

Chikungunya and Dengue in Mexico and Latin America

Certain regions of Mexico and Latin America have experienced a recent increase in chikungunya and continued dengue infections in 2014. Cases of locally transmitted chikungunya in the state of Chiapas were first reported in October 2014. As of December 31, 2014 a total of 155 chikungunya cases have been reported from five states: Chiapas (135), Guerrero (11), Oaxaca (7), Sonora (1), and Sinaloa (1).

Chikungunya has also been reported in the Caribbean and Central and South America, with over 26,000 confirmed cases reported through 2014.

Risk of dengue and dengue hemorrhagic fever also continued in 2014 in several Mexican states, including Baja California Sur (where Cabo San Lucas and La Paz are popular tourist areas) which reported 4,591 cases in 2014, an increase from 2013 and the largest number of reported cases among Mexican states. Dengue transmission has been prevalent throughout Latin American countries in recent years.

Mosquito vectors

Dengue and chikungunya viruses are transmitted by *Aedes albopictus* and *Aedes aegypti* mosquitoes. These two mosquitoes are aggressive day-biters that can potentially transmit the virus after biting an infected person. The immature stages typically develop in small, water-filled containers.

The presence of *Aedes aegypti* has been established in Mexican cities along the California-Mexico border, such as Mexicali, Tecate and Tijuana. In California, *Aedes aegypti* was detected in 2013 in three counties: Fresno, Madera, and San Mateo. Detections were made again in those same counties in 2014, with additional detections in Kern, Tulare, Los Angeles, and San Diego counties. In 2015, *Aedes aegypti* was detected for the first time in Imperial County. *Aedes albopictus* was detected in 2011 in the city of El Monte in Los Angeles County and has spread to 12 surrounding cities within the county.

Reported 2014 Cases in California

In 2014, 126 cases of dengue and 119 cases of chikungunya were reported in California, all with a history of travel to areas where transmission of those diseases was occurring. Of the reported cases, 67 dengue and 103 chikungunya cases had a history of travel to Latin America. The number of reported California dengue cases with a history of travel to Mexico has increased in the last two years, 64 in 2013-2014 compared with 17 in 2010-2012.

Dengue Clinical Presentation

Dengue is typically a mild, non-specific febrile illness and over half of infected people are asymptomatic. Classic dengue fever is characterized by acute onset of high fever 3 to 14 days after the bite of an infected mosquito. Symptoms often include severe headache, pain behind the eyes, muscle pain, joint pain, rash, and in severe cases bleeding manifestations. Infected individuals are viremic from approximately 1 day before to 4-5 days after onset of fever. Dengue has no animal reservoir and is not contagious person to person. Treatment is supportive.

Chikungunya Clinical Presentation

Chikungunya is characterized by acute onset of fever and severe joint pain. Chikungunya fever occurs 3-7 days after the bite of an infected mosquito. Joint pain and swelling are usually bilateral and symmetric involving the hands and feet and can be severe and debilitating. Other symptoms may include headache, muscle pain, fatigue, and rash. Acute symptoms typically resolve within 7-10 days. Unlike dengue, most people infected with chikungunya virus become symptomatic. Similar to dengue, chikungunya has no animal reservoir and is not contagious person to person. Treatment is supportive.



Recommendations for Physicians

- Review the epidemiology and signs and symptoms of dengue and chikungunya.
- Consider dengue or chikungunya in the differential diagnosis of febrile patients with signs and symptoms consistent with each disease who have traveled to a dengue or chikungunya endemic or outbreak area in the two weeks prior to symptom onset.
- Report suspect cases of dengue and chikungunya to the local health department, which can assist with coordinating tests needed to help confirm the diagnosis.
- If chikungunya is suspected, request tests for both dengue and chikungunya. Establishing the diagnosis of dengue is important because proper clinical management of dengue can improve outcome.
- Advise patients with suspect chikungunya or dengue to take measures to avoid being bitten by mosquitoes during the first week of illness.

Prevention

There are no vaccines to prevent chikungunya or dengue infections. Preventing mosquito bites is the only way to avoid becoming infected.

- Use insect repellents containing DEET, picaridin, IR3535, oil of lemon eucalyptus, or para-menthane-diol for long lasting protection. If you use 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. If you are not able to protect yourself from mosquitoes inside your home or hotel, sleep under a mosquito bed net.
- Help reduce the number of mosquitoes outside your home or hotel room by emptying standing water from containers such as flowerpots or buckets.

Travelers

Warning – If you are travelling to a region affected by dengue or chikungunya, the California Department of Public Health (CDPH) recommends taking appropriate precautions for avoiding mosquito bites during the day and at night.

If you have returned from an affected region and have fever with joint pain or rash within the two weeks following your return, please contact your medical provider and tell the doctor where you have traveled.

Additional Resources:

For more information on what you can do to reduce risk of **chikungunya** infection, visit the U.S. Centers for Disease Control and Prevention (CDC) at: <http://wwwnc.cdc.gov/travel/diseases/chikungunya> and <http://wwwnc.cdc.gov/travel/notices/watch/chikungunya-mexico>

For more information on what you can do to reduce risk of **dengue** infection: <http://www.cdc.gov/dengue/prevention/index.html> and <http://www.cdc.gov/dengue/resources/factSheets/DengueBrochureFINAL.pdf>

For additional information on what you can do to protect yourself against mosquitoes: <http://wwwnc.cdc.gov/travel/yellowbook/2014/chapter-2-the-pre-travel-consultation/protection-against-mosquitoes-ticks-and-other-insects-and-arthropods>

Information for Clinicians: *Aedes aegypti* and *Aedes albopictus* Mosquitoes in California and Reporting Patients with Suspected Dengue or Chikungunya to Public Health <http://www.cdph.ca.gov/HealthInfo/discond/Documents/DengueorCHIKInformationForCliniciansinCA.pdf>

For more information on invasive *Aedes* mosquitoes in California visit the CDPH, Vector-Borne Disease Section at: <http://www.cdph.ca.gov/HealthInfo/discond/Pages/Aedes-albopictus-and-Aedes-aegypti-Mosquitoes.aspx>