May 1, 2015

**Aedes Aegypti Identified in Orange County**

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*Aedes Aegypti*, also known as the yellow fever mosquito, was identified by the Orange County Mosquito and Vector Control District (OCMVCD) in an Anaheim residence last week. OCMVCD is conducting surveillance in the area to assure that there is no wider spread of the mosquito. *A. Aegypti* can act as a vector to spread several viruses, including chikungunya, dengue, and yellow fever. There have been no locally-acquired cases of these viruses in Orange County or California. But an Orange County resident could acquire one of these infections while traveling and provide a viral source for *A. aegypti* upon return. Vigilance will be necessary to prevent the establishment of these viruses in Orange County. **Suspected or confirmed cases of chikungunya, dengue, or yellow fever should be reported to the Orange County Public Health Epidemiology and Assessment Program at 714-834-8180.**

*Aedes aegypti* and *Aedes albopictus* (the Asian tiger mosquito) both transmit chikungunya and dengue. *A. aegypti* has been identified in several California counties since 2013, and was identified for the first time in both Los Angeles and San Diego in 2014. *A. Albopictus* has been detected in Los Angeles County since 2011. Both species are small black mosquitoes with white stripes on their backs and legs. Unlike most native mosquito species, both bite during the day. They can lay eggs in any small artificial or natural container that holds water.

Reports of both chikungunya and dengue infections have increased in Mexico and Latin America over the last year. Both viruses are also endemic to many parts of Africa and Asia. Returning travelers who develop symptoms of these illnesses should be identified and tested.

Locally transmitted cases of chikungunya were reported in Mexico beginning in October, 2014. As of March 1, 2015, 405 cases have been reported in the following states in Mexico: Chiapas (178), Guerrero (139), Oaxaca (86), Sinaloa (1) and Sonora (1)). Major chikungunya outbreaks have also been seen in the Caribbean and Central and South America, with approximately 30,000 confirmed cases reported since 2013.

1820 cases of dengue and dengue hemorrhagic fever have been confirmed so far this year in Mexico. Baja California Sur, where Cabo San Lucas and La Paz are popular tourist destinations, reported 4,591 cases in 2014, which was the largest number reported of any Mexican state. Dengue transmission has also been prevalent throughout Latin American countries in recent years.

**Chikungunya and Dengue In Orange County Residents Who Travel**

Five cases of chikungunya have been confirmed in Orange County residents since the start of 2014. Four had a recent history of travel to the Caribbean and one had traveled to El Salvador. 19 cases of dengue have been confirmed in Orange County residents following travel since the start of 2014. Eight had a recent history of travel to Asia, five to Mexico, four to other areas in Central America, one to Tahiti, and one to the Caribbean.

**Chikungunya Symptoms**

Chikungunya is characterized by acute onset of fever and severe joint pain. Most people infected with chikungunya virus become symptomatic. Illness occurs 3-7 days after the bite of an infected mosquito. Arthralgias are typically
symmetrical and primarily affect peripheral joints, including wrists, knees, ankles, and the small joints of the hand. Frank arthritis can occur, as can tenosynovitis, skin rash, and myalgia, particularly in the lower back and leg muscles. Other symptoms may include headache, muscle pain, fatigue, and rash. Acute symptoms generally resolve within 7-10 days, but after 1 year, 20% of patients can still have recurrent joint pains. Treatment is supportive. Severe illness most often occurs in newborns, the elderly, and the debilitated.

**Dengue Symptoms**

After an incubation period of 3 to 14 days, dengue illness generally presents as a mild, nonspecific febrile illness. Over half of infected people are asymptomatic. Classic dengue fever symptoms often include acute onset of high fever, along with severe headache, pain behind the eyes, muscle pain, joint pain, rash, and in severe cases bleeding manifestations. A transient, macular, generalized rash may be seen during the first 24 to 48 hours of fever. The pulse rate may be slow in proportion to the degree of fever. Myalgia or bone pain can occur soon after illness onset and increases in severity. Nausea and vomiting commonly occur, and generalized lymphadenopathy, cutaneous hyperesthesia or hyperalgesia, aberrations in taste, and pronounced anorexia may develop. A minority of patients will develop dengue hemorrhagic fever or dengue shock syndrome, which is characterized by a relatively mild initial febrile illness, which progresses after two to five days to rapid deterioration with a plasma leak illness, often with characteristic mucosal bleeding. Treatment is supportive. Early identification of shock syndrome with aggressive hemodynamic monitoring and support are keys to patient survival.

**Testing for Dengue and Chikungunya**

Serum PCR testing for Chikungunya is useful in the first 8 days of illness. Chikungunya IgM testing can be positive starting toward the end of the first week of symptoms. Dengue illness can be confirmed by PCR testing of serum within 5 days of symptom onset; Dengue IgM testing is useful when performed 6 or more days after illness onset. For both viruses, in order to completely rule out disease, convalescent-phase samples should be obtained to look for a rise in IgG titers when acute-phase samples test negative. Because symptoms and epidemiology for both illnesses overlap, if clinicians intend to test for one illness they should generally test for both.

Both viruses rely on a vector such as *A. aegypti* to pass the virus person to person in a community. Neither has an animal reservoir and neither is contagious directly from person to person. Patients with suspect chikungunya or dengue should take measures to avoid being bitten by mosquitoes during the first week of illness.

**Persons traveling to endemic areas should take measures to avoid mosquito bites:**

- Use insect repellents containing DEET, picaridin, IR3535, oil of lemon eucalyptus, or paramethanediol for long lasting protection. If using both sunscreen and insect repellent, apply the sunscreen first and then the repellent.
- When weather permits, wear long-sleeved shirts and long pants.
- Use air conditioning or window-door screens to keep mosquitoes outside.
- Sleep under a mosquito net if mosquitoes may get into the home or hotel.
- Empty standing water from containers around the home or hotel such as flowerpots or buckets.

For additional clinical information, see [www.cdc.gov/chikungunya/](http://www.cdc.gov/chikungunya/) or [http://www.cdc.gov/dengue/clinicalLab/clinical.html](http://www.cdc.gov/dengue/clinicalLab/clinical.html). Epidemiologic information regarding these viruses can be found at [www.cdc.gov/chikungunya/geo/index.html](http://www.cdc.gov/chikungunya/geo/index.html) and [www.cdc.gov/dengue/travelOutbreaks/index.html](http://www.cdc.gov/dengue/travelOutbreaks/index.html). For questions regarding chikungunya or dengue epidemiology or testing, please call the Epidemiology Program of the Orange County Health Care Agency at 714-834-8180.