



To: CAHAN San Diego Participants

Date: July 21, 2015

VECTOR-BORNE ILLNESSES OF PUBLIC HEALTH SIGNIFICANCE

This health advisory informs local healthcare providers about vector-borne illnesses of clinical significance in San Diego County, including selected mosquito-borne illnesses of interest to those caring for travelers. Such conditions include illnesses caused by West Nile virus (WNV), chikungunya virus (CHIKV), and dengue virus, as well as Lyme disease, and other tick-borne and vector-borne diseases.

West Nile Virus

[WNV](#) activity is increasing in San Diego County, with 61 dead birds and 9 mosquito pools testing positive for WNV to date in 2015. This is well ahead of last year's pace in local environmental detections. The first 2015 California WNV death was [reported](#) yesterday. Although no human cases have been reported in San Diego County yet this year, 11 cases (including 2 deaths) were reported here in 2014. Information about WNV activity is updated weekly for the [United States](#), [California](#), and [San Diego County](#).

Local clinicians are encouraged to consider WNV in the differential diagnosis for patients presenting with symptoms compatible with WNV infection, particularly those with neuroinvasive disease (e.g., aseptic meningitis, encephalitis, and/or acute flaccid paralysis). WNV testing is available, free of charge, through the California Department of Public Health (CDPH) via submittal to the San Diego County Public Health Laboratory. Clinical guidelines, testing algorithms, and specimen submission forms are available at www.sdepi.org. Information about clinical presentation, diagnosis and management of WNV may be found at the Centers for Disease Control and Prevention (CDC) [WNV website](#).

Chikungunya Virus

[Chikungunya](#) is now a reportable disease in California. CHIKV is transmitted to humans through the bites of infected *Aedes aegypti* and *Aedes albopictus* mosquitoes. CHIKV is currently epidemic in the Americas and since the first case was noted in the Caribbean in late 2013, more than 1.6 million confirmed and suspected cases have been reported. Updated information on the epidemic is available at the Pan American Health Organization (PAHO) [CHIKV website](#).

The incubation period is typically 3-7 days (range 1-12 days) after exposure. Acute onset of fever and polyarthralgia are the primary clinical findings. Joint symptoms are usually symmetric, often occur in the hands and feet, and can be severe and debilitating. Other symptoms may include headache, myalgia, arthritis, conjunctivitis, nausea/vomiting, or maculopapular rash. More information about the clinical presentation, diagnosis, and management of CHIKV infection may be found at the [CDC chikungunya website](#).

In 2015, 30 imported cases have been reported in California, though none were San Diego residents. The *Aedes aegypti* mosquito has been [identified in several locations](#) within the county by the San Diego County Department of Environmental Health Vector Control Program (DEH VCP). Please report any indoor daytime biting mosquitoes to the DEH VCP as this is one of the hallmarks of this invasive mosquito. Clinicians should consider the illness in travelers with fever and polyarthralgia. Serologic testing (IgG and IgM by IFA) for exposure to CHIKV is available through commercial laboratories (e.g., Focus/Quest), as well as from the CDPH Viral and Rickettsial Disease Laboratory ([VRDL](#))

Dengue

[Dengue](#) continues to be a public health problem both worldwide and in the Americas. It is a dynamic systemic infectious disease that can range from an asymptomatic presentation to one with a broad clinical spectrum. As many as 400 million people are infected yearly by the disease. There have been no confirmed or suspect locally acquired cases of dengue in California, though the mosquito vector for the disease has been found in San Diego and other California counties. To date in 2015, San Diego has had two confirmed, imported dengue cases in a 39-year-old female with travel to Brazil and a 34-year-old female with travel to Turks/Caicos; and one probable dengue case in a 27-year-old female with travel to Nicaragua. In California, 64 imported dengue cases were reported in 2014 and 36 cases have been reported so far in 2015. Symptoms of dengue include fever, joint pain, headache, retro-orbital pain, rash, myalgia, arthralgia, general weakness, and extreme fatigue. Sometimes hemorrhagic symptoms manifest including blood in vomit, urine, and stool or from the gums. Severe cases may result in shock, fluid accumulation, and respiratory distress.

