

DOMINICAN REPUBLIC

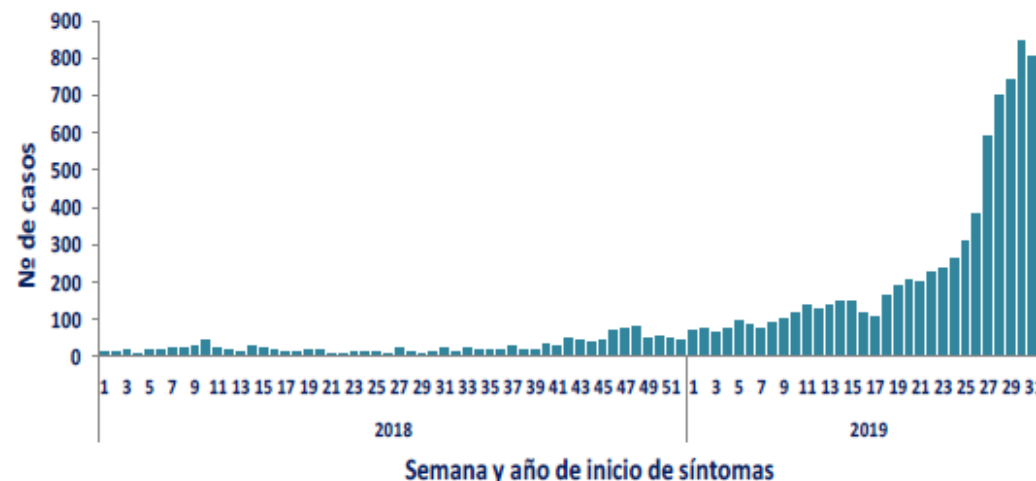
Dengue Fever

Dominican Republic is one of several Central American countries experiencing an outbreak of Dengue fever. Since 21 July 2019 a high increase in new cases has been recorded. On 6 September the Ministry of Health reported more than 8,855 (suspected) cases from 1 January 2019 to 17 August 2019, including 189 cases of severe dengue. This marks an increase of 1,145% in reported cases compared to the same time period in 2018 (711 cases). As of 9 September, a minimum of 12 deaths have been reported. The impact of the current outbreak on the health infrastructure remains unclear.

NEED FOR INTERNATIONAL ASSISTANCE



IMPACT



Dengue Fever cases per epidemiological week (EW) 1 2018 to EW 33 2019 in the Dominican Republic (Ministerio de Salud Publica 06/09/2019)

Anticipated scope and scale

San Jose de Ocoa and **Barahona**, as well as **Santo Domingo** are the most affected provinces in the southwest of the Dominican Republic, but cases of dengue fever have been reported all over the country. All provinces remain under high alert. An increase in standing water is anticipated with the start of the **rainy season** (September to October) and favours the breeding of mosquitos.

Key priorities



8,855
cases identified

189
severe cases

Health interventions
mostly needed

Humanitarian constraints



There are no access constraints reported in the Dominican Republic. With the upcoming rainy season access may be more constrained especially to rural areas due to poor infrastructure.

Limitations

More information is needed on the state of hospitals. The number of confirmed cases remains unknown. The Dominican Medical College claims that the number published by the government is understated due to political sensitivities and economic aspects.

Crisis impact

Since April 2019, Central America has been experiencing an outbreak of dengue fever (PAHO, accessed 09/09/2019). As stated by the Ministerio de Salud Publica (Ministry of Public Health) on 6 September, the Dominican Republic accounts for 8,855 suspected cases, including 189 severe dengue cases from 1 January 2019 to 17 August (epidemiological week (EW) 1 2018 to EW 33 2019). There is no information publicly made available on the confirmed cases (Ministerio de Salud Publica 06/09/2019). The Dominican Medical College states that the caseload published by the government is incorrect and understated due to political sensitivities (elections are scheduled for 17 May 2020) and economic (tourism) aspects (Key Informant; Dominican Today 06/09/2019). The actual number of cases as well as the impact remains challenging to estimate.

