

## ORIGINAL ARTICLE

<https://doi.org/10.61910/ricm.v8i1.319>

# Epidemiological profile of children under investigation for congenital syphilis at a university pediatric outpatient clinic

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## ABSTRACT

**Introduction:** Syphilis is a curable bacterial infection transmitted via sexual contact, congenitally, or by blood transfusion and its incidence in Brazil has increased in the last decade. In pregnant women, this infection can endanger the life of the fetus or lead to clinical complications. Therefore, newborns of mothers with syphilis diagnosed during pregnancy should be referred for specialized care. Congenital syphilis poses a threat to reproductive and child health, making it valuable to delineate the profile of affected patients for a better understanding of the disease's behavior. **Objective:** To determine the clinical-epidemiological profile of children under investigation for congenital syphilis at a University Pediatric Outpatient Clinic. **Method:** A descriptive, observational, cross-sectional study analyzing medical records of patients treated at the University's Pediatric Infectious Diseases Outpatient Clinic between July 2020 and May 2023. **Results:** Among the 60 mother-newborn pairs included, the most used diagnostic test was the non-treponemal, with titers equal to or less than 1:8 also correlating with the transmission of congenital syphilis. Additionally, it was found that 20% of pregnant women attended fewer than 6 prenatal visits, while 10% did not receive treatment during pregnancy. Furthermore, among the children, 55% exhibited clinical signs, with 18% being born prematurely, 23% having low birth weight, and 47% diagnosed as probable syphilis cases. **Conclusion:** Significant challenges persist in the proper management of pregnant women and children who are under investigation for syphilis. It is important to emphasize the implementation of preventive, diagnostic, and therapeutic measures for syphilis in pregnant women. This emphasis aims to maximize the benefits for both the mother and the fetus

**Keywords:** Syphilis, Congenital; Epidemiology; Pregnancy; Signs and Symptoms.

## INTRODUCTION

Syphilis is a sexually transmitted bacterial infection exclusive to humans, with *Treponema pallidum* as its etiological agent<sup>1</sup>. Vertical transmission of syphilis can occur at any stage of the infection and at any point during pregnancy, through the placenta, as well as during childbirth if the newborn meets maternal lesions<sup>1</sup>. To prevent congenital infection, the appropriate approach to acquired syphilis during pregnancy should primarily involve serological testing, treating pregnant individuals and their sexual partners, as well as closely monitoring and managing the infection throughout the pregnancy, actively seeking patients who have not completed treat-

ment, documenting the process, and post-treatment follow-up<sup>2</sup>. Thus, the quality of prenatal care plays a crucial role in reducing vertical transmission<sup>2</sup>.

When identified during pregnancy, the treatment for acquired syphilis, regardless of the disease stage, should consist of three doses of 2,400,000 IU of benzathine penicillin, with a 7-day interval between doses, initiated at least 30 days before delivery<sup>3</sup>. Despite the proper treatment protocol, approximately 1% to 2% of children still are born with congenital infection<sup>3</sup>. Therefore, despite being a curable disease with accessible, effective, and efficient treatment, syphilis still presents high incidence rates today, making it a significant public health issue<sup>4</sup>.

In 2007, the World Health Organization (WHO), based on the identification of risk factors and vulnerability of the most affected population, developed a strategy for the eradication of congenital syphilis. This strategy advocates for increased access to healthcare, as well as for the surveillance, monitoring, and evaluation of identified cases, along with providing treatment for those affected<sup>5</sup>. While some countries have succeeded in eliminating vertical transmission<sup>5</sup>, the number of cases in Brazil has been increasing in recent years. According to 2022 data from the Ministry of Health<sup>6</sup>, the syphilis detection rate in pregnant women in Brazil was 27.1 per 1000 live births. The diagnosis of congenital syphilis in children increased by 16.7% in 2021, reaching an incidence rate of 9.9 per 1000 live births<sup>6</sup>. These values are alarming to health authorities, and, in part, they reflect a lack of knowledge and information about sexual education and the importance of condom use in preventing sexually transmitted infections, which is further evidenced by the increased screening tests.

