

Epidemiological Update for Dengue, Chikungunya and Zika in 2021.

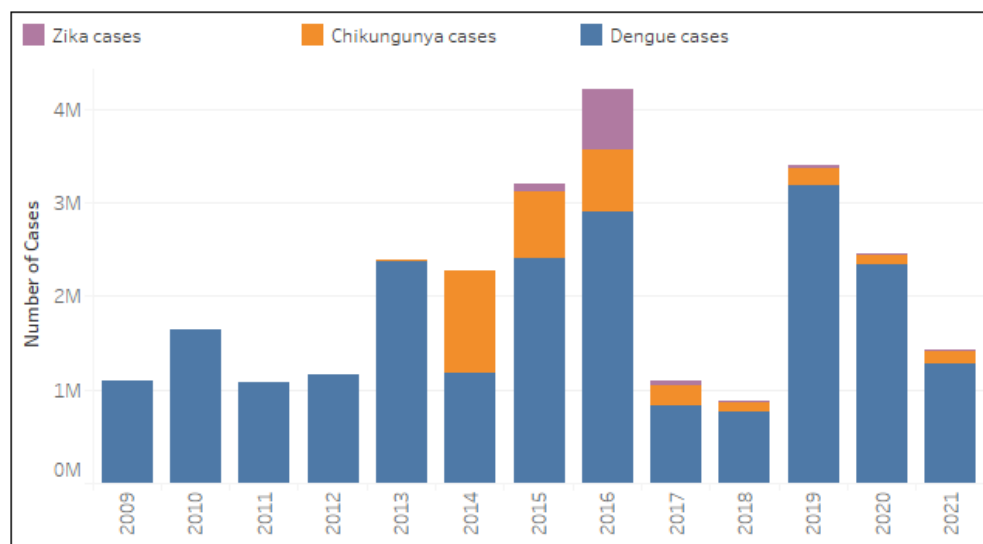
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Arboviral situation summary

In the Region of the Americas, between epidemiological week (EW) 1 and EW 52 of 2021, a total of 1,430,267 cases of arboviral disease were reported. Of those, 1,268,767 (88.7 %) were dengue cases, 138,358 (9.7 %) chikungunya cases, and 23,142 (1.6 %) were Zika cases. Country specific data on case counts and completeness can be found at <https://www.paho.org/plisa>

The thirteen-year pattern of circulation of these arboviruses is depicted in (Figure 1)., which shows that the introduction of chikungunya in December of 2013 is clearly observed in 2014. Similarly, following the introduction of Zika in 2015, there was widespread circulation of the virus in 2015. Nevertheless, dengue circulation has continued to predominate.

Figure 1. Distribution of reported cases of dengue, chikungunya, and Zika by year. Region of The Americas. 2009-2021



Source: Data entered into the Health Information Platform for The Americas (PLISA, PAHO / WHO) by the Ministries and Institutes of Health of the countries and territories of the Region. Available at: <https://www.paho.org/plisa>

Updated data as of epidemiological week 52 for Dengue, 52 for chikungunya and 52 for Zika of 2021

DENGUE

1,268,767 cases
127.89 cases x 100,000 Pop.
3,273 severe dengue (0.3%)
437 deaths
0.034% case fatality rate (CFR)

Saint Bartolome is he country with the highest cumulative incidence

CHIKUNGUNYA

138,358 cases
13.84 cases x 100,000 Pop.
12 deaths
0.009 % case fatality rate (CFR)