The dengue situation in Dominican Republic is getting more severe as the rate of new potential cases reported is rapidly increasing (see Fig.1). Compared with 17 August 2018, when the year's cumulative caseload stood at 711, the cumulative caseload as at 17 August 2019 marks an increase of 1,145%. The number of dengue cases in 2019 to date has already surpassed the number of cases from the past five years combined. Especially in August 2019, the trend accelerated. In the four weeks from 21 July to 10 August more than 3,160 dengue cases were recorded, 35% of all cases recorded in 2019 (Ministerio de Salud Publica 06/09/2019; Government of Honduras (GoH) 09/09/2019; La Prensa 04/09/2019).

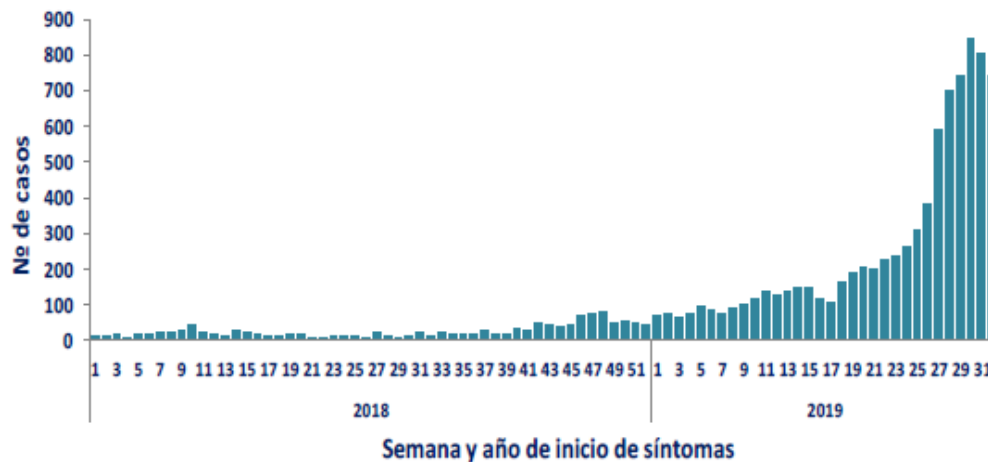


Figure 1 Dengue Fever cases per epidemiological week (EW) 1 2018 to EW 33 2019 in the Dominican Republic (Ministerio de Salud Publica 06/09/2019)

All 33 provinces in the Dominican Republic are on alert and exposed to the outbreak. Most cases are being reported in Santo Domingo (2,880). However, the rate of cases related to

the population is highest in Barahona (499.8/100,000), Independencia (451.1/100,000), both in the southwest, and San Jose de Ocoa (487.4/100,000) (Ministerio de Salud Publica 06/09/2019; Acento 16/08/2019). In San Jose de Ocoa, an outbreak (Red Alert) was declared. The situation in Pedernales and Samana provinces was declared as secured (Green Alert) as of 6 September, while the rest of the country remains under high alert (Yellow Alert) (Ministerio de Salud Publica 06/09/2019).

Dengue is endemic in the Dominican Republic, with yearly outbreaks during the rainy season (IAMAT 16/06/2016). However, given the high number of dengue cases the country's **health sector** is strained and health facilities, especially in Santa Domingo, are experiencing an increase of patients requiring treatment (Telefuturo 23 09/09/2019; Dominican Today 06/09/2019). In addition to dengue fever, the Dominican is further susceptible to typhoid fever, and hepatitis (Ministerio de Salud Publica 06/09/2019).

Humanitarian and operational constraints

No constraints due to insecurity, access to documentation or physical constraints are reported. Heavy rainfall linked to the starting Postrera rainy season (September-October) could affect operations in some provinces.

Vulnerable groups affected

Severe dengue is particularly dangerous for **children**, as their survival rate is lower than adults'. As in Guatemala and Honduras, more than 50% of dengue patients in the Dominican Republic are children under 15 years (Carlson 16/08/2019; El Diario 16/08/2019).

People who store and collect (rain) water in open tanks and reservoirs are more exposed to the risk of dengue fever as it is a mosquito-borne infection that breeds in water. Open water bodies and poor sanitation facilities favour the spread of the disease. Only 11% of the population receives continuous water supply via pipes.