In Belo Horizonte, the incidence of congenital syphilis was 26.6 per 1000 live births in 2016. Considering the current syphilis epidemic in Belo Horizonte, this

study aimed to describe the clinical-epidemiological profile of patients treated at a University Pediatric Infectious Disease Outpatient Clinic, which provides care to users of the Unified Health System (SUS), regulated by the municipality. To comprehend, combat, and prevent the disease effectively, it is essential to have a better understanding of the epidemiological characteristics of these patients and analyze the profile of children affected by this infection. This understanding also enables the optimization of diagnostic and therapeutic approaches.

## METHOD

### Study Design

This is a descriptive, observational, and cross-sectional study conducted at a Pediatric Infectious Disease Outpatient Clinic from 2020 to 2023. The study adhered to ethical principles outlined in Resolution 466/12 of the National Health Council, and it was approved by the Research Ethics Committee of the Faculdade de Ciências Médicas de Minas Gerais (CEPCM-MG), under CAAE 62891722.1.0000.5134. A waiver for the Informed Consent Form (ICF) was obtained.

### Sample

All patients received by a university Pediatric Infectious Disease Outpatient Clinic from July 2020 to May 2023, who met the inclusion criteria, were invited to participate in the study. The clinic is part of an assistance network affiliated with a private medical school, providing care exclusively to users of the Unified Health System (SUS) regulated by the city's government based on regional demand. This clinic conducts pediatric consultations in various specialties, including Pediatric Infectious Disease, and is one of the facilities that monitor children suspected of contagious diseases in the state of Minas Gerais.

Inclusion criteria encompassed patients who received postnatal care at the outpatient clinic due to the mother's diagnosis of syphilis during pregnancy. Patients without confirmatory maternal serology records during pregnancy, those with additional positive maternal serologies other than syphilis, and those with unrecoverable data were excluded from the analysis. As a result, the final sample consisted of 60 participants.

### Instruments and Procedures

Data collection was carried out through the completion of a script developed by the researchers based on access to computerized patient records. The development of this instrument aimed to meet the specific demands of this study, which was preceded by a literature review that addressed previous research related to the same theme or of a similar nature. This review helped in the selection of variables of interest and potential confounding factors. The script used consisted of two parts: the first focused on collecting data regarding the mother's obstetric history, and the second focused on gathering data related to the child under investigation for congenital syphilis. Maternal characterization considered demographic factors such as age, skin color, marital status, and lifestyle habits, as well as aspects related to the approach to acquired syphilis, such as gestational age at diagnosis, tests performed, medication used, and the treatment regimen. Regarding the child, data were collected on birth-related factors such as gestational age, weight, length, and head circumference at birth, whether any diagnostic test had a positive result, and if there was treatment for syphilis after birth. Additionally, data on the patient's follow-up in the Pediatric Infectious Disease Outpatient Clinic were collected, which included information such as the number of consultations, the presence of clinical signs, and the results of complementary exams.

To classify pregnant women as adequately or inadequately treated, the criteria of the Ministry of Health were used<sup>5</sup>. Thus, pregnant women are considered adequately treated if they received 3 doses of 2,400,000 IU of benzathine penicillin, with a 7-day interval between doses, at least 30 days before delivery<sup>7</sup>. Although partner treatment may influence the maternal condition, it is not considered a criterion for determining adequate treatment. Therefore, pregnant women who undergo treatment protocols other than this are considered to have received inadequate treatment.

