INTERNATIONAL JOURNAL OF HEALTH & MEDICAL RESEARCH

ISSN(print): 2833-213X, ISSN(online): 2833-2148

Volume 03 Issue 07 July 2024

DOI : 10.58806/ijhmr.2024.v3i07n01

Page No. 433-439

Gestational Syphilis in Santos/Sp: Epidemiologic Analysis From 2016 To 2022

Juliana Fonte Beltran Paschoal[1,2], Délio Tiago Martins Malaquias[1], Camila Santos da Costa[1], Bruna Duarte Monteiro[1], Lorenza Rech Galvan[1], Giovana Rocha Victorello[1], Giovanna Vetter Paulino[1], Luana Sousa[1], Vithória Tilemahos Zervoudakis de Castro[1], Alessandra Carvalho Silva[1], Maria Gabriela Guzzi[1], Ana Carolina Passeli Bergamin[1], Lisandra Silva do Amaral[1], Sarah Olinda de Lima[1], Amanda Silva Pascoal[1], Isabeli Gomes de Oliveira[1], Amanda Magdah Pereira de Azevedo Dantas[4], Laura de Castro Ortega[1], Alessandra Santos de Freitas [1], Thiago Augusto Rochetti Bezerra [1,3].

[1]Medical student. University of Ribeirão Preto. Guarujá, São Paulo, Brazil.

[2]PhD in Biotechnology. University of São Paulo. São Paulo, Brazil

[3]PhD in Medical Sciences. Ribeirão Preto Medical School. University of São Paulo. Ribeirão Preto, São Paulo, Brazil.

[4]Medical student. Potiguar University. Natal, Rio Grande do Norte, Brazil

ABSTRACT:

Introduction: This study analyzes the incidence and trends of gestational syphilis in the city of Santos/SP between 2016 and 2022. Syphilis is a sexually transmitted infection caused by the bacterium Treponema pallidum, which can be transmitted from mother to fetus during pregnancy if not properly treated. In Brazil, congenital syphilis is a public health concern and has been compulsorily notifiable since 1986. Objectives: The study aims to describe the epidemiological profile of syphilis in pregnant women in Santos/SP, analyzing the number of reported cases and detection rates over the years, comparing with national and state data. It also aims to contribute to a better understanding of local dynamics and public health policies related to syphilis among pregnant women. **Methodology:** An ecological descriptive study was used to analyze secondary data from the São Paulo State Epidemiological Surveillance Center (CVESP). The data was obtained from the Santos Epidemiological Bulletin No. 5, 2023 edition. Results: Santos recorded a total of 1,049 confirmed cases of gestational syphilis during the period analyzed, with significant variations from year to year. There was an increase in reported cases, with peaks in 2021 and 2022. Detection rates also varied, with Santos showing rates higher than the national and state averages at various times. Conclusion: The study reveals significant challenges in the management of gestational syphilis in Santos/SP, indicating the need for effective public health interventions. It is essential to implement policies aimed at improving early diagnosis, timely treatment and prevention of vertical transmission, in order to reduce congenital syphilis rates and protect maternal and neonatal health in the city.

KEYWORDS: Syphilis, Gestational syphilis, Syphilis Santos/SP.

INTRODUCTION

Syphilis is a Sexually Transmitted Infection (STI) caused by the bacterium Treponema pallidum, which is transmitted mainly through unprotected sexual intercourse. During pregnancy, if the pregnant woman is not treated or receives inadequate treatment, the infection can pass to the fetus through the placenta (BRASIL, 2022).

The ability of the bacterial infection to cross this placental barrier makes syphilis during pregnancy a serious risk to fetal health. This is why early diagnosis and effective treatment are essential to avoid serious complications from congenital syphilis. Gestational syphilis therefore represents a major global public health challenge, with significant impacts on maternal and newborn health (ARAÚJO et al., 2019; SANTOS et al., 2022a).

