

DOI: <https://doi.org/10.36489/saudecoletiva.2021v11i69p7000>

Maternal and congenital syphilis: a portrait of the Brazilian scenery

Sífilis materna e congênita: um retrato do cenário brasileiro

Sífilis materna y congénita: un retrato del escenario brasileño

RESUMO

Objetivo: analisar a incidência de sífilis em gestantes e congênitas, notificadas no Brasil de 2008 a 2017. Método: Os dados referentes a número e características dos casos, foram coletados no Sistema de Informação de Agravos de Notificação, para fins de cálculo das taxas. Os dados extraídos foram tabulados e posteriormente analisados por meio de estatística descritiva. Resultados: Em 2017, 24.668 casos de sífilis congênita foram notificados, demonstrando aumento de 16,4% nas notificações em relação ao ano anterior, com uma taxa de incidência de 8,2 casos por 1000 nascidos vivos. Evidenciando a fragilidade no acompanhamento pré-natal materno e do parceiro sexual, especialmente para as populações mais vulneráveis com condições econômicas desfavoráveis, baixa escolaridade e dificuldades no acesso à saúde. Conclusão: Os atuais esforços governamentais são insuficientes para controlar o agravo e as iniquidades sociais, denotando a necessidade de revisão estratégias em prol da qualidade e eficiência do acompanhamento pré-natal.

DESCRIPTORES: Sífilis; Sífilis congênita; Transmissão vertical de doenças infecciosas; Saúde materno-infantil

ABSTRACT

Objective: to analyze the incidence of syphilis in pregnant and congenital women notified in Brazil from 2008 to 2017. Method: Data regarding the number and characteristics of cases were collected in the Notifiable Diseases Information System, for the purposes of calculating rates. The extracted data were tabulated and later analyzed using descriptive statistics. Results: In 2017, 24,668 cases of congenital syphilis were notified, showing an increase of 16.4% in notifications compared to the previous year, with an incidence rate of 8.2 cases per 1000 live births. Evidencing the fragility of prenatal care for the mother and the sexual partner, especially for the most vulnerable populations with unfavorable economic conditions, low education levels and difficulties in accessing health care. Conclusion: Current government efforts are insufficient to control the problem and social inequities, denoting the need to review strategies in favor of the quality and efficiency of prenatal care

DESCRIPTORS: Syphilis; Congenital syphilis; Vertical infectious disease transmission; Maternal and child health

RESUMEN

Objetivo: analizar la incidencia de sífilis en gestantes y congénitas notificadas en Brasil de 2008 a 2017. Método: Los datos sobre el número y características de los casos fueron recolectados en el Sistema de Información de Enfermedades Notificables, con el propósito de calcular las tasas. Los datos extraídos fueron tabulados y posteriormente analizados mediante estadística descriptiva. Resultados: En 2017 se notificaron 24.668 casos de sífilis congénita, mostrando un aumento del 16,4% en las notificaciones respecto al año anterior, con una tasa de incidencia de 8,2 casos por 1000 nacidos vivos. Evidenciando la fragilidad de la atención prenatal para la madre y la pareja sexual, especialmente para las poblaciones más vulnerables con condiciones económicas desfavorables, bajos niveles de educación y dificultades para acceder a la atención de salud. Conclusión: Los esfuerzos gubernamentales actuales son insuficientes para controlar el problema y las inequidades sociales, lo que denota la necesidad de revisar estrategias a favor de la calidad y eficiencia de la atención prenatal.

DESCRIPTORES: Sífilis; Sífilis congénita; Transmisión vertical de enfermedad infecciosa; Salud materno-infantil.