For the classification between probable syphilis and non-syphilis, the diagnostic criteria of the Department of Surveillance, Prevention, and Control of Sexually Transmitted Infections, HIV/AIDS, and Viral Hepatitis were used<sup>8</sup>. Thus, cases of congenital syphilis include any child under 13 years old, excluding the possibility of acquired syphilis through sexual violence, who meets one of the following criteria: (1) clinical manifestation, cerebrospinal fluid or radiological alteration of congenital syphilis, and reactive non-treponemal test, (2) non-treponemal test titers in the infant higher than those of the mother by at least two dilutions, in samples collected simultaneously during childbirth, (3) ascending non-treponemal test titers in at least two dilutions in the follow-up of the exposed child, (4) reactive non-treponemal test titers after 6 months of age in infants adequately treated in the neonatal period, and (5) reactive treponemal tests after 18 months of age, without a previous diagnosis of congenital syphilis<sup>8</sup>. Children under 13 years old with reactive non-treponemal serology associated with clinical, cerebrospinal, or radiological evidence of infection are also defined as congenital syphilis<sup>8</sup>.

### Statistical Analysis

A descriptive analysis was conducted using the RStudio software (version 1.3.1073, Boston, United

States). Categorical variables were presented as absolute and relative frequencies. Quantitative variables were expressed by calculating the median and interquartile range.

## RESULTS

During the research, 83 patients under investigation for congenital syphilis were identified and attended at a Pediatric Infectious Disease Outpatient Clinic between February 2020 and May 2023. After evaluating the inclusion and exclusion criteria, the final sample consisted of 60 participants.

The median age of the pregnant women was 23.5 years, with an interquartile range of 20.5 to 28.3. Among them, 58% identified as mixed-race, 35% were native to the city where the study was conducted, and 88% were married. During pregnancy, 10% reported alcohol use, 13% reported tobacco use, and 6.7% were illicit drug users (Table 1).

Regarding obstetric follow-up, only 20% of the pregnant women initiated prenatal care before 12 weeks. However, 38.4% had more than 6 consultations during this period. Additionally, more than half of the pregnant women were diagnosed with acquired syphilis before the 3rd trimester of pregnancy, and the non-treponemal test was the only test used for 70% of these women. At the time of diagnosis, almost half of the VDRL titers in pregnant women were above 1:8 (Table 1), and even pregnant women with titers equal to or less than 1:8 were correlated with congenital syphilis transmission, accounting for 17% of probable cases (8 out of 47 cases).

After the diagnosis of acquired syphilis, 90% of pregnant women received some form of treatment. Among them, 58.3% underwent a single treatment, while 28.3% received two treatments, and 3.3% received three treatments. The treatment regimen adopted in 65% of the sample was 3 doses of 2,400,000 IU of benzathine penicillin each, with a 7-day interval between applications. Treatment was considered adequate in 22% of cases after the first treatment, with 76.9% of the children born to these pregnant women classified as non-syphilis, and only 3 children classified as probable syphilis. On the other hand, 53.5% of the children born to the 43 pregnant women who were not treated or underwent inadequate treatments were classified as probable syphilis (Table 2).

In the care of the mother-newborn dyad at the maternity ward, regarding the performance of diagnostic tests after birth, only 10% of newborns underwent the treponemal test, with half of them yielding reactive results. On the other hand, the non-treponemal test (VDRL) was conducted in 88% of newborns, with 68% of them also having the maternal VDRL paired. The results of these tests were reactive in 70% and 63% of the sample, respectively. A total of 38 children received treatment for congenital syphilis, with the most used medication being Crystalline Penicillin (27%), followed by Procaine Penicillin (20%) (Table 3).

In relation to children under investigation for congenital syphilis included in the study, the median age at the time of collection was 2.6 years, with an interquartile range of 1.5-3.17, and 34 (57%) were female. During outpatient follow-up in Pediatric Infectious Disease, 68.3% of patients attended several consultations less than or equal to 3, and there was loss to follow-up, where the interval between consultations exceeded 6 months, in 33% of the sample (Table 3).

