

## PROFILE AND INCIDENCE OF SYPHILIS IN PREGNANT ADOLESCENTS IN RIBEIRÃO PRETO: DATA UPDATE, FROM 2011 TO 2021

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**Abstract:** INTRODUCTION: The sexual behavior of adolescents and young people represents a challenge for Public Health, especially during pregnancy, due to multiple exposure and risk factors for syphilis, as well as the psychosocial and economic repercussions in the individual, family and social contexts. OBJECTIVE: This study aims to analyze the incidence of syphilis cases in pregnant adolescents aged 10 to 19 years in the Municipality of Ribeirão Preto between 2009 and 2019 and promote knowledge for the scientific community and health areas, subsidizing information which will contribute to promoting the health of this population. METHODOLOGY: This is a documentary analysis of a descriptive study with a quantitative and transversal approach. The study population is made up of cases of syphilis during pregnancy in girls aged 10 to 19 years, reported in the Notifiable Diseases Information System (SINAN). After data collection, they were tabulated and organized in an Excel spreadsheet. CONCLUSION: There was a progressive increase in the notification and incidence rate of syphilis cases in pregnant adolescent women living in Ribeirão Preto. Therefore, it is understood that the implementation of public policies aimed at adolescence is of great importance for preventing new cases. Knowledge about sexual and reproductive health, as well as quality prenatal care, is essential to guarantee early diagnosis, timely treatment and prevention of vertical transmission.

**Keywords:** syphilis during pregnancy, teenage pregnancy, syphilis in adolescence

## INTRODUCTION

The sexual behavior of adolescents and young people represent a challenge for Public Health, especially during pregnancy, due to multiple exposure and risk factors for syphilis, as well as the psychosocial and

economic repercussions in the individual, family and social contexts. There are multiple factors related to sexual behavior that indicate adolescents as a risk group for Sexually Transmitted Infections (STIs). The most common factors are: early sex, irregular and infrequent use of condoms, multiplicity of sexual partners, feelings of omnipotence and little involvement with preventive aspects.<sup>1</sup>

Among STIs, syphilis is a chronic infectious disease that has challenged humanity for centuries. It became known in Europe at the end of the 15th century and its rapid spread throughout the continent turned it into one of the main global pests, remaining endemic to this day<sup>2</sup>. Besides, according to the World Health Organization (WHO), an estimated one million new cases of syphilis in pregnant women per year are worrying numbers that require control.

Its etiological agent was discovered in 1905, *Treponema, subspecies pallidum*. Transmission occurs mainly through sexual contact, through small abrasions resulting from coitus, however it can be transmitted vertically to the fetus during the pregnancy of a woman with untreated or inadequately treated syphilis<sup>2</sup>.

Regarding syphilis screening during pregnancy, from 2015 onwards, the Ministry of Health included prenatal screening with the rapid test, which has excellent sensitivity and specificity. As they are treponemal tests, their positivity confirms the diagnosis and authorizes treatment. VDRL must be performed to control cure, as the rapid test will not be negative even after treatment has been completed (4).

Regarding treatment, benzathine penicillin G is the drug of choice worldwide. When detected during pregnancy, treatment must be carried out as quickly as possible, as benzathine penicillin G is the only medication capable of preventing vertical transmission. Therefore,

if a pregnant woman is proven allergic to penicillin, desensitization in a tertiary service is recommended, in accordance with existing protocols (5,6).

In addition to drug treatment, sexual partnerships must also be tested and treated to prevent reinfection of the pregnant woman. It is important to highlight that the correct and regular use of female or male condoms is an important measure to prevent syphilis, as well as monitoring pregnant women and sexual partners during prenatal care contributes to the control of congenital syphilis.

However, despite being a disease with a known etiological diagnosis for 100 years and with effective therapy since 1947, it is estimated that around 900,000 cases of syphilis occur in Brazil each year, a fact resulting from a lack of commitment to the use of condoms. barrier, which increases the transmission chain. It is noted that people are not adequately informed about the disease, prevention, diagnosis and treatment (6,7,8).

## **OBJECTIVES**

### **GENERAL OBJECTIVE**

To analyze the incidence of syphilis cases in pregnant teenagers aged 10 to 19 years, reported in the city of Ribeirão Preto/SP, between the years 2011 and 2021.

