

# Prenatal indicators: trends, challenges, and perspectives

*Indicadores do pré-natal: tendências, desafios e perspectivas*

*Indicadores prenatales: tendencias, desafíos y perspectivas*

## ABSTRACT

**Objective:** To carry out a comparative analysis of the indicators of the Primary Care Information System, from 2018 to 2022 and Previne Brasil, from 2019 to 2023, of the prenatal component of Brazil, Acre and Rio Branco. **Method:** Quantitative-descriptive data of obstetric indicators. **Results:** There is fragility in prenatal care in primary care: 64% of pregnant women in Acre and 59% of those in Rio Branco were not assisted by a health professional in the first quarter of pregnancy; as for dental consultations, 68% of pregnant women in Acre and 90% in Rio Branco did not have access during pregnancy. **Final considerations:** Expanding the maternal and child care line in the nursing consultation of primary care, for disease prevention and health promotion, through the stratification of obstetric risk, contributes to the improvement of indicators and, consequently, to the reduction of maternal mortality.

**Keywords:** Maternal and child health; Health policy; Prenatal care; Primary health care; Maternal mortality.

## RESUMO

**Objetivo:** Realizar análise comparativa dos indicadores do Sistema de Informação da Atenção Básica, de 2018 a 2022 e do Previne Brasil, de 2019 a 2023, do componente pré-natal do Brasil, Acre e Rio Branco. **Método:** Quantitativo-descritivo dos dados dos indicadores obstétricos. **Resultados:** Observa-se fragilidade na assistência pré-natal da atenção primária: 64% das gestantes acreanas e 59% das rio-branquenses não foram assistidas por profissional de saúde ainda no 1º trimestre de gestação; quanto à consulta odontológica, 68% das gestantes no Acre e 90% em Rio Branco não tiveram acesso durante a gravidez. **Considerações finais:** Ampliar a linha de cuidado materno-infantil na consulta de enfermagem da atenção primária, para prevenção de doenças e promoção da saúde, por meio da estratificação de risco obstétrico, contribui para a melhoria dos indicadores e, consequentemente, para a redução da mortalidade materna.

**Descriptores:** Saúde materno-infantil; Política de saúde; Cuidado pré-natal; Atenção primária à saúde; Mortalidade materna.

## RESUMEN

**Objetivo:** Realizar un análisis comparativo de los indicadores del Sistema de Información de Atención Básica entre los años 2018 a 2022 y del programa Previne Brasil de 2019 a 2023, de los componentes de atención prenatal en Brasil, Estado de Acre y la ciudad de Rio Branco. **Método:** Estudio cuantitativo descriptivo de los datos indicadores. **Resultados:** Se observó la inadecuación de la atención prenatal, puesto que casi la mitad de las gestantes no fueron atendidas en el primer trimestre de gestación. El acompañamiento odontológico presentó baja cobertura y accesibilidad, principalmente en la ciudad de Rio Branco. Sin embargo, la proporción de gestantes con exámenes para sífilis y para el virus de inmunodeficiencia humana alcanzó el indicador acordado. **Consideraciones finales:** La ampliación de la línea de cuidados materno infantil en la consulta de enfermería prenatal, con enfoque en el cuidado de redes colaborativas para prevención de enfermedades y promoción de la salud por medio de la clasificación de riesgo obstétrico, contribuyen para la mejoría de los indicadores de salud obstétrica y, consecuentemente, para la reducción de la mortalidad materna.

**Descriptores:** Salud materno infantil; Políticas de salud; Cuidado prenatal; Atención primaria a la salud; Mortalidad materna.

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## INTRODUCTION

Maternal mortality is defined as the death of a woman during or after pregnancy, within a period of 42 days – regardless of the duration and geographical location, due to any cause related to or aggravated by pregnancy and measures in relation to it, except for accidental or incidental causes<sup>(1)</sup>. Most of these deaths are caused by hemorrhage, infections, preeclampsia, respiratory complications or unsafe abortions<sup>(2)</sup>, most of them due to preventable causes, if there was adequate prenatal care during pregnancy.

In Brazil, in 2018, the maternal death rate was 58 per 100,000 live births and declined to 53.5 per 100,000 live births in 2022<sup>(3)</sup>. However, for decades, sectors of society have joined forces to implement health actions that guarantee women's human rights and reduce maternal and child morbidity and mortality from preventable and avoidable causes. In order to guarantee these health actions, the Brazilian government created the Health Care Networks (HCN) in 2010, with a view to reorganizing the health system, following the principles of the Unified Health System (SUS), in the logic of integrated care<sup>(4)</sup>.

The Stork Network as part of the HCN, since 2011, aims to offer continuous and comprehensive care to the population, in order to ensure women reproductive planning and decrease maternal and child mortality rates<sup>(5)</sup>. Thus, it is organized into four components: I - Prenatal; II - Delivery and Birth; III - Puerperium and Comprehensive Child Health Care; and IV - Logistics System: Sanitary Transport and Regulation, with emphasis on the Prenatal component, considering its potential to reduce maternal and infant mortality<sup>(5)</sup>.

