

EPIDEMIOLOGICAL PROFILE OF CONGENITAL SYPHILIS IN BRAZIL: TIME SERIES FROM 2018 TO 2021

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Abstract: The general objective of the study was to analyze the epidemiological profile of congenital syphilis in Brazil through time series of the number of cases in the period 2018-2021. Quantitative, descriptive and retrospective epidemiological study with data from the Information System of Diseases and Notifications of the Unified System of Health of cases of congenital syphilis in Brazil, between the years 2018-2021. It was evident that in the pandemic period there was a circumstantial decrease in the follow-up of congenital syphilis, both in prenatal care support and in the treatment of pregnant women, it is inferred that underreporting is an important variable in the results of the study. Thus, it is important that new studies be carried out to determine, for example, the trend of cases, since this study sought to analyze only the number of cases between the years 2018 to 2021.

Keywords: Sífilis congênita; COVID-19; *Treponema pallidum*.

INTRODUCTION

During the period of the COVID-19 pandemic until the present date, October 21, 2022, 687,527 deaths were recorded in Brazil (BRASIL, 2022). Given this scenario, restrictive physical contact measures were necessary in order to contain its transmissibility and consequently impact its lethality potential. Evidence referring to the United States demonstrates that the pandemic has interrupted the usual standards of health care (CARR, 2020; DI BUDUO, 2020). The survey of cases of other diseases such as syphilis was delayed due to this scenario (BRASIL, 2022).

Syphilis is an infectious disease with a complex pathophysiology, systemic and chronic evolution, caused by sexual and intimate contact as a form of horizontal transmission and can be transmitted vertically

from the mother to the fetus still in utero or when the child comes into contact with genital lesions. mothers during childbirth (BRANDENBURGER, 2021). Congenital syphilis, on the other hand, is transmitted vertically from the mother to the newborn, and must be seen as a failure of the public health system to provide better prenatal care for pregnant women, given the ease of diagnosis in the first trimester, which would promote rapid treatment of the woman, her partner and the fetus. The treatment is done with benzylpenicillin and its dose varies according to the stage of the disease, the use of other therapeutic schemes and the lack of treatment are predictive factors for the vertical transmission of syphilis (COOPER, 2018; BRASIL, 2022).

In 2021, the prescribed therapeutic scheme was inadequate or not carried out in 81.1% of the mothers of children with congenital syphilis, losing the opportunity to avoid vertical transmission. In addition, there was an increase in deaths from congenital syphilis (39.9%) comparing the years 2011 and 2021 and a 2.7-fold increase in abortions due to syphilis (BRASIL, 2022).

Syphilis can infect the fetus at all stages of the disease and regardless of the trimester of pregnancy. Thus, for adequate treatment that allows the reduction of negative outcomes for the newborn, it is essential that there is an early diagnosis in order to favor early treatment, preferably in the first trimester of pregnancy, aiming at a lower exposure of the newborn to *treponema* (ROCHA, 2021).

For Plotzker (2018), congenital syphilis is a preventable disease, effectively avoided with adequate prenatal screening and BPG therapy. Increasing rates of syphilis among all adults, accompanied by gaps in prenatal care for women at high risk of infection, are major contributors to the persistence of congenital syphilis.

In the care services offered by primary care, the loss of follow-up during prenatal care, in the pandemic period, fostered a drop in the notification of syphilis cases and a consequent rise in the incidence of congenital syphilis. Among the multifactorial causes of this loss of follow-up, there is underreporting of cases, which can be attributed to low testing in the critical period of the pandemic; and the change in the population's behavioral pattern during this period (CONASS 2020; LIMA, 2022; DE OLIVEIRA, 2022). For Lima (2022), the behavioral aspect refers to the decrease in demand for medical care and a consequent failure to detect and interrupt the syphilis transmission chain.

In view of the above, the need arose to assess the numbers of congenital syphilis in the country at the beginning of the pandemic period and after the peak of the pandemic, in order to better assess the behavior of this disease and the possible damage caused by the new organization of primary health care that was being implemented. installed as a result of protective measures against COVID-19. Thus, the general objective of the study was to analyze the epidemiological profile of congenital syphilis in Brazil through time series of the number of cases in the period 2018-2021.

MATERIALS AND METHODS

A quantitative, descriptive and retrospective epidemiological study was carried out, based on the analysis of the time series on the profile of congenital syphilis in Brazil before the COVID-19 pandemic, referring to the years 2018 and 2019, and through the pandemic scenario 2020 to 2021.

