

Hot Tips: Public Health Advisory #145 Date: 09/19/2024

Please copy and distribute to ALL physicians at your location.

Increase in Travel-Associated Dengue Infections

Key Messages

- The Centers for Disease Control and Prevention (CDC) recently released a [health advisory](#) to inform clinicians and the public of an increased risk of dengue virus infections in the United States.
- A record number of dengue virus infections have been reported worldwide in 2024. Countries within the Americas have reported more than double the number of infections this year as compared to that recorded for the entirety of 2023.
- This global rise in incidence of dengue virus infection has resulted in increased reports of travel-related cases in the United States. Countries in Central America, South America, and the Caribbean have experienced the most significant outbreaks this year and have contributed to a large portion of travel related cases.
- Physicians should have increased suspicion for dengue virus infection among persons returning from travel to affected areas who are experiencing signs or symptoms consistent with the illness within 14 days from their last date present at the affected area.

Situation

A combination of global migration patterns and climatic factors have resulted in a record-breaking year for dengue virus activity worldwide. The global rise in the incidence of dengue virus infections has prompted the need for enhanced awareness and surveillance of travel-associated dengue throughout the United States. In alignment with both state and national trends, we have already observed a roughly five-fold increase in the number of travel-associated dengue infections reported in Ventura County this year as compared to last year. Persons returning from travel to affected areas are often unaware of their risk and may forego providing this information to their healthcare provider upon presentation. Expanding intake assessments to consider the possibility of recent travel or exposure to mosquitoes becomes a crucial step in identifying these cases. Dengue virus infection should be considered in patients presenting with febrile illness and a history of recent travel to affected areas. Prompt identification of these cases can not only improve patient outcomes but also help inform public health action.

Background

Dengue viruses (DENV) are primarily transmitted through the bite of infected *Aedes aegypti* or *Aedes albopictus* mosquitoes. A total of four distinct yet closely related dengue viruses have been identified to date (DENV-1, DENV-2, DENV-3, and DENV-4) and can cause disease. Dengue infection develops roughly 2-7 days or up to 2 weeks following a bite from an infected mosquito, and signs or symptoms of illness typically include:

fever, headache, retro-orbital or ocular pain, myalgia, joint or bone pain, rash, bruising of the skin or positive tourniquet test, thrombocytopenia, or leukocytopenia. Only about 1 out of 4 people that are infected with dengue virus become symptomatic. Symptoms can range from mild to severe and the risk for complications is highest in those aged 65 or over, pregnant persons, and immunocompromised individuals. Subsequent dengue virus infection with a different type of DENV after having had a previous infection, can also increase the likelihood of severe outcomes. Signs of severe illness may involve mucosal bleeding or other hemorrhagic manifestations, severe abdominal pain, persistent vomiting (including hematemesis), blood in the stool, impaired consciousness or lethargy, organ dysfunction, or transaminitis.

Transmission of dengue virus was historically mostly limited to tropical or sub-tropical areas of the world but has been expanding to non-endemic areas over recent years. This is largely due to climate change, transportation of mosquitoes or viremic persons, and other shifting factors that have enabled the propagation of these mosquito species in different areas. Although most cases of dengue virus infection identified in the United States are associated with travel, local transmission has previously been documented in several states – including California. In 2023, California reported its first two cases of locally acquired dengue virus infection in Pasadena and Long Beach respectively. This month, Los Angeles County has reported a cluster 3 additional cases of locally acquired dengue virus infection.

Although Ventura County has not identified any locally acquired cases of dengue virus infection or positive mosquitoes to date, the species of mosquito that transmit the virus are present within our county. These mosquitoes can become infected if they bite a person that is infected with dengue virus during their viremic period and can later transmit the virus to susceptible people. An infected person's viremic period can last for up to 12 days following infection. For this reason, it's important to identify and educate infected community members in a timely manner to ensure that transmission to local vectors can be prevented – thereby preventing the emergence of locally acquired dengue virus infections. Notification to public health upon provider suspicion will also assist in this process as our staff are able to provide consultation and work alongside our Vector Control Program to expand on any necessary precautions.

Recommended Actions for Providers

- Inquire about a patient's travel history if they are presenting with acute febrile illness of unknown origin. If the patient does not report any recent travel, recent travel history among household members should also be assessed.
- Assess whether the patient recalls recent mosquito bites or exposures and where these exposures may have occurred.
- Diagnostic testing through RT-PCR and IgM antibody test is recommended and available through commercial laboratories; however, appropriate treatment or supportive care should not be delayed while awaiting confirmation.
- Recognize warning signs for severe dengue infection and educate patients on the importance of monitoring their symptom progression.
- Patients should be advised to practice mosquito avoidance during their viremic period to prevent further spread of the virus to local mosquito populations and community members. Further information about mosquito bite prevention can be referenced below.
- If dengue infection is suspected, notify the Ventura County Department of Public Health within 1 working day either by electronic transmission via fax/email or by calling 805-981-5201.

Treatment

There are currently no antiviral medications available for the treatment of dengue virus infection. However, supportive care can be provided within the outpatient setting with hydration and the antipyretic medication, acetaminophen. It's important to note that patients should avoid treatment with NSAIDs and ASA due to potential risks of bleeding. Patients should be monitored for signs of dehydration and/or any platelet issues throughout the course of their treatment. Patients presenting with early signs of severe illness or other complications should be admitted for clinical management within the inpatient setting. Additional information for the treatment and management of patients with dengue virus infection can be found within CDC's [Dengue Clinical Management Pocket Guide](#).

Prevention

Prior to travelling, community members should access CDC's Traveler's Health [portal](#) to learn more about diseases affecting the areas they plan to visit, and seek out recommendations to prepare for their trip and adopt any necessary preventive measures. After returning from a trip to an affected area, it's generally recommended to avoid mosquito bites for 3 weeks after returning home to prevent the potential spread of dengue virus to mosquitoes within your community. As asymptomatic dengue virus infections are possible, this recommendation should be followed broadly despite the absence of illness.

Individuals are advised to actively practice mosquito avoidance and protect themselves against mosquito bites by utilizing EPA-registered repellent, such as DEET, picaridin, IR3535, oil of lemon eucalyptus, para-menthane-diol, or 2-undecanone while following their respective instructions for use. It is also recommended to wear loose-fitting clothing such as long-sleeved shirts and pants to prevent exposing one's skin to mosquito bites. Furthermore, community members are invited to participate in local vector control efforts by identifying, eliminating, or reporting potential mosquito breeding sites throughout their community. More information on filing a report in Ventura County can be found at: [Vector Control Program - VCRMA](#).

Resources

- [Dengue \(ca.gov\)](#)
- [Dengue Clinical Management Pocket Guide | Dengue | CDC](#)
- [Clinical Testing Guidance for Dengue | Dengue | CDC](#)
- [Dengue virus infection: Clinical manifestations and diagnosis - UpToDate](#)
- [Preventing Dengue | Dengue | CDC](#)