Faced with the need to address he-

alth issues, the United Nations (UN) created a global initiative in 2015, as part of the 2030 Agenda for Sustainable Development, the Sustainable Development Goals (SDGs)<sup>(6)</sup>. Goal 3: Ensure healthy lives and promote well-being for all ages. One of the goals is to reduce maternal mortality to 30 per 100,000 live births, agreed in Brazil.

In this perspective, the importance of Primary Health Care (PHC) stands out, which should follow the logic of the HCN as a strategy for comprehensive care and directed to the health needs of the population. Thus, it is up to the Basic Health Units (BHU) of the PHC to organize the service in order to optimize the work processes, as well as the user's access to the other levels of care of the HCN<sup>(7)</sup>. Care coordination is one of the essential attributes of PHC and is strategic to reorganize health systems, contributing to networking, which makes the system more efficient from the care and economic point of view<sup>(8,9)</sup>.

The primary care financing model in Brazil is also a proposal that aims to ensure access to health and its quality. The Previne Brasil Program, created by the Ministry of Health in 2019, defined a new model, highlighting the need for municipalities to have a Health Information System for Primary Care (Sisab), in addition to the National Health System for Primary Care (e-SUS AP), functioning and updated with reliable data for the evaluation of health indicators<sup>(7)</sup>.

In this sense, the health indicators of the prenatal component, of Previne Brasil, point to the adequacy of care for pregnant women with goals established by three indicators: a) proportion of pregnant women with prenatal onset until the 12th week of pregnancy and with at least six consultations performed until the moment

of delivery (the coverage goal proposed by the program is at least 45% of pregnant women with prenatal onset until the 12th week of pregnancy and with at least six consultations performed until the moment of delivery); b) proportion of pregnant women with tests for syphilis and HIV (60% coverage goal); and c) proportion of pregnant women with dental care performed (60% coverage goal).

From the perspective of care for pregnant women within the scope of PHC, nurses assume the nursing consultation (NC). The identification of real and/or potential problems of pregnant women guides the elaboration of the care plan and preventive and promotional actions for prenatal care and consequent reduction of maternal and child morbidity and mortality<sup>(7-10)</sup>. In this regard, nursing professionals play an important role and are essential to transform health care systems at all levels, and are often the first and/or only ones who provide care to people<sup>(11)</sup>, with a fundamental role in health promotion and disease prevention, helping to achieve goals related to maternal and child mortality<sup>(6)</sup>.

In this scenario, the considerations exposed provoked questions for the development of the study: 1. Do pregnant women access PHC in a timely manner for prenatal care? 2. Is access to rapid tests offered to pregnant women, as recommended by the Ministry of Health (MH), based on prenatal guidelines? 3. Does the dental service offer meet the goal recommended by Previne Brasil?

In order to answer the questions, the study aimed to carry out a comparative analysis of the indicators of the Primary Care Information System, from 2018 to 2022, and Previne Brasil, referring to the

period from 2019 to 2023, of the prenatal component of Brazil, Acre and Rio Branco.

## METHOD

This is a study with a quantitative descriptive approach<sup>(12)</sup>. This study is part of the macroproject entitled "Intervention in the field of prenatal care, from the nursing process, in family health units in Rio Branco, Acre". The data that made up this stage were extracted from the situational diagnosis carried out from the comparative analysis of the years 2018 to 2022 of the indicators of the Primary Care Information System and 2019 to 2023 of Previne Brasil of the prenatal component of Brazil, Acre and Rio Branco, extracted from reports from the portal of the Primary Care Health Information System (Sisab)<sup>(13)</sup>, Mortality Information System (MIS), Live Birth Information System (Sinasc)<sup>(14)</sup> and Indicators of the Previne Brasil Program.

The indicators of the Previne Brasil Program related to the prenatal component were: a) proportion of pregnant women with prenatal onset until the 12th week of pregnancy and with at least six consultations performed until the moment of delivery (45% coverage target); b) proportion of pregnant women with syphilis and HIV tests (60% coverage target); and c) proportion of pregnant women with dental care performed (60% coverage target). Data were tabulated and illustrated in tables and graphs of the Microsoft Excel software, version 2386. It was decided to carry out a comparative historical series of performance over the years in relation to Brazil, the state of Acre and its capital Rio Branco.

Although the study in question does not require approval by an ethics committee, as it works with secondary data avai-

lable on platforms of the Ministry of Health, in the public domain, it is worth mentioning that the macroproject is authorized by the Research Ethics Committee (REC) of the Fluminense Federal University (UFF), in accordance with the procedures provided for in Resolutions 466/12 and 510/2016 of the National Health Council (NHC), according to Caae number 66962623.0.0000.5243 and Opinion number 6.098.608.

The data were organized in the Microsoft Word software, version 2386, in table format, and the results were arranged according to the order of Previne Brasil indicators, from the first to the seventh.