Notification data of cases of the disease communicated to the Disease Information and Notification System (SINAN-SUS), as well as demographic and socioeconomic health information available on the DATASUS

website.

Selection criteria were all cases of congenital syphilis reported during this period; and that they were available for consultation.

The population of this study is composed of all cases of congenital syphilis in Brazil during the study period reported to SINAN of male and female newborns, without socioeconomic distinction.

Thus, the variables studied were ethnicity, maternal education and the distribution of cases by region of Brazil. The data were submitted to descriptive statistical analysis of the absolute frequencies of the number of cases, with the help of Microsoft Excel software, version 2016, and the time series were prepared using the Minitab 18 program.

RESULTS AND DISCUSSION

In Brazil, during the period from 2018 to 2021, there were 84,698 cases of congenital syphilis. There were 26,548 cases reported in 2018, 24,355 in 2019, 22,136 in 2020 and 10,895 in 2021; with an average of 21,174.5 cases per year. It was found that congenital syphilis was more frequent in 2018, and there was a gradual reduction in cases over the subsequent years with a downward trend (Figure 1).

The 2018 Syphilis Epidemiological Bulletin reports that in 2017, 24,303 cases of congenital syphilis were diagnosed in neonates, 96.7% of which occurred in the first week of life. Research prior to that period shows that there was a progressive increase in the incidence of congenital syphilis in Brazil and in 2018 it was four times higher than the 2008 rate, rising to 9.0 cases/1,000 live births (AQUINO, 2021). In this context, acquired syphilis showed an increase in incidence until the year 2018, with subsequent stability until the year 2020 when it began to decline (BRAZIL, 2022).

In 2021, the percentage of adequate treatment for syphilis during pregnancy was

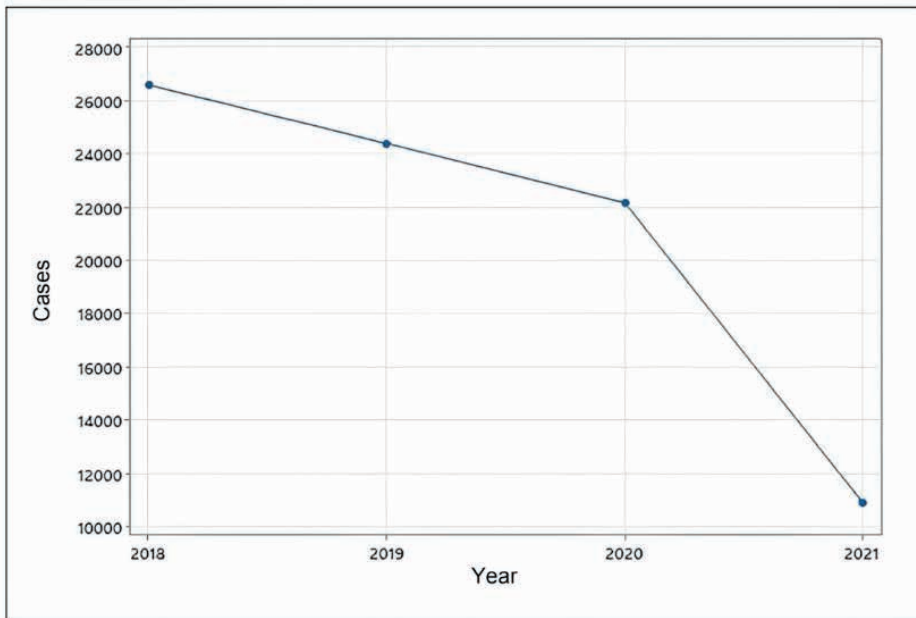


Figure 1 – Distribution of cases of congenital syphilis from 2018 to 2021 in Brazil. Data obtained from SINAN-DATASUS BRAZIL.