Urban areas are of more concern than rural areas, as dengue fever is transmitted from human to human via the female *Aedes aegypti* mosquito. People living in highly populated areas are therefore more at risk of being infected (WHO 03/01/2017; CIA Factbook, accessed 10/09/2019).

Health care is supposed to be free in Dominican Republic. However, in reality people often pay for medical supplies and various services (Key Informant; PAHO 2010). **Poor households** are affected the most as needed contributions to the expenditures of treatment diminishes their savings, and food insecure people already face weakened immune systems to overcome the sickness.

The Dominican Republic hosts around 28,500 **Venezuelan refugees**. Some reports suggests that access to free health services for refugees is sometimes challenging due to documentation issues.

Aggravating factors

Poverty and food insecurity increases vulnerabilities to dengue fever

Even though the Dominican Republic has experienced sustained economic growth and stability in the past years, high levels of poverty still affect over 40% of the population, with consequences on food insecurity as well as nutrition problems. (WFP, accessed 10/09/2019; ICMA 22/02/2019). As there was limited rainfall in 2019 along the southern, eastern and northern coasts, the precipitation deficits have negative effects on people whose livelihoods predominantly rely on agricultural production. There is a risk that their food and nutrition levels will worsen with limited incomes (FEWSNET 06/09/2019). Their lowered incomes makes it less likely to afford adequate treatment as well as build resilience against illness such as dengue fever.

Rainfall during Hurricane Dorian

Despite warnings, Hurricane Dorian did not make landfall but only passed the island of Hispaniola, where Dominican Republic is located. The northwest of Dominican Republic experienced light, seasonal rainfall which is still below-average (FEWS NET 06/09/2019; Washington Times 27/08/2019; OCHA 27/08/2019). No flooding or damage caused by the storm has been reported. Below-average rainfall is forecast for the upcoming Postrera rainy season (September-October) (FEWS NET 06/09/2019). Standing water induced by rainfall increases the likelihood of mosquito breeding.

Contextual information

Previous outbreaks

As dengue fever is endemic, the Dominican Republic is familiar with dengue outbreaks. However, the number of dengue cases in 2019 to date has already surpassed the number of cases from the past five years combined. In 2018, there were only 711 cases reported (Ministerio de Salud Publica 06/09/2019).

Affected neighbouring countries

Since April 2019, dengue fever is significantly affecting many countries in the region. As of 6 September, the Americas are accounting for 2,365,000 total cases of dengue fever, 1,064,000 confirmed cases including almost 17,000 severe cases and 953 deaths (PAHO accessed on 09/09/2019). PAHO/WHO warns that seven out of ten people are exposed to dengue in the Americas (PAHO 15/08/2019).

Next to Nicaragua, Guatemala, and El Salvador, Honduras has the highest numbers of people infected with dengue fever with more than 71,215 suspected cases as of EW 35.

More than 56,800 cases have been confirmed, including almost 14,400 cases for severe dengue 9 September (GoH 10/08/19). In Honduras, public hospitals are reportedly strained by the volumes of cases. According to PAHO/ WHO graphs of the past EW, states that the outbreak is near to reaching its peak, placing more importance on effective awareness and preventative sanitation campaigns rather than treatment only (GoH 10/08/19). The Governments of Nicaragua, El Salvador and Guatemala, which have reported 91,000 suspected cases (as of 31/08/2019), 8,890 suspected cases (as of 25/07/2019) and 8,370 suspected cases (as of 13/07/2019) respectively, declared their health infrastructures currently have sufficient response capacity (La Prensa 04/09/2019) ICRC 14/09/2019; OCHA 14/08/2019).

Cause and symptoms

Dengue fever is a mosquito-borne viral infection caused by a virus of the Flaviviridae family. The disease can be transmitted from human to human via females of the *Aedes aegypti species*. The disease is usually transmitted during the daytime, especially early in the morning and before dusk (WHO 03/01/2017).

