

ELABORATIONS

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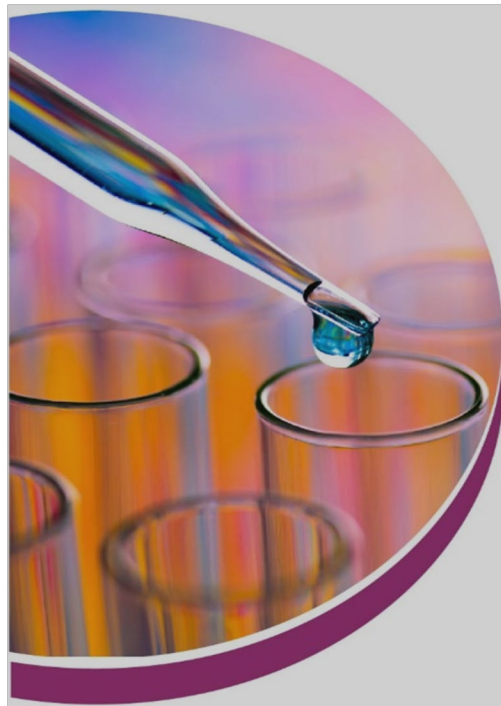
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Inside This Issue

- 1-4 Global Increase in Dengue Virus Infections
- 5 Practice Guidelines & Calendar of Events



Global Increase in Dengue Virus Infections

Many countries are reporting outbreaks of dengue, a viral disease spread by the bite of infected mosquitoes. The Centers for Disease Control and Prevention (CDC) issued travel notices for dengue in many countries in Central and South America, Mexico, the Caribbean, Africa, the Middle East, Asia, and the Pacific Islands.

WHAT IS DENGUE?

Dengue viruses are flaviviruses that spread through the bite of infected *Aedes* mosquitoes (*Aedes aegypti* or *Aedes albopictus*). While rare, dengue can also spread through blood transfusions, organ transplants, and from mother to infant during pregnancy. There are four different dengue viruses, termed dengue 1 through 4. Infection with one type of dengue virus does not provide immunity to the others, so people can be infected multiple times.

Approximately 1 in 4 people infected with dengue will get sick. Illness from dengue can range from a mild fever to severe disease. Symptoms usually develop 5-7 days after exposure and commonly include fever, nausea or vomiting, skin rash, muscle or joint aches, severe headache, or retro-orbital pain (pain behind the eyes). Patients suspected of having dengue should use acetaminophen for symptom relief. Patients should **not** use non-steroidal anti-inflammatory drugs (NSAIDs) like ibuprofen and aspirin, as these medications can increase the risk of hemorrhage with dengue virus infection.

About 1 in 20 people who experience symptoms will develop severe dengue, which is a medical emergency due to its rapid progression. Warning signs of severe dengue generally occur a day or two after resolution of fever and can include:

- Belly pain or tenderness
- Persistent vomiting
- Bleeding from the nose or gums
- Bloody vomit or stool
- Difficulty breathing
- Lethargy or restlessness