RECEIVED: 12/10/2021 APPROVED: 18/11/2021

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INTRODUCTION

Syphilis is a bacterial infection of systemic nature, chronic and often asymptomatic, caused by the spirochete bacterium *Treponema pallidum*, which presents in acquired and congenital forms. Acquired syphilis can be contracted sexually or blood transfusion, whereas congenital syphilis occurs through vertical transmission.¹

Compulsory notification of congenital syphilis took place in Brazil through Ordinance No. 542 of 1986, and the international commitment to eliminate congenital syphilis was assumed through Resolution CE116/14 of the Pan American Health Organization (PAHO).²

Despite the global commitment to the eradication of syphilis, the World Health Organization (WHO) declared in 2017 that syphilis reached 12 million people worldwide, allowing it to be estimated that, annually, 93.000 pregnant women may have transmissible syphilis during pregnancy, resulting in approximately 350.000 adverse birth outcomes.³

Acquired syphilis can be contracted sexually or blood transfusion, whereas congenital syphilis occurs through vertical transmission.¹

In Brazil, in 2016, syphilis was declared a serious public health problem, and epidemiological indicators pointed to an epidemic scenario of this disease.⁴ Despite governmental efforts, in several regions of Brazil, difficulties were identified to control the syphilis epidemic, such as: structural problems and human resources for the implementation of rapid tests for syphilis offered in Primary Care, failures in prenatal care, need for new strategies to reduce vertical transmission of syphilis, in addition to difficulties related to the treatment of sexual partners of pregnant women with syphilis, essential to avoid reinfection of pregnant women.^{5,6}

Therefore, it is important to observe cases of acquired or congenital syphilis, in order to improve prevention strategies, offer rapid tests, in addition to early detection and treatment.⁵

Therefore, the primary care health teams have a very important role in getting closer to the patient, therefore, they may be collaborating with the change in the epidemiological profile of gestational and congenital syphilis.⁶

Given the above, considering the prevention of vertical transmission of syphilis as a priority condition of care in the Ministry of Health, according to the Agenda of Strategic Actions for Reducing Congenital Syphilis in Brazil, the objective of this study is to characterize the national scenario of gestational and congenital syphilis in the period from 2008 to 2017.

METHOD

Cross-sectional study with an ecological character and a quantitative approach, which investigated the reported cases of syphilis in pregnant women and congenital syphilis in the country and by region, during the period from 2008 to 2017.

The study population were all notification forms for gestational and congenital syphilis, registered on the online platform of the Department of Surveillance, Prevention and Control of Sexually Transmitted Infections, HIV/AIDS and Viral Hepatitis, of the Secretariat of Health Surveillance, of the Ministry of Health, from 2008 to 2017.

For data collection, we used the information provided by the online platform of the Department of Surveillance, Prevention and Control of Sexually Transmitted Infections, HIV/AIDS and Viral Hepatitis, of the Department of Health Surveillance, of the Ministry of Health (DIAHV/ MS/ SVS).

Data collection was carried out from December 2018 to January 2019, through a structured questionnaire, the following variables were selected: number of cases, syphilis detection rate in pregnant women and congenital syphilis, maternal socio-demographic characteristics (age group, education and race/color) and characteristics of prenatal care (prenatal care, time of syphilis diagnosis, treatment regimen for the mother and her partner). Data were tabulated and analyzed using Microsoft Excel 2016 and R version 3.6.3. The analyzed data were expressed as rates, absolute numbers and percentages. Of these, the detection rate of syphilis in pregnant women was calculated using the number of notifi-

cations of syphilis in pregnant women over the number of live births, obtained from the Information System on Live Births (SINASC), in the same year; the incidence rate of congenital syphilis was calculated as the ratio between the number of notifications and the number of live births per 1,000 live births in the same year.

Ethical assessment by the Standing Committee on Ethics in Research Involving Human Beings was waived, based on Resolution 466 (7) and 510 (8) of the National Health Council of the Ministry of Health, as it is a public and unrestricted database.

RESULTS

During the period from 2008 to 2017, there was a significant increase in the number of cases of notifications of gestational syphilis, and in 2008 there were 7.306 notifications, and in 2017, 49.028, representing an increase of 671% in the number of mandatory notifications during the ten years covered by the study. The disease detection rate also increased, in 2017, the Southeast (19,6) and South (19,3) stood out, with values higher than the national average (16,2) of detection rate of pregnant women

