

Prenatal care during the COVID-19 pandemic: An analysis of *Previne Brasil* indicators and their influence on the incidence of congenital syphilis and in pregnant women

Pré-natal durante a pandemia de COVID-19: uma análise dos indicadores do *Previne Brasil* e sua influência na incidência de sífilis congênita e em gestantes

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ABSTRACT

Introduction: Prevent Brazil has restructured the form of SUS financing, establishing goals and indicators whose objective is to ensure the quality of care. Three of these new indicators concern prenatal care. **Objective:** To evaluate the quality of prenatal activities provided to pregnant women in the city of Campina Grande (PB) between 2018 and 2021, through the indicators of *Previne Brasil*, establishing a comparison between the years of the COVID-19 pandemic and relating them with the incidence of cases of congenital syphilis and in pregnant women. **Method:** This is an ecological, observational and descriptive study carried out through the collection of secondary data from the Health Information System for Primary Care (2018-2021) of performance indicators of the *Previne Brasil* Program for prenatal care: proportion of pregnant women with at least six prenatal consultations; proportion of pregnant women who underwent tests for syphilis and HIV; and proportion of pregnant women who underwent dental care. A search for new cases of congenital syphilis and in pregnant women was also added to the TABNET - Information System for Notifiable Diseases (Sinan) covering the same years. **Results:** The indicator with the worst results was dental care. For the others, although there is some variation of improvement between quarters, the three indicators evaluated showed results far below the 60% target established by the Ministry of Health, which may have influenced the considerable increase in the incidence of syphilis in 2021. **Conclusions:** It is necessary to establish effective ways of improving care that culminate in comprehensive care for the health of pregnant women that promote the health of the baby from prenatal care. In addition, it is necessary to study the barriers that separate pregnant women from dental care, demystifying the relationship established between pregnancy and oral health care.

KEYWORDS: Primary Health Care; Oral Health Services; Prenatal Care

RESUMO

Introdução: O *Previne Brasil* reestruturou a forma de financiamento do Sistema Único de Saúde, estabelecendo metas e indicadores cujo objetivo é garantir a qualidade da assistência. Três destes novos indicadores dizem respeito ao pré-natal. **Objetivo:** Avaliar a qualidade das atividades de pré-natal prestadas às gestantes no município de Campina Grande (PB) entre os anos de 2018 e 2021, por meio dos indicadores do *Previne Brasil*, estabelecendo um comparativo entre os anos de pandemia de COVID-19 e relacionando-os com a incidência de casos de sífilis congênita e em gestantes. **Método:** Trata-se de um estudo ecológico, observacional e descritivo realizado por meio da coleta de dados secundários do Sistema de Informação em Saúde para a Atenção Básica (2018-2021) de indicadores de desempenho do programa *Previne Brasil* para o pré-natal: proporção de gestantes com pelo menos seis consultas de pré-natal; proporção de gestantes com



realização de exames para sífilis e HIV e a proporção de gestantes que passaram por atendimento odontológico. Acrescentou-se ainda uma busca de novos casos de sífilis congênita e em gestantes no TABNET - Sistema de Informação de Agravos de Notificação (Sinan) abrangendo os mesmos anos. **Resultados:** O indicador com piores resultados foi o de atendimento odontológico. Para os demais, embora haja entre um quadrimestre e outro, alguma variação de melhoria, os três indicadores avaliados apresentaram resultados muito aquém da meta de 60% estabelecida pelo Ministério da Saúde, o que pode ter influenciado no aumento considerável da incidência de sífilis no ano de 2021. **Conclusões:** É preciso que se estabeleça formas efetivas de melhoria da assistência que culminem em uma atenção integral à saúde da gestante que promovam desde o pré-natal a saúde do bebê. Para além disso, faz-se necessário o estudo das barreiras que separam a gestante do atendimento odontológico, desmistificando a relação que se estabelece entre a gestação e a atenção à saúde bucal.

