

# MEXICO

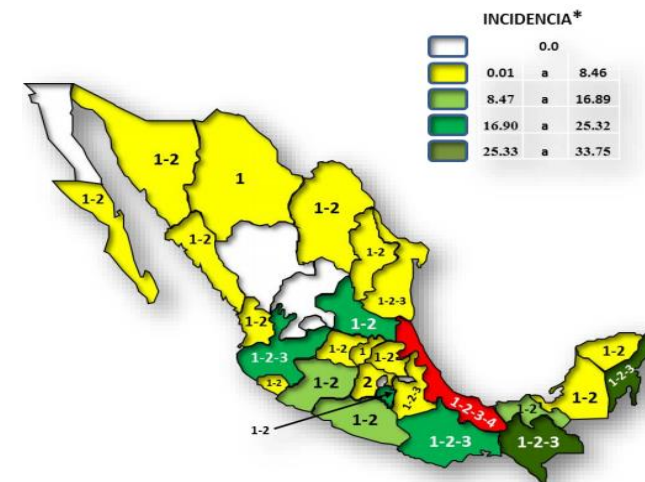
## Dengue Fever

Since the beginning of 2019, a regional epidemic cycle of dengue has broken out in Latin American and the Caribbean. According to the Government of Mexico, as of 9 September, Mexico has 13,963 confirmed cases of dengue, including 918 cases of severe dengue. 70% of the cases are within five of Mexico's provinces: Chiapas, Jalisco, Veracruz de Ignacio de la Llave (Veracruz), Oaxaca, and Quintana Roo (GoM 02/09/2019). As of 31 August, Veracruz had the highest number of confirmed cases, at 4,126, 103 cases of severe dengue, and 2 confirmed deaths (GoM 02/09/2019). The ongoing rainy season, which lasts until October, could continue to increase caseloads of dengue both within Veracruz and across the country.

### NEED FOR INTERNATIONAL ASSISTANCE



### IMPACT



El estado de Veracruz presenta la incidencia mas alta 39.08  
\*Incidencia por 100 mil habitantes

Incident rate of Dengue Fever across Mexico States (GoM 02/09/2019)

### Anticipated scope and scale

In the 2019 Mexican dengue outbreak, the state of **Veracruz is currently the most affected** with the highest number of the confirmed cases, at over 4,100. The typical rainy season continues until October; last year it resulted in widespread flooding across 21 municipalities in Veracruz. With the peak of the rainy season expected throughout September, **the number of dengue cases is likely to continue to rise**, as increased standing water provides breeding sites for mosquitos. Additionally, the deadliest strain of Dengue, Serotype-2, is currently present in Veracruz. This could lead to more severe reactions to the disease.

### Key priorities



**+13,960**  
confirmed cases in Mexico

**Health Intervention**  
access to treatment

**Prevention Measures**  
outbreak control

### Humanitarian constraints



There are no access constraints directly related to the dengue fever outbreak. However, the prevalence of gangs in the region may pose security risks. The ongoing rainy season presents the possibility of flooding, which could block or restrict road access.

#### Limitations

More information is needed on the caseload of Dengue Fever in Veracruz and the ability of the health sector to respond to the current outbreak.

## Crisis impact

As of 9 September, 16 states in Mexico have confirmed cases of dengue, the highest number being in the eastern state of Veracruz. All four serotypes have been found in Veracruz in 2019, including DEN-2, which is the most deadly (PAHO 09/08/2019). The government of Mexico confirms 13,963 cases of dengue across the country for 2019, while the probable caseload is much higher at over 86,945 cases. Veracruz accounts for nearly a quarter of both the confirmed cases (4,126) and probable cases (20,383) in the country (GoM 09/09/2019). This number is already higher than the total figure for dengue in Veracruz for 2018, where 2,706 cases were confirmed, including 95 cases of severe dengue (GoM 12/2018). Children within the state are most at risk; in 2019 the highest number of cases of severe dengue, a potentially deadly form of the disease, were found in children aged 5 to 9 years (GoM 02/09/2019).