**Table 1: Clinical-Epidemiological Characterization of Pregnant Women Included in the study**

Characteristics	n = 60
Number of consultations, n (%)	
≤ 3	41 (68.3)
> 3	15 (25)
Not informed	4 (6.7)
Ethnicity, n (%)	
White	1 (1.7)
Mixed-race	18 (30)
Not informed	41 (68)
Origin, n (%)	
BH	21 (35)
Other	4 (6.7)
Not informed	35 (58)
Marital status, n (%)	
Married	22 (36.67)
Divorced	1 (1.67)
Single	2 (3.33)
Not informed	35 (58.33)
Alcohol use during pregnancy?, n (%)	
No	18 (30)
Yes	6 (10)
Not informed	36 (60)
Tobacco use during pregnancy?, n (%)	
No	19 (32)
Yes	8 (13)
Not informed	33 (55)
Illicit drug use during pregnancy?, n (%)	
Yes	4 (6.7)
No	18 (30)
Not informed	38 (63.3)
Gestational age at the start of Prenatal Care, n (%)	
≤ 12 weeks	12 (20)
> 12 weeks	11 (18.4)
Not informed	37 (61.6)
Number of Prenatal Consultations, n (%)	
< 06	12 (20)
≥ 06	23 (38.4)
Not informed	25 (41.6)
HIV reactive, n (%)	
No	19 (32)
Not informed	41 (68)
Gestational Age at Diagnosis, n (%)	
1st. Trimester	17 (28)
2nd. Trimester	24 (40)
3rd. Trimester	12 (20)
Not informed	7 (12)
Diagnostic test, n (%)	
Both	8 (13)
Non-treponemal	42 (70)
Treponemal	10 (17)
VDRL at diagnosis, n (%)	
< 1:8	18 (30)
≥ 1:8	29 (48.3)
Not informed	13 (21.7)

n, number of participants; IQR, interquartile range; GA, gestational age; HIV, human immunodeficiency virus; VDRL, Venereal Disease Research Laboratory test.

**Table 2: Characterization of Congenital Syphilis Treatment in Included Pregnant Women**

	n = 60
Number of treatments received, n (%)	
1	35 (58,3)
2	17 (28,3)
3	2 (3,3)
No treatment	6 (10)
1st treatment: Administered 30 days before delivery?, n (%)	
No	44 (73)
Not informed	11 (18)
Yes	5 (8.3)
1st treatment: administered with 3 doses of benzathine penicillin at 2.400.000 UI each, with a 7-day interval between doses?, n (%)	
No	9 (15)
Not informed	12 (20)
Yes	39 (65)
1st treatment: Adequate decrease in VDRL after treatment (2 titrations)?, n (%)	
No	20 (33)
Unable to determine	23 (38)
Yes	17 (28)
1st treatment: Considered adequate? n (%)	
No	47 (78)
Yes	13 (22)
2nd treatment: Considered adequate? n (%) <b>n = 20</b>	
No	16 (80)
Yes	4 (20)

According to diagnostic criteria established by the Ministry of Health, 28 children (47%) were classified as probable syphilis, and 32 (53%) as non-syphilis at the end of the follow-up. It was observed that 18% of patients presented prematurity, and 23% were born small for gestational age, with these variables correlated with cases of probable congenital syphilis in the present study in 8.3% and 12% of exposed children, respectively. In total, 33 patients (55%) presented some clinical manifestation, with jaundice being the most frequent (35%), followed by neuropsychomotor development alterations (10%), hepatomegaly (6.7%), and thrombocytopenia (5%) (Table 3).