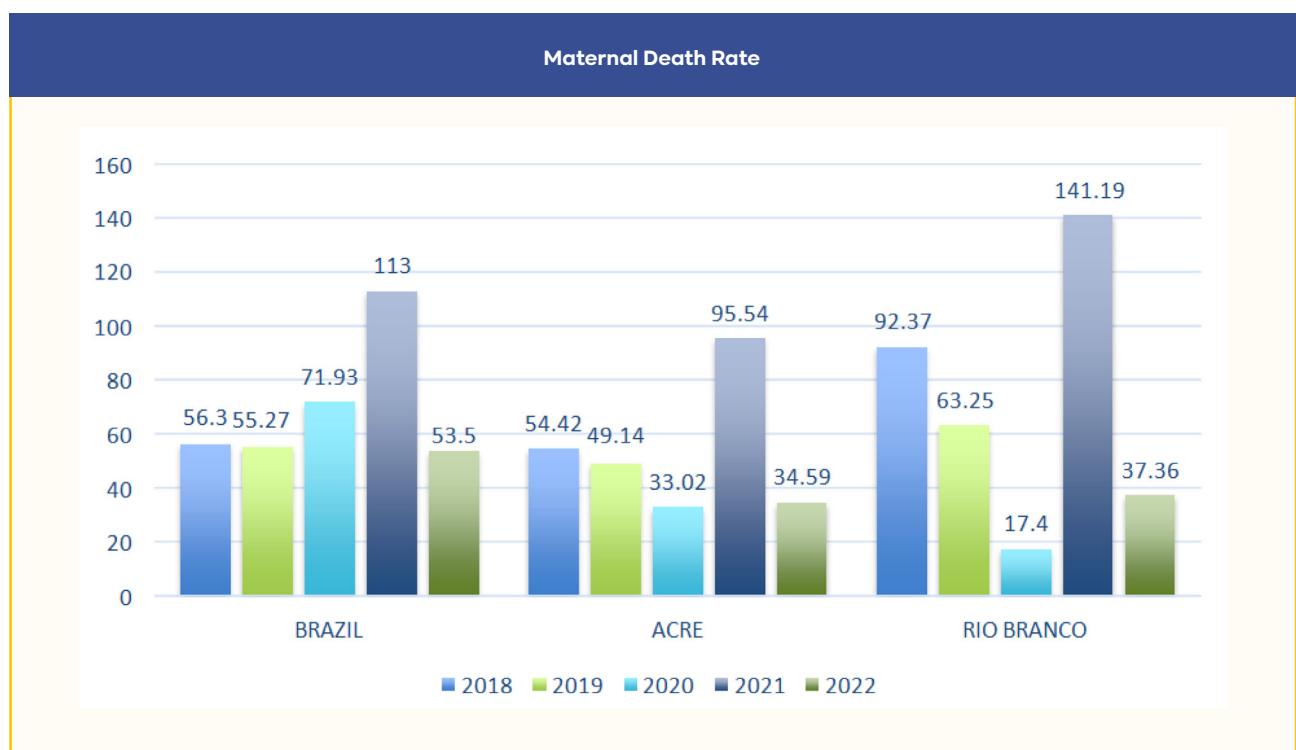
## RESULTS

The study aimed to know the trends in the behavior of Brazilian health indicators that monitor prenatal care in the SUS, through the analysis of historical series of the last five years. Prenatal compo-

ment data were collected from April 2022 to September 2023. The analyses were based on the "maternal mortality ratio, proportion of births assisted by qualified health personnel, PHC coverage", as well as on the indicators of the Previne Brasil Program, all monitored by Sisab, MIS and Sinasc, made available for public access on the Ministry of Health platforms.

In the historical series from 2018 to 2022 (Graph 1), the behavior of the maternal mortality ratio in Brazil is observed, pointing to the increase in the ratio from 2020 (71.93) to 2021 (113), and already shows a drop for 2022, with 53.5 maternal deaths for every 100,000 live births. Likewise, it happens in the state of Acre, with an increase from 33 to 95, and, in the capital Rio Branco, from 17 to 141 maternal deaths per 100,000 live births.

**Graph 1** - Indicator 3.1.1 – Maternal mortality ratio per 100,000 live births, in Brazil, state of Acre and in Rio Branco, in the years 2018-2022



Source: Prepared by the authors based on data from the Mortality Information System – MIS(2024).

The PHC Coverage Indicator (Graph 2) demonstrates the status of access and the quality of care provided to pregnant women. Data on teams financed by the public health system in Brazil, the state of Acre and the capital Rio Branco show high

percentages (76%, 87% and 79%, respectively) in January 2020. However, they point to a relevant decline in 2021, in the three governmental spheres, 57%, 46% and 56%, respectively.

**Graph 2 –** PHC coverage – Financed teams in Brazil, state of Acre and Rio Branco, in the years 2018-2022