PALAVRAS-CHAVE: Atenção Primária à Saúde; Serviços de Saúde Bucal; Assistência Pré-natal

INTRODUCTION

In Brazil, the Ministry of Health recommends a minimum of six consultations during pregnancy (one in the first trimester, two in the second and three in the third), ideally in the first trimester and monthly consultations until the 34th week. Between the 34th and 38th weeks, a visit every two weeks is recommended and, from the 38th week onwards, visits every week until delivery, which usually takes place at the 40th week, but can last up to 42 weeks¹.

The prenatal care schedule should be programmed according to the gestational age at the first appointment, the most suitable times for collecting the data needed to monitor the pregnancy properly, the times when surveillance needs to be intensified due to the greater possibility of complications, the resources available in the health services and the clients' ability to access them².

Well-structured prenatal care can help reduce premature births and unnecessary caesarean sections, low birth weight children, complications from hypertension during pregnancy, as well as vertical transmission of pathologies such as HIV, syphilis and hepatitis. However, for this care to be effective, it is important to include the following aspects: early uptake, adequate frequency and periodicity, and extended coverage.

According to official data from the Brazilian Ministry of Health in 2011, 4.6% of pregnant women did not receive prenatal care. Faced with this problem, in November 2019, the Ministry of Health launched a new Primary Health Care (PHC) funding policy, called "*Previne Brasil*", with the aim of strengthening the essential and derived attributes of PHC proposed by Starfield³.

Previne Brasil aims to restructure the way resources are sent to municipalities to invest in basic health care, seeking to encourage more users to register at health centers in Brazil, consequently expanding the link between patients and health teams. According to the Ministry of Health, in 2017 there were 64.5 maternal deaths per 100,000 live births, encouraging *Previne Brasil*'s quest to corroborate one of the targets of the Sustainable Development Goals (SDGs), which is to reduce the global maternal mortality ratio to less than 70 maternal deaths per 100,000 live births by 2030⁴.

Four of the seven performance indicators established to calculate *Previne Brasil*'s funding focus on pregnant women, analyzing the proportion of pregnant women with at least six prenatal consultations, the proportion of pregnant women tested for syphilis and HIV, the proportion of pregnant women with dental care and the coverage of cytopathological tests⁴.

Considering the importance of municipalities and family health teams achieving the established indicators in order to comply with the new funding model, as well as the importance of effective prenatal care for maintaining the quality of comprehensive care for women within the Unified Health System, this study aimed to assess the quality of prenatal care provided to pregnant women in the municipality of Campina Grande, Paraíba (PB), between 2018 and 2021, establishing a comparison between the years of the COVID-19 pandemic and relating them to the incidence of cases of congenital syphilis and syphilis in pregnant women.

METHOD

This is an ecological, observational and descriptive study involving data collected from the municipality of Campina Grande, which is the second most populous city in Paraíba and is considered one of the main industrial and technological centers in the Northeast⁵. Of the 252 health establishments under municipal management in the aforementioned municipality, there are 98 family health teams (FHT) and around 55 oral health teams (OHT)⁶.

The data was collected from the Primary Care Health Information System (SISAB) in December 2021, in the "Performance indicators" field. Data was only collected for indicators relating to prenatal care:

- Proportion of pregnant women with at least six prenatal consultations, the first of which by the 20th week of pregnancy;
- Proportion of pregnant women tested for syphilis and HIV;
- Proportion of pregnant women with dental care.

It should be noted that the data was presented by four-month period, a method adopted by the Ministry of Health itself. After



collecting and storing the data in Microsoft Excel, specific tables were drawn up for each indicator and a comparative graph was created to better understand the levels achieved in each four-month period.

For data on congenital syphilis in pregnant women, we searched the TABNET platform, which contains data from the Notifiable Diseases Information System, covering the years between 2018 and 2021 (2022 is not yet available in the system), looking for new cases reported for residents of Campina Grande.