**Table 3: Characterization of the Newborns included in the study.**

<b>Characteristics</b>	<b>n = 60</b>	<b>Characteristics</b>	<b>n = 60</b>
Sex, n (%)		Hepatomegaly, n (%)	
Female	34 (57)	No	56 (93)
Male	26 (43)	Yes	4 (6.7)
Gestational age at birth, n (%)		Rash, n (%)	
Term	49 (82)	No	58 (97)
Premature	11 (18)	Yes	2 (3.3)
Weight, n (%)		Altered DNPM, n (%)	
AGA	34 (57)	No	54 (90)
LGA	2 (3.3)	Yes	6 (10)
SGA	14 (23)	Thrombocytopenia, n (%)	
Not informed	10 (17)	No	57 (95)
Treponemal test at birth, n (%)		Yes	3 (5.0)
Non-reactive	3 (5)	VDRL in CSF, n (%)	
Not performed	54 (90)	Non-reactive	28 (47)
Reactive	3 (5)	Not performed	31 (52)
VDRL at birth, n (%)		Reactive	1 (1.7)
Non-reactive	11 (18)	Proteinorrhea, n (%)	
Not performed	7 (12)	No	25 (42)
Reactive	42 (70)	Yes	4 (6.7)
Maternal paired VDRL, n (%)		Not performed	31 (52)
Non-reactive	3 (5)	Long bone X-ray, n (%)	
Not performed	19 (32)	Altered	1 (1.7)
Reactive	38 (63)	Not altered	27 (45)
Treatment performed, n (%)		Not performed	32 (53)
No	22 (37)	Ophthalmologic evaluation, n (%)	
Yes	38 (63)	Not altered	7 (12)
Treatment performed with, n (%)		Not performed	53 (88)
Benzathine penicillin	9 (15)	Seizures, n (%)	
Crystalline penicillin	16 (27)	No	59 (98)
Potassium penicillin	1 (1.7)	Yes	1 (1.7)
Procaine penicillin	12 (20)	Low birth weight (<2500g) ao nascer, n (%)	
Not treated	22 (37)	No	35 (58)
Neonatal jaundice, n (%)		Yes	14 (23)
No	39 (65)	Not informed	11 (18)
Yes	21 (35)	intrauterine growth restriction, n (%)	
Petechiae, n (%)		No	58 (97)
No	59 (98)	Yes	2 (3)
Yes	1 (1.7)	Age of 1st consultation, n (%)	
Splenomegaly, n (%)		≤ 2 months	27 (45)
No	59 (98)	> 2 months	29 (48.3)
Yes	1 (1.7)	Diagnosis, n (%)	
		Non-syphilis	32 (53)
		Probable syphilis	28 (47)

Characteristics	n = 60
Loss of follow-up (interval > 6 months between consultations), n (%)	
No	40 (67)
Yes	20 (33)

n, number of participants; IQR, interquartile range; GA, gestational age; AGA, appropriate for gestational age; SGA, small for gestational age; LGA, large for gestational age; VDRL, venereal disease research laboratory; DNPM, neuropsychomotor development; g, grams.

## DISCUSSION

This study was conducted in a university Pediatric Infectious Disease service that is part of the Unified Health System and included 60 children who were exposed to syphilis during gestation<sup>6</sup>. Inaugurated in 2020, the outpatient clinic was created in response to a significantly increased demand for children in need of infectious disease care, making it essential to expand facilities to ensure proper care for this population.

Regarding records of syphilis cases in pregnant women based on race or ethnicity, this study identified a higher incidence of infection in brown-skinned women (30%), a finding consistent with the approximately 6.6-fold increase in syphilis cases in brown-skinned pregnant women observed by Lara, Soares, Souza, Tosi (2022)<sup>9</sup> between 2010 and 2019. Additionally, this study found that smoking, alcohol consumption, and drug use were not risk factors for congenital syphilis transmission. This finding is in line with evidence published by Qin, Feng, Yang, Hong, Zhang (2014)<sup>10</sup>, who did not find a statistically significant association between congenital syphilis and maternal lifestyle habits.

Regarding prenatal care, this study revealed that 20% of pregnant women initiated obstetric follow-up in the first trimester, 16.7% in the second trimester, and 1.7% in the third trimester. Like the findings of Nonato, Melo, Guimarães (2015)<sup>11</sup>, who found that 51.5% of pregnant women initiated prenatal care after

the first trimester of gestation, this study highlights that the majority of the sample only received care after the 12th week. These findings can be alarming, considering that prenatal care is a factor related to vertical transmission of syphilis, and correct management of maternal disease before and during childbirth is crucial for preventing congenital syphilis<sup>10,12</sup>. This study demonstrated that 38.3% of pregnant women had more than 6 prenatal care visits, the minimum recommended by the Ministry of Health<sup>13</sup>.