Belize is he country with the highest cumulative incidence

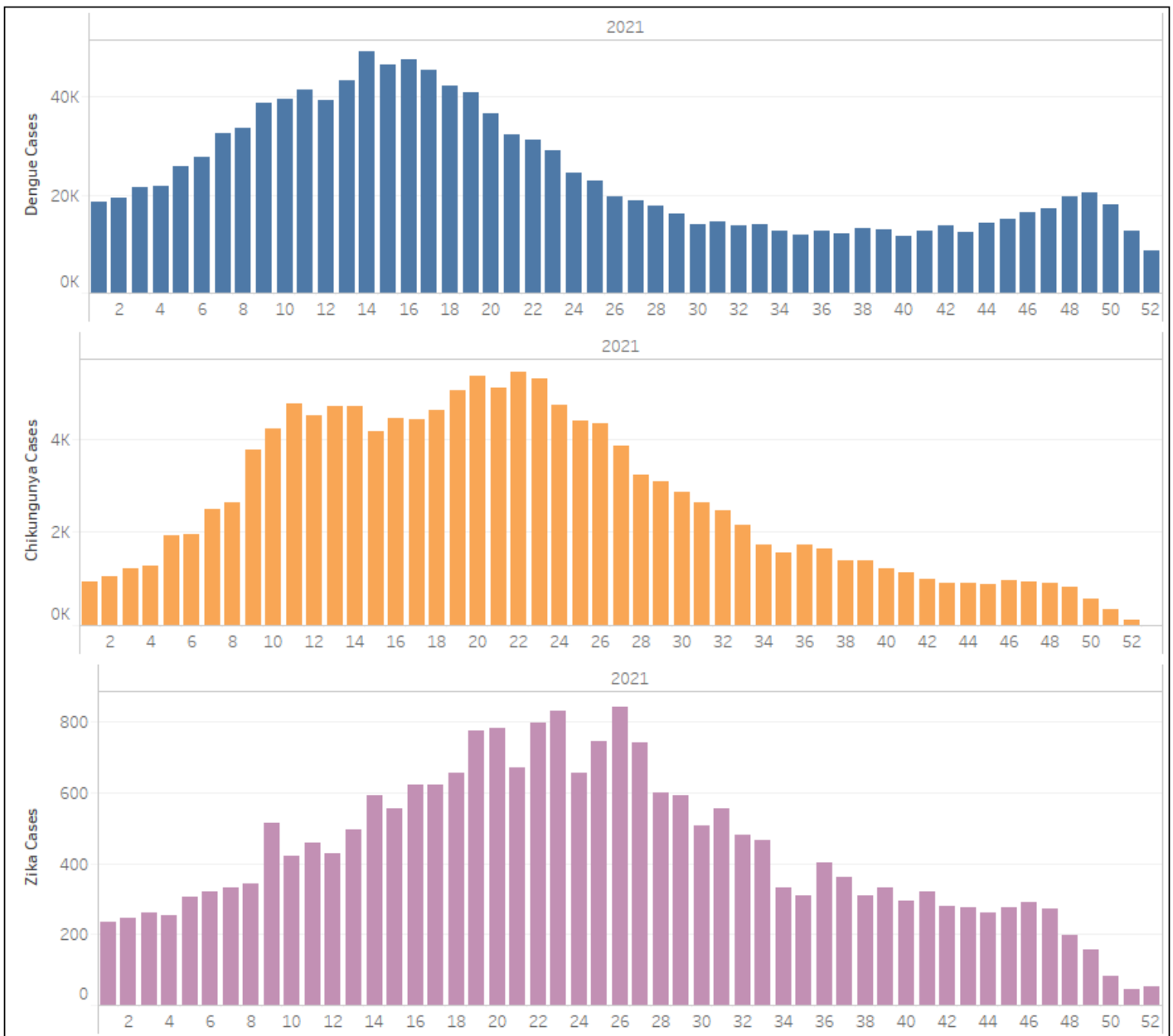
ZIKA

23,142 cases
2.32 cases x 100,000 Pop.
5 death
0.022 % case fatality rate (CFR)

Belize is he country with the highest cumulative incidence

In the Region of the Americas, the total number of cases of arboviral disease reported in 2021 as of 52 represents approximately 41.8 % relative decrease compared to the same period in 2020. It is worth noting that in 2021 dengue peaked at EW 14, whereas chikungunya peaked in EW 22. For the same time period, Zika circulation was stronger in the first semester of 2021, however, its circulation pattern is less pronounced, as case counts are much smaller and many countries do not notify cases of Zika (Figure 2).

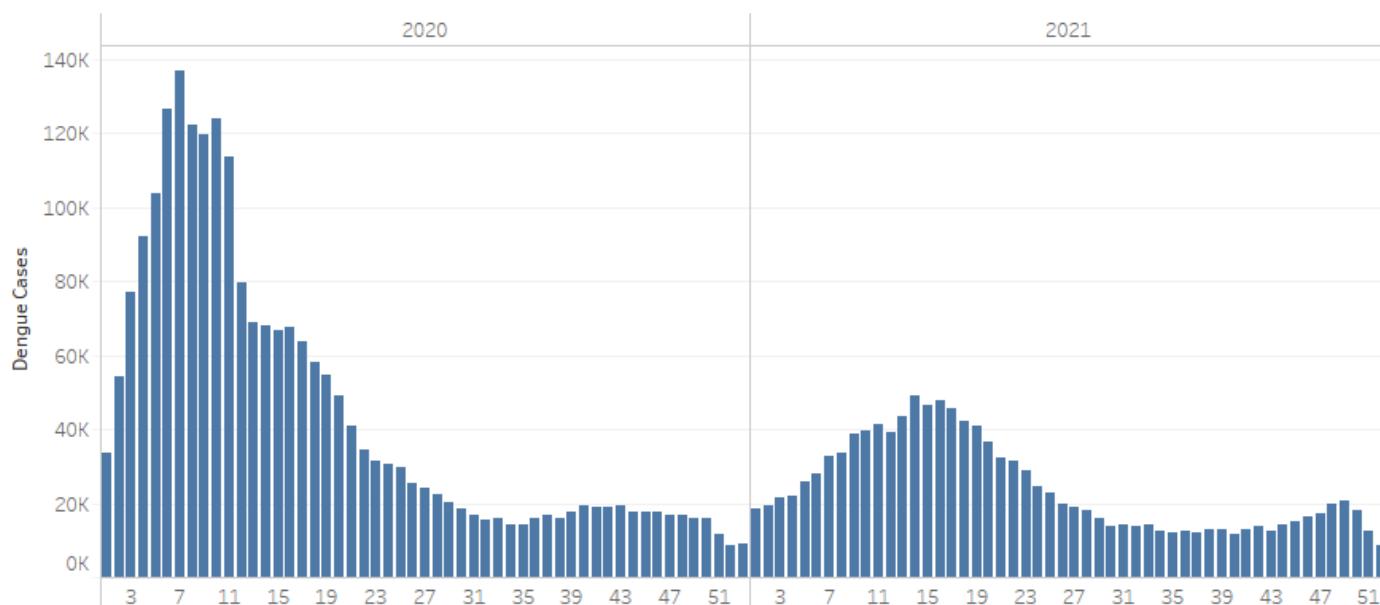
Figure 2. Distribution of cases of dengue, chikungunya, and Zika by epidemiological week (EW), Region of The Americas, 2021.