### **SPECIFIC OBJECTIVES**

1. Promote knowledge for the scientific community and health areas, in addition to providing information that will contribute to promoting the health of this population.
2. Contribute to the improvement of healthcare in the approach to patients.
3. Raise awareness among the population of the current situation of syphilis in pregnant women in the municipality.
4. Promote lifestyle changes and the possibility of reducing the syphilis

transmission chain through partner education.

## MATERIALS AND METHODS

This is a documentary analysis of a descriptive study with a quantitative and transversal approach. The research instrument used were notification records from the SINAN database, released by the Epidemiological Surveillance of Ribeirão Preto, state of São Paulo. The research was developed through time series between 2011 and 2021 and data on gestational syphilis reported in this municipality, between the ages of 10 and 19 years, were included in the present study.

A confirmed case is one in which the pregnant woman presents, during prenatal care, clinical evidence and/or reactive non-treponemal serology, with a positive treponemal test or not performed (9). Reported cases of congenital and acquired syphilis were also excluded, as the research aimed to work with cases of syphilis in pregnant women. After data collection, they were tabulated and organized in an Excel spreadsheet, Windows 10 version.

## RESULTS

After data collection and application of the inclusion criteria, notifications of syphilis in pregnant adolescent women between the ages of 10 and 19 in Ribeirão Preto/SP, between January 2011 and June 2021 totaled 272 cases, representing approximately 18.35% of the total number of pregnant women diagnosed with syphilis, at all ages, in the same period (1482 cases) and 8.46% of the sum of all cases of syphilis (acquired and during pregnancy) diagnosed in the same city and period (10,718 cases). The worst statistics are in relation to cases of syphilis in pregnant teenagers that progressed to congenital syphilis in their babies, which represents 39.3% of cases, as

there were 272 confirmed cases of syphilis during pregnancy and 107 cases of congenital syphilis, children of teenage mothers, from 2011 to 2021.

In the years 2013, 2015 and 2016 there were no reports of cases of syphilis in pregnant women, aged between 10 and 14 years. On the other hand, the years 2014 and 2019 were the years with the highest number of cases of syphilis during pregnancy in this age group, totaling 3 cases in each of these years.

Em 2014 foram notificados 2 casos e apenas um deles foi confirmado.

Regarding the detection of syphilis in pregnant women aged between 15 and 19 years, the years with the lowest number of cases were 2011 (11 cases), 2012 (13 cases) and 2014 (14 cases). The years 2020 (39 cases) and 2015 (34 cases) were the years with the highest number of notifications, referring to the age group mentioned.

YEAR OF DIAGNOSIS	10-14 YEARS	15-19 YEARS	TOTAL CASES/YEAR
2011	1	11	12
2012	1	13	14
2013	0	25	25
2014	3	14	17
2015	0	34	34
2016	0	17	17
2017	1	26	27
2018	1	24	25
2019	3	36	39
2020	1	39	40
2021	1	21	22
TOTAL	12	260	272

Table 1- Cases and detection rate (per 100,000 inhabitants) of gestational syphilis in adolescent mothers, by year of diagnosis.

Brazil, 2011-2019.

Source: MS/SVS/DCCI-

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## DISCUSSION

The notification of syphilis in pregnant women became compulsory through Ordinance number 33, of July 14, 2005. In the period between 2011 and 2021, 272 cases were reported in the municipality of Ribeirão Preto/SP, 12 of which were in women aged between 10 and 14 years and 260 cases, between 15 and 19 years old.

In this study, there was a significant increase in cases from the first year analyzed (2011 – 12 cases) to the last full year analyzed (2020 – 40 cases), in a consistent manner. This increase is compatible with what was reported by the Epidemiological Bulletin of the Ministry of Health, in which cases of syphilis rose 4,157% in a similar period, showing substantial growth across the country (10).

Among the years studied, an increase in notifications of syphilis in pregnant adolescent women was noted, with emphasis on the years 2015, 2017, 2019 and 2020, which together accumulated 51.4% of all confirmed cases in the 10 years analyzed. It was also observed that the older the adolescent, the greater the number of registered cases. Of the 272 cases reported during the studied period, 260 (95.5%) were in pregnant women aged 15 to 19 years. According to Gonçalves da Silva et col<sup>11</sup>, this increase may be associated with several factors, the main one also reported in studies such as Galatoire et col<sup>12</sup> and Maciel et col<sup>13</sup>, which is the poor treatment and follow-up of sexual partnerships.

According to the Ministry of Health, this increase in syphilis cases over the last 10 years follows global trends and, in addition to the association with the increase in unprotected sexual relations among young people, may be related to the worsening of drug use and an increase in the number of pregnant women living on the streets (14).

