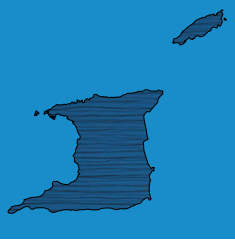
COUNTRY PROFILE YELLOW FEVER

TRINIDAD AND TOBAGO



COUNTRY SITUATIONAL ANALYSIS

A Caribbean nation consisting of two major islands: Trinidad and Tobago. Only Trinidad maintains enzootic areas for yellow fever and is considered at high risk for transmission. The last outbreak was in 1979 due to sylvatic transmission. Since then, Trinidad and Tobago has been free of yellow fever cases.

The yellow fever vaccine was added to the nationwide childhood immunization schedule in 1980 and achieved high coverage rates. Since the reemergence of the *Aedes aegypti* mosquito, dengue has become a primary public health problem, with a progressive increase in incidence and geographical spread.

In addition, two other arboviruses were introduced during the last decade: chikungunya and zika. Their dramatic spread and morbidity highlight the extraordinary capacity of these viruses to invade susceptible populations.

ECOLOGICAL FACTORS AND CLIMATE[1]

Trinidad and Tobago is entirely tropical with a rich biodiversity. Forest covers 45% of the territory, with 11% used for agricultural activities. The economy is mainly supported by oil and gas production.

VECTOR DISTRIBUTION AND INCIDENCE

Studies have shown high entomological indexes in Trinidad and Tobago and high-to-moderate resistance to insecticides.[3,4,5]

EPIDEMIOLOGY

Tobago is free of yellow fever virus activity. It does not harbor nonhuman primates or mosquitoes responsible for sylvatic transmission. Otherwise, Trinidad maintains enzootic activity. The last urban outbreak was in 1908 in the capital city, Port-of-Spain. The first sylvatic outbreak was in 1914 among American oil workers in the jungle of southern Trinidad. In 1954, another outbreak occurred among people working in the forest. After a long epidemiologic silence, the next outbreak, with 18 human cases, occurred in 1978. Since then, isolated episodes of epizootic activity were reported.

YELLOW FEVER HIGHLIGHTS

EYE strategy risk categorization	High
Routine Immunization introduction (year)	1980
Latest official coverage estimates (2021)	90%
Gavi eligibility	No
International Coordinating Group on vaccine provision requests	No
Last disruptive yellow fever outbreak	1979
Vaccination proof for entry/ exit?	Yes
Diagnostic capacity	Yes
Fragility, conflict, and violence status	No

DEMOGRAPHICS[2]

Total population	1 395 000
Annual population growth rate	0.32 %
Life expectancy	76 years (female); 73 years (male)
Percentage of population living in urban dwellings	53%
Percentage of urban population living in slums	5%

1 World Bank. Climate change knowledge portal for development practitioners and policy makers: Trinidad and Tobago. Washington, DC: World Bank; 2021. Available from: https://climateknowledgeportal.worldbank.org/country/trinidad-and-tobago

3 Focks D, Chadee D. Pupal survey: an epidemiologically significant surveillance method for aedes aegypti: an example using data from Trinidad. Am J Trop Med Hyg. 1997;56(2):159-67.

4 Chadee D. Dengue cases and Aedes Aegypti indices in Trinidad, West Indies. Acta Trop. 2009;112(2):174-80.

5 Polson KA, Rawlins SC, Brogdon WG, Chadee DD. Characterization of DDT and pyrethroid resistance in Trinidad and Tobago populations of Aedes aegypti. Bull Entomol Res. 2011 Aug; 101(4):435-41.