Dengue and CHIKV should be considered in the differential diagnosis for each other. Dengue is typically [diagnosed using serology](#), but to avoid false negative or indeterminate results, serum specimens should also be collected during the convalescent phase (at least six days after onset of symptoms). Ideally, both acute (first five days post symptom onset) and convalescent phase (six or more days post symptom onset) specimens are needed to make a diagnosis of dengue infection. If a patient with suspected dengue infection submits a late, acute phase specimen that is negative (e.g., by RT-PCR or MAC-ELISA), and a convalescent specimen is not submitted, then the case is classified as laboratory-indeterminate.

For more information on dengue fever, and for clinical and laboratory guidance, go to the [CDC dengue website](#) or the [CDPH Aedes website](#). CDC recently established a continuing medical education accredited (CME) [online course on dengue](#) and the World Health Organization published a comprehensive [dengue resource](#) in 2009.

Lyme Disease and Other Tick-borne Diseases

[Lyme disease](#) is the most common tick-borne disease in the United States and is caused by the spirochete *Borrelia burgdorferi*. Symptoms include dermatologic, rheumatologic, neuralgic, and cardiac abnormalities. The most common clinical marker for the disease is *erythema migrans* (EM), the initial skin lesion that occurs in 60-80% of patients, which usually appears 3 to 32 days after tick exposure (mean 7 to 10 days). For the purpose of surveillance, the definition of a qualified laboratory assay is two-tier testing: 1) EIA or IFA and 2) Western Blot IgG and IgM along with clinical symptoms consistent with acute and/or chronic forms of the disease.

Tick surveillance by DEH VCP has occasionally found ticks that harbor *Borrelia burgdorferi*. Locally acquired Lyme disease is rare. *Francisella tularensis*, the cause of [tularemia](#), is also occasionally found in local ticks. The last human case of tularemia in San Diego was reported in 2004, although a cat with the illness was [reported](#) last year.

[Spotted fever group Rickettsia](#) have been detected in local ticks, with approximately 5% of Pacific Coast ticks harboring *Rickettsia philipii*. Clinicians should be aware of [continued reports](#) of rickettsial disease transmitted by the brown dog tick (*Rhipicephalus sanguineus*) in northern Baja California. A San Diego resident with [Rocky Mountain spotted fever](#) acquired outside the county is the only tick-borne illness confirmed to date in 2015.

Clinicians should **never delay treatment** for suspected rickettsiosis while awaiting laboratory confirmation. Doxycycline is the antibiotic of choice for all patients. The adult dose is 100 mg bid for 14 days or until three days after fever subsides. The pediatric dose is 2.2 mg/kg (up to 100 mg) bid. For more information on the symptoms, diagnosis, treatment, and prevention of tick-borne diseases, please visit the [CDC Tick-borne disease website](#).

Other Vector-borne Diseases (Murine Typhus, Plague, and Hantavirus)

[Murine typhus](#) is endemic in southern California. A 62-year-old female with a febrile illness and no travel outside San Diego County was recently serologically confirmed to have had the flea-borne disease. Murine typhus should be considered in the differential diagnosis if a patient presents with persistent fever of 3 to 5 days duration without explanation, and if a history of local exposure to opossum or cats and flea contact is likely, or if there is a history of travel to tropical or semitropical environments where large rat populations are likely to exist.

[Plague](#) is endemic in limited areas of San Diego County and evidence of infection was detected in a [squirrel at Palomar Mountain](#) this month. No human case of plague has been reported in the county in decades. [Hantavirus](#) has been found in rodents in various locations throughout the county, the most recent being in a [deer mouse in Oceanside](#) in January 2015. The last locally acquired human case of hantavirus was reported in San Diego County in 2004.

Report suspected cases of any of the vector-borne diseases noted in this health advisory to the Epidemiology Program by calling 619-692-8499 during normal business hours, or 858-565-5255 after hours, weekends or County-observed holidays. For more information on preventive measures for the public and about vector-borne disease surveillance in San Diego County, visit [www.SDVector.com](#) or call the Vector Control Program at 858-694-2888.

Thank you for your continued participation.

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