LOUISIANA DEPARTMENT OF HEALTH Public Health	**Louisiana Health Alert Message 24-2: Increased Risk of Dengue Virus Infections in the United States**
Origination Date: **July 8, 2024**	**Revision Dates (List All Revision Dates):**

Louisiana Health Alert Message 24-2: Increased Risk of Dengue Virus Infections in the United States.

The Louisiana Department of Health (LDH) is issuing this Health Alert Network (HAN) Health Advisory, modified from a CDC HAN, to inform clinicians and the public of an increased risk of dengue virus (DENV) infections in the United States in 2024. In 2024, countries in the Americas have reported a record-breaking number of dengue cases, exceeding the highest number ever recorded in a single year. Over 9 million cases have been reported between January 1 – June 24, 2024, twice as many as in all of 2023. In the United States, a higher-than-expected number of dengue cases have been identified among U.S. travelers (745 cases), and Puerto Rico has already declared a public health emergency (1,498 cases). On average, Louisiana identifies 3 travel-associated dengue cases per year, but LDH has already investigated 6 travel-associated cases as of July 2, 2024. Cases are expected to continue to rise in Central and North America as the Northern Hemisphere enters peak mosquito season, and the number of travel-associated dengue cases are expected to continue to increase. The introduction of travel-associated cases also increases the risk for local disease transmission in Louisiana. In the setting of increased global and domestic incidence of dengue, healthcare providers are encouraged to take steps to prepare to identify, test, and manage dengue cases.

Summary for Healthcare Providers

- Maintain a high suspicion of dengue among patients with **fever and recent travel** (within 14 days before illness onset) to areas with dengue transmission (the Caribbean, Central American, South America, Southeast Asia, and Pacific Islands).
- Consider locally acquired dengue among patients who have **signs and symptoms** highly compatible with dengue (e.g., fever, thrombocytopenia, leukopenia, aches, pains, rash).
- Order **appropriate diagnostic tests** for acute DENV infection: concurrent reverse transcription polymerase chain reaction [RT-PCR] and IgM antibody tests; or concurrent non-structural protein 1 [NS1] antigen tests and IgM antibody tests.
    - U.S. Food and Drug Administration (FDA) approved testing is available at many commercial laboratories. **Trioplex PCR testing is currently available at the State Public Health Lab and can be coordinated by contacting the Infectious Disease Epidemiology Clinician on-call line at 1-800-256-2748.** If requesting Trioplex PCR testing at the State Public Health Lab, please ensure to also collect a sample for concurrent IgM testing at a commercial or reference laboratory.

- **Do not delay treatment**, which is largely supportive, waiting for test results to confirm dengue.
- Know the warning signs for progression to severe dengue, which include abdominal pain or tenderness, persistent vomiting, clinical fluid accumulation, mucosal bleeding, lethargy or restlessness, and liver enlargement.
- **Teach patients** about the warning signs that may appear as their fever starts to decline and instruct them to seek care urgently if they experience any warning signs.
- Recognize the **critical phase** of dengue. The critical phase begins when fever starts to decline and lasts for 24–48 hours. During this phase, some patients require close monitoring and may deteriorate within hours without appropriate intravenous (IV) fluid management.
- **Hospitalize** patients with severe dengue or any warning sign of progression to severe dengue and follow CDC protocols for IV fluid management. Further information about case management: Dengue Case Management Pocket Guide | CDC
- Dengue is a **reportable disease** in Louisiana. Healthcare providers should report dengue cases to the Louisiana Department of Health – Infectious Disease Epidemiology Section.
- Promote mosquito bite prevention measures among people visiting areas with dengue transmission, both while travelling and after they return to Louisiana.

Additional Information for Healthcare Providers

Dengue is the most common arboviral disease globally. It is caused by four distinct but closely related dengue viruses (DENV-1, -2, -3, and -4). DENVs are transmitted through bites of infected *Aedes* species mosquito vectors, which are present throughout Louisiana and pose the risk for local disease transmission. Infection with one DENV generally induces life-long protection against infection from that specific DENV but only protects against other DENVs for several months to years. Six U.S. territories and freely associated states are classified as areas with frequent or continuous dengue transmission: Puerto Rico, American Samoa, the U.S. Virgin Islands, the Federated States of Micronesia, the Republic of Marshall Islands, and the Republic of Palau. In the rest of the United States, local transmission of DENV has been limited, with sporadic cases or small outbreaks in Florida, Hawaii, and Texas. However, confirmed local DENV transmission has also been reported by Arizona and California over the past two years.