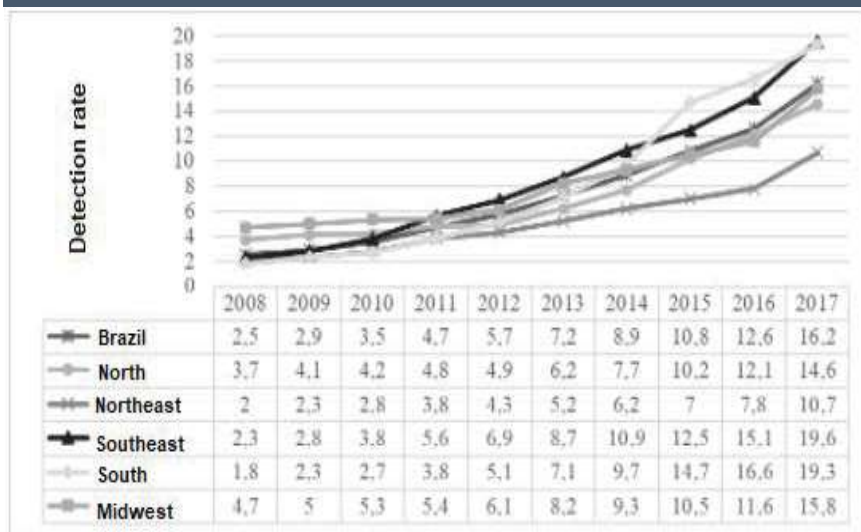
with syphilis (Figure 1).

In 2008, 5.745 cases of congenital syphilis were reported and, in 2017, 24.668 cases of congenital syphilis were reported in the country, resulting in a 429% increase in notifications in the ten years of the study. The disease detection rate also increased, on the other hand, the detection rates of congenital syphilis in the Northeast (8,1), Southeast (8,9) and South (8,8) regions were approximately similar to the national average (8,2) (Figure 2).

Regarding the sociodemographic characteristics of the mothers of children notified with congenital syphilis and women referred for gestational syphilis, 71,8% and 71,5% of the women were aged between 20 and 39 years, respectively. As for the education criterion, 47% of the mothers of children with congenital syphilis and 56,3% of the women with gestational syphilis had less than eight years of schooling. Regarding race/color, in approximately 66% of both cases the women were not white. The large number of information ignored when filling out the mandatory notification is noteworthy, which reached the mark of 28,9% of lack of information in the field of education (Table 1).

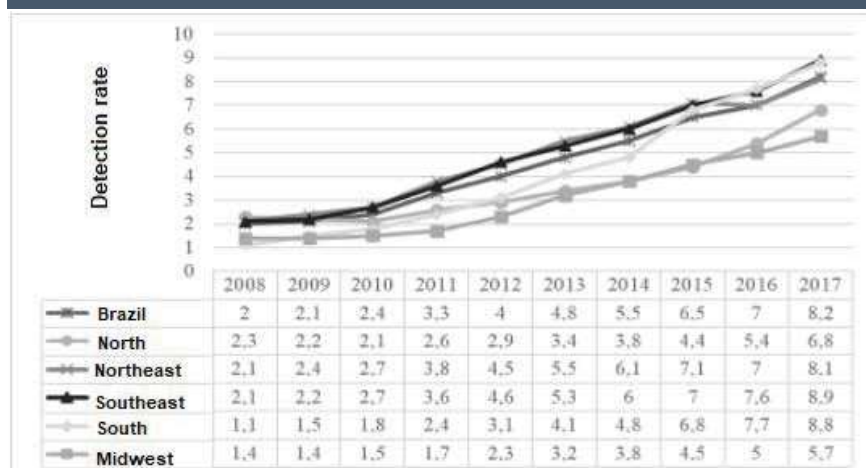
Regarding prenatal care for women who

Figure 1. Detection rate of gestational syphilis in Brazil by regions, from 2008 to 2017. Maringá-PR, 2019.



Source: DIAHV/MS/SVS, 2019.

Figure 2. Congenital syphilis detection rate in Brazil by region, from 2008 to 2017. Maringá-PR, 2019.



Fonte: DIAHV/MS/SVS, 2019.

Tabela 1. Perfil sociodemográfico das mães das crianças notificadas com sífilis congênita e as mulheres encaminhadas por sífilis gestacional, no período de 2008 a 2017 no Brasil.

