

Dengue Fever

Dengue is a Class B disease of public health concern needing timely response because of potential for epidemic spread. Class B diseases or conditions shall be reported to the Office of Public Health by the end of the next business day after the existence of a case, a suspected case, or a positive laboratory result is known:

Dengue is a potentially fatal acute febrile illness caused by infection with any of four dengue viruses (DENV-1, -2, -3, and -4). Dengue is a major public health problem worldwide, where an estimated 400 million DENV infections and 100 million clinically apparent dengue cases occurred in 2010. Although approximately 75% of individuals infected with a DENV are asymptomatic, approximately 5% of individuals that develop dengue progress to severe dengue, an illness characterized by plasma leakage leading to hypovolemic shock, hemorrhage, and potentially death. The case-fatality rate for individuals with severe dengue can be as high as 10% if untreated, or 0.1% with appropriate clinical management.

DENVs are transmitted primarily through the bite of *Aedes aegypti* and *Ae. albopictus* mosquitoes. Because these mosquitoes are endemic throughout the tropics and sub-tropics, an estimated 40% of the world's population is at risk for DENV infection. These mosquitoes are also present in the United States. *Ae. aegypti* is present in southern Florida, southern Louisiana, parts of New Mexico and Arizona, southern and central Texas (most prominently around urban centers such as Houston, Dallas, and Austin), and have recently been detected in central California and southern Utah. *Ae. albopictus* is widely present throughout most of the southern U.S. and as far north as Illinois and New York.

History of dengue in Louisiana and the United States

The dengue pandemic of 1827-28 affected mostly Caribbean, but also the Gulf and Atlantic regions of the United States. The port cities of New Orleans, Pensacola, Charleston and Savannah were affected. Hemorrhagic fevers cases were reported.

The 1845-51 dengue pandemic affected many southern cities in 1850 including New Orleans, Brownsville, Charleston, Augusta Woodville, Mobile and Savannah. Hemorrhagic fevers cases were also reported.

The 1870-73 pandemic affected mostly South Louisiana and Alabama. The case count in New Orleans was estimated at 40,000. According to the 1870 census, the population of New Orleans was 191,418.

The several pandemics that occurred in the early 1900s were those of: 1901-07 (Texas to Florida); 1922-24 (affecting Louisiana with 7,562 cases in 1922); 1,376 in 1923; and one in 1924. There were sporadic cases of dengue in between pandemics.

A continental epidemic of dengue in the U.S. occurred in the Mississippi Delta region of Louisiana. It lasted from September 1 to October 19, 1945 with 143 cases in the original outbreak. It is assumed that World War II veterans returning from the Pacific theater carried dengue back to the United States.

Following the 1945 outbreak, the Pan American Health Organization recommended starting systematic programs for elimination of yellow fever, dengue and control of *Aedes aegypti*. Countries would come close to eradicating *Ae. aegypti* only to find that it spread again later. Outbreaks of dengue keep appearing all over the south and central American region and the Caribbean.

From 1945 to 1980 there were no reports of dengue transmission within the continental United States. At the end of the 1970s dengue had been spreading in the Caribbean and Mexico. From 1977 to 1980 there

were 151 imported cases in the U.S.; no cases resulting from local transmission. In 1977 there was one single case of dengue imported from Jamaica. In August 1980, there was an outbreak of dengue type 1 in Texas. From this outbreak there were six cases from Louisiana residents who had been infected in Texas.

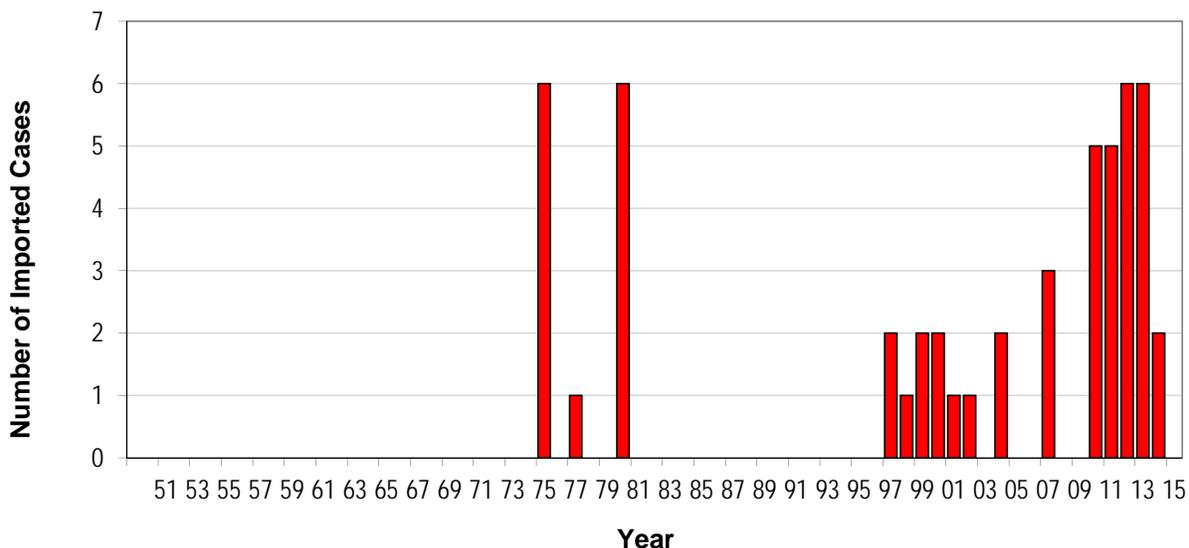
Dengue 4 emerged in the Americas in 1981 with outbreaks in Puerto Rico and the Caribbean. A few cases occurred in the U.S. mainland. More outbreaks of Dengue 2, 3 and 4 followed.

In 1986 there was a massive epidemic of Dengue 1 in Brazil with 2,000,000 cases. There were a few Dengue 1s in Laredo, Corpus Christi and Brownsville followed by one autochthonous case in Texas in 1987.

Incidence

There have been very few cases reported since 1950. All cases that were reported were imported from Central America or the Caribbean (Figure).

Figure: Dengue imported fever cases - Louisiana, 1950-2015



Age and Sex Distribution

From 1980 to 2015 there were a total of 45 cases reported. All were investigated and found to be imported either from the Caribbean, Mexico or Central America. There were 25 males and 20 females. The age group distribution shows a preponderance of young adults (Table).

Table: Dengue by Age Group – Louisiana, 1980-2015

Age Group (Years)	0-1	1-4	5-14	15-24	25-44	45-64	65+
Cases	0	1	1	10	13	12	2