

IMPORTED DENGUE – UNITED STATES, 1992

Dengue is a mosquito-transmitted acute disease caused by any of four virus serotypes (DEN-1, DEN-2, DEN-3, and DEN-4) and characterized by the sudden onset of fever, headache, myalgia, rash, nausea and vomiting. The disease is endemic in most tropical areas of the world and can occur in U.S. residents returning from international travel. Serum samples from 68 persons with suspected imported dengue with onset in 1992¹ were submitted to CDC from 23 states (Table 1). Of these, 17 (25%) cases (from 10 states) were serologically or virologically diagnosed as dengue. This report summarizes information about these 17 cases.

Nine of the 17 persons with laboratory-diagnosed dengue were females. Age was reported for 15 and ranged from 9-54 years (median: 34 years). Dengue serotype was identified by virus isolation for only one of the 17 cases as DEN-1. Travel histories were available for 14 persons with laboratory-diagnosed dengue (Table 1); infections were acquired in Asia (seven cases), the Caribbean Islands (five cases), Honduras (one), and Colombia (one).

The most commonly reported symptoms were consistent with classic dengue fever (e.g., fever, headache, myalgia, and rash). At least two persons required hospitalization; four patients developed a petechial rash; five had low white blood cell counts (1100-2500/mm³ [normal: 3200-9800/mm³]); five had low platelet counts (42,000-77,000/mm³ [normal: 150,000-450,000/mm³]); four developed elevated liver function test results, and one patient showed haemoconcentration (haematocrit: 51%).

Reported by: State and territorial health depts. Dengue Br, Div of Vector-Borne Infectious Diseases, National Center for Infectious Diseases; CDC.

Editorial Note: Although dengue fever is not endemic in the United States, U.S. residents who

become infected during travel to tropical areas may have onsets of illness at home following an incubation period of 7-10 days². Most persons infected with dengue virus experience mild illness; however, infection in some persons may result in a severe form of the disease – dengue hemorrhagic fever (DHF) – characterized by fever, low platelet count ($\leq 100,000/\text{mm}^3$) haemorrhagic manifestations, and a leaky capillary syndrome evidenced by haemoconcentration, hypoalbuminaemia, or pleural or abdominal effusions³.

The incidence of DHF is increasing in the Americas: since 1984, dengue epidemics with associated cases of DHF have occurred in Aruba, Brazil, Colombia, El Salvador, French Guiana, Honduras, Mexico, Nicaragua, Puerto Rico, St. Lucia, Suriname, and Venezuela. In addition, dengue is endemic in many islands in the Caribbean, Mexico, and most countries in Central and South America. In the Americas, dengue is transmitted by the *Aedes aegypti* mosquito. Although nearly eradicated from the region in the 1960s, this species is now present in most tropical countries of the region and is present year-round in the southernmost areas of Texas and Florida. Endemic transmission of dengue has not occurred in the United States since 1986 (south Texas); however, introduction of the virus by persons who have acquired infections in other countries could result in local transmission.

The 68 cases referred for serological confirmation in 1992 represent the lowest number of reported cases since 1984 (63 cases) and a 17% decrease from 1991 (82 cases reported). However, they do not include cases of dengue that may have been reported to state health departments without accompanying specimens for testing.

The prevention of dengue in tourists and other persons in tropical locations relies on avoidance

Table 1. Suspected and laboratory-diagnosed cases of imported dengue, by state – United States, 1992

State	Cases		Travel history, if known, of persons with laboratory-diagnosed dengue (serotype, if known)
	Suspected	Laboratory-diagnosed	
Alaska	1	0	
Arizona	1	0	
California	2	2	1 Thailand
Colorado	1	0	
Florida	1	0	
Georgia	6	1	
Hawaii	1	0	
Iowa	2	0	
Maine	1	1	Philippines
Massachusetts	11	4	1 Puerto rico 1 India, Nepal, Thailand 1 Thailand 1 St. Bartholomew
Michigan	1	0	
Minnesota	3	1	Thailand (DEN-1)
Montana	1	0	
New Jersey	3	1	Honduras
New York	11	3	2 Puerto Rico; 1 Jamaica
Ohio	4	0	
Oregon	2	0	
Pennsylvania	1	0	
Tennessee	1	0	
Vermont	1	1	
Virginia	1	0	
Washington	8	2	1 Thailand; 1 Colombia
Wisconsin	4	1	Philippines
Total	68	17	

of exposure to mosquitoes. The *Aedes* species that transmit dengue may bite at any time during the day, although the peak activity occurs during the early morning and late afternoon. The use of mosquito repellent and protective clothing at all times is recommended. *A. aegypti* usually is present in peridomestic settings and is found most often in dark areas such as closets,

bathrooms, behind curtains, and under beds. The risk for exposure may be lower for tourists in some settings, including beaches, hotels with well-kept grounds, and heavily forested areas and jungles.

Physicians should consider dengue in the differential diagnosis for all patients who have

compatible manifestations and a history of travel to tropical areas. Because of the anticoagulant properties of acetylsalicylic acid (i.e., aspirin), acetaminophen products are recommended for management of fever. Acute and convalescent (30 or fewer days after onset of symptoms) serum samples should be obtained for viral isolation or serodiagnosis and sent for confirmation through the state health department laboratory to CDC's Dengue Branch, Division of Vector-Borne Infectious Diseases, National Center for Infectious Diseases, 2 Calle Casia, San Juan, PR 00921-3200; telephone (809) 766-5181; fax (809) 766-6596. Serum specimens should be accompanied by a summary of clinical and

epidemiologic information, including a detailed travel history with dates and location of travel and dates of onset of illness and blood collection.

References

1. CDC. Case definitions for public health surveillance. *MMWR* 1990; 39 (no. RR-13): 10-11.
2. Benenson AS, ed. *Control of communicable diseases in man*. 15th ed. Washington, DC: American Public Health Association, 1990: 119.
3. World Health Organization. *Dengue haemorrhagic fever: diagnosis, treatment, and control*. Geneva: World Health Organization, 1986: 12-13.