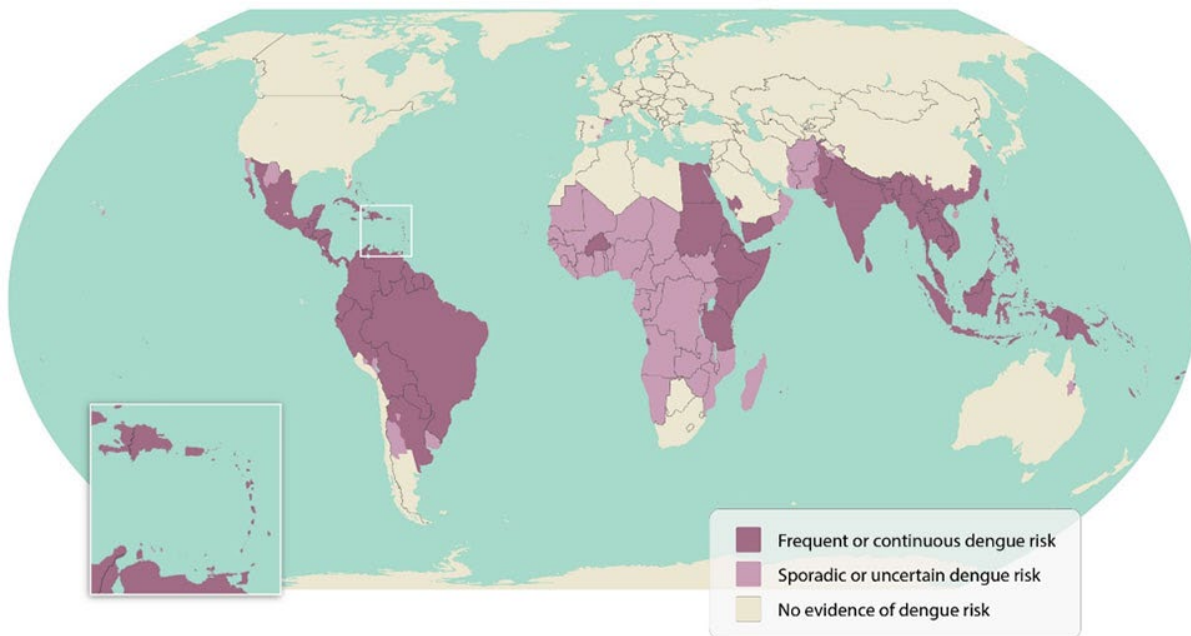
People who experience these symptoms should immediately seek healthcare. Severe dengue can lead to shock, internal bleeding, and occasionally death. People who have had dengue previously, pregnant people, and infants are at higher risk of developing severe dengue.

WHERE IS DENGUE CIRCULATING?

Dengue virus can be found in the Americas, the Caribbean, Africa, the Middle East, Asia, and the Pacific Islands. The World Health Organization (WHO) reported near record numbers of dengue cases in 2023, affecting over 80 countries and territories.

The increase in cases may be due to the impacts of climate and environmental factors, vulnerabilities in health systems due to the COVID-19 pandemic, as well as humanitarian crises and political and financial instability in some endemic regions. These factors can influence the distribution and abundance of the mosquito vector species, impact mosquito control activities, increase exposure risk,

and decrease access to healthcare, which can lead to more severe outcomes due to delayed diagnosis and treatment.



Source: [Dengue Around the World | Dengue | CDC](#)

Occasional cases, as well as limited local spread, of dengue have been identified in some U.S. states where *Aedes* mosquitoes are found. While rare, U.S. states have reported local cases in Florida, Hawaii, Texas, Arizona, and California. In Washington, an average of 13 travel-associated cases are reported each year. However, an increase in cases was noted in recent years with 31 cases reported in 2023. All the cases reported among Washington residents have been associated with international travel.

The disease is common in some U.S territories and freely associated states, including American Samoa, Puerto Rico, the U.S. Virgin Islands, the Federated States of Micronesia, the Republic of the Marshall Islands, and the Republic of Palau.

TESTING

Providers should consider dengue in patients with recent travel to endemic areas presenting with compatible symptoms. During the first week of illness, the virus may be present in the bloodstream and PCR, or antigen testing can be utilized alongside antibody testing to diagnose infection. After the first week of illness, the likelihood of viremia decreases, and IgM antibodies should be detectable. Therefore, antibody testing is recommended during this stage of infection.

Flaviviruses, including dengue, Zika, yellow fever, Japanese encephalitis, St. Louis encephalitis, and West Nile virus, can cross-react on antibody tests and complicate the diagnosis for patients in the convalescent phase of illness. Previous vaccination against a flavivirus can also impact antibody testing, so vaccination history should be considered when interpreting and ordering diagnostics. Specific

diagnostics such as plaque reduction neutralization testing (PRNT) may be needed to distinguish between circulating flaviviruses.

Dengue virus is a reportable disease in Washington. Positive test results, excluding IgG positive antibody testing, are notifiable to the local health jurisdiction.