### DENGUE CON SIGNOS DE ALARMA Y DENGUE GRAVE

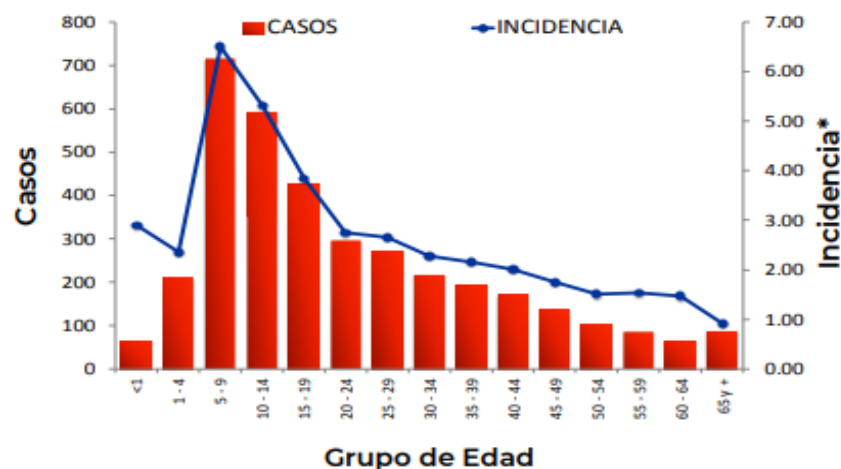


Figure 1: Extreme dengue cases and cases with warning signs, Mexico, 2019 (GoM 02/09/2019)

**Health:** There is no specific treatment for dengue fever. However in cases of severe dengue hospitalisation may be required to mitigate complications and the risk of death (WHO 2019). Government figures suggest that as of 9 September there were 103 cases of severe dengue in Veracruz (GoM 02/09/2019). According to the National Statistics office, Instituto Nacional de Estadística y Geografía (INEGI), as of 2015 nearly 80% of those living in Veracruz were affiliated with either public or private health care, while 20% were not (INEGI 2015). The gap in health care coverage may lead to difficulty in accessing necessary treatment for some of the population.

Mexico is based on both a public and private healthcare system. Overall, the capacity of health facilities in Veracruz to respond to the current outbreak is not clear. However, the Mexican government constantly engages in the training of health personnel in the identification the disease, which is essential to the provision of adequate and timely medical attention in cases of severe dengue (GoM 05/05/2019). It is not apparent where in Mexico these staff have been or are being trained. Further information is required to determine whether both the public and private systems institutions can respond effectively to the current dengue outbreak and an increased caseload of severe dengue.

## Humanitarian and operational constraints

There are no access constraints directly related to the dengue fever outbreak. However, the ongoing rainy season, which lasts until October, could result in future flooding impeding access to certain areas of the state. In 2018, flooding that affected road access and destroyed homes occurred in 21 municipalities across Veracruz (SEGOB 09/28/2018 GoM 12/2018)

The prevalence of gangs in the region may pose security risks. Veracruz's strategic positioning on the Atlantic Ocean makes it an entry and exit point for drugs and other contraband. Gang violence is prevalent, and escalations have the potential to restrict movement of the population to access healthcare. On 28 August, a gang killed 26 civilians inside a nightclub in the city of Coatzacoalcos, Veracruz, over drug territory (Mexico News Daily 28/08/2019)

## Vulnerable groups affected

The current regional outbreak has had the greatest impact on **children** under the age of 15 (PAHO 15/08/2019). In Mexico the highest number of severe dengue cases in 2019 has been in the age-range between 5 and 9 (see Figure 1). Their young age likely means they have had less exposure to the virus, and therefore lack immunity (PAHO 15/08/2019). There are approximately 2.1 million children under 14 currently living in Veracruz that could be exposed to the virus, including the most deadly serotype (DEN-2) which is currently present in the state (GoV 2017).

The impact of dengue in Veracruz is determined by social, economic, and political factors (PAHO 2016). A dimension of these three elements is **poverty**. As of 2017, 58% of the population was categorized in poverty, and just over 17% in extreme poverty (World Bank 2017). The low income of households in Veracruz is attributed to precarious employment and low levels of pay (World Bank 2017). The poor population in the state is characterised by a lack of access to food, low levels of education, and low levels of access to social security (World Bank 2017). According to the latest census data, over 3.6 million people living in Veracruz do not have access to healthcare (INEGI 2010). It is not clear whether this is a direct function of poverty or not. However, low income and poverty could mean the

population has less access to adequate dengue treatment, which is crucial in lowering the fatality rate (WHO 15/04/2019).

At the end of 2018 Mexico was hosting over 165,500 people of concern, including around 58,650 **refugees**, and 23,800 **asylum seekers** (UNHCR 2019). The exact number that Veracruz is hosting is not clear, however UNHCR is active within the state (UNHCR 04/2019). People of concern may be more exposed to dengue, particularly if they are living in unhygienic and unsanitary conditions that encourage the breeding habitats of the mosquito. More information is required on the numbers that Veracruz is hosting, their living situations, and levels of access to adequate medical care. Furthermore, Migrants who are not legally registered within the country may avoid accessing medical treatment, so as not to be identified to the authorities.