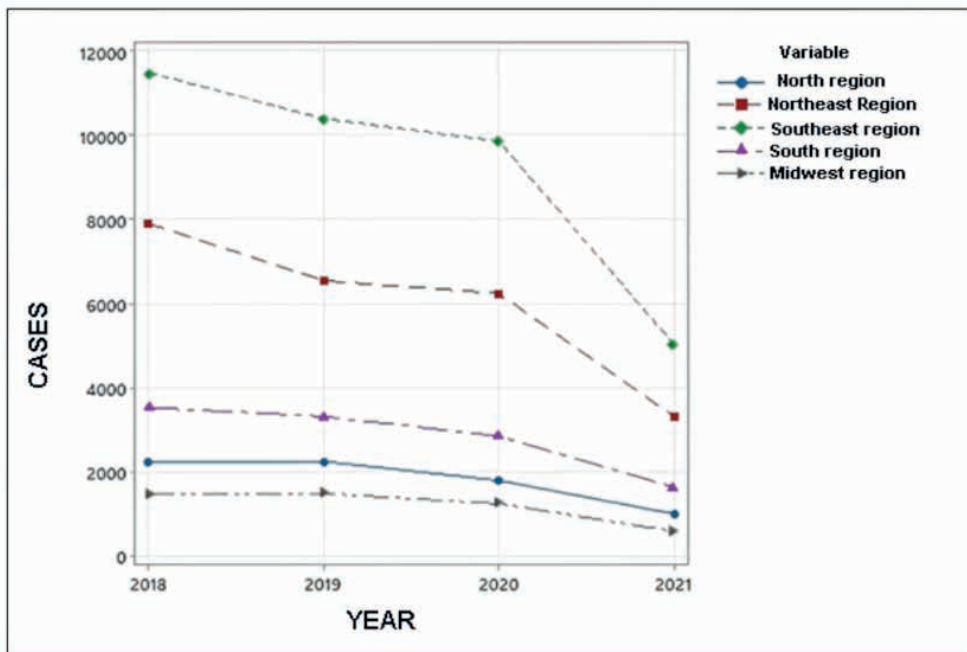


Figure 2 – Distribution of cases of congenital syphilis in relation to the region of Brazil from 2018 to 2021 in Brazil. Data obtained from SINAN-DATASUS BRAZIL.

81.4%, however, insufficient to eradicate congenital syphilis. To achieve the ideal standard, it is necessary to reach a rate of 95% coverage of maternal treatment, as recommended by the Pan American Health Organization and the World Health Organization (PAHO/WHO) (BRASIL, 2022).

Given the decline in the number of cases reported between 2020 and 2021, it is believed that this phenomenon possibly resulted from underreporting of cases on SINAN, due to the difficulties caused by the COVID-19 pandemic (CARNEIRO, 2022).

Underreporting is a reality in Brazil and in several other nations. In Latin America, underreporting is estimated at 34% in Peru, 32.2% in Argentina, 26% in Chile and 22.2% in Venezuela of syphilis and 17.4% of congenital syphilis are reported. (CAMPOS, 2010).

Most of these cases occur in developing countries, such as in Latin America, Africa and Asia where its incidence is high, but also in developed countries it is an epidemiologically important disease (SILVEIRA, 2021).

Regarding the cases of congenital syphilis by region of Brazil during the period studied, the following distributions of cases by region were verified: Southeast region (11,477 cases), Northeast region (7,894 cases), South region (3,523 cases), North region (2,228) cases and the Midwest region (1,481 cases).

In 2019, the Southeast region had the highest number of cases, 10,985 cases, the region and the Midwest region 1,485. In 2020, it was observed that the Southeast region had the most cases (9,847) with the Midwest region remaining with the lowest number of cases (1,243).

In 2021, the Southeast region had 5,025 cases, the Northeast region 3,309 cases, the South region 1,634 cases, the North region 1,001 cases and the Midwest region with 587. When observing the numbers of the regions of Brazil, it was noted that the Southeast region

obtained the highest number of cases in all years analyzed, with a total of 37,336 cases. Next was the Northeast region with 23,976 cases, the South region 11,320, the North region 7,270 cases and the Midwest region with 4,796 cases (Figure 2).

Thus, among the five regions of Brazil, throughout the period evaluated, the Southeast has the number of cases of congenital syphilis, followed by the Northeast, according to studies by Amaral, 2022. In 2018 and 2019, the numbers are significant, with a large number of syphilis in children under one year of age in these two regions. Studies indicate that in regions with a large population, deficiencies in the prenatal support offered to pregnant women and inadequate treatment for them and their partners are essential requirements to avoid vertical transmission (AQUINO, 2022).

Santos (2020) demonstrates that municipalities with a larger population are generally more likely to present an epidemic profile for syphilis compared to other municipalities.

Historically, the Northeast Region had the lowest incidence of Syphilis, as shown by Coutinho (2021) in his analysis, but with this increase, the region occupies the second position in number of cases, this observation may reveal an increase in notification of cases of congenital syphilis, a result of a possible reflection of the improvement in notification of this infection over time, as well as advances in surveillance.