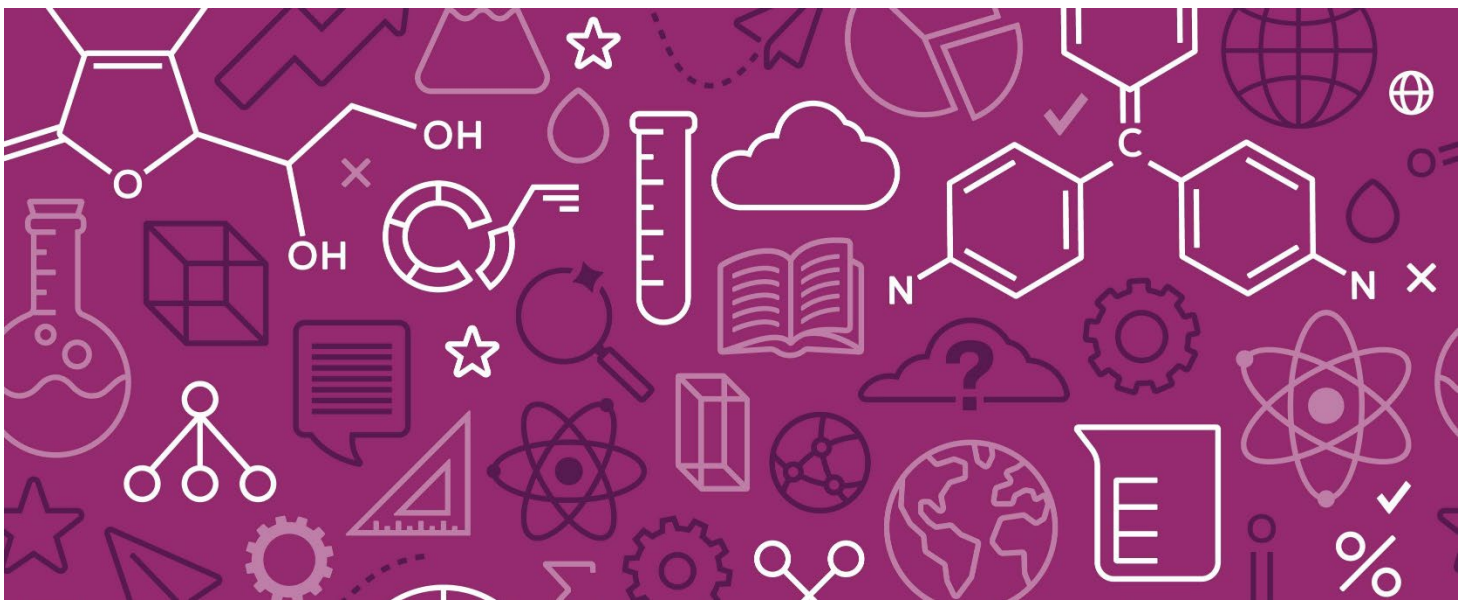
HOW TO PREVENT INFECTION

Many countries are experiencing dengue outbreaks and reporting higher than normal dengue virus activity. Travelers visiting areas where dengue is a risk should take precautions to avoid mosquito bites and reduce their risk of becoming infected with dengue and other mosquito-borne diseases. The mosquitoes that transmit dengue are vectors of other arboviral diseases like Zika and chikungunya. Travelers can protect themselves when visiting endemic areas by:

- Using EPA registered mosquito repellents.
- Wearing pants and long-sleeved shirts to cover as much of the body as possible while outdoors.
- Treating clothing and gear with permethrin.
- Ensuring windows have screens and checking window screens for tears or gaps.
- Using mosquito nets if sleeping outside or when sleeping in a room without window screens.

References

1. [Dengue | CDC](#)
2. [Dengue- Global situation \(who.int\)](#)



Practice Guidelines

The following practice guidelines have been developed by the Washington Clinical Laboratory Advisory Council. They can be accessed at the [Medical Test Site Program website](#).

- Acute Diarrhea
- Anemia
- ANA
- Bioterrorism Event Management
- Bleeding Disorders
- Chlamydia
- Diabetes
- Group A Strep Pharyngitis
- Group B Streptococcus
- Hepatitis
- HIV
- Infectious Diarrhea
- Intestinal Parasites
- Lipid Screening
- PAP Smear Referral
- Point-of-Care Testing
- PSA
- Rash Illness
- Red Cell Transfusion
- Renal Disease
- STD
- Thyroid
- Tuberculosis
- Urinalysis
- Wellness



2024 Virtual Northwest Laboratory Symposium (NWMLS), October (date TBA)

The Calendar of Events is a list of upcoming conferences, deadlines, and other dates of interest to the clinical laboratory community. If you have events that you would like to have included, please mail them to chuck.talbert@doh.wa.gov. Information must be received at least one month prior to the scheduled event. The editor reserves the right to make final decisions on inclusion in *ELABORATIONS*.

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