The elimination of congenital syphilis is one of the targets set by the World Health Organization (WHO) as part of the Sustainable Development Goals (SDGs), with the goal of reducing the incidence rate to 0.5 cases per 1,000 live births (CHINAZZO, 2015). In Brazil, congenital syphilis has been a compulsorily notifiable disease since 1986, with notification in pregnant women beginning in 2005 (LIMA et al., 2013).

According to the World Health Organization, syphilis affects more than 12 million people globally, representing an ongoing challenge for health systems around the world. In Brazil, syphilis was officially recognized as a serious public health problem in 2016. The fight against this disease, along with other Sexually Transmitted Infections (STIs), is among the main management

priorities adopted by the states, Federal District and municipalities. Preventing vertical transmission of syphilis during pregnancy is one of the central strategies in the health programs of the governmental spheres (BRASIL, 2022).

Pregnant women should preferably enter the Unified Health System through Primary Health Care (PHC), which plays a strategic role in meeting their needs. Maternal and child health care is a priority in this context, focusing especially on monitoring during prenatal care, childbirth and the puerperium, with the aim of ensuring a pregnancy-puerperium cycle with the lowest possible risk (SANTOS et al., 2022b).

Despite advances in maternal health, significant challenges persist in prenatal care and childbirth, which jeopardizes the achievement of the established goals (BRASIL, 2017; XAVIER et al., 2013). The lack of adequate prenatal care can result in serious health problems for pregnant women and newborns, such as congenital syphilis, miscarriage, stillbirth and premature neonatal death. This situation highlights the urgent need to implement policies and practices that expand access and improve the quality of maternal and child care, with the aim of protecting the health of both mothers and babies (CERQUEIRA et al., 2017; DOMINGUES; LEAL, 2016; MAGALHÃES et al., 2013).

In urban contexts such as Santos/SP, the incidence of gestational syphilis has shown variations over the years, reflecting not only local dynamics, but also public health policies implemented at different administrative levels. The city has recorded a number of cases of gestational syphilis, with trends that require detailed analysis to better understand their implications and guide effective intervention strategies (PAIXÃO; GONÇALVES; PAULO, 2023).

The main objective of this study is to describe the epidemiological profile of syphilis in pregnant women in the city of Santos/SP, analyzing the total number of reported cases and detection rates over the period from 2016 to 2022. In addition, the aim is to compare this data with trends observed at federal and state level, providing a comprehensive view of local dynamics and public health policies related to syphilis among pregnant women.

By analyzing temporal variations in cases and detection rates in Santos, as well as comparing them with data from Brazil and the state of São Paulo, this study aims to contribute to a better understanding of the epidemiological characteristics of gestational syphilis in a specific urban context. This analysis will not only inform about the magnitude of the problem in the city, but will also identify possible challenges and opportunities for improving strategies for the prevention, early diagnosis and appropriate treatment of syphilis among pregnant women.

It is hoped that the results of this study will help to develop more effective public policies aimed at reducing the incidence of gestational syphilis and improving maternal and child health care in Santos/SP.

OBJECTIVES

This study aims to describe the epidemiological profile of syphilis in pregnant women in the city of Santos/SP, analyzing the total number of reported cases and detection rate over the years 2016 to 2022, comparing them at federal, state and municipal levels during the period studied, thus contributing to a better understanding of local dynamics and public health policies related to syphilis among pregnant women.

METHODOLOGY

The work was carried out in the form of a descriptive ecological study analyzing secondary data. The data presented is from the Epidemiological Surveillance Center of the State of São Paulo (CVESP), which can be observed through the epidemiological bulletin of Santos No. 5, edition 2023, which presents data on notifiable diseases in the historical series of the last 7 years (2016 to 2022), all editions of the Epidemiological Bulletin website; (www.santos.sp.gov.br/?q=servico/boletim-epidemiologico-desantos), in addition to literature research, scientific articles, to bring more current and relevant data to the topic addressed.

