riverside County's native *Culex* mosquitos, *Aedes* spp. are more aggressive and bite during the day, not just at dusk and dawn. However, the use of mosquito repellent and appropriate clothing when outside, and elimination of even trivial amounts of standing water, will reduce bites and breeding of any local mosquito species.

A map with the current detection sites can be found

at: <https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/AedesDistributionMap.pdf>

### **Patient Education**

It is important to educate patients about preventive measures to reduce exposure to mosquitos. Individuals who have traveled to an area with active Zika transmission should take steps to prevent mosquito bites including using insect repellent for 3 weeks after returning home. This will avoid infecting *Aedes* mosquitos which in turn can bite other people and potentially lead to locally acquired Zika cases. Educational materials are available by contacting Julie Monte at 951-358-5107, or [JMonte@rivcocha.org](mailto:JMonte@rivcocha.org).

### **Disease Reporting**

Suspected and confirmed cases of Zika, chikungunya and dengue should be reported to Disease Control by calling (951) 358-5107 during regular business hours or to the Public Health Duty Officer after hours at (951) 782-2974. Please note that microcephaly from any cause is locally reportable by order of the Public Health Officer for Riverside County. ZVD and dengue are reportable immediately by telephone; WNV and chikungunya are reportable within one day of identification.