



Epidemiological Analysis of Syphilis in Amazonas

Análise Epidemiológica da Sífilis no Amazonas

Análisis Epidemiológico de la Sífilis en Amazonas

Raquel Cristina Rodrigues Ferreira Nunes¹, Edson Batista dos Santos Júnior¹, Priscilla Dantas Almeida¹

How to cite this article:

Nunes RCRF, Santos Júnior EB, Almeida PD. Epidemiological Analysis of Syphilis in Amazonas. Rev Pre Infec e Saúde [Internet]. 2025; 11: 01. Available from: <http://periodicos.ufpi.br/index.php/repis/article/view/6739>. DOI: <https://doi.org/10.26694/repis.v11i1.6739>


¹School of Nursing, Federal University of Amazonas, Manaus, Amazonas, Brazil.

ABSTRACT

Introduction: Syphilis is a sexually transmitted infection (STI) caused by the bacterium *Treponema pallidum*. It is curable, often asymptomatic, and progresses through stages that characterize its symptoms. However, several challenges persist regarding this public health problem, such as the inconsistent use of condoms during sexual intercourse, partners' negligence toward treatment, and the lack of adherence to treatment and prenatal care follow-up by some pregnant women. **Objective:** To analyze the clinical-epidemiological profile of syphilis in its three forms—acquired, congenital, and in pregnant women—in the state of Amazonas. **Method:** This is a descriptive, retrospective epidemiological study that analyzed syphilis notifications in the Notifiable Diseases Information System (SINAN) in the state of Amazonas, between 2012 and 2021, available from the Informatics Department of the Brazilian Unified Health System (DATASUS). **Results:** In Amazonas, between 2012 and 2021, acquired syphilis was predominantly observed in males, people of mixed race (pardo), aged 20 to 39 years, with a complete high school education. Regarding congenital syphilis, a higher prevalence was identified in male newborns, children of mixed-race mothers, young mothers (20 to 24 years old), with low educational levels, who had received prenatal care. Finally, syphilis in pregnant women was most common in mixed-race women, aged 20 to 39 years, with incomplete elementary education, and most cases were classified as primary syphilis. **Implications:** The study revealed a high incidence of cases and critical challenges, such as late diagnosis in pregnant women and the lack of adequate treatment for partners. To address these problems, it is proposed to strengthen epidemiological surveillance, improve prenatal care, and intensify health education initiatives as strategies to promote high-quality prenatal care and effective follow-up for pregnant women.

DESCRIPTORS

Occupational health. Waste pickers. Workplace safety. Intervention program.

Check for updates



Corresponding Author:

Priscilla Dantas Almeida
Endereço: Rua Terezina, 495 - Adrianópolis,
Manaus - AM, Brasil.
CEP: 69057-070
Telephone: (92) 99393-4296
E-mail: priscillaalmeida@ufam.edu.br

Submitted: 30/04/2025
Accepted: 14/05/2025
Published: 01/08/2025

INTRODUCTION

Syphilis is a sexually transmitted infection (STI) caused by the bacterium *Treponema pallidum*¹. It can be transmitted vertically, meaning the baby may become infected during pregnancy (via transplacental transmission) or at birth, which is referred to as congenital syphilis; horizontally, when an individual comes into contact with a person carrying syphilis through sexual intercourse, or through blood transfusion or sharing of sharp instruments, referred to as acquired syphilis; and when the pregnant woman acquires the bacterium, it is referred to as gestational syphilis².

Syphilis is a public health issue of both national and international concern. According to the Pan American Health Organization (PAHO), there are slightly more than one million new cases of curable sexually transmitted infections (STIs) among individuals aged 15 to 49 years every day³. This alarming figure has a direct impact on priority setting in the fight against diseases and health problems. Thus, the eradication of syphilis is a global priority⁴.

To support epidemiological surveillance for its control and eventual elimination, syphilis has become a notifiable disease. Mandatory reporting of congenital syphilis was established in 1986; syphilis in pregnant women in 2005; and acquired syphilis in 2010⁵. According to the Epidemiological Bulletin, notifications from 2011 to 2021 recorded 221,600 cases of congenital syphilis and 2,064 deaths from congenital syphilis; 466,584 cases of syphilis in pregnant women; and, finally, 1,035,942 cases of acquired syphilis⁶.