In this study, it was observed that the treponemal test during prenatal care was performed in only 17% of cases, a finding consistent with Figueiredo, Figueiredo, Souza, Tavares, Vianna (2020)<sup>14</sup> results. This testing, which detects specific antibodies to *Treponema pallidum* antigens, is crucial during prenatal care, as it is the first immunological test to become positive and is more specific than non-treponemal tests<sup>15</sup>. Despite being recommended in the Ministry of Health protocol and enabling early diagnosis of syphilis, treponemal tests, such as the rapid test, are often not performed by pregnant women during prenatal care.<sup>3</sup>

Another crucial factor is the treatment of pregnant women diagnosed with syphilis. This study revealed that 10% of women did not receive treatment before delivery, and among the 54 pregnant women who did, 68.5% underwent treatments that were considered inadequate. It was also evident that 35.2% of women underwent more than one treatment, and with each additional treatment, there was an increase in the proportion of inadequate interventions, with rates of 75.9% for those who underwent treatment once, 80% for those who underwent treatment twice, and 100% for those who underwent three treatments. According to the data obtained in this study, among untreated or inadequately treated women, the incidence of congenital syphilis was 53.5%, while among those adequately treated, this value was 29.4%.

One of the contributing factors to vertical transmission is the late initiation of treatment, as early intervention, especially during the first trimester, is crucial to avoid possible complications<sup>16</sup>. Although proper treatment for syphilis in pregnant women significantly reduces the risk of infection transmission to the fetus, in some rare cases, this transmission can still occur<sup>17</sup>, resulting in persistent lesions or residual bacterial load<sup>17</sup>. It is emphasized, however, that the main cause of vertical transmission after treatment is reinfection, which occurs if the pregnant woman contracts syphilis again during pregnancy, especially with an inadequately treated partner<sup>18</sup>. Cases of women with multiple infections by *Treponema pallidum* in the same pregnancy are uncommon, but as the number of syphilis infections increases, the incidence of reinfections also tends to rise<sup>19</sup>. Considering that many pregnant women are diagnosed before the third trimester of gestation, the probability of new contact with the infectious agent before delivery is high<sup>19</sup>.

However, in this study, the incidence of congenital syphilis was primarily associated with untreated or inadequately treated women. It was found that 53.5% of these patients had children diagnosed with probable syphilis. Similarly, inadequate maternal treatment has been associated with the outcome of congenital syphilis in other studies<sup>20</sup> and is also related to a higher incidence of deaths in infected children<sup>21</sup>. If not adequately treated, maternal syphilis can result in adverse events during childbirth in 50-80% of pregnancies, depending on the stage of infection in the mother<sup>22</sup>. Factors associated with inadequate syphilis treatment during pregnancy include not performing screening tests for syphilis during prenatal care or requesting them after the deadline, insufficient frequency of cure control tests, and inadequate partner treatment<sup>23</sup>. It is also worth noting that, even if the maternal VDRL titer is  $\geq 1:8$ , more notably associated with vertical transmission of syphilis, this study showed that VDRL titers  $\leq 1:8$  at

the time of the mother's diagnosis were also related to congenital syphilis. Non-treponemal tests are recommended for monitoring individuals with syphilis precisely because they can be titrated, unlike treponemal tests. Several studies show that even low titers should be valued and may be related to vertical transmission. Therefore, any positive VDRL titer during prenatal care should be valued according to global guidelines<sup>17</sup>.