However, there was a decline in the number of cases reported between 2020 and 2021 in all regions observed, this phenomenon possibly due to underreporting of cases on SINAN, due to the difficulties caused by the COVID-19 pandemic, in addition to the difficulties in controlling this infection.

In the analysis of each month in the years 2018 to 2021 considering the 12 months of the

year 2018, 2019 and 2020 and only the first semester in 2021, it was found that over the years the cases of congenital syphilis occurred more in the first semester, with a peak in March (Figure 3).

Data in all regions of the country regarding congenital syphilis for the year 2021 were incomplete. The SINAN base does not report data from July 2021, reinforcing the idea that these low values found are the result of underreporting caused by the COVID-19 pandemic, this pattern is similar to that described by Carneiro (2022) in his syphilis study.

When analyzing the profile of congenital syphilis by ethnicity, the following variables were considered: Ign/white, white, black, brown, yellow, brown and indigenous. It appears that between the years 2018 to 2021, cases of congenital syphilis affected more individuals of brown ethnicity, followed by white, English/white, black, indigenous and yellow, respectively (figure 4). Data from the 2022 Syphilis Epidemiological Bulletin that corroborate the findings of the present study demonstrate a prevalence of 53.3% of syphilis diagnoses in brown pregnant women; 27.0% white and 11.9% black (BRAZIL, 2022).

As of 2018, a decline in cases of congenital syphilis has been demonstrated, studies show that there was a failure to fill in the self-declared race/color information in the pregnant woman's booklet, over the years this factor may have precipitated the loss of data and epidemiological records which may explain the slope observed in the study (BRAZIL, 2022).

The values of congenital syphilis in blacks are lower in all the years studied, when comparing these data with the sociodemographic information described in the literature, these factors are justified by the precariousness of access to prenatal care. It is also worth mentioning that, among the

documented independent risk factors for congenital syphilis, it was observed that the mother's brown or black skin color is identified as a risk factor for congenital syphilis in Brazil and in other countries of the world (LIMA, 2008).

With regard to the profile of congenital syphilis by level of education, a higher incidence of cases of congenital syphilis was observed over the three years in individuals with incomplete 5th to 8th grade education of EF, with a total of 17,308 reported cases. The study of the socioeconomic profile indicates a relationship between low education, social exclusion and difficulty in accessing health education information, relating them to the lack of prenatal care. From this analysis, it is predicted that the high level of education brings with it a protective factor in relation to sexually transmitted diseases (ITO et al., 2020).

Another relevant factor was that parallel to this analysis, the study demonstrates that the notification among illiterates was 451 cases, this number when compared to social profile studies demonstrate, again, a relationship with failure to register. A survey carried out in the North of the country, about the school level of mothers, presents the variable of underreporting and demonstrates a deficit in the reporting system, a situation that contributes to the perpetuation of this condition. (MIRANDA et al., 2022).

CONCLUSION

Congenital syphilis is a public health problem, since the lack of screening and therefore treatment can cause serious problems for the newborn. There was a suspicion that with the advent of the pandemic, the screening of cases of congenital syphilis would decrease, due to the high demand of the Unified Health System to support patients infected with COVID-19.