In 2021, the detection rate for acquired syphilis was 78.5 cases per 100,000 inhabitants in Brazil, whereas Amazonas reported 109.5 cases per 100,000 inhabitants, exceeding the national average. It is worth noting that, in 2020, the impact of the pandemic led to a reduction in this rate, which increased again in 2021. Furthermore, in 2021, the mortality rate for congenital syphilis among children under one year of age was 7.0 deaths per 100,000 live births (LB) nationwide, while in the Northern region this rate was 10.3 deaths per 100,000 LB, and specifically in Amazonas, it reached 15.9 deaths per 100,000 LB⁶.

Syphilis continues to show alarming numbers, even with the free availability of rapid tests, serology, and treatment (still performed with penicillin to this day) through the Brazilian Unified Health System (SUS) (2). In addition, there is an ongoing National Campaign for STI Prevention and state-level mobilization to strengthen surveillance and health care networks, starting from Primary Health Care (PHC)⁷.

Significant challenges can be identified in the dissemination of information about STIs, reflected in: low adherence of pregnant women to prenatal care, lack of condom use during sexual intercourse, and partners' negligence regarding appropriate treatment. Therefore, research and studies on syphilis are extremely important, as they enhance the reach of information, enable analysis of the disease scenario, and help identify the population's health status in relation to public policies, actions, and strategies used².

In light of the above, this study aims to analyze the clinical-epidemiological profile of syphilis in its three forms—acquired, congenital, and in pregnant women—in the state of Amazonas.

METHODS

This is a descriptive, retrospective epidemiological study based on secondary data from notifications recorded between 2012 and 2021 in the Notifiable Diseases Information System (SINAN), available from the Informatics Department of the Brazilian Unified Health System (DATASUS). The study was conducted in the state of Amazonas with the purpose of providing an overall picture of syphilis in the resident population. According to estimates from the Brazilian Institute of Geography and Statistics (IBGE), in 2021 the population of Amazonas was 4,269,995 inhabitants⁸.

Data were collected through DATASUS at the state level for syphilis, categorized according to the mode of transmission: acquired, congenital, and in pregnant women in the state of Amazonas.

Data processing was carried out using Microsoft Excel 2010, after exporting the TABNET database from DATASUS. The data were tabulated according to the study variables, including all reported cases in the state of Amazonas. Notifications classified as “discarded” were excluded from the analysis.

The sociodemographic variables considered were: sex, age group, race/skin color, education level, mother's education level, and mother's age group. Epidemiological variables included: detection rate of acquired syphilis, incidence rate of congenital syphilis, detection rate of syphilis in pregnant women, receipt of prenatal care, and partner treatment. Clinical variables included: disease outcome, diagnostic criteria, clinical classification, non-treponemal test, and treponemal test.

Because secondary data from a public domain database were used, without individual identification of participants, review by a research ethics committee was waived, in accordance with Resolution No. 510 of April 7, 2016, Article 2, Section VI⁹.

RESULTS

Table 1 presents the sociodemographic, clinical, and epidemiological characteristics of reported cases of acquired syphilis in Amazonas from 2012 to 2021. A total of 18,444 cases were reported, and the majority were: male (63.85%), aged 20 to 39 years (57.10%), mixed race/skin color ("pardo") (69.45%), education level (excluding ignored/blank responses) corresponding to completed high school (22.68%), outcome of cure (53.07%), and diagnostic criterion based on laboratory testing (54.06%).

Table 1. Sociodemographic, clinical, and epidemiological characteristics of reported cases of acquired syphilis in Amazonas (2012-2021). Manaus-AM, 2023. N=18,444.

Variable	n (%)
Sex	
Male	11.776 (63,85)
Female	6.663 (36,13)
Ignored	5 (0,03)
Age group	
<1 year	2 (0,01)
10 - 14	121 (0,66)
15 - 19	2.192 (11,88)
20 - 39	10.532 (57,10)
40 - 59	4.472 (24,25)
60 - 64	460 (2,49)
65 - 69	303 (1,64)
70 - 79	262 (1,42)
80 or older	99 (0,54)
Blank	1 (0,01)
Race/skin color	
White	1.184 (6,42)
Black	543 (2,94)
Asian	166 (0,90)
Mixed race/"Pardo"	12.809 (69,45)
Indigenous	1.039 (5,63)
Ignored/Blank	2.703 (14,66)
Education level	
Not applicable	7 (0,04)
Illiterate	403 (2,18)
Incomplete elementary education	3.525 (19,11)
Complete elementary education	1.349 (7,31)
Incomplete high school	1.467 (7,95)
Complete high school	4.184 (22,68)
Incomplete higher education	624 (3,38)
Complete higher education	699 (3,79)
Ignored/Blank	6.186 (33,54)
Outcome	
Cure	9.788 (53,07)