After birth, specific diagnostic tests should be performed in the maternity ward to initiate the investigation of congenital syphilis and guide the child's treatment based on the treatment received by the mother during pregnancy. According to Ministry of Health guidelines<sup>1</sup>, newborns of mothers who were untreated or inadequately treated must undergo the non-treponemal VDRL test, blood count, long bone radiography, and lumbar puncture. In the analyzed sample, 11.6% of children born to mothers with inadequate or untreated treatment during pregnancy did not undergo VDRL testing in the maternity ward, 41.8% did not undergo a blood count, 44.2% did not undergo long bone radiography, and 39.5% were not subjected to lumbar puncture for cerebrospinal fluid analysis. Thus, only 32.5% of these children underwent the recommended diagnostic workup in the maternity ward, which demonstrates that, even though the guidelines for managing newborns exposed to syphilis are well-established, they are not always adequately implemented in maternity wards<sup>21</sup>. Data from the Health Surveillance Secretariat show that, in 2021<sup>6</sup>, more than 50% of cases underwent cerebrospinal fluid (CSF) examination and long bone radiographic examination, while the non-treponemal test was performed in 94.3% of cases in 2021.

The follow-up of the child after discharge from the maternity ward, according to the Ministry of Health recommendations<sup>3</sup>, should be carried out in outpatient monthly consultations until the sixth month of

life and every 2 months until the eighteenth month of life. This follow-up is crucial for the child's evaluation, as non-treponemal tests should be performed for infection monitoring at the 1st, 3rd, 6th, 12th, and 18th months<sup>3</sup>. Additionally, if the patient manifests signs and symptoms of syphilis, these could be early identified during such consultations, and appropriate management followed. However, in this study, a follow-up loss of 33% was observed, like Cavalcante, Araújo, Nobre, Almeida (2019)<sup>24</sup> findings, which reported that only 18.1% of children under investigation for congenital syphilis underwent adequate follow-up. This low adherence is alarming. Therefore, healthcare professionals should appropriately counsel mothers on the importance of child follow-up after birth, even in the absence of symptoms<sup>25</sup>.

This study had inherent limitations commonly found in retrospective studies, including selection and memory bias, as the data were obtained from medical records. Another potential bias is missing data, which may indicate either the absence of information or its failure to be recorded by the responsible professional. Some infants in this study did not complete the recommended 18-month follow-up. This reflects the challenges in achieving adherence to medical care in our population and emphasizes the necessity for a more effective active search system in our service to prevent the loss of patients who require timely interventions.

The results found may not reflect the incidence of congenital syphilis in the municipality in question, as they encompass only children attended by the Pediatric Infectious Disease service in the Unified Health System. The limitations of this study emphasize the ongoing need for prospective research and evidence-based interventions. Understanding these limitations, however, does not diminish the urgency of preventive and educational measures.

## CONCLUSION

This epidemiological study on children affected by congenital syphilis provides insights into the dynamics and challenges associated with this health condition. Key findings underscore the persistence of congenital syphilis cases despite prevention and treatment efforts. According to the results, the clinical-epidemiological profile of children attended at a University Pediatric Infectious Disease Outpatient Clinic is consistent with the current scenario of congenital syphilis in Brazil, where 81.1% of mothers of children with congenital syphilis did not undergo treatment or received inadequate treatment for syphilis during pregnancy<sup>6</sup>. Therefore, targeted interventions for pregnant women and their sexual partners, such as health education, preventive measures for syphilis and other sexually transmitted infections, monitoring, and management of prenatal care, should be maintained for timely management and treatment of these pregnant women and their children.

Given the presented results, we urge a comprehensive review of public health policies related to congenital syphilis, emphasizing the promotion of adequate prenatal care, universal access to diagnostic tests, and ensuring strict adherence to treatment. Collaboration among healthcare professionals, educators, and policymakers is crucial to create effective strategies aimed at reducing the incidence of congenital syphilis and improving long-term outcomes for affected children.

In conclusion, congenital syphilis remains a significant public health issue, threatening reproductive and child health. This study not only contributes to understanding the epidemiological profile of congenital syphilis but also emphasizes the urgent need for proactive actions and effective public policies to mitigate the impacts of this condition on child health.

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THE AUTHORS DECLARE THAT THERE IS NO CONFLICT OF INTERESTS IN RELATION TO THIS ARTICLE.