

The Impact of the COVID-19 Pandemic on Reports Involving *Arboviruses*

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Introduction

The pandemic related to SARS-CoV-2, the virus that causes COVID-19, caused severe impacts in many important sectors for health and the entire society. We can observe that curiously the number of notifications related to *arboviruses* ended up decreasing as the notification related to COVID-19 increased [1]. Currently, we live in a paradigm where globalization itself offers factors for the incidence of *arboviruses*. We can consider environmental, socioeconomic factors and, above all, climate change imposed by urbanization and also by the exacerbated consumption of natural resources. *Arboviruses* are diseases transmitted by the bite of hematophagous arthropods and although many of them present different forms of horizontal transmission and in most cases, present symptoms of a common nature, such as headaches, skin patches, arthralgias, myalgias, in addition to the encephalitogenic potential that these viruses usually present [2]. All these points mentioned are strong factors that contribute to the re-emergence of diseases [3]. One of the most important factors for the increase in the proliferation of arthropod vectors is precisely the tropical position where Brazil is located, with the hot climate and the high amount of rain, it offers favorable reservoirs for these mosquitoes to lay their eggs and carry out their growth and development. We can also point out the socioeconomic factors related to social inequality observed in the country, where economically disadvantaged populations often face problems of basic sanitation and especially of housing close to reservoirs where mosquitoes inhabit and develop, thus increasing the incidence of these diseases [4].

Arboviruses are a public health problem in the country, precisely because we do not have effective antiviral drugs against these diseases and also because of their similar symptoms in the acute phase of the infection, which highlights the difficulty in the clinical management of diseases and their notification [5].

Dengue is currently occasionally the most relevant *arbovirus* in the world, being a virus of the *Flaviridae* family, and in 2019, according

to the Ministry of Health, 1,544,987 cases were reported up to the epidemiological week (SE) 52. What still configures a large number of cases of the disease. Following the line of *arboviruses* of clinical importance, we also have the *Zika Virus* (ZIKV), which had a number of notified cases of 10,768, up to SE 52, a very small number when compared to dengue, even though it is also a virus that perpetuates the infection through the same arthropod vector. The *Chikungunya Virus* (CHIKV), from the *Togaviridae* family and which is capable of promoting strong joint complications had a number of 132,205 probable cases, according to the Ministry of Health, in 2019 [6].

What happens directly with *arboviruses* is a reflection of an ecological crisis and especially of socio-environmental conflicts. We can clearly see a reflection associated with climate change, the lack of basic sanitation and also a whole context aimed at social inequality and in the health, services offered to the population. We can also point out the lack of health education services for the prevention and control of *arboviruses* [7].

However, there is a curious question about the number of cases of *arboviruses* in the years 2019 compared to 2020, a year concomitant with the COVID-19 pandemic caused by SARS-CoV-2, the new coronavirus. A significant reduction in the number of reported cases of these diseases was observed (Table 1).

With the onset of the pandemic, measures were taken related to “lockdown” and social isolation to somehow try to control the transmission of the virus, but we also observed the social and economic imbalance caused by a policy not prepared to provide the population with basic alternatives to an unusual setting [8].

However, assuming that the housing conditions of economically disadvantaged people are factors that lead to an increase in the number of *arboviruses* cases, it is quite curious to observe numbers such as those presented in figure 1. The number may be lower due to the fact the sanitary and socioeconomic crisis observed in the pandemic, in addition to the high occupancy rate of hospital beds destined for COVID-19 [9].

Number of probable cases of Dengue, Chikungunya and Zika in Brazil in 2019 and 2020

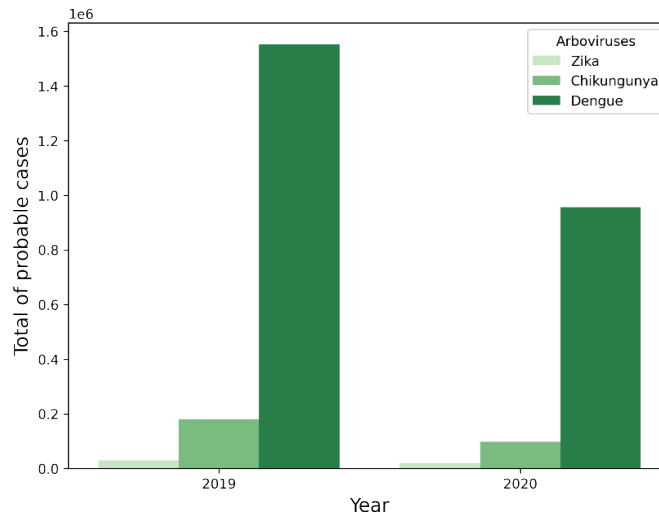


Figure 1: Graphic illustration showing the number of probable cases of Zika, Dengue and Chikungunya in the years 2019 and 2020. The X-axis represents millions of cases and the Y-axis represents years. *1e6=1.000.000 of probable cases. The software used was the Python Software®.

Table 1: Number of probable cases of Dengue, Chikungunya and Zika in Brazil in 2019 and 2020, source: DATASUS-Ministry of Health of Brazil.

	2019	2020
Dengue	1.554.123	968.939
Chikungunya	178.147	100.189
Zika	30.500	19.300

Table 2: Number of Probable Cases of COVID-19 in Brazil, source: DATASUS-Ministry of Health.

	2020/2021
COVID-19	6.880.127/21.459.117

The cases referred to in table 2 are seen going in the opposite direction to the cases of *arboviruses* which, instead of increasing, ended up decreasing. Logically, we cannot compare the transmissibility of COVID-19 with *arboviruses*, however, the ineffective notification of *arboviruses* can end up interfering with disease prevention and control strategies.

Conclusion

The COVID-19 pandemic scenario in Brazil is causing huge gaps in health services, economic impacts and social circumstances in all spectrums of society. The reflection of a policy of late and initially ineffective actions meant that even within the notifications involving *arboviruses*, problems with the characterization of these diseases were observed.

The hypothesis that the scope of notifications may not have been broad enough to understand even the people who are most affected by the unequal policy and by the health service that failed to reach and catalog all cases of *arboviruses* that only fit each time more in the context of neglected diseases.

Conflicts of Interest

The author(s) declare that there are no conflicts of interest.

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