The research follows the guidelines established by Resolution 466, of December 12, 2012, of the National Health Council. As this is a study using secondary data, submission to and approval by the Research Ethics Committee is not required.

RESULTS

Chart 1 shows the data on the proportion of pregnant women who had at least six prenatal consultations, the first of which by the 20th week of pregnancy. It can be seen that the target set by the Ministry of Health of 60% was not reached in any of the four-month periods. However, there was considerable progress between 2018 and 2021, with the best quarter identified being Q1/2021 with 34%, even considering the COVID-19 pandemic.

Chart 2 shows the proportion of pregnant women with syphilis and HIV tests carried out. It can also be seen that the proportion increased between 2018 and 2021, with Q2 being the best quarter in 2021. In Q1 of 2018 and Q2 of 2021, there was an increase of 27%.

As far as prenatal dental care is concerned, Chart 3 shows that the proportion of pregnant women with prenatal dental

appointments made little progress between 2018 and 2021. The indicators varied between highs and lows over the four-month period, but they all fell far short of the 60% target set by the Ministry of Health.

The figure compares the progress achieved by each of the indicators. It can be seen that none of the indicators, in any of the four-month periods, reached the 60% target set by the Ministry of Health. The dental consultation indicator is the one that falls short of the target. However, although the indicator of six consultations carried out, the first before the 20th week, is low and may show a delay in the start of prenatal care, HIV and syphilis tests are being carried out and this indicator was the one that reached the highest proportion, with Q2 of 2021 reaching 44%.

Compulsory notification data for congenital syphilis and syphilis in pregnant women for the municipality of Campina Grande between 2018 and 2021 (2022 not yet available on SINAN) were also investigated. Chart 4 shows that the municipality had 55 new cases of congenital syphilis in 2021. An interesting fact was that the system showed that of these 55 cases, ten (18%) of the mothers had not had prenatal care. For pregnant women living in the municipality, there were two new cases in 2020 and 27 in 2021.

DISCUSSION

The results found in this study are worrying, as no indicator reached the 60% target set by the Ministry of Health in the four quarters evaluated. Of the three indicators analyzed, two showed progress between the 4 years, starting with the 1st quarter of 2021 of the indicators referring to the proportion of pregnant women with at least six prenatal consultations carried out, the first of which was up to the 20th week of pregnancy, showing a 22% increase when compared to Q1 of 2018.

In this respect, Pessoa et al.⁷ pointed out that the care provided by health professionals during prenatal consultations is extremely important for pregnant women, since it is during these consultations that professionals can not only diagnose, but also provide guidance, offering pregnant women the autonomy to answer their questions, generating a more trusting and lasting contact and awakening a commitment to attend appointments more reliably. However, there is still a gap in pregnant women's knowledge about the importance of prenatal care⁷.

Chart 1. Proportion of pregnant women with at least six prenatal consultations, the first of which up to the 20th week of pregnancy, Campina Grande - PB, 2018-2021.

Year	Q1 (%)	Q2 (%)	Q3 (%)
2018	12	9	12
2019	18	24	19
2020	23	21	28
2021	34	31	-

Source: Adapted from SISAB, 2022.
Q: quarter.

Chart 2. Proportion of pregnant women tested for syphilis and HIV, Campina Grande - PB, 2018-2021.