## Aggravating factors

### Climate

The rainy season in Mexico lasts from approximately May until October. The climate of the majority of Veracruz is humid with abundant rains in the summer (GoV 2017). Heavy rains could deteriorate the dengue situation in two ways: 1) heavy rains can increase the presence of standing water, facilitating the breeding of mosquitoes, and 2) rainfall that results in flooding can create access issues. In October 2018, Veracruz faced heavy rainfall across 21 municipalities, which led to the flooding of businesses and homes (Mexico News 20/10/2018).

### Lack of Insecticides

The lack of insecticides available within Veracruz has been cited as one of the reasons for the higher than average level of dengue cases so far in 2019. The government has received criticism as it apparently did not utilise allocated funds in order to purchase the necessary insecticides for the province (Yucatan Times 04/09/2019). However, official government sources claim this is untrue, attributing the high caseload to the climate and the immune response of those exposed (GoM 05/09/2019).

### Other Diseases

Other viruses and diseases are currently present in Veracruz, which could impact the ability of healthcare facilities to focus on response to the dengue outbreak. The presence of other viruses and diseases may strain the health sector, diminishing the ability of facilities to respond timely and effectively to dengue cases.

## Contextual information

### Previous outbreaks

Dengue fever is endemic to Mexico; the country experiences outbreaks every year (PAHO 2016). Veracruz also experiences yearly outbreaks. In 2018 there were over 2,700 government- confirmed cases in the state (GoM 12/2018).

### Cause and symptoms

Dengue fever is a mosquito-borne viral infection caused by a virus of the Flaviviridae family. The disease can be transmitted to humans via females of the *Aedes aegypti* species (WHO 15/04/2019). The disease is usually transmitted during the day, more often 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). There are four serotypes of dengue present in Latin America (DEN-1, DEN-2, DEN-3, and DEN-4), serotype-2 being the most deadly (PAHO 15/08/19).

Symptoms can take about one week to show, and include a high fever of over 40 degrees Celsius, headache, pain behind the eyes (PAHO 15/08/19). More severe dengue symptoms include rapid breathing, severe abdominal pain, persistent vomiting/blood in the vomit, fatigue, irritability, and bleeding from mucous membranes (WHO 2019). Dengue becomes severe when it develops complications – such as organ impairment or severe bleeding – which can lead to death (WHO 15/04/19).

### Treatment

Early detection and access to quality healthcare lowers the fatality rate of dengue (WHO 15/04/2019). Admission to the hospital in case of severe dengue symptoms is necessary in order to reduce the risk of death through adequate medical attention. Blood transfusion can also be used in cases of severe dengue (Mayo Clinic 20/04/2016).

## Key characteristics

**Population:** 130,759,000 country-level (UN Data 2018), 8,112,505 Veracruz (GoV 2017)

**Access to improved drinking water sources:** 97.2 % of urban, 92.1% rural (UN Data 2018)

**Access to improved sanitation facilities:** 88% urban, 74.5% rural (UN Data 2018)

**Urban population:** 80.2% of total population (UN Data 2018)

**Physicians:** 2.2/1000 population (UN Data 2018)

**Infant mortality rate:** 18.8/1000 live births (UN Data 2018)

**Employment:** Agriculture: 13%, Industry: 25.9%, Services: 61.2%, Unemployment: 3.6% (UN Data 2018)

## Response capacity

### Local and national response capacity

The Ministry of Health (Ministerio de Salud) of Mexico is responding to the outbreak. Over the past four decades the country has developed permanent activities in epidemiological and entomological surveillance, health promotion, and training of personnel to minimise effects of dengue. To reduce further spread of the disease, the primary activities are focused on eliminating breeding grounds for the mosquitos, which eradicates the larvae (GoM 2019).

Specialised sanitary brigades have been deployed across the country to eliminate breeding Mosquito breeding areas. Information from the Ministry of Health suggests that this year's dengue programme has sprayed 500,000 homes for larvae control (GoM 05/05/2019). Community prevention and control activities are crucial for mitigating further outbreaks (PAHO 09/08/2019). Due to the frequency of dengue outbreaks in Mexico, the government trains health personnel every year, although it is not clear where these trainings have taken place. There appears to be no request for international assistance in responding to the disease.

## Information gaps and needs

The impact of the dengue fever outbreak on hospitals' capacity in Veracruz remains unclear. More information is needed on the state of hospitals ability to respond effectively to the caseload. Further information is required on the number and location of refugees/migrants in Veracruz and their levels of access to healthcare.