

The History of Yellow Fever

3,000 years ago

Yellow fever has had an important role in the history of Africa, the Americas, and Europe. Scientists believe that yellow fever evolved in Africa around 3,000 years ago.

1600s

Yellow fever was imported into the Western Hemisphere on slave ships from West Africa.

1648

The first definitive evidence of yellow fever in the Americas was in Mayan manuscripts describing an outbreak of the disease in the Yucatan and Guadeloupe.

1668-1699

Outbreaks were reported on the eastern coast of the United States, including in New York City (1668), Boston (1691), and Charleston (1699).

1700s

Yellow fever spread to Europe.

1730

In one of the first epidemics described, 2,200 deaths were reported in Cadiz, Spain. This epidemic was followed by outbreaks in French and British seaports. Over the next century, widespread epidemics were recorded in tropical and subtropical areas of the Americas, including the West Indies, Central America, and the United States.

1800s

Until the mid-1800s, scientists believed yellow fever was spread by direct contact with infected individuals or contaminated objects.

1839-1860

Annual outbreaks in New Orleans led to more than 26,000 cases of yellow fever.

1848-1881

The first suggestions that the vector might be a mosquito were made by the American physician Josiah Clark Nott in 1848 and by the Cuban physician Carlos Finlay in 1881.

1898

Yellow fever caused difficulties for the U.S. Army in Cuba during the Spanish-American War; reportedly, more soldiers died of the disease than in battle. The ongoing outbreaks prompted military efforts for further research and the formation of the Reed Yellow Fever Commission led by Walter Reed, an American army surgeon.

1900s

The Reed Yellow Fever Commission proved that yellow fever infection is transmitted to humans by the *Aedes aegypti* mosquito. This was later determined to be the vector of the urban transmission cycle of the yellow fever virus.

1905

The last outbreak in the United States occurred in New Orleans.

1906

Following the demonstration that *Aedes aegypti* mosquitoes are responsible for transmission of the yellow fever virus to humans, intense sanitation programs began in Panama and Havana, Cuba. These efforts led to the eradication of the disease in these areas.

Eradication of yellow fever in Panama enabled completion of the Panama Canal in 1906, the construction of which had previously been severely hampered by yellow fever infection among the workers.

1930

Two yellow fever vaccines were developed, the 17D vaccine and the French neurotropic vaccine.

1940s

Mass campaigns were conducted using the 17D vaccine in South America and the French neurotropic vaccine in French-controlled areas of Africa.

1950

Doctors became concerned with the high rate of postvaccinal encephalitis following administration of the yellow fever vaccine to infants.

The range of yellow fever virus transmission in the Americas expanded, and cases were reported in Panama for the first time in 43 years. Before the end of the decade, the disease had spread throughout Central America, finally stopping near the border of Guatemala and Mexico.

1960s

Yellow fever cases occurred in Africa and the Americas. Thousands of cases were reported in West Africa, where vaccination coverage had waned or was absent, and in Ethiopia, where the disease had not been reported previously.

1980s

A major increase in the incidence of the disease occurred in Africa. An estimated 120,000 cases and 24,000 deaths were reported in Nigeria alone.

Ecological surveillance of jungle mosquitoes and monkeys showed that these expansions occurred because of an amplification of the disease in nonhuman primates. From a public health perspective,

however, the fundamental problem was poor or nonexistent vaccine coverage, despite the vaccine's availability and cost-effectiveness.

1982

Because of high rates of postvaccinal encephalitis, production of the French neurotropic vaccine was discontinued. The 17D vaccine became the standard for use in immunization against yellow fever worldwide.

2000s

Yellow fever vaccine was incorporated into the routine childhood vaccinations of several South American and African countries. Although this strategy decreases the number of people susceptible to the disease over time, a large portion of the at-risk population is not covered in the short term. The World Health Organization (WHO) and other international health partners are working to increase yellow fever vaccination coverage, formerly through the Yellow Fever Initiative and now through the Eliminating Yellow Fever Epidemics (EYE) Strategy. The goal is to vaccinate more than one billion people who are at risk of the disease and thus create a world without yellow fever epidemics.

While these vaccination efforts are ongoing, large outbreaks of yellow fever continue to occur. Starting in late 2015, Angola experienced an urban outbreak of the disease that subsequently spread to neighboring countries and led to several travel-related disease cases among persons from non-endemic countries. Then in late 2016, Brazil began to experience an unprecedented number of yellow fever disease cases in coastal areas where disease had not been reported for more than 60 years. This outbreak caused more than 20 travel-related disease cases.