Source: Data entered into the Health Information Platform for The Americas (PLISA, PAHO / WHO) by the Ministries and Institutes of Health of the countries and territories of the Region. Available at: <https://www.paho.org/plisa>

Between EW 1 and 52 of 2021, a total of 1,268,767 cases of dengue were reported in the Region of the Americas, with a cumulative incidence of 127.89 cases per 100,000 population. The year 2019 yielded the highest number of dengue cases since the Pan American Health Organization started collecting dengue case data in 1980. The peak for cases in 2019 was observed in EW 7. The year 2021 started with intense dengue transmission earlier in the year, peaking in EW 14, when most countries began imposing social distancing and lockdown measures due to COVID-19 and dengue transmission observed an important decline. The rate of growth of the curve in Figure 3 for 2020 was 309% from EW 1 until peak on EW 7, while the rate of growth for the curve in 2021 was 165%, from EW 1 until peak on EW 14.

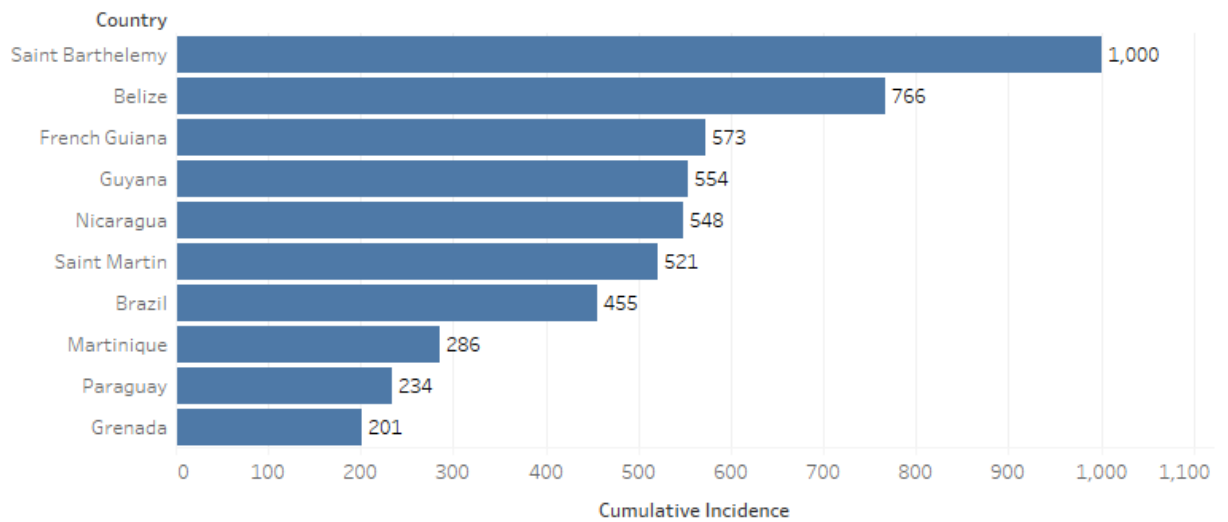
Figure 3. Distribution of Regional dengue cases by epidemiological week in The Americas, 2020-2021.



Source: Data entered into the Health Information Platform for The Americas (PLISA, PAHO / WHO) by the Ministries and Institutes of Health of the countries and territories of the Region. Available at: <https://www.paho.org/plisa>

As of EW 52 of 2021, the highest number of dengue cases in the Region have been reported by the following countries: Brazil with 975,474 cases (76.9%), Colombia with 53,334 cases (4.2%), Peru with 49,274 cases (3.9%), Mexico with 36,742 cases (2.9%), and Nicaragua with 36,741 cases (2.9%). Distribution of incidence of dengue by subregion is presented in Figure 4. Note that the case counts for the ten countries in the Region account for 1,151,565 total cases or 90.8% of the total cases of dengue.

Figure 4. Cumulative incidence of dengue cases per 100,000 population. Region of The Americas, 2021.