2 World Bank. Understanding poverty: Open data. Washington, DC: World Bank; 2020. Available from: https://www.bancomundial.org/es/understanding-poverty

Endemic areas

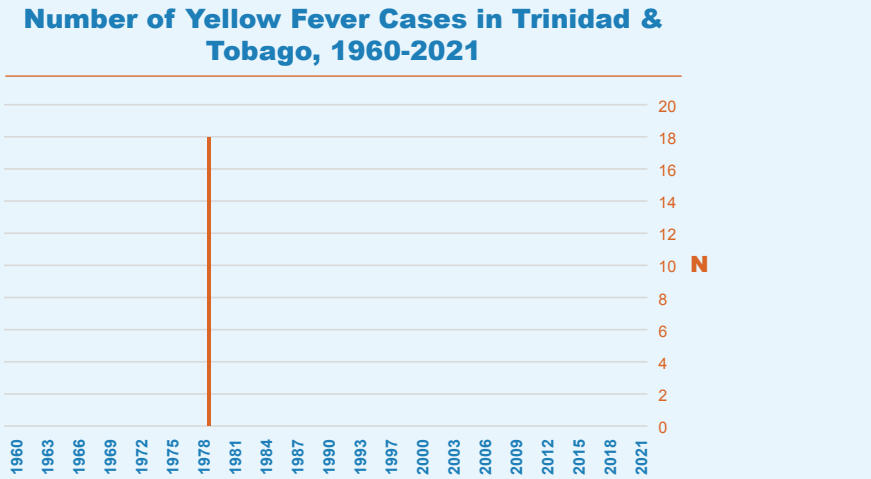
Only the island of Trinidad is considered endemic.

PAST OUTBREAKS[6]

Year	Number	Region	Comments
1979	18	Trinidad	No data
2009	0	Trinidad	Epizootic activity in the district of Mayaro and Nariva, southern and southeastern Trinidad.

Trend of past outbreaks[6]

Despite having kept its territory free of yellow fever cases for decades, Trinidad maintains enzootic transmission and is considered high-risk for yellow fever.



ARBOVIRAL ACTIVITY

Dengue Dengue cases appeared in 1981. There are annual epidemics of varying magnitude, with co-circulating serotypes. Trinidad and Tobago reported 40 728 cases to PAHO between 1981 and 2021.[7]

Chikunguña Chikungunya occured in two epidemic waves in 2014 and 2015. More than 1281 cases were reported to PAHO.[8]

Zika Zika outbreaks started in 2016. There were 718 confirmed cases including 17 confirmed cases of congenital syndrome associated with the zika virus.[9]

6 Pan American Health Organization. Epidemiological. Yellow fever: Epidemiological alerts and updates. Washington, DC; PAHO; 2022. Available from: https://www.paho.org/en/epidemiological-alerts-and-updates

7 Pan American Health Organization. Health information platform for the Americas (PLISA). Data reported by Ministries and Institutes of Health of the countries and territories in the Americas. Washington, DC; PAHO; 2022. Available from: https://www3.paho.org/data/index.php/en/mnu-topics/indicadores-dengue-en/dengue-regional-en/315-reg-dengue-incidence-en.html

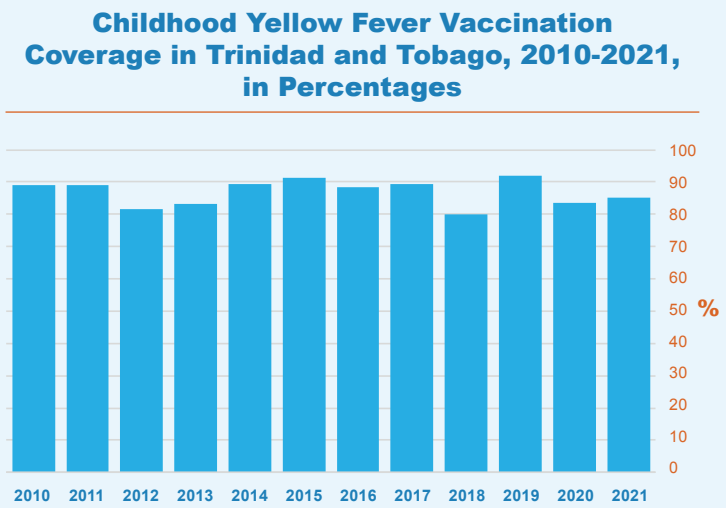
8 Pan American Health Organization. Chikungunya fever in the Americas. Number of reported cases. Washington, DC; PAHO; 2018. Available from: https://www.paho.org/en/topics/chikungunya