RESULTS

Between 2016 and 2022, Santos recorded a total of 1,049 confirmed cases of gestational syphilis (Figure 1). During this time interval, the city showed significant variations in cases of the disease. In 2016, 60 cases were reported, a figure that rose to 95 in 2017, indicating an initial increase. This increase continued in the following years, with 143 cases in 2018 and 151 in 2019. In 2020, there was a reduction to 132 cases, followed by a return to the upward trend in 2021, when 210 cases were recorded, and in 2022, with an increase to 258 cases.

Between 2016 and 2019, there was an upward trend in the incidence of gestational syphilis. The year 2020 stood out with the lowest number of cases, coinciding with the start of the COVID-19 pandemic. From 2020 to 2021, there was a significant 59% increase in confirmed cases. The years 2021 and 2022 saw peaks in cases, representing an increase of approximately 22% in syphilis cases compared to the previous year. In absolute terms, there was an increase of around 78 cases between 2020 and 2021, and 48 cases between 2021 and 2022.

Gestational Syphilis in Santos/Sp: Epidemiologic Analysis From 2016 To 2022

Comparing the data from 2016 to 2022, there was a 330% increase in the cases registered during this period, i.e. the number of cases increased more than three times compared to the initial level observed in 2016, demonstrating a significant growth in the incidence of gestational syphilis over the years in Santos.

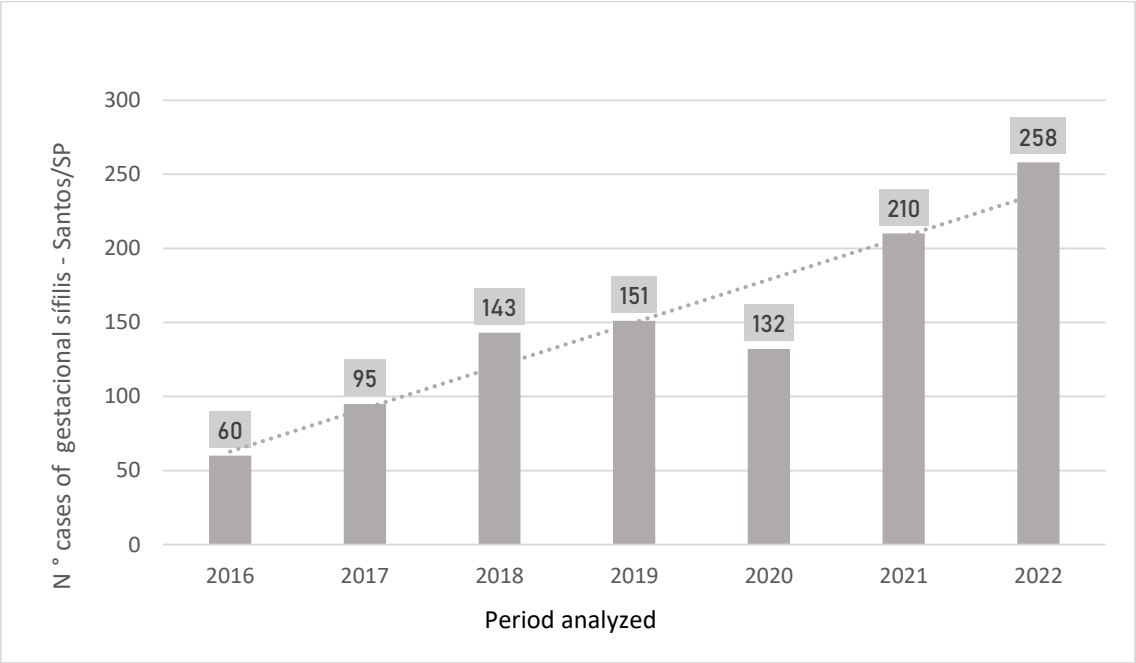

Figure 1. Number of confirmed cases of gestational syphilis recorded between 2016 and 2022 in the city of Santos/SP. Source: Sinan-Net/SEVIEP. Updated on 03/08/2023. Note: Provisional data, subject to change. Research on - 06/2024.