Malaria-like symptoms are the most common at the beginning of dengue fever (WHO 31/08/2016). According to the World Health Organization (WHO), symptoms appear four to seven days after transmission (Sidwaya 24/10/2016). Flu symptoms, joint pain, soreness, headaches, and eye pain are the most common (WHO 03/01/2017). The infection sometimes evolves into a life-threatening condition called severe dengue, especially in the cases of secondary infections (WHO 15/04/2019).

Severe dengue is more common among children. It is potentially fatal. Haemorrhage is possible. Fluid accumulation, respiratory distress, and organ impairment can appear three to seven days after symptoms of benign 38°C), rapid breathing, severe abdominal pain, persistent vomiting sometimes accompanied by bleeding, fatigue, restlessness, and bleeding gums (WHO 31/07/2016; WHO 15/04/2019). The fatality rate is 20% among cases of severe dengue, but can drop to below 1% when adequately treated (WHO 03/01/2017; WHO 15/04/2019).

Treatment

There is no reported specific treatment for dengue fever, especially not for severe dengue. However, drinking lots of fluids is important to avoid dehydration. Early detection and access to quality healthcare for supportive care lowers the fatality rate (WHO 15/04/2019). Blood transfusion and intravenous fluids and electrolyte replacement can be necessary in cases of severe dengue fever (Mayo Clinic 20/04/2016).

Vaccines and prevention

In 2016, WHO conditionally recommended dengue fever vaccines. Studies showed that vaccinated patients contracting the disease for the first time are more likely to directly develop severe dengue and be in need of hospitalisation compared to unvaccinated patients (WHO 15/04/2019).

Key characteristics

Demographic profile:

Total population: 10,530,000

Urban vs rural: 81.1% of the total population live in urban areas.

Population density: 220/km²

Malnutrition: 28% of children under 5 suffer from anaemia

Health statistics:

Maternal mortality rate: 92 deaths/100,000 live births

Infant mortality rate: 22.7 deaths/1,000 live births

WASH Statistics:

Usage of improved drinking water: 81.9% of rural and 85.4% of urban population

Access to improved sanitation facilities 75.7% of rural and 86.2% of urban population

Socio-economic factors:

Human Development Index: 0.736 (rank 95)

Poverty rates: 40.4%, 10.4% live in extreme poverty

Unemployment rates (ages 15-24): 13.5%

Total adult literacy rate: 93.8%

Sources: WFP, accessed 10/09/2019; CIA Factbook, accessed 10/09/2019; UNDP 2017

Response capacity

Local and national response capacity

The Ministry of Public Health is responding the dengue fever outbreak. They have implemented preventive measures to decrease new infection rates. Prevention measures include the elimination of breeding sites, spraying of homes (vector control), training of hospital staff and the removal of scrap, which can serve as a breeding ground for the mosquito (Ministerio de Salud Publica 07/09/2019; Dominican Today 23/08/2019; Dominican Today 27/07/2019). Only limited information was found about local organisations supporting response efforts. It is assumed that the Dominican Red Cross is active, as seen in other outbreaks.

International response capacity

No reports were found that declare an urgent need for international assistance and the government is assisting facilities under pressure. No information was found on international actors involved in the dengue response efforts. However, major UN agencies and INGOs are present in the country. As in other countries in the region, the PAHO/WHO is supporting the surveillance, prioritisation, and control of cases (PAHO accessed on 09/09/2019).

Information gaps and needs

The real dengue caseload is most likely higher due to many unregistered cases. There is a lack of cooperation between private hospitals and the government in terms of sharing information. Additionally, not all infected people will go and seek treatment in the hospital. The Dominican Medical College claims that the number published by the government is understated due to political sensitivities and economic aspects (Key Informant). The real impact and need for assistance is therefore hard to estimate.

The level and quality of response and preparedness in the Dominican Republic is unclear. There is a lack of information about local and international organisations supporting response and preparedness measures.

The actual impact of the dengue fever outbreak on hospitals' capacity in the Dominican Republic remains unclear. More information is needed on the state of hospitals. It is not clear whether hospitals have been administering the vaccine for prevention of the spread of dengue.

Map: The Dominican Republic



(Source: Australian Government 03/09/2015)