Death due to the reported condition	8 (0,04)
Death due to another cause	15 (0,08)
Ignored/Blank	8.633 (46,81)
Diagnostic criterion	
Laboratory	9.971 (54,06)
Clinical-epidemiological	3.014 (16,34)
Ignored/Blank	5.459 (29,60)
Total	18.444 (100,00)

*Source: SINAN/DATASUS. Exported on November 15, 2023.

Table 2 presents the characterization of reported cases of congenital syphilis in Amazonas from 2012 to 2021. A total of 4,198 cases were reported, and most of them occurred in children: male (50.50%); diagnosed at less than seven days of life (97.40%); mixed race/“pardo” (88.02%); and with the outcome recorded as alive (95.89%). Regarding maternal characteristics, the majority were: aged 20 to 24 years (32.73%); incomplete elementary education (38.14%); received prenatal care (69.13%); and whose partners were not treated (44.35%).

Table 2. Sociodemographic, clinical, and epidemiological characteristics of reported cases of congenital syphilis in Amazonas (2012-2021). Manaus-AM, 2023. N=4,198.

Variable	n (%)
Sex	
Male	2.120 (50,50)
Female	2.005 (47,76)
Ignored	73 (1,74)
Age group	
Up to 6 days	4.089 (97,40)
7 - 27 days	46 (1,10)
28 days to < 1 year	47 (1,12)
≥ 1 year and < 2 years	5 (0,12)
2 to 4 years	10 (0,24)
5 to 12 years	1 (0,02)
Race/skin color	
White	154 (3,67)
Black	57 (1,36)
Asian	19 (0,45)
Mixed race/“Pardo”	3.695 (88,02)
Indigenous	52 (1,24)
Ignored/Blank	221 (5,26)
Maternal education level	
Not applicable	9 (0,21)
Illiterate	26 (0,62)
Incomplete elementary education	1.601 (38,14)
Complete elementary education	576 (13,72)
Incomplete high school	691 (16,46)
Complete high school	654 (15,58)
Incomplete higher education	40 (0,95)
Complete higher education	24 (0,57)
Ignored/Blank	577 (13,74)

Maternal age group	
10 - 14	52 (1,24)
15 - 19	1.128 (26,87)
20 - 24	1.374 (32,73)
25 - 29	742 (17,68)
30 - 34	480 (11,43)
35 - 39	282 (6,72)
40 - 44	62 (1,48)
45 - 49	10 (0,24)
50 - 54	1 (0,02)
Blank	67 (1,60)
Prenatal care	
Yes	2.902 (69,13)
No	1.223 (29,13)
Ignored/Blank	73 (1,74)
Partner treatment	
Yes	815 (19,41)
No	1.862 (44,35)
Ignored/Blank	1.521 (36,23)
Outcome (4116*)	
Alive	3.947 (95,89)
Death due to the reported condition	38 (0,92)
Death from another cause	23 (0,56)
Ignored/Blank	108 (2,62)
Total	4.198 (100,00)

***Source:** SINAN/DATASUS. Exported on November 13, 2023. Value differs from the total as available in the system.

Table 3 shows the characteristics of reported cases of syphilis in pregnant women in the state of Amazonas from 2012 to 2021. A total of 10,999 reported cases were identified, with most cases presenting the following characteristics: age group 20-39 years (67.36%); mixed-race/“parda” skin color (82.48%); incomplete elementary education (33.16%); clinical classification as primary syphilis (47.57%); non-treponemal reactive test (77.86%); and treponemal reactive test (62.41%).

Table 3. Sociodemographic, clinical, and epidemiological characteristics of reported cases of syphilis in pregnant women in the state of Amazonas (2012-2021). Manaus-AM, 2023. N = 10,999.