Over the period from 2016 to 2022, the detection rate of syphilis in pregnant women (Figure 2) showed significant variations in Brazil, São Paulo and the municipality of Santos. Initially, in 2016, the detection rate in Brazil was 13.4 per 1,000 live births, while in São Paulo and Santos it was 14.0 and 13.3, respectively. In subsequent years, there has been a steady increase in the detection rate at all administrative levels. In 2017, the rates were 17.0 for Brazil, 17.6 for São Paulo and 19.9 for Santos, indicating moderate but upward growth.

In 2018, there was a more pronounced increase in detection rates; Brazil recorded 21.5, São Paulo 20.6, and Santos 31.4 cases per 1,000 live births, reflecting a sharper growth trend at all levels. This trend continued in 2019, with rates of 22.7 in Brazil, 22.0 in São Paulo and 34.6 in Santos, demonstrating a significant increase compared to previous years.

The year 2020 was marked by slightly lower rates compared to the 2019 peak, with Brazil reporting 24.1, São Paulo 25.4, and Santos 32.3 cases per 1000 live births. However, from 2021 onwards, all the areas analyzed showed a significant increase in detection rates: Brazil reached 27.7, São Paulo 28.5, and Santos 54.1.

This growth was particularly notable in Santos, where the rate more than doubled compared to the previous year, highlighting a worrying escalation in the incidence of syphilis in pregnant women.

In contrast, 2022 showed a variation on the patterns observed in previous years. Brazil registered a significant reduction in the detection rate to 12.6, indicating a reversal in the upward trend of previous years. São Paulo also showed a drop to 13.0, while Santos maintained a high rate of 68.7, continuing to demonstrate a high incidence of syphilis in pregnant women in the city, despite the variations observed at federal and state levels. While Brazil and São Paulo saw a drop in detection rates that year, Santos maintained a high rate, reaching its peak during this period.