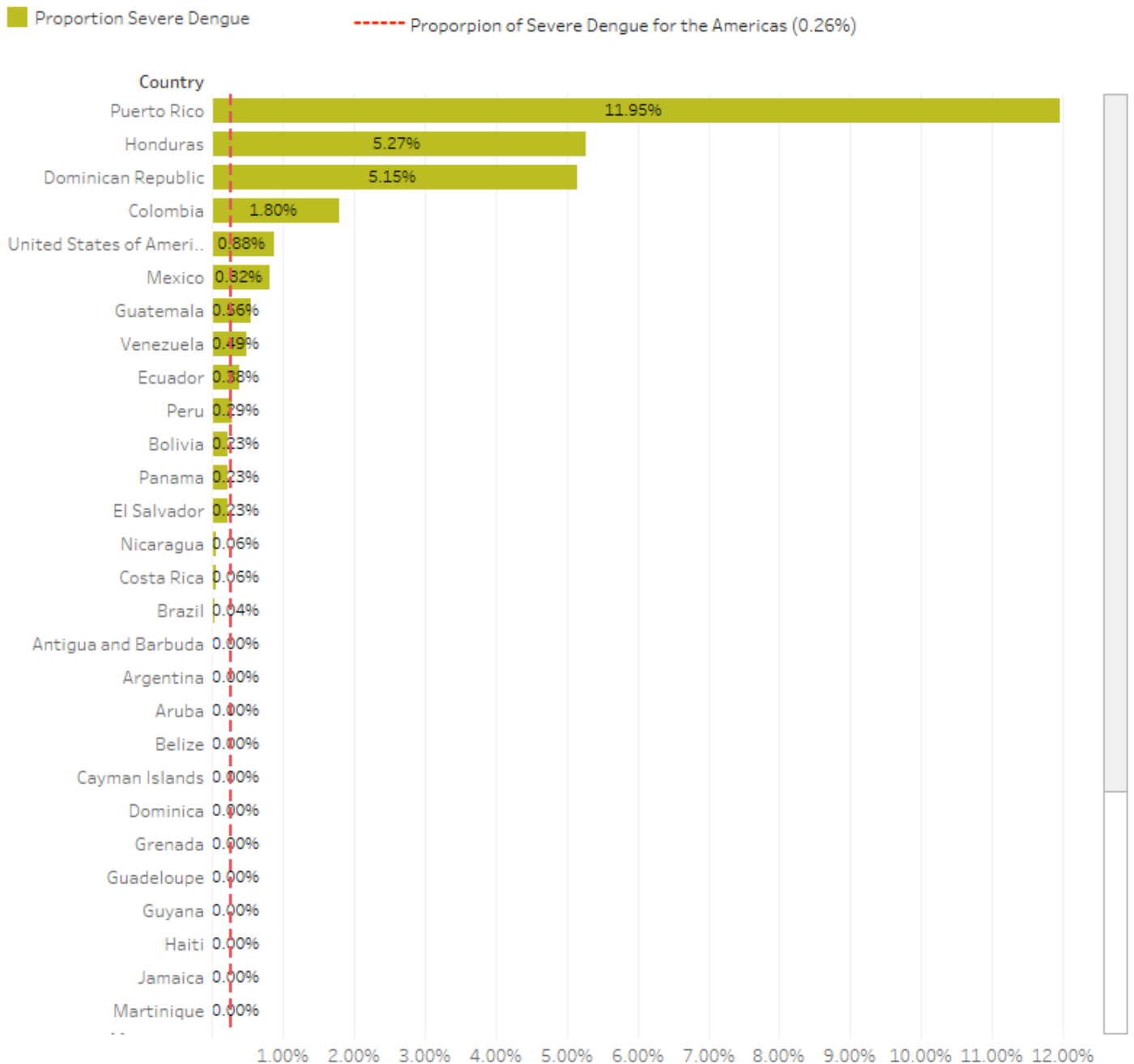


Source: Data entered into the Health Information Platform for The Americas (PLISA, PAHO / WHO) by the Ministries and Institutes of Health of the countries and territories of the Region. Available at: <https://www.paho.org/plisa>

In 2021, of the total of cases reported in the Region, 526,508 (41.5%) were laboratory-confirmed and 3,273 (0.3%) were classified as severe dengue (Figure 5). The highest number of severe dengue cases were reported by the following countries: Honduras with 1,041 cases (31.8%), Colombia with 958 cases (29.3%), Brazil with 371 cases (11.3%), Mexico with 300 cases (9.2%), and Dominican Republic with 193 cases (5.9%).

Figure 5 describes the proportion of severe dengue cases among all cases of dengue reported. 10 countries have reported higher proportion of severe cases than the regional mean of 0.27. Of note, the countries reporting the greatest proportion of severe cases among total dengue cases in 2021 were United States, (1.75%), Colombia, (1.8%), Dominican Republic, (5.15%), Honduras, (5.27%), Puerto Rico, (11.95%) .