Variable	n %
Age group (years)	
10 - 14	190 (1,73)
15 - 19	3.153 (28,67)
20 - 39	7.409 (67,36)
40 - 59	246 (2,24)
Race/skin color	
White	736 (6,69)
Black	454 (4,13)
Asian	86 (0,78)
Mixed-race/“Parda”	9.072 (82,48)
Indigenous	340 (3,09)
Ignored/Blank	311 (2,83)

Maternal education	
Not applicable	1 (0,01)
Illiterate	80 (0,73)
Incomplete elementary education	3.647 (33,16)
Complete elementary education	1.146 (10,42)
Incomplete high school	1.747 (15,88)
Complete high school	2.015 (18,32)
Incomplete higher education	147 (1,34)
Complete higher education	111 (1,01)
Ign/Branco	2.105 (19,14)
Clinical classification	
Primary	5.232 (47,57)
Secondary	535 (4,86)
Tertiary	805 (7,32)
Latent	2.457 (22,34)
Ignored/Blank	1.970 (17,91)
Non-treponemal test	
Reactive	8.564 (77,86)
Non-reactive	231 (2,10)
Not performed	1.742 (15,84)
Ignored/Blank	462 (4,20)
Treponemal test	
Reactive	6.865 (62,41)
Non-reactive	323 (2,94)
Not performed	3.282 (29,84)
Ignored/Blank	529 (4,81)
Total	10.999 (100,00)

Source: SINAN/DATASUS. Exported on November 14, 2023.

Figure 1 presents a temporal analysis of acquired, congenital, and gestational syphilis in the state of Amazonas from 2012 to 2021. During this period, there was an increase in the number of reported cases. However, starting in 2015, a reduction was observed, followed by a progressive increase until 2019. From 2020 onward, there was a decline. For congenital syphilis, between 2012 and 2014 there was no significant variation in the number of notifications; however, starting in 2015, the number of cases gradually increased until 2017, after which the number of notifications began to decrease, persisting until 2021. Regarding syphilis in pregnant women, from 2012 to 2020, there was a gradual increase, followed by a decrease in 2021.

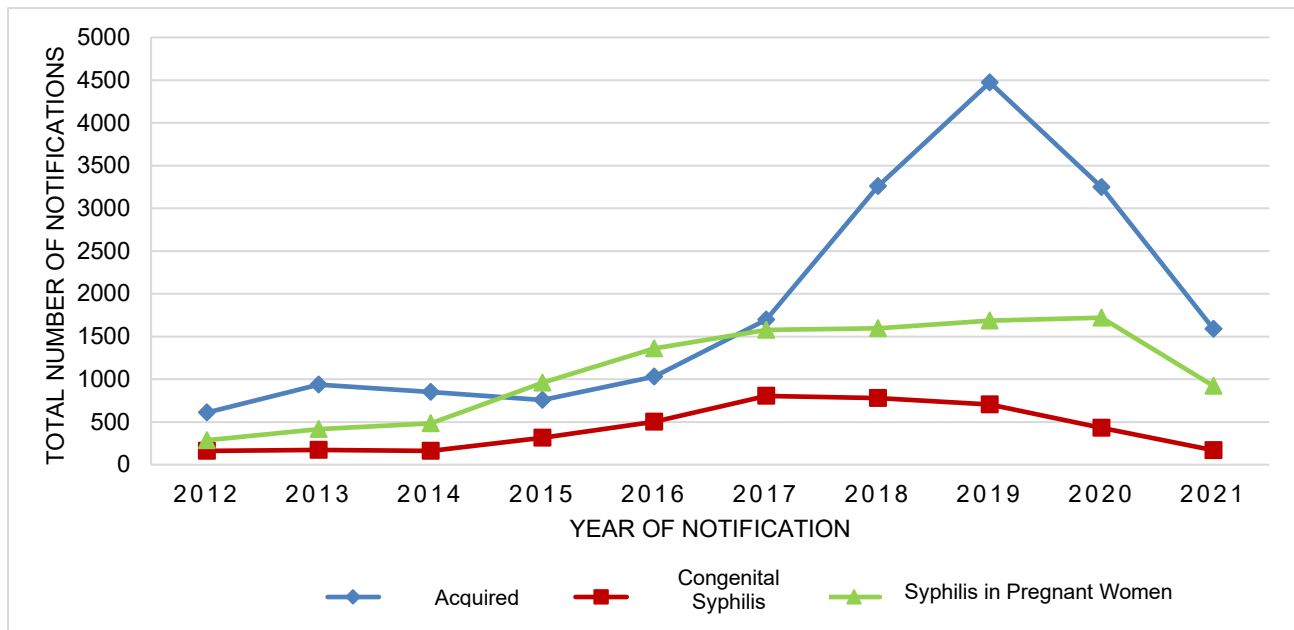
Figure 1. Temporal analysis of acquired, congenital, and gestational syphilis in the state of Amazonas (2012-2021). Manaus-AM, 2023