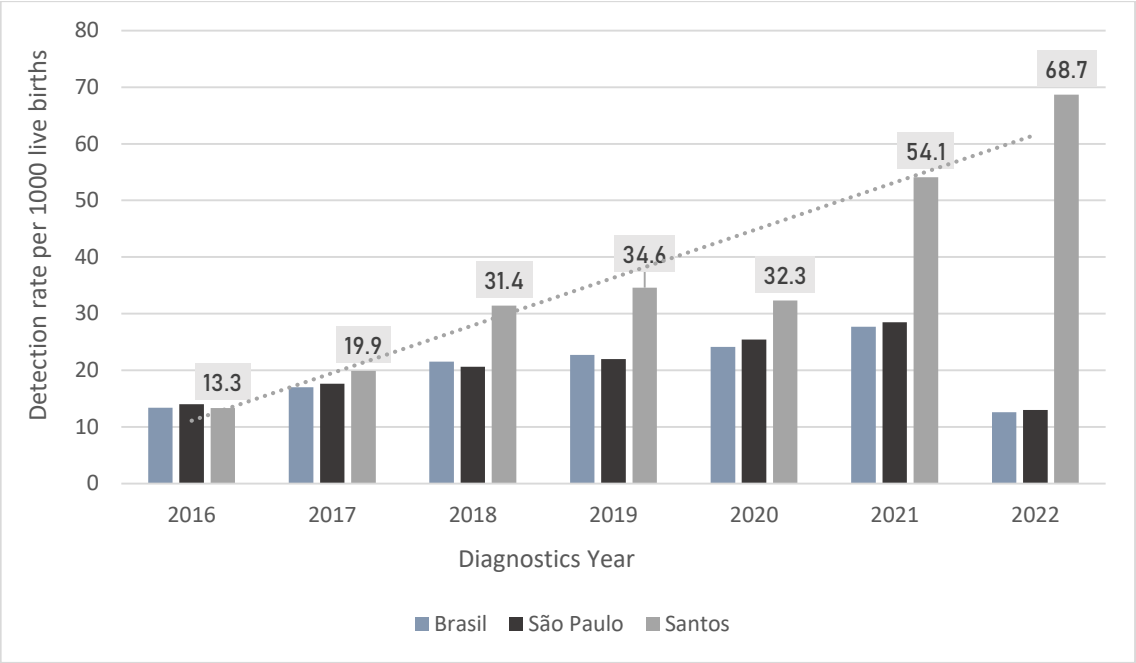

Figure 2. Detection rate of syphilis in pregnant women (per 1000 live births), according to year of diagnosis, rates in Brazil, São Paulo and Santos, 2016 to 2022. Source: Sinan-Net/SEVIEP. Epidemiological bulletins SVS, MS and CRT- PE-DST/AIDS/CVE, SES - SP Note: MS/ SVS/ DASIS - Live Birth Information System - SINASC - Provisional data, subject to change. Data for Brazil and São Paulo up to 06/22, data for Santos updated on 03/08/2023. Survey on - 06/2024.

DISCUSSION

Analysis of the data on the incidence of gestational syphilis in Santos between 2016 and 2022 reveals significant trends over the period. Initially, there was a consistent increase in reported cases of gestational syphilis, from 60 cases in 2016 to 151 in 2019, with 2020 standing out with a reduction. However, from 2021 onwards, there was a significant increase again, with 210 cases recorded, and in 2022, the number rose to 258 cases, representing continuous growth in recent years. The variations observed not only reflect changes in notification and diagnosis, but also highlight the challenges faced in effectively controlling syphilis in pregnancy.

A municipality's epidemiological indicators play a crucial role in guiding surveillance and implementing preventive measures. A low number of reported cases of syphilis in pregnancy does not necessarily guarantee control of vertical transmission, as there may be underreporting, compromising an accurate assessment of the prevalence of the disease. On the other hand, a high incidence may indicate flaws in the health system, such as difficulties in accessing services or deficiencies in the approach to treating pregnant women and their partners (CAMPOS et al., 2010; DOMINGUES; LEAL, 2016; ROCHA et al., 2016). In addition, many pregnant women find it difficult to understand the complex guidelines provided by health professionals, which can alienate them by not meeting their individual needs (ROCHA et al., 2016).

The highest incidence of the infection is observed mainly in individuals aged between 20 and 29, of brown color and with low schooling. Brown race/color, low educational level and participation in unpaid activities are predominant characteristics in syphilis cases, as described in previous studies (CONCEIÇÃO; CÂMARA; PEREIRA, 2020).

Gestational syphilis is treatable, which makes it possible to prevent congenital syphilis. Detecting this condition during pregnancy is crucial to avoid serious complications for the fetus.

The occurrence of congenital syphilis usually points to failures in prenatal care, diagnosis or proper treatment of the pregnant woman. Therefore, it is essential that cases of syphilis in pregnant women are identified early and treated in a timely manner, including the active participation of sexual partners in the treatment process (MASCHIO-LIMA et al., 2020; NONATO; MELO; GUIMARÃES, 2015).

In Brazil, more than 95% of women receive prenatal care, but those who do not have any appointments have the highest prevalence of syphilis during pregnancy. The test to diagnose syphilis should be carried out at the first prenatal appointment, preferably in the first trimester of pregnancy and again at the beginning of the third trimester (28th week), as well as at the time of delivery (DOMINGUES; LEAL, 2016).

It is essential that the professionals responsible for prenatal care are trained to identify clinical signs, interpret the tests requested and intervene in the event of possible complications (BRASIL, 2015).

Primary care health professionals, especially nurses, have a major responsibility in the identification, notification, intervention and treatment of gestational syphilis, since they are responsible for prenatal care in basic health units. Ordinance/GM

No. 569 of the Prenatal and Birth Humanization Program (PHPN), implemented in 2000, establishes that for adequate care, pregnant women should have at least six prenatal appointments: one in the first trimester, two in the second trimester, three in the last trimester, and one appointment up to 42 days after delivery (SANTOS et al., 2016).