MATERNAL VARIABLES	CONGENITAL SYPHILIS		GESTATIONAL SYPHILIS	
	N	%	N	%
Age Group				
< 15 years	1796	1,0	1364	1,0
15 to 19 years	39.562	22,5	31178	22,9
20 to 39 years	126.483	71,8	97.301	71,5
> 40 years	3810	2,2	2836	2,1
Ignored	4457	2,5	3421	2,5
Education				
Illiterate	2256	1,3	1505	1,1
< 8 years of study	82755	47,0	76633	56,3
> 8 years of study	40313	22,9	18679	13,7
Ignored	50784	28,8	39283	28,9
Race or color				
White	41.352	23,5	32386	23,8
Non-white	116.272	66,0	89932	66,1
Ignored	18484	10,5	13782	10,1

Source: DIAHV/MS/SVS, 2019.

transmitted the disease to their children, it was found that in the second five-year period, there was an increase in prenatal care by 6%. The time of detection of syphilis increased at the time of prenatal care by 11,6% and decreased by 8,1% at the time of delivery and/or curettage.

Inadequate treatment is still prevalent

and growing, as there was an increase of 7,2% of inappropriate treatments when comparing the five-year period from 2008 to 2012 with that from 2013 to 2017, in addition, the partner's treatment grew by only 3,3% (Table 2).

DISCUSSION

The results showed that there was a progressive increase in syphilis detection rates in pregnant women and congenital syphilis in Brazil, during the period 2008 to 2017. According to the Ministry of Health's Syphilis Epidemiological Bulletin 2018, this increase can be, partially, attributed to the improvement of the notification system, the SINAN, and the expansion of the offer of rapid syphilis testing in Primary Care.⁹

This fact was found in a descriptive study of reported cases of syphilis in pregnant and congenital women, based on data from SINAN, from 2007 to 2012, in which the authors concluded that increases in syphilis detection rates in the states of Amazonas, Ceará, Espírito Santo, Rio de Janeiro, Rio Grande do Sul and the Federal District, locations with regional representation and different conditions of access to health, may have been boosted by the increase in notifications of cases in SINAN. Furthermore, in this study, in all states studied, an increase in the use of the rapid test was observed. Only in the Federal District was there a reduction.¹⁰

Notwithstanding the evidence of an increase in syphilis detection rates in pregnant and congenital women, it should be noted that underreporting is still a reality, as observed in Minas Gerais. This study began with the identification of epidemiological notification forms, followed by an active search in maternity hospitals, from 2007 to 2013.¹¹ The lack of notification is a great challenge for the epidemiological surveillance of syphilis, not allowing the investigation of suspected cases, making the proper maternal-infant treatment unfeasible.¹²

In relation to syphilis in pregnant women, in 2017, in Brazil, the total number of notified cases of syphilis in pregnant women was 49.028, which represented approximately 28,5% more cases than in the previous year and the detection rate was 16,2 cases of syphilis in pregnant women for every 1.000 live births. It should be noted that as of 2017, the increase in the number of syphilis cases in pregnant women is

Table 2. Prenatal care and treatment of women and their partners, from 2008 to 2017 in Brazil.

PRENATAL CARE	2008-2012		2013-2017	
	N	%	N	%
Yes	29.268	73,2	76.130	79,2
No	7.923	19,8	14.380	15,0
Ignored	2.817	7,0	5.582	5,8
Timing of maternal syphilis diagnosis				
During prenatal	16.543	41,3	50.860	52,9
In childbirth/curettage	16.794	42,0	32.540	33,9
After childbirth	4.571	11,4	7.936	8,3
Unrealized	256	0,6	586	0,6
Ignored	1.844	4,6	4.170	4,3
Maternal Treatment Scheme				0,0
Adequate	1.493	3,7	3.797	4,0
Inadequate	20.166	50,4	55.365	57,6
Unrealized	13.828	34,6	25.813	26,9
Ignored	4.521	11,3	11.117	11,6
Treated partner				0,0
Yes	4.386	11,0	13.757	14,3
No	26.351	65,9	59.852	62,3
Ignored	9.271	23,2	22.483	23,4

Fonte: DIAHV/MS/SVS, 2019.

possibly related, albeit in part, to changes in the criteria for defining cases of acquired syphilis, syphilis in pregnant women and congenital syphilis, according to the Information Note No. 2 SEI/ 2017 - DIAHV/ SVS/ MS. This standard was created precisely for the purpose of adjusting the sensitivity in capturing cases of congenital syphilis and reducing underreporting of syphilis cases in pregnant women.¹⁴