Table 4 presents the cases and rates of acquired syphilis, congenital syphilis, and syphilis in pregnant women over the years. Between 2012 and 2021, the detection rate of acquired syphilis showed a continuous increase until 2019, when it reached 1.08 cases per 1,000 inhabitants. In 2020, there was a decline in the rate compared to 2019, dropping from 1.08 to 0.77 cases per 1,000 inhabitants, and in 2021 the rate further decreased to 0.37 cases per 1,000 inhabitants. The detection rate of syphilis in pregnant women maintained a growing trend until 2020, when it dropped from 22.74 to 11.73 cases per 1,000 live births in 2021, indicating a significant reduction in the number of notifications. The incidence rate of congenital syphilis showed a gradual increase until 2017, reaching 19.15 cases per 1,000 live births. However, a decline was observed between 2017 and 2021, falling from 19.15 to 2.14 cases per 1,000 live births.

Table 4. Cases and rates of acquired syphilis, congenital syphilis, and syphilis in pregnant women by year in Amazonas (2012-2021). Manaus, Brazil, 2023.

Year of notification	Acquired syphilis		Congenital syphilis		Syphilis in pregnant women	
	n (%)	taxa ⁽¹⁾	n (%)	taxa ⁽²⁾	n (%)	taxa ⁽³⁾
2012	610 (3,31)	0,17	161 (3,84)	2,08	286 (2,60)	3,69
2013	936 (5,07)	0,25	172 (4,10)	2,18	416 (3,78)	5,26
2014	849 (4,60)	0,22	162 (3,86)	2,00	484 (4,40)	5,96
2015	755 (4,09)	0,19	315 (7,50)	3,93	959 (8,72)	11,97
2016	1.029 (5,58)	0,26	501 (11,93)	6,53	1.358 (12,35)	17,70
2017	1.698 (9,21)	0,42	804 (19,15)	10,30	1.576 (14,33)	20,19
2018	3.258 (17,66)	0,80	780 (18,58)	9,99	1.594 (14,49)	20,41
2019	4.473 (24,25)	1,08	705 (16,79)	9,08	1.686 (15,33)	21,72
2020	3.246 (17,60)	0,77	430 (10,24)	5,69	1.720 (15,64)	22,74
2021	1.590 (8,62)	0,37	168 (4,00)	2,14	920 (8,36)	11,73
Total	18.444 (100,00)		4.198 (100,00)		10.999 (100,00)	

Source: SINAN/DATASUS. Exported on November 15, 2023.

Notes: (1) Detection rate of acquired syphilis per 1,000 inhabitants.

(2) Incidence rate of congenital syphilis per 1,000 live births.

(3) Detection rate of syphilis in pregnant women per 1,000 live births.

DISCUSSION

The study identified a significant increase in syphilis notifications in the state of Amazonas between 2012 and 2021. This growth can be explained by an actual rise in cases, improvements in disease diagnosis such as expanded test coverage, and advances in the surveillance system. In addition, the shortage of penicillin caused by a lack of pharmaceutical supplies and difficulties in obtaining raw materials may also have contributed to this upward trend. A peak in cases was observed in 2019, followed by a decline in subsequent years, which may have been influenced by the COVID-19 pandemic and the underreporting of cases^{4,10}.

One of the factors that makes syphilis such an alarming problem in Amazonas is the high detection and incidence rates of the infection. Comparing the rate in Amazonas with other Brazilian states, according to the 2021 Epidemiological Bulletin, Amazonas has rates very close to those of Maranhão. However, Maranhão has a higher population density than Amazonas. Furthermore, the congenital syphilis mortality rate in Amazonas (15.9 deaths per 100,000 live births) was higher than in Maranhão (2.8 deaths per 100,000 live births) and even surpassed São Paulo (5.1 deaths per 100,000 live births), highlighting the weaknesses in Amazonas' health system⁶. Despite the high number of notifications in Amazonas, the Northern region in general shows lower values compared to other more populated regions, particularly the Southeast, which may be related to greater investment in diagnostic technologies and a larger number of active healthcare professionals¹¹.