The high number of ignored fields on the notification forms for gestational and congenital syphilis is worrying, since all the variables found on the notification forms are used to assess the situation of the disease, as well as the health care provided (CONCEIÇÃO; CÂMARA; PEREIRA, 2020). Properly filling in the forms allows access to patient information, facilitating the assessment, planning and implementation of measures to reduce and control this disease (OLIVEIRA, 2016). It is therefore essential to implement public policies that train health professionals to provide adequate prenatal care, preparing them for the correct notification and clinical management of syphilis during pregnancy (TEIXEIRA et al., 2015).

With regard to partners in the management of gestational syphilis, studies show that in Brazil there is a very poor approach to partners. The main reasons highlighted include men's low adherence to health services due to work issues, as well as the negligence or inadequate training of professionals who conduct prenatal care. The lack of continuity in contact with pregnant women after childbirth also highlights the limited capacity of professionals to develop a personalized therapeutic plan and establish bonds with the couple (DIAS et al., 2019; SILVA et al., 2021).

Care generally prioritizes the mother-baby binomial, reflecting a still prevalent view of machismo in the country (LAFETÁ et al., 2016; OZELAME et al., 2020).

The year 2020 stood out with a reduction in the number of cases, coinciding with the start of the COVID-19 pandemic, which may have affected prenatal consultations and access to health services. Therefore, it is important to note that this period coincided with the implementation of isolation and social distancing measures, which probably impacted both the frequency of sexual relations and the reduction in the number of partners. However, this decrease in the notification of syphilis may also be related to the reduction in testing of the population, due to the overload of basic health units with the care of patients with respiratory symptoms (MENEZES et al., 2021).

The high rate of detection of syphilis in pregnant women in Santos, compared to Brazil and the state of São Paulo, according to the Santos Epidemiological Bulletin (2023), can be attributed in part to the effectiveness of the disease detection and notification systems in the city. In addition to passive notifications, where the Epidemiological Surveillance Section (SEVIEP) receives information from local health units and professionals for recording in the Notifiable Diseases Information System (SINAN), Santos also adopts active notification.

This method includes the active search for positive test results in public and private laboratories in the city, as well as the proactive identification of all newborns at risk, in collaboration with the Maternal and Infant Mortality Surveillance Section (SEVIG-MMI) in maternity hospitals. These strategies not only cover the population served by the private network, but also aim to identify underreported cases, strengthening the monitoring and control of syphilis among pregnant women in Santos.

FINAL CONSIDERATIONS

The study of the epidemiological profile of syphilis in pregnant women in Santos/SP revealed a worrying upward trend in cases over the years, highlighting the complexity and challenges associated with controlling this infection.

Data analysis showed significant variations in detection rates at both local and national levels, highlighting the need for effective surveillance and intervention strategies. The implementation of public policies aimed at improving prenatal care and strengthening health systems are key to tackling this problem.

The high detection rate in Santos reflects the effectiveness of active notification strategies, which enable cases to be identified early and referred for appropriate treatment. However, even with these measures, high numbers persist, highlighting the urgent need to comprehensively address all reported cases.

It is essential to stress the importance of health education and equitable access to health services, especially for vulnerable and marginalized populations, in order not only to reduce the incidence, but also to mitigate the impacts of gestational syphilis on maternal and child health.

Continuity in epidemiological monitoring and evaluation of implemented policies is essential to adjust strategies as necessary and achieve the goals of reducing gestational and congenital syphilis. In addition, the need to actively engage pregnant women's sexual partners in the process of preventing and treating syphilis is fundamental to interrupting vertical transmission.

Collaboration between health professionals, public managers and the community is crucial to reducing the negative impacts of syphilis on maternal and child health and achieving the goals set by the World Health Organization for the elimination of congenital syphilis.