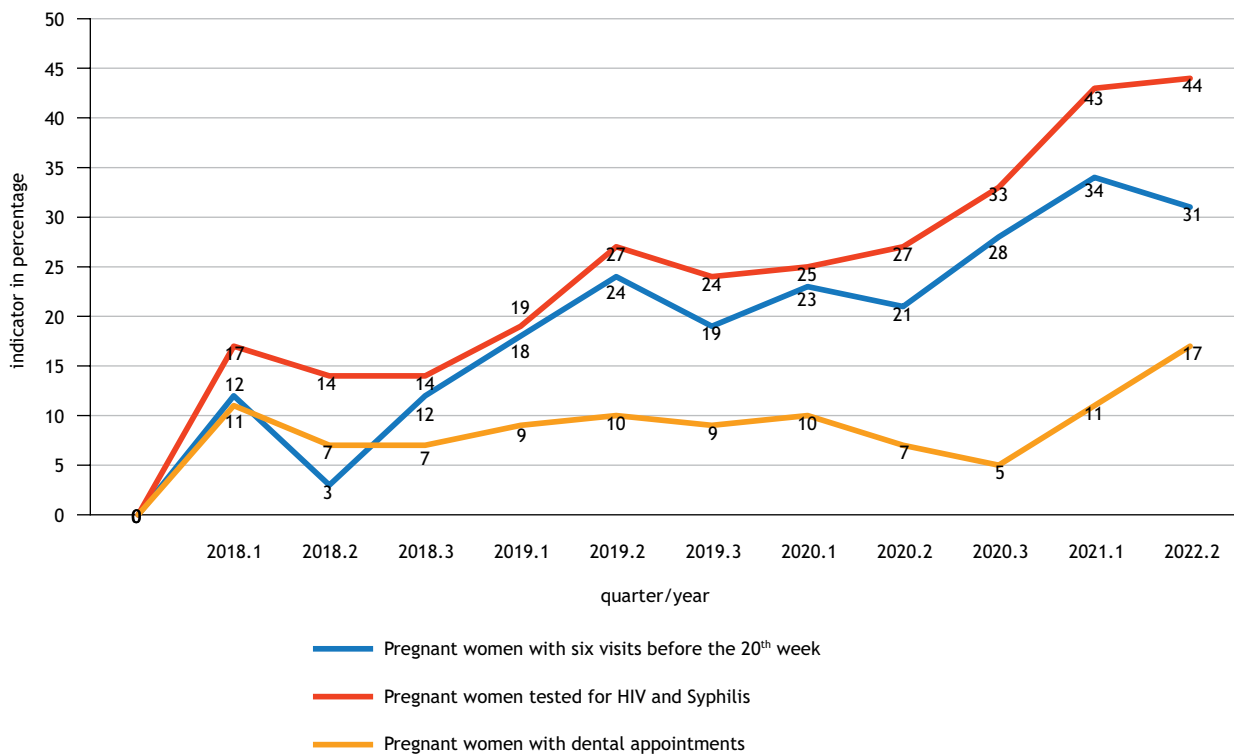
Year	Q1 (%)	Q2 (%)	Q3 (%)
2018	17	14	14
2019	19	27	24
2020	25	27	33
2021	43	44	-

Source: Adapted from SISAB, 2022.
Q: quarter.

Chart 3. Proportion of pregnant women with dental care, Campina Grande - PB, 2018-2021.

Year	Q1 (%)	Q2 (%)	Q3 (%)
2018	11	7	7
2019	9	10	9
2020	10	7	5
2021	11	17	-

Source: Adapted from SISAB, 2022.
Q: quarter.



Source: Prepared by the authors, 2023.

Figure. Comparison between the evolution of prenatal indicators over the four-month period, Campina Grande - PB, 2018-2021.

Chart 4. Cases of congenital syphilis and in pregnant women living and with prenatal care in the municipality of Campina Grande - PB, 2018-2021.

Cases of congenital syphilis in babies whose municipality of residence is Campina Grande	
Year of diagnosis	Number of notified cases
2018	0
2019	0
2020	0
2021	55
Total	55

Cases of syphilis in pregnant women whose municipality of prenatal care is Campina Grande	
Year of diagnosis	Number of notified cases
2018	0
2019	0
2020	2
2021	27
Total	29

Source: TABNET, SINAN, 2022.

Regarding the indicator that measures the proportion of pregnant women with syphilis and HIV tests carried out, it can be seen that there has been an increase of 27%: Q2 and Q3 of 2018 showed only 14%, in contrast to the 44% achieved in the most recent data presented, which is Q2 of 2021, leaving 16% to be achieved in order to guarantee the target.