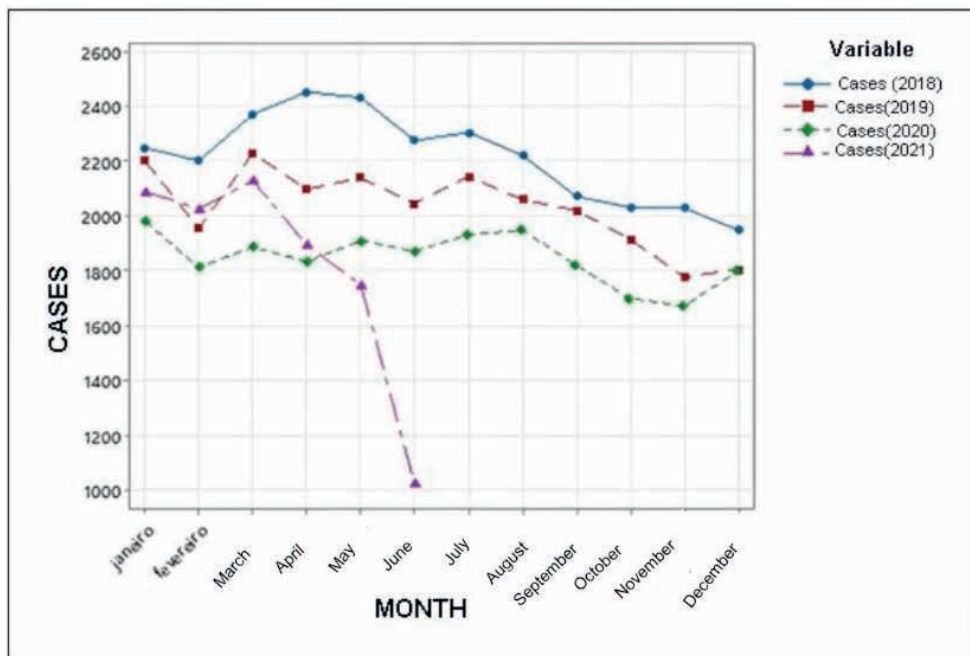


Figure 3 – Time series of congenital syphilis in the months of the years 2018 to 2021. Data obtained from SINAN-DATASUS BRAZIL.

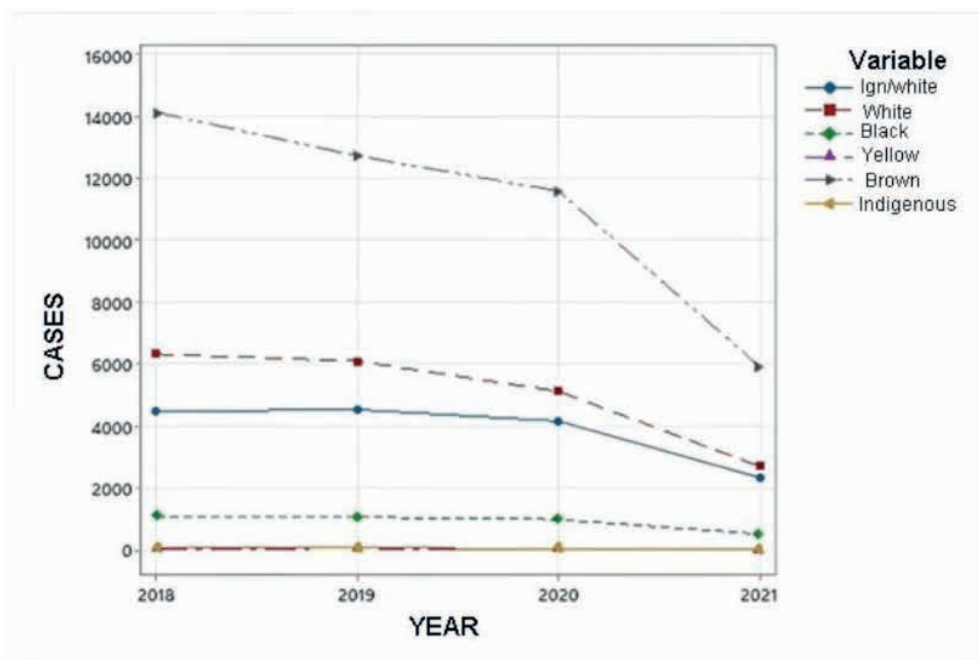


Figure 4 – Distribution of cases of congenital syphilis in relation to ethnicity from 2018 to 2021 in Brazil. Data obtained from SINAN-DATASUS BRAZIL.

When analyzing the number of cases of congenital syphilis between the years 2018 to 2021, taking into account social aspects and regional aspects with the analysis of the numbers of congenital syphilis in each region of Brazil, the accounting of the number of cases allowed us to conclude that there was a reduction of these over the years analyzed. A very sharp drop in 2021 was observed, due to the non-reporting of cases in the second quarter of 2021, a period that was the height of the pandemic.

It was observed that schooling influenced the number of cases of the disease, with greater screening of cases in individuals with

lower educational level. In addition, it was noted that the ethnicity of the patients is also related to the number of cases of congenital syphilis, since patients of mixed ethnicity had a higher number of cases. The Southeast region was the one with the highest number of cases between the years 2018 to 2021.

The present study sought to analyze the numbers of congenital syphilis between the years 2018 to 2021, taking into consideration, certain aspects. We suggest that new studies be carried out to determine the trend of cases after the pandemic, since this work only analyzed the number of cases between the pre- and post-pandemic period.

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