With regard to congenital syphilis, the results of this study indicated that the elimination of congenital syphilis was not achieved, according to the goal stipulated in 2010 by PAHO (Pan American Health Organization), for Brazilian municipalities to reduce the rate of congenital syphilis at a value less than or equal to 0,5 cases per 1.000 live births, in 2015.¹³ On the contrary, in 2017, 24.668 cases of congenital syphilis were reported in the country, which meant an increase of 16,4% of notifica-

tions, compared to the previous year, with a (national) rate of congenital syphilis incidence of 8,2 cases per 1000 live births in Brazil, and rates even higher in the Southeast (8,9) and South (8,8) regions.

The increase in the number of reported cases and the rate of incidence of congenital syphilis underscores the need for continued prenatal care and syphilis diagnostic practice for all pregnant women.¹² In Brazil, the Ministry of Health's set of strategies aimed at expanding access and quality of prenatal care in Primary Care is based on the provision of rapid HIV and syphilis tests for pregnant women and their sexual partners, within the scope of the Cegonha Network, which was implemented in 2011.¹⁴

However, studies have shown that the use and coverage of the rapid syphilis test in Primary Care is still not satisfactory. A study carried out in Santa Catarina identified that of the 123 nurses responsible for the

Family Health Strategies (FHS) in the city, although trained, they reported difficulties in infrastructure and human resources for the implementation of the service to offer rapid tests for syphilis, which restricted the diagnosis of pregnant women in that location.⁵

Similar results were observed in Ceará for the implementation of rapid tests for syphilis and HIV in the prenatal routine, given that most primary health units had trained professionals, but presented some inadequacy in terms of physical space and, in many, there was unavailability of rapid test kits or even had kits with expired validity.¹⁵

Factors associated with the occurrence of maternal and congenital syphilis are the subject of several studies and investigations. Some maternal characteristics, less favored socioeconomic status and difficulties in accessing quality health care are often observed in the registries of reported cases of this condition.¹²

The results pointed to a weakness in the effectiveness of prenatal care and in the epidemiological surveillance system for the disease, which raises questions about what would be the quality of care provided to this population in its condition of vulnerability.¹¹

Maternal age is a deciding factor on pregnancy planning and the quality that this pregnancy will experience depends on the social context in which the woman is inserted, since early and unplanned pregnancy, in addition to precarious living conditions in areas of risk hindered the capture and early start of prenatal care, in addition, the low education level was an aggravating factor for understanding the importance of maternal and child health care.¹⁶

The results of this study identified a worrying inefficiency in terms of treatment, both by the mother and by her partner, across the country. It is worth noting that congenital syphilis and its consequences can be avoided through proper treatment of the infected pregnant woman, with the administration of penicillin G benzathine, the only antimicrobial capable of crossing the placental barrier and reaching the fetus.

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Attention should also be paid to sexual partners, who must also adhere to treatment, concomitantly, for the purpose of interrupting the transmission chain. However, this persists as one of the biggest obstacles to the end of the problem and the effective cure of the pregnant woman.¹³

In this regard, it should be noted that the pregnant woman is not always married or enjoys a stable relationship and syphilis can be a consequence of extramarital relationships.^{17,18} In addition, behavioral and cultural issues that hinder the promotion of men's integral health must be considered, in

terms of seeking health services.^{9,17}

CONCLUSION

Despite government efforts to eliminate congenital syphilis, considered a marker of the quality of maternal-fetal health care, the results of this study indicated that the country is very far from the goals of the World Health Organization, given the progressive increase in incidence rates in different regions and under unequal conditions of access to health care in the Brazilian State.

It is worth highlighting some limitations of the present study, given the diffi-

culties in using secondary data, possible underreporting of cases, information considered as "ignored", lack of access to medical records and different research sources. However, it is expected that the results presented here may contribute to a reflection in favor of the quality of care for pregnant women and their spouse or sexual partner, during prenatal care, with an emphasis on the weaknesses already detected, in order to support new strategies or interventions aimed at controlling cases.

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