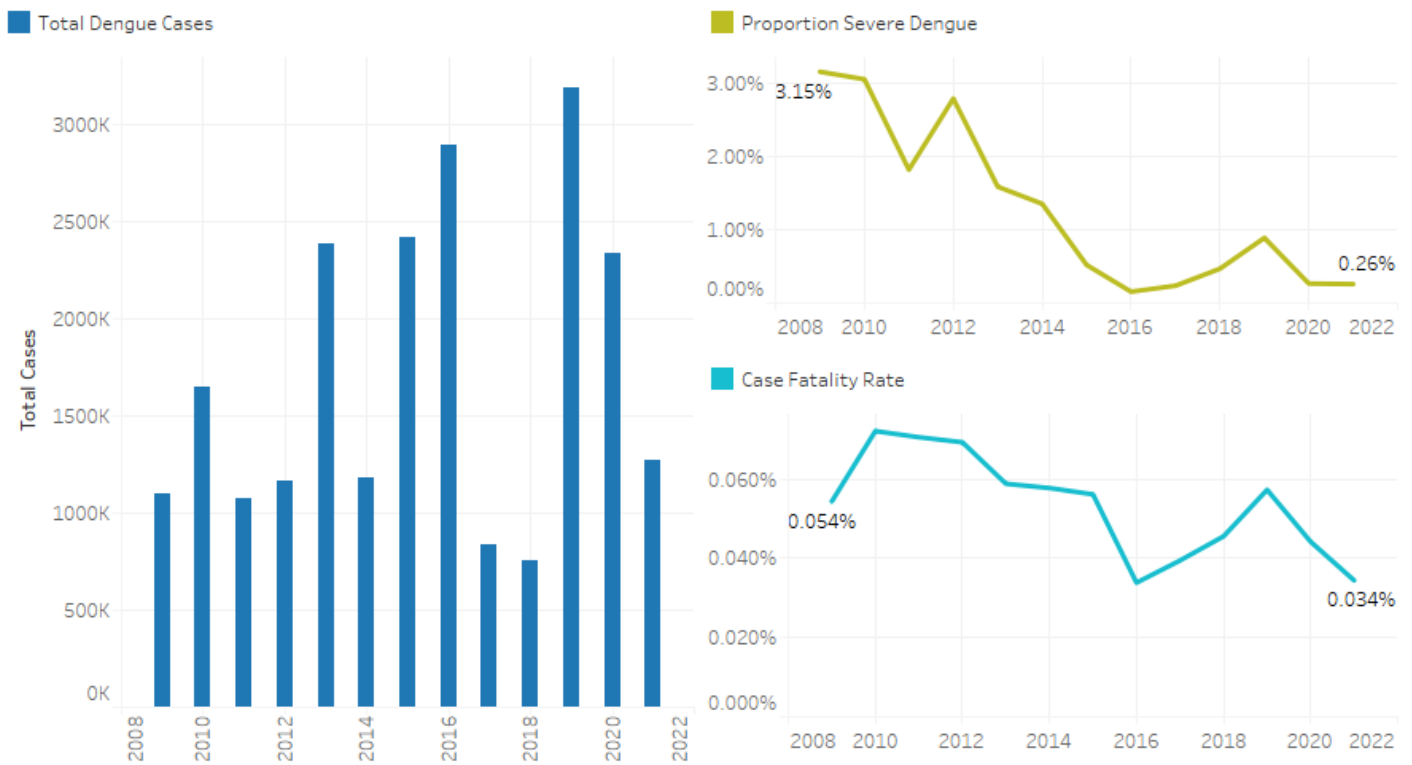
Figure 5. Proportion of severe dengue. Countries and territories of The Americas, 2021.



Source: Data entered into the Health Information Platform for The Americas (PLISA, PAHO / WHO) by the Ministries and Institutes of Health of the countries and territories of the Region. Available at: <https://www.paho.org/plisa>

Figure 6 below includes the pattern of dengue cases in the Americas since 2008. Also included in Figure 6 is the Regional, 10-year trend of the proportion of severe cases among all dengue cases and the proportion of dengue deaths among all dengue cases (case fatality rate, or CFR). Additionally, during the same period, a total of 437 deaths were reported in the Region (CFR: 0.034%).

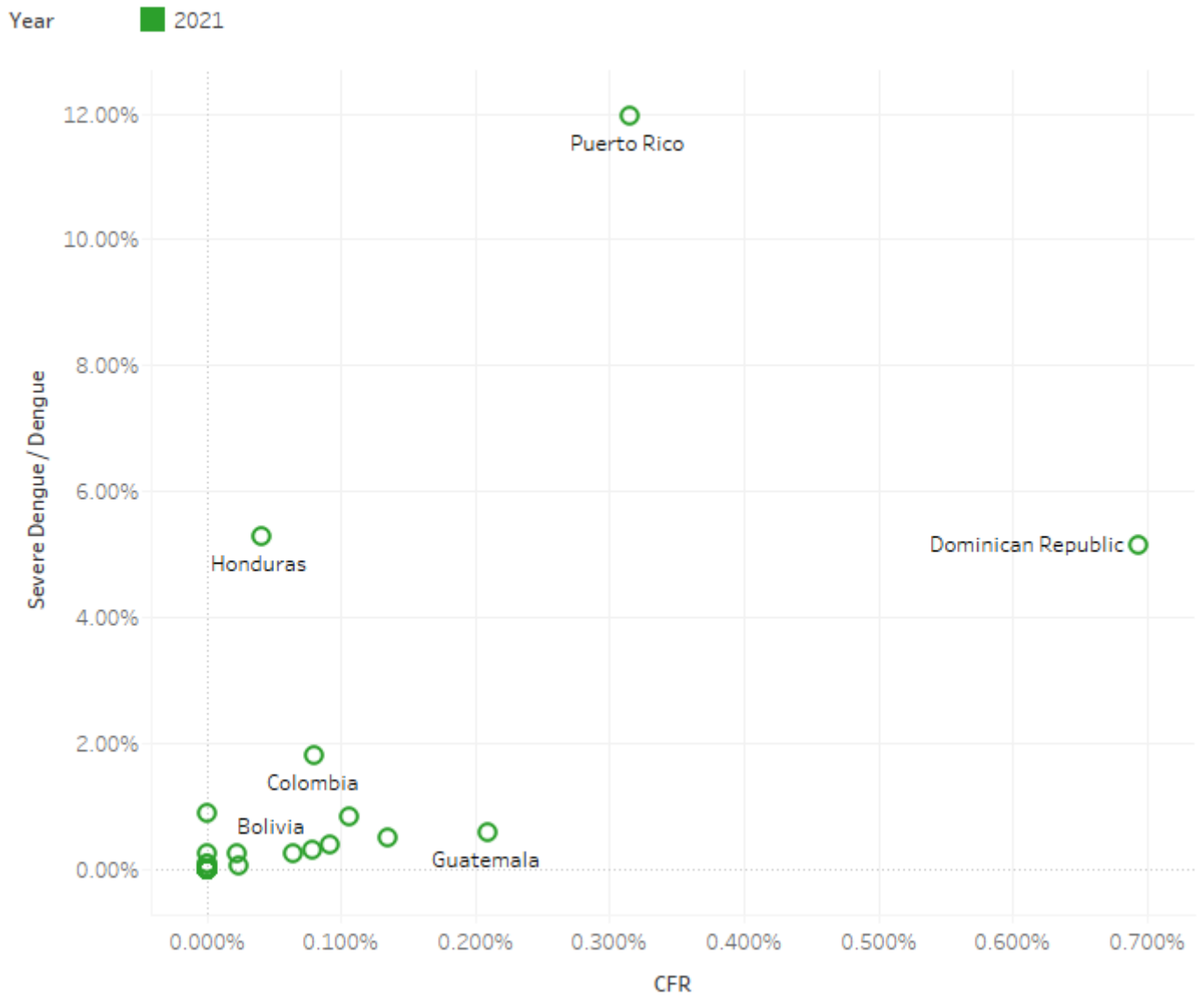
Figure 6. Distribution of reported dengue cases, proportion of severe dengue cases and case fatality rate trends. Region of the Americas, 2021.