Campina Grande also showed a considerable increase in the incidence of cases of congenital syphilis and in pregnant women for the year 2021. This may be related to the indicators for prenatal consultations and the proportion of syphilis tests carried out, which are still below those recommended by the Ministry of Health.

Bomfim et al.⁸ stated that in recent years there has been a considerable increase in cases of gestational syphilis and congenital syphilis, with a predominance in vulnerable populations. They added that the best measure to reverse this situation is prevention through proper prenatal care.

As far as HIV is concerned, the prenatal visit with the rapid test provides, in addition to speedy diagnosis, the opportunity to receive the necessary guidance and, if the test result is positive, to reduce vertical transmission and encourage treatment of the pathological condition⁹.

The indicator that showed the most worrying data was the third indicator, which measures the proportion of pregnant women with dental care, as there was no considerable increase between 2018 and 2021, and it is the one that falls short of the 60% target set by the Ministry of Health.

There is a consensus in the literature that most uncomplicated dental procedures (simple extractions, periodontal treatment and installation of prostheses) can be carried out during pregnancy, provided that some essential precautions are taken, such



as: planning short sessions in advance, adjusting the position of the chair and avoiding early morning appointments, since during this period pregnant women are more likely to vomit and have a higher risk of hypoglycemia¹⁰.

However, the poor results found in the survey may be related to the fact that many professionals do not have enough confidence or knowledge to provide safe care for pregnant women and their babies¹¹.

Pregnant women, in turn, have a prevailing fear of dental care during this period, as well as little access to information about prenatal dental care¹². In addition, there are also fears and myths among pregnant women about dental treatment and other functional barriers that influence access during pregnancy, such as coverage by the OHT in the FHT¹³.

Given the current pandemic context experienced since the end of 2019, future studies should investigate the influence of COVID-19 on access to and maintenance of prenatal care.

Reis et al.¹⁴, reporting on their experience in the state of Goiás, pointed out that pregnant women have been facing various challenges during the pandemic, such as: problems accessing health units, suspension of the work of community health workers and the support they offer, difficulties in carrying out complementary tests, preventing access for companions and fear itself in the face of a new disease.

However, this study corroborates the results published by Souto-Nóbrega et al.¹⁵, which showed an increase in indicators throughout Brazil, pointing to the fact that, since pregnant women are a risk group for COVID-19, specific proposals were

drawn up to guarantee comprehensive health care, protecting them from crowds and unnecessary exposure in care services, without jeopardizing care.

As a general overview of the subject, it can be seen that *Pre-vine Brasil* was launched by the Ministry of Health in 2019 with the main objective of strengthening the essential attributes of PHC through a new funding policy. However, research and publications by theorists in the field show that the new policy seems to be going against its objectives. In addition to failing to guarantee quality care, the program is restrictive, focusing on actions, distorting funding and failing to reduce health inequities^{3,16}.

CONCLUSIONS

Although there is some variation in improvement from one four-month period to the next, the three indicators evaluated showed results far below the 60% target set by the Ministry of Health, either before or during the COVID-19 pandemic, which may have influenced the considerable increase in the incidence of cases of congenital syphilis and in pregnant women.

When compared, the indicator of prenatal dental appointments was the one with the worst results, reflecting the insecurity of professionals in providing care and the fear of pregnant women themselves in the face of so many myths and misinformation that still exist regarding prenatal dental care. In this sense, health managers need to establish effective ways of improving access to and coverage of prenatal care, culminating in comprehensive care for pregnant women and promoting the health of the baby from prenatal onwards.

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Authors' contribution

Nóbrega WFS, Santos WL - Conception, planning (study design), data acquisition, and analysis. Silva GCB, Santos YL, Barbosa DV - Data interpretation and writing of the work. Cavalcanti SDLB - Conception and supervision of the study. All the authors approved the final version of the work.

Conflict of Interest

The authors inform that there is no potential conflict of interest with peers and institutions, political or financial, in this study.



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