Therefore, integrated and sustained measures are essential to address the ongoing challenge posed by gestational syphilis, ensuring effective and comprehensive health care for all pregnant women in Santos/SP.

REFERENCES

1) ARAÚJO, M. A. L. et al. Fatores associados aos desfechos desfavoráveis provocados pela Sífilis na gestação. **Revista Brasileira de Saúde Materno Infantil**, v. 19, p. 411–419, 22 jul. 2019.
2) BRASIL. Ministério da Saúde. Protocolo Clínico e Diretrizes Terapêuticas para Atenção Integral às Pessoas com Infecções Sexualmente Transmissíveis (IST) [Internet]. Brasília, DF; 2022. [Acesso em 22 junho. 2024]. Disponível em: http://portaldeboaspraticas.iff.fiocruz.br/wp-content/uploads/2019/02/pcdt_ist_para_web_-_nao_diagramado1.pdf
3) BRASIL. Ministério da Saúde. Boletim epidemiológico de sífilis. 2022. [Acesso em 22 junho. 2024]. 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
4) BRASIL. Ministério da Saúde. Secretaria de Vigilância em Saúde. Departamento de Vigilância, Prevenção e Controle das Infecções Sexualmente Transmissíveis, do HIV/Aids e das Hepatites Virais. Agenda de Ações Estratégicas para Redução da Sífilis no Brasil. Brasília: Ministério da Saúde; 2017.
5) BRASIL. Ministério da Saúde. Protocolo Clínico e Diretrizes Terapêuticas para Prevenção da Transmissão Vertical de Hiv, sífilis e hepatites virais. Relatório de Recomendação, 2015
6) Boletim Epidemiológico de Santos. Disponível em: <https://www.santos.sp.gov.br/?q=servico/boletim-epidemiologico-de-santos>. Acesso em: 9 mar. 2023.
7) CAMPOS, A. L. DE A. et al. Epidemiologia da sífilis gestacional em Fortaleza, Ceará, Brasil: um agravo sem controle. **Cadernos de Saúde Pública**, v. 26, n. 9, 1 set. 2010.
8) CERQUEIRA, L. R. P. DE et al. The magnitude of syphilis: from prevalence to vertical transmission. **Revista do Instituto de Medicina Tropical de São Paulo**, v. 59, p. e78, 21 dez. 2017.
9) CHINAZZO, L. K. Perfil clínico e epidemiológico da sífilis congênita na unidade de internação de um hospital universitário. [s.d.].
10) CONCEIÇÃO, H. N. DA; CÂMARA, J. T.; PEREIRA, B. M. Análise epidemiológica e espacial dos casos de sífilis gestacional e congênita. **Saúde em Debate**, v. 43, p. 1145–1158, 9 mar. 2020.
11) DIAS, M. DE S. et al. Síntese de evidências para políticas públicas de saúde: enfrentamento da sífilis congênita no âmbito da atenção primária à saúde. **BIS, Bol. Inst. Saúde (Impr.)**, p. 89–95, 2019.
12) DOMINGUES, R. M. S. M.; LEAL, M. DO C. Incidência de sífilis congênita e fatores associados à transmissão vertical da sífilis: dados do estudo ***Nascer no Brasil***. **Cadernos de Saúde Pública**, v. 32, p. e00082415, 1 jun. 2016.
13) LAFETÁ, K. R. G. et al. Sífilis materna e congênita, subnotificação e difícil controle. **Revista Brasileira de Epidemiologia**, v. 19, p. 63–74, mar. 2016.
14) LIMA, M. G. et al. Incidência e fatores de risco para sífilis congênita em Belo Horizonte, Minas Gerais, 2001-2008. **Ciência & Saúde Coletiva**, v. 18, p. 499–506, fev. 2013.
15) MACÊDO, V. C. DE et al. Risk factors for syphilis in women: case-control study. **Revista de Saúde Pública**, v. 51, p. 78, 17 ago. 2017.
16) MAGALHÃES, D. M. DOS S. et al. Sífilis materna e congênita: ainda um desafio. **Cadernos de Saúde Pública**, v. 29, p. 1109–1120, jun. 2013.
17) MARINHO DE SOUZA, J. et al. Mother-to-child transmission and gestational syphilis: Spatial-temporal epidemiology and demographics in a Brazilian region. **PLoS neglected tropical diseases**, v. 13, n. 2, p. e0007122, fev. 2019.
18) MASCHIO-LIMA, T. et al. Perfil epidemiológico de pacientes com sífilis congênita e gestacional em um município do Estado de São Paulo, Brasil. **Revista Brasileira de Saúde Materno Infantil**, v. 19, p. 865–872, 13 jan. 2020.
19) MENEZES, I. L. et al. Sífilis Adquirida no Brasil: Análise retrospectiva de uma década (2010 a 2020). **Research, Society and Development**, v. 10, n. 6, p. e17610611180–e17610611180, 27 maio 2021.
20) NONATO, S. M.; MELO, A. P. S.; GUIMARÃES, M. D. C. Syphilis in pregnancy and factors associated with congenital syphilis in Belo Horizonte-MG, Brazil, 2010-2013. **Epidemiologia e Serviços de Saúde**, v. 24, p. 681–694, dez. 2015.
21) OLIVEIRA, S. I. M. DE. **Notificações de sífilis gestacional e congênita: uma análise epidemiológica**.
22) OZELAME, J. É. E. P. et al. Vulnerabilidade à sífilis gestacional e congênita: uma análise de 11 anos [Vulnerability to gestational and congenital syphilis: a 11-year analysis] [Vulnerabilidad a la sífilis gestacional y congénita: un análisis de 11 años]. **Revista Enfermagem UERJ**, v. 28, p. e50487–e50487, 9 out. 2020.
23) PAIXÃO, A. DO N.; GONÇALVES, E. K. L. P.; PAULO, K. DE O. Incidência de sífilis gestacional na cidade de Santos-SP antes e durante pandemia de Covid-19 (2018-2022). dez. 2023.
24) ROCHA, R. P. S. et al. Análise do perfil epidemiológico de sífilis nas gestantes em Tangará Da Serra de 2007 a 2014. **Revista Renome**, v. 5, n. 2, p. ág. 03-21, 2016.
25) SANTOS, G. S. et al. Aspectos epidemiológicos da sífilis congênita associados à escolaridade materna. **Rev. enferm. UFPE on line**, p. 2845–2852, 2016.