Regarding acquired syphilis, the most affected age group is between 20 and 39 years, a trend observed both in Brazil and in other countries. The infection is more common in men, particularly those co-infected with HIV or who engage in risky sexual behavior. In the case of syphilis in pregnant women, the increase in cases among women aged 20 to 39 is a public health concern as it raises the risk of vertical transmission. Moreover, there is a significant number of cases among adolescents aged 15 to 19 years, which may be due to early and unprotected sexual activity^{3,12}.

According to the latest IBGE census, more than 60% of the population in the Northern region is of mixed race (pardo), which may explain the high number of syphilis cases among this group¹³. Additionally, most affected individuals have low levels of education, which can increase health risks as it hinders the understanding of care and prevention regarding sexually transmitted infections (STIs)^{14,15}. Similar studies have shown that mixed-race mothers with low education, aged 20 to 30 years, single, and with low income are more vulnerable to syphilis. Inequalities in access to and quality of prenatal care contribute to greater exposure of low-income children to the risk of congenital syphilis¹⁶.

The increase in congenital syphilis detection rates per 1,000 live births in Amazonas showed an upward trend from 2011 to 2021. Nationally, there was an alarming 84.6% increase in infant mortality due to congenital syphilis during the same period. Regarding the coefficient of deaths per 100,000 live births, there was an increase from 3.8 to 7.0, highlighting the severity of the situation and reflecting difficulties in disease control⁶.

Vertical transmission of syphilis is associated with factors such as late diagnosis and inadequate treatment of both pregnant women and their partners, highlighting weaknesses in prenatal care. Barriers to accessing healthcare services and deficiencies in clinical approaches contribute to this situation¹⁶.

The lack of proper treatment for many sexual partners results in ineffective treatment, reinfection, and vertical transmission. The predominant perception that healthcare services prioritize only women, children, and the elderly tends to overlook the importance of men's self-care and health. Therefore, it is crucial that pregnant women are informed about the need for their partners to undergo treatment and are encouraged to seek medical care. However, it is important to emphasize that this responsibility should not fall solely on the pregnant women, and that healthcare services should conduct educational activities to reach partners and ensure treatment. Inadequate treatment during pregnancy can result in serious complications, such as miscarriage, premature birth, and death¹⁷.

Errors in prenatal care are also common. Although 69% of pregnant women attend prenatal care, more than 40% of their partners do not receive treatment. Most pregnant women were diagnosed with primary or latent syphilis, but in many cases, the stage of the disease was not identified. This suggests possible misclassification of syphilis stages, as such a high number of primary stage diagnoses is not expected with proper screening. Correctly identifying the clinical stage of syphilis is crucial for effective treatment. In primary syphilis, only a single dose of benzathine penicillin is needed, while late latent syphilis or cases of

unknown duration require three doses. These errors can compromise proper treatment and increase risks for both mother and baby¹⁸.

Serological tests remain the main method for diagnosing syphilis. They are divided into non-treponemal tests (VDRL, RPR) and treponemal tests (TPHA, FTA-Abs, ELISA). National protocols recommend that two VDRL tests be performed during pregnancy. However, failure to perform these tests and delays of up to 15 days in delivering results are among the main factors contributing to failures and inadequacies in prenatal care. According to the findings, 62.41% of pregnant women underwent treponemal testing, and 77% underwent non-treponemal testing¹⁶.

Women with syphilis face a higher risk of adverse pregnancy outcomes, highlighting the need to reorganize workflows and care strategies. It is essential to integrate local maternal and child health programs, actively identify pregnant women and untreated partners, conduct home visits, expand family planning, and ensure collaboration between surveillance and healthcare services. All pregnant women should be tested for syphilis at their first prenatal care visit in primary healthcare, as soon as pregnancy is confirmed. Screening is essential, even for asymptomatic individuals, to interrupt the chain of transmission¹⁹.

The study revealed that the quality of prenatal care in Amazonas faces major challenges. Limited access to Primary Healthcare Units (UBS) aggravates the situation, making it even more urgent to improve syphilis prevention and treatment in the region. Furthermore, Pereira et al. highlight that acquired and gestational syphilis are serious public health problems, emphasizing the urgency of greater investment in Primary Healthcare to interrupt transmission and prevent vertical transmission^{19,20}.