Furthermore, according to Gonçalves et al.<sup>11</sup> the use of condoms is becoming

commonplace in society, highlighting a lack of collective awareness, along with low education and other social problems such as drug addiction, contributing to cases of transmission and reinfection. The high prevalence in pregnant adolescents can also be explained by the vulnerability of the adolescent population, more exposed to sexually transmitted diseases, as it is a phase of age, emotional and cognitive immaturity, in addition to being a period of discoveries and great influence from social groups. (14).

Despite being high, the results found are even more worrying when considering that these numbers may be underestimated, since in Brazil notification affects only 32% of syphilis cases during pregnancy.

Without notification of suspected cases, there is no investigation or adequate treatment, whether for the pregnant woman or the baby, thus increasing the number of events resulting from the disease. Investing in epidemiological surveillance is the first step to controlling the re-emergence of syphilis (15).

Furthermore, most people with syphilis are generally unaware of the disease and how the infection occurs, which can be transmitted sexually and during pregnancy, from mother to fetus, causing severe consequences. This occurs due to the absence or scarcity of symptoms, depending on the stage of the infection. It is essential that pregnant women are examined by trained professionals and screened for syphilis periodically, in order to detect any sign, whether clinical or serological, of infection early (14,15,16).

Another relevant factor is that the treatment of syphilis is carried out with benzathine penicillin G, and there is no described case of *Treponema* resistance to this antibiotic. In 2014, the medication began to be in short supply and in 2016, at least 16 Brazilian states did not have this medication available. The shortage of crystalline penicillin, used to

treat neurosyphilis, reached a 100% shortage in the same period, due to the difficulty in producing the active ingredient and problems in manufacturing the medicine. The supply of medication was hampered from 2013 to 2017, with a decrease in inequality in access to treatment from 2018 onwards.

In Brazil, data released by the Ministry of Health in October 2023 showed that, from 2021 to 2022, the detection rate of acquired syphilis cases per 100 thousand inhabitants grew by 23% (from 80.7 cases per 100 thousand inhabitants in 2021 to 99.2 cases per 100 thousand inhabitants in 2022). The detection of syphilis in pregnant women also increased in the country in the period, going from a rate of 28.1 cases per thousand live births in 2021 to 32.4 cases per thousand births alive in 2022, an increase of 15% compared to the previous year. The incidence of congenital syphilis remained stable.

In 2020, there was a pandemic caused by the Covid-19 virus infection, which caused many health units to interrupt routine outpatient care to dedicate themselves exclusively to Covid-19 cases. Temporary structural changes to many services meant that there was a lack of access to adequate diagnosis and treatment throughout the pandemic period, which was more intense until 2021, ending in 2023 by the World Health Organization.

We can expect even more critical official regional data in relation to the following years of the pandemic period, which will be made available in the coming semesters by official Epidemiological Surveillance bodies.

## CONCLUSION

It is concluded from this data analysis that syphilis during teenage pregnancy is a problem with relevant prevalence in public health, despite the research having fragile data, as underreporting may occur throughout this period.

There was a progressive increase in the notification and incidence rate of syphilis cases in pregnant adolescent women in the city of Ribeirão Preto/SP. This way, it is understood that the action of public policies aimed at adolescence is of great importance for the prevention of new cases.

Although health professionals are attentive to the diagnosis of syphilis, expanding access to diagnostic tests, especially rapid testing, would be ideal. Thus, screening would be more effectively used to combat the disease if it covered the entire general population, even before pregnancy, considering the fact that men are also a large part of this transmission chain.

The shortage of benzathine penicillin G, crystalline penicillin and global emergency situations, such as the Covid-19 pandemic, were major factors in the increase in the numbers presented.

Knowledge about sexual and reproductive health, as well as quality prenatal care and adequate frequency, is essential to guarantee early diagnosis, timely treatment and prevention of vertical transmission.

The dissemination of these data, with an alarming increase in numbers, is an important factor in raising awareness, as well as encouraging the use of condoms and communication with the partner to be brought in for clinical evaluation, especially in the man's prenatal care.

Of equal importance is the training and updating of professionals working in Basic Health Units, specifically on the importance of filling out notification forms in a uniform, correct and complete manner, in addition to great attention dedicated to syphilis during pregnancy in the collection of epidemiological data and carrying out accurate monitoring in order to promote public health measures to combat this growing disease over the years.

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