26) SANTOS, M. D. D. et al. Perfil epidemiológico dos casos notificados de sífilis materna e congênita em uma maternidade referência em Belo Horizonte. **Revista Médica de Minas Gerais**, v. 32, 2022a.
27) SANTOS, P. S. et al. Assistência pré-natal pelo enfermeiro na atenção primária à saúde: visão da usuária. **Enferm. foco (Brasília)**, p. 1–6, 2022b.
28) SARACENI, V.; LEAL, M. DO C. Avaliação da efetividade das campanhas para eliminação da sífilis congênita na redução da morbi-mortalidade perinatal: Município do Rio de Janeiro, 1999-2000. **Cadernos de Saúde Pública**, v. 19, p. 1341–1349, out. 2003.
29) SILVA, G. M. DA et al. Sífilis gestacional e congênita: incidência e fatores associados à transmissão vertical. **Saúde e Pesquisa**, v. 14, n. 2, p. 369–382, 30 abr. 2021.
30) TEIXEIRA, M.A et al. Perfil epidemiológico e sociodemográfico das crianças infectadas por sífilis congênita no município de Jequié/Bahia. **Rev. Saúde.Com**, 11(3):303-313.
31) XAVIER, R. B. et al. Risco reprodutivo e renda familiar: análise do perfil de gestantes. **Ciência & Saúde Coletiva**, v. 18, p. 1161–1171, abr. 2013.