In Brazil, in 2015, the National Committee for the Incorporation of Technologies in the Unified Health System (Conitec) approved the Clinical Protocol and Therapeutic Guidelines (PCDT) for Comprehensive Care for People with Sexually Transmitted Infections (STIs), which established criteria for diagnosis, treatment, and clinical management based on scientific evidence. Later, the Pan American Health Organization (PAHO) proposed an Action Plan for the Prevention and Control of HIV/STIs (2016-2021), focusing on eliminating STIs in the Americas by 2030, particularly HIV and congenital syphilis²¹.

The federal government has implemented measures to address syphilis in pregnant women, congenital syphilis, and acquired syphilis through Ordinance No. 1.459, which created the Stork Network (Rede Cegonha). This initiative provides assistance from family planning through postpartum care, including resources for expanding prenatal tests, rapid pregnancy testing, and screening for syphilis and HIV²¹.

Data from SINAN reveal gaps in the diagnosis and notification of syphilis, with missing or incomplete information recorded as "ignored/blank," which affects data quality. The lack of details about gestational periods limits the understanding of cases and treatment. Furthermore, the analysis could be strengthened by including records of follow-up care for children exposed to syphilis⁴.

CONCLUSION

The study analyzed the clinical and epidemiological profile of syphilis in its different forms (acquired, congenital, and in pregnant women), revealing a concerning scenario. Syphilis remains a serious public health problem in Brazil, particularly in the state of Amazonas, with an increasing rate of cases. Despite the limitations of the DATASUS system, such as the absence or exclusion of information, the study allowed for a comprehensive understanding of the dynamics and the clinical-epidemiological profile of the disease. Factors such as delayed diagnosis in pregnant women, low maternal educational level, and the lack of treatment for partners contribute to the high transmission of syphilis to infants, resulting in severe complications. To address these challenges, it is essential to strengthen epidemiological surveillance and prenatal care. This includes the implementation of rapid testing and adequate treatment for both pregnant women and their partners.

Furthermore, it is crucial to promote health education and raise awareness to ensure prevention, early diagnosis, and treatment of syphilis. The mobilization of health authorities and the community is fundamental to ensuring access to quality prenatal care and effective follow-up.

REFERENCES

1. Costa MA da SG, Simões MEC, Lisboa LAV, Tanure SS, Carvalho PD de. Abordagem da sífilis na gestação no serviço de atenção primária à saúde: uma revisão da literatura. *Rev Ibero-Am Humanidades Ciênc E*

Educ. 29 de setembro de 2023;9(9):378-86.

2. Santos M de S, Pereira LLV. A IMPORTÂNCIA DA INFORMAÇÃO SOBRE A SÍFILIS. Rev Científica Unilago [Internet]. 9 de novembro de 2018 [citado 10 de abril de 2023];1(1). Disponível em: <https://revistas.unilago.edu.br/index.php/revista-cientifica/article/view/82>.

3. WHO. Implementing the global health sector strategies on HIV, viral hepatitis and sexually transmitted infections, 2022-2030 | report on progress and gaps 2024 [Internet]. [citado 10 de abril de 2023]. Disponível em: <https://www.who.int/publications/i/item/9789240094925>

4. Souza BS de O, Rodrigues RM, Gomes RM de L. Análise epidemiológica de casos notificados de sífilis. Rev Soc Bras Clínica Médica. 13 de agosto de 2018;16(2):94-8.

5. Lima M de O, Cardoso DM, Galvão LG, Silva ACA, Maia LB, Leite PM. Produção científica Brasileira sobre sífilis congênita: um estudo bibliométrico a partir da base scopus / Brazilian scientific production about congenital syphilis: a bibliometric study using the scopus database. Braz J Dev. 8 de fevereiro de 2021;7(2):13516-34.

6. Brasil. Ministério da Saúde. Boletim Epidemiológico de Sífilis - Número Especial | Out. 2022 — Ministério da Saúde [Internet]. [citado 10 de abril de 2023]. Disponível em: <https://www.gov.br/saude/pt-br/centrais-de-conteudo/publicacoes/boletins/epidemiologicos/especiais/2022/boletim-epidemiologico-de-sifilis-numero-especial-out-2022/view>.

7. Brasil. Ministério da Saúde. Boletim Epidemiológico - Sífilis 2020 — Departamento de HIV, Aids, Tuberculose, Hepatites Virais e Infecções Sexualmente Transmissíveis [Internet]. [citado 10 de abril de 2023]. Disponível em: https://www.gov.br/aids/pt-br/central-de-conteudo/boletins-epidemiologicos/2020/sifilis/boletim_sifilis_2020.pdf/view.