Approximately one in four DENV infections are symptomatic and can be mild or severe. Symptoms begin after an incubation period of 5–7 days (range 3–10 days) and present as fever accompanied by non-specific signs and symptoms such as nausea, vomiting, rash, muscle aches, joint pain, bone pain, pain behind the eyes, headache, or low white blood cell counts. Warning signs are specific clinical findings that predict progression to severe disease. Warning signs include abdominal pain or tenderness, persistent vomiting, clinical fluid accumulation (e.g., ascites, pleural effusion), mucosal bleeding, lethargy or restlessness, progressive increase of hematocrit, or liver enlargement >2cm. Severe disease, with associated severe bleeding, shock or respiratory distress caused by plasma leakage, or end-organ impairment, develops in 1 in 20 people with symptomatic dengue. Infants aged ≤1 year, pregnant people, adults aged ≥65 years, and people with certain medical conditions are at increased risk of severe dengue. Although a second DENV infection (i.e., with a different

DENV from the first infection) carries a higher risk of severe disease than a first, third, or fourth infection, any infection can lead to severe disease.

Patients with symptoms compatible with dengue should be tested with both molecular and serologic diagnostic tests. All patients with suspected DENV infection should be tested with RT-PCR (i.e., a nucleic acid amplification test (NAAT)) or a NS1 antigen test, and also with IgM antibody test to confirm DENV infection. These tests can be considered regardless of the symptom onset date, although the test sensitivity of RT-PCR and NS1 antigen tests decrease after the first 7 days. IgG detection by enzyme-linked immunosorbent assay (ELISA) in a single serum sample should not be used to diagnose a patient with acute dengue because it does not distinguish between current and previous DENV infection.

There are no antiviral medications approved to treat dengue. Treatment is supportive and requires careful volume management. Appropriate triage, management, and follow-up remain the most effective interventions to reduce dengue morbidity and mortality. Expectant management of patients at high risk for severe disease and rapid initiation of a standardized fluid replacement strategy recommended by the World Health Organization (WHO) can decrease mortality from 13% to <1%.

Dengue Enhanced Monitoring in Louisiana

LDH will continue to work with healthcare providers and healthcare systems to identify and detect dengue cases in Louisiana. In addition to routine activities, LDH will be performing enhanced monitoring for dengue in Louisiana, including analyzing emergency department visit reports and requesting confirmatory testing for clinically compatible cases. This enhanced monitoring is meant to assist with case detection in order to initiate mitigation efforts to prevent disease transmission within the state.

Recommendations for the Public

- Learn how to prevent mosquito bites.
    - Use Environmental Protection Agency-approved repellents during travel to and after returning from areas with frequent or continuous dengue transmission.
    - Wear loose-fitting, long-sleeved pants and shirts.
- Control mosquitos at home indoors and outdoors.
    - Use air conditioning and window screens, when possible, to lower risk for mosquito bites indoors.
    - Dump and drain containers that hold water to reduce mosquito egg-laying sites in your home and neighborhood.
- Seek medical care if you have a fever or have dengue symptoms and live in or traveled to an area with dengue outbreaks.
- If you plan international travel to an area with frequent or continuous dengue transmission, protect yourself from mosquito bites during and after your trip.

More Information

- Clinical Testing Guidance for Dengue | Dengue | CDC
- Guidelines for Classifying Dengue | Dengue | CDC
- Clinical Features of Dengue | Dengue | CDC
- Dengue Case Management Pocket Guide | CDC
- Dengue During Pregnancy | Dengue | CDC
- Dengue Vaccine | Dengue | CDC
- Dengvaxia: What Healthcare Professionals Need to Know | Dengue | CDC
- Dengue | CDC Yellow Book 2024
- Dengue Clinical Management Course | Dengue | CDC

Webinar: What Clinicians Need to Know about Dengue in the United States | CDC