9 Pan American Health Organization. Zika cases and congenital syndrome associated with Zika virus reported by countries and territories in the Americas, 2015-2018. Cumulative cases. Washington, DC: PAHO; 2018. Available from: https://www3.paho.org/hq/index.php?option=com_docman&view=download&category_slug=casos-acumulados-pdf-8866&alias=43298-casos-acumulados-zika-4-enero-2018-298&Itemid=270&lang=es

YELLOW FEVER VACCINATION

Routine immunization in childhood[10]	
Yellow fever vaccine introduced	Yes
Current level	Nationwide
Year of introduction	1979
Age vaccine is administered (months)	12 months
Vaccine schedule	Single dose, plus a 10-year booster in high-risk population
Integration with first doses of measles, mumps, and rubella vaccine (MMR-1)	Yes
Gap MMR-1/yellow fever vaccine to monitor program	Yes

Vaccination coverage[11]



Coverage is above 90%. The difference between MMR-1 and yellow fever vaccine coverage was always less than 5%. However, a slight drop in both vaccine coverages was reported following 2019, mainly because of the impact of COVID-19.

Vaccination campaigns[11]	
Catch-up campaigns implemented during the last 20 years	Yes
Preventive mass vaccination campaigns implemented during the last 20 years	Yes
Reactive vaccination campaigns implemented during the last 20 years	No
Vaccination in international travelers[11]	Yes
Trinidad and Tobago offers yellow fever vaccine to arriving and departing travelers to and from high-risk countries	
Vaccination in internal travelers[11] (mobile population to high-risk areas in the country)	
Workers and hunters who frequent the forested areas are given a booster dose of the yellow fever vaccine every 10 years.	
Registration system to record vaccination data[11]	Nominal immunization registry system on paper.

Vaccine program funding[11]	
Sources of financing	Government
Gaps in funding during the past 5 years	No
Does the country require financial support?	No

10 World Health Organization. Data compiled from WHO vaccine-preventable diseases: monitoring system reported through the Joint Reporting Form. Geneva: WHO; s.f. Available from: https://immunizationdata.who.int/pages/coverage/yfv.html?CODE=SUR&YEAR=

11 Pan American Health Organization. Comprehensive Family Immunization Unit: Survey for mapping of national policies on yellow fever vaccination and their implementationWashington, DC; PAHO; 2021. Unpublished data.

INTERNATIONAL HEALTH REGULATIONS[11]

Does the country request proof of vaccination against yellow fever at points of entry?	No

LABORATORY DIAGNOSTIC CAPACITY [11]		SURVEILLANCE[11]	
Member of Arbovirus Diagnosis Laboratory Network of the Americas	Yes	National guidelines for surveillance	Yes
National Reference Laboratory	CARPHA (The Caribbean Public health Agency)	Type of yellow fever surveillance for human cases	Syndromic-case based
Report to PAHO	Yes	Type of yellow fever surveillance NHP	Passive
Testing capacity for yellow fever		Entomological surveillance	Yes
IgM antibody capture enzyme-linked immunosorbent assay (MAC-ELISA)	Yes	Entomo-virologic surveillance	No
Plaque reduction neutralization test	No	Reactive case investigation	No data
RT-PCR blood specimens	Yes	**YELLOW FEVER CONTROL STRATEGIES**	
RT-PCR tissue specimens	No	Multiannual immunization plan	Yes
RT-PCR wild type virus *versus* vaccine	No	Risk assessment methodology[12]	No
Immunohistochemistry	No	Vector control activities	Yes
Virus isolation	Yes	Diagnosis	Yes
External quality assessment compliance	No	Surveillance	Yes
Shortage of diagnostic supplies the last 5 years ?	--	Request for proof of yellow fever vaccine at points of entry	Yes

POPULATION MOVEMENTS[12]

An estimated 24 000 Venezuelans live in Trinidad and Tobago, of whom 50% are undocumented, and Venezuela (Bolivarian Republic of) is now one of the countries that require entry visas, following an influx of migrants on unsafe boats.

12 Office of United Nations High Commissioner for Refugees (UNHCR). UNHCR Data. Geneva: UNHCR; s.f. Available from: https://www.unhcr.org/en-us/data.html

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