8. Estimativas da população residente para os municípios e para as unidades da federação | IBGE [Internet]. [citado 10 de abril de 2023]. Disponível em: <https://www.ibge.gov.br/estatisticas/sociais/populacao/9103-estimativas-de-populacao.html?edicao=31451&t=resultados>.

9. Brasil. Ministério da Saúde. Resolução nº 510, de 07 de abril de 2016 — Conselho Nacional de Saúde [Internet]. [citado 26 de março de 2025]. Disponível em: <https://www.gov.br/conselho-nacional-de-saude/pt-br/acesso-a-informacao/legislacao/resolucoes/2016/resolucao-no-510.pdf/view>.

10. Formigosa C de AC, Brito CVB, Neto OSM. Impacto da COVID-19 em doenças de notificação compulsória no Norte do Brasil. Rev Bras Em Promoção Saúde. 10 de maio de 2022;35:11-11.

11. Santos C de OB, Costa GLL da, Pimenta J da S, Pereira LIM, Santos F da S dos. Análise Epidemiológica da Sífilis Adquirida na Região Norte do Brasil. Rev Eletrônica Acervo Saúde. 3 de julho de 2023;23(7):e12361.

12. Escobar ND, Gilo NF, Bedran S de C, Prieb A, Sousa MTB, Chiacchio A. Perfil epidemiológico de sífilis adquirida nas regiões do Brasil no período de 2010 a 2019: Amaz Sci Health. 5 de junho de 2020;8(2):51-63.

13. IBGE IBDG e Estatística. Panorama do Censo 2022. [citado 25 de março de 2024]. Panorama do Censo 2022. Disponível em: <https://censo2022.ibge.gov.br/panorama/>.

14. Horta HHL, Martins MF, Nonato TF, Alves MI. Pré-natal do parceiro na prevenção da sífilis congênita. Rev APS [Internet]. 2017 [citado 26 de março de 2024];20(4). Disponível em: <https://periodicos.ufjf.br/index.php/aps/article/view/16078>.

15. Sousa SS de, Silva YB, Silva IML da, Oliveira HFC, Castro AG dos S, Filho ACA de A. Aspectos clínico-epidemiológicos da sífilis gestacional no nordeste do Brasil. *Rev Ciênc Plur*. 2022;8(1):e22522-e22522.
16. Sousa OC, Matos PVC, Aguiar DG, Rodrigues RL, Macêdo IC, Cordeiro DSM, et al. Sífilis congênita: o reflexo da assistência pré-natal na Bahia / Congenital syphilis: the reflex of pre natal care in Bahia. *Braz J Health Rev*. 22 de fevereiro de 2019;2(2):1356-76.
17. Rocha CC, Lima TS, Silva RAN, Abrão RK. Abordagens sobre sífilis congênita. *Res Soc Dev*. 6 de agosto de 2020;9(8):e984986820-e984986820.
18. Malveira NAM, Dias JMG, Gaspar VK, Silva TSL de B. Sífilis Congênita no Brasil no período de 2009 a 2019/ Congenital Syphilis in Brazil from 2009 to 2019. *Braz J Dev*. 29 de agosto de 2021;7(8):85290-308.
19. Michelon IC, Uscocovich KJSO, Abe NL de M, Silva LMG da, Brustolin LM, Rodrigues MB. Influência da inserção do pré-natal do parceiro no número de casos de Sífilis Congênita no Brasil. *Res Soc Dev*. 21 de dezembro de 2023;12(14):e82121444506-e82121444506.
20. Pereira MV da S, Oliveira CWS, Cardoso MNCM, Leite JDL, Paula PA de, Araujo JGG, et al. Desafios e intervenções da atenção primária na abordagem da sífilis gestacional. *Rev Eletrônica Acervo Saúde*. 2 de fevereiro de 2024;24(2):e15405.
21. Miranda AE, Freitas FLS, Passos MRL de, Lopez MAA, Pereira GFM. Políticas públicas em infecções sexualmente transmissíveis no Brasil. *Epidemiol E Serviços Saúde*. 15 de março de 2021;30:e2020611.

ORIGIN OF THE ARTICLE

Original Article.

AUTHOR CONTRIBUTIONS

All authors contributed equally to the conception, design, analysis, and writing of this manuscript.

CONFLICT OF INTEREST

The authors declare no conflict of interest.