Source: Data entered into the Health Information Platform for The Americas (PLISA, PAHO / WHO) by the Ministries and Institutes of Health of the countries and territories of the Region. Available at: <https://www.paho.org/plisa>

In Figure 7 below, we can see a scatterplot of two variables used to monitor the severity of dengue seasons—the Dengue Case Fatality Rate (CFR or the proportion of how many cases of dengue die from the virus among all cases of the virus) and the proportion of severe cases among all dengue cases. This scatterplot attempts to visually demonstrate how these two variables are correlated. In this scatter plot we would expect to see a positive correlation. That means that as countries observe more severe cases, we would expect a greater proportion of these cases die.

Figure 7. Scatter plot of CFR and Proportion of severe cases for 2021.



Source: Data entered into the Health Information Platform for The Americas (PLISA, PAHO / WHO) by the Ministries and Institutes of Health of the countries and territories of the Region. Available at: <https://www.paho.org/plisa>

All four dengue virus serotypes (DENV 1, DENV 2, DENV 3, DENV 4) were present in the Americas Region in 2021. Colombia, Guatemala, Mexico reported the detection of all four serotypes in 2021. Dengue serotype circulation by country is detailed in Figure 8.

Figure 8. Geographic distribution of serotypes in the region of The Americas, 2021.

Country	DENV1	DENV2	DENV3	DENV4
Argentina	●	●		●
Bolivia	●	●		
Brazil	●	●		
Colombia	●	●	●	●
Costa Rica	●	●		
Cuba	●	●		
Ecuador	●	●		
French Guiana	●	●	●	
Guadeloupe		●		
Guatemala	●	●	●	●
Honduras	●	●		●
Martinique	●	●	●	
Mexico	●	●	●	●
Nicaragua		●		
Panama	●	●		
Paraguay	●	●		●
Peru	●	●		
Puerto Rico	●	●		
Saint Barthelemy	●			
Saint Martin	●			
Venezuela	●	●	●	

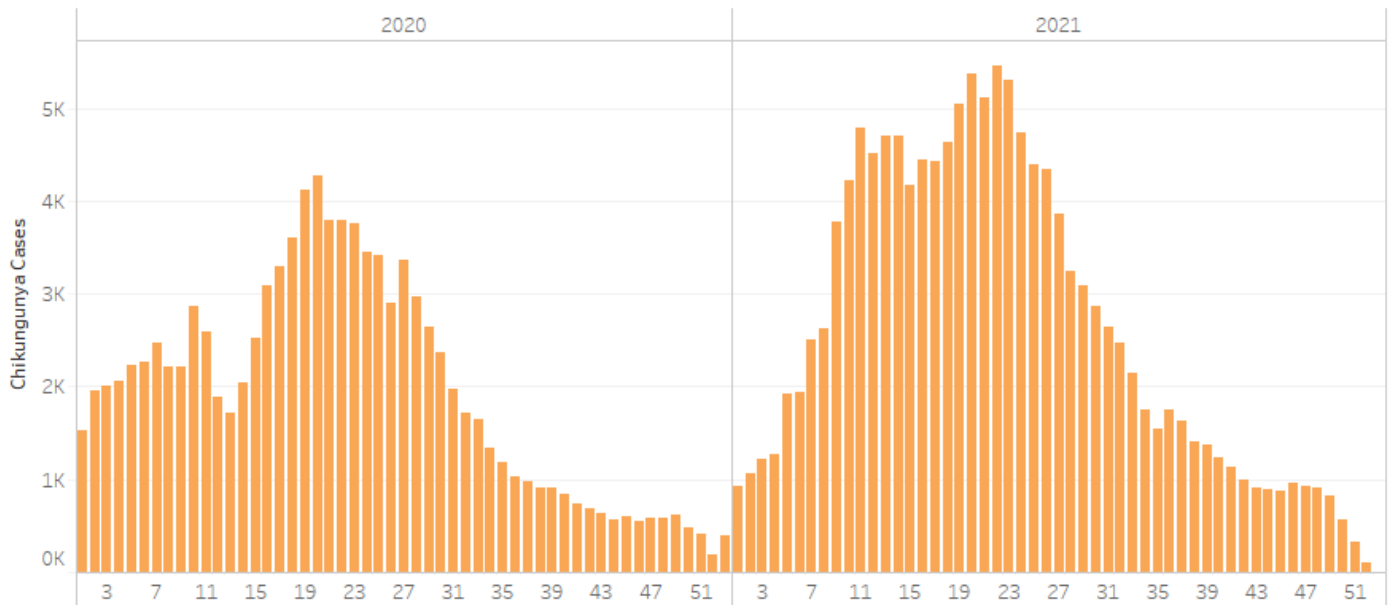
Serotype
■ DENV1 ■ DENV2 ■ DENV3 ■ DENV4

Source: Data entered into the Health Information Platform for The Americas (PLISA, PAHO / WHO) by the Ministries and Institutes of Health of the countries and territories of the Region. Available at: <https://www.paho.org/plisa>

Chikungunya

Between EW 1 and EW 52 of 2021, a total of 138358 chikungunya cases were reported in 15 of the 52 countries and territories in the Region of the Americas, of which 65542 were confirmed (47.4 %). The regional cumulative incidence for chikungunya in 2021 was of 13.84 cases per 100,000 population. The rate of growth of the curve for 2020 was 181% from EW 1 until peak on EW 20 , while the rate of growth for the curve in 2021 was 487% , from EW 1 until peak on EW 22. Peak transmission was in EW 20 for 2020 and in EW 22 for 2021. 12 deaths were reported associated with chikungunya infection.

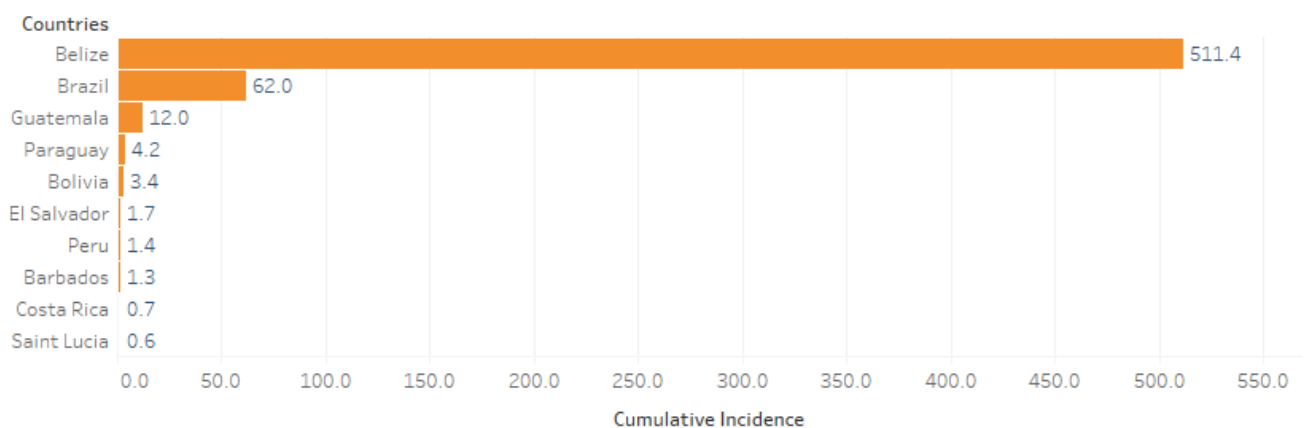
Figure 9. Chikungunya cases per epidemiological week (EW). Region of the Americas. 2020-2021.



Source:Data entered into the Health Information Platform for The Americas (PLISA, PAHO / WHO) by the Ministries and Institutes of Health of the countries and territories of the Region. Available at: <https://www.paho.org/plisa>

As of EW 52 of 2021, the highest number of chikungunya cases in the Region have been reported by Brazil, with 132,587 cases, which represents (95.8 %) of total regional cases. Guatemala follows in case counts with 2,196 cases (1.6 %), followed by Belize with 2,070 cases (1.5 %), Peru with 475 cases (0.3 %), and Bolivia with 404 cases (0.3%). During the same period, 12 deaths attributed to chikungunya infection were reported. The countries with the highest incidence are included in Figure 10.

Figure 10. Cumulative incidence of chikungunya cases per 100,000 population. Region of the Americas 2021.

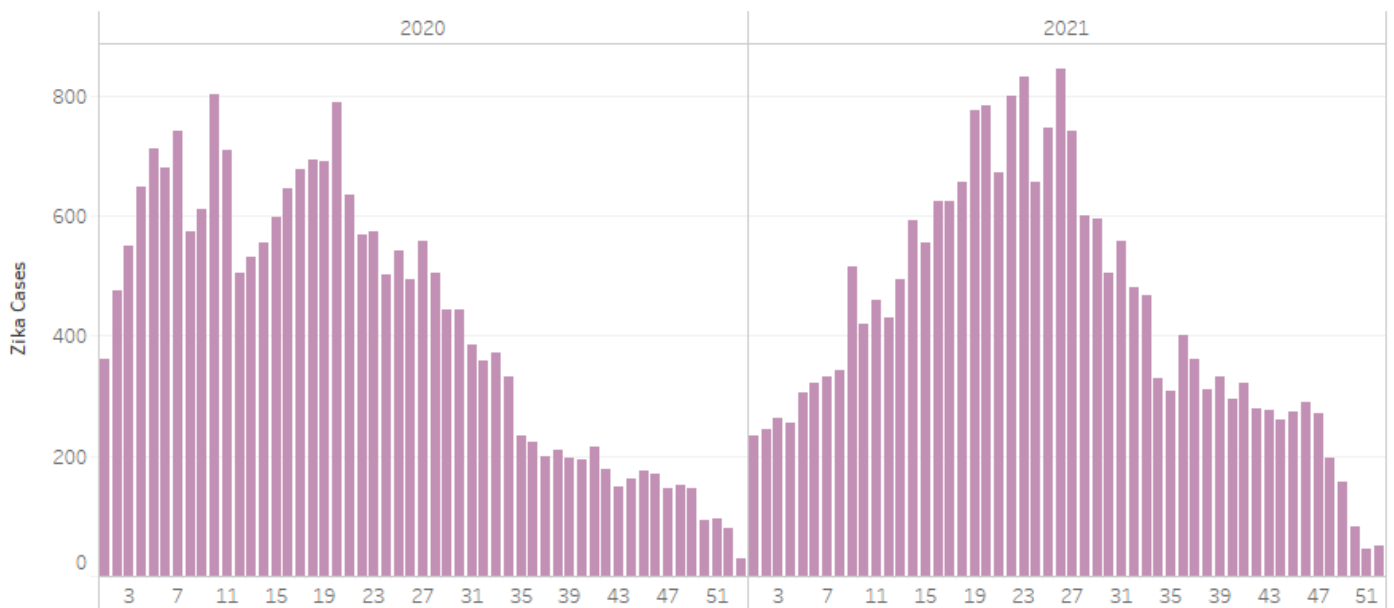


Source:Data entered into the Health Information Platform for The Americas (PLISA, PAHO / WHO) by the Ministries and Institutes of Health of the countries and territories of the Region. Available at: <https://www.paho.org/plisa>

Zika

Between EW 1 and EW 52 of 2021, a total of 23,142 of Zika have been reported in the Region of the Americas in 14 out of 52 countries and territories. Of all reported cases, 3,668 were lab-confirmed (15.8%). The 23,142 represents a cumulative incidence 2.32 cases per 100,000 population. Only 5 Zika-related death was reported for the year. Since its first detection in Brazil in March of 2014, local transmission of Zika has been confirmed in all countries and territories in the Americas, except for continental Chile, Uruguay, and Canada (Figure 11). 5 deaths were reported associated with Zika infection.

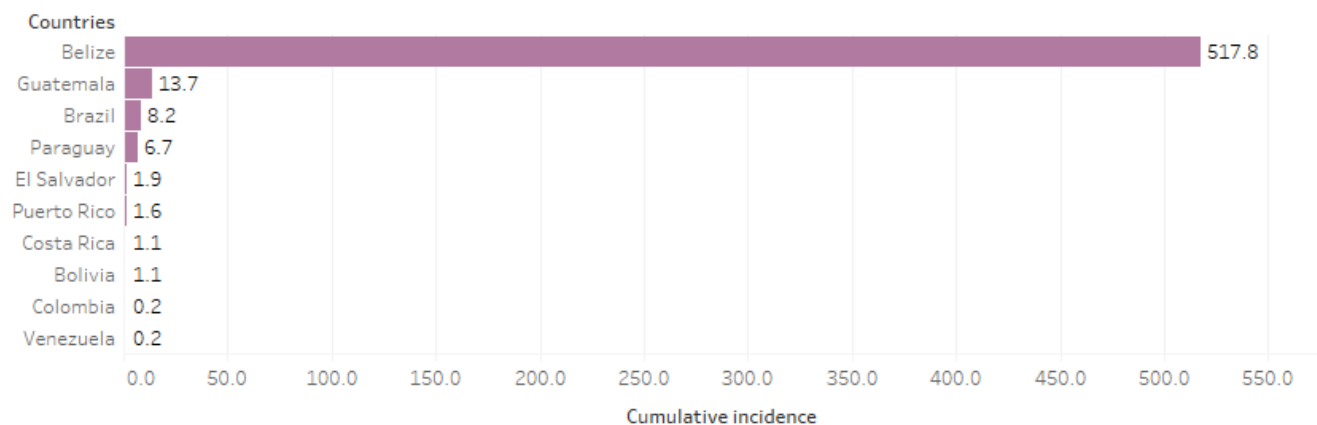
Figure 11. Distribution of reported cases of Zika by epidemiological week. Region of the Americas. 2020-2021.



Source: Data entered into the Health Information Platform for The Americas (PLISA, PAHO / WHO) by the Ministries and Institutes of Health of the countries and territories of the Region. Available at: <https://www.paho.org/plisa>

The highest numbers of Zika cases in the Region were reported in the following countries: Brazil with 17,496 cases (75.6 %), Guatemala with 2,500 cases (10.8 %), Belize with 2,097 cases (9.1 %), Paraguay with 483 cases (2.1 %), and Bolivia with 125 cases (0.5 %) of cases in the Region. The five countries with the highest cumulative incidence are included in Figure 12

Figure 12. Cumulative incidence of Zika cases per 100,000 population. Region of the Americas 2021.



Source: Data entered into the Health Information Platform for The Americas (PLISA, PAHO / WHO) by the Ministries and Institutes of Health of the countries and territories of the Region. Available at: <https://www.paho.org/plisa>

Note: As information is updated, PLISA automatically updates data, including retroactively. Therefore, data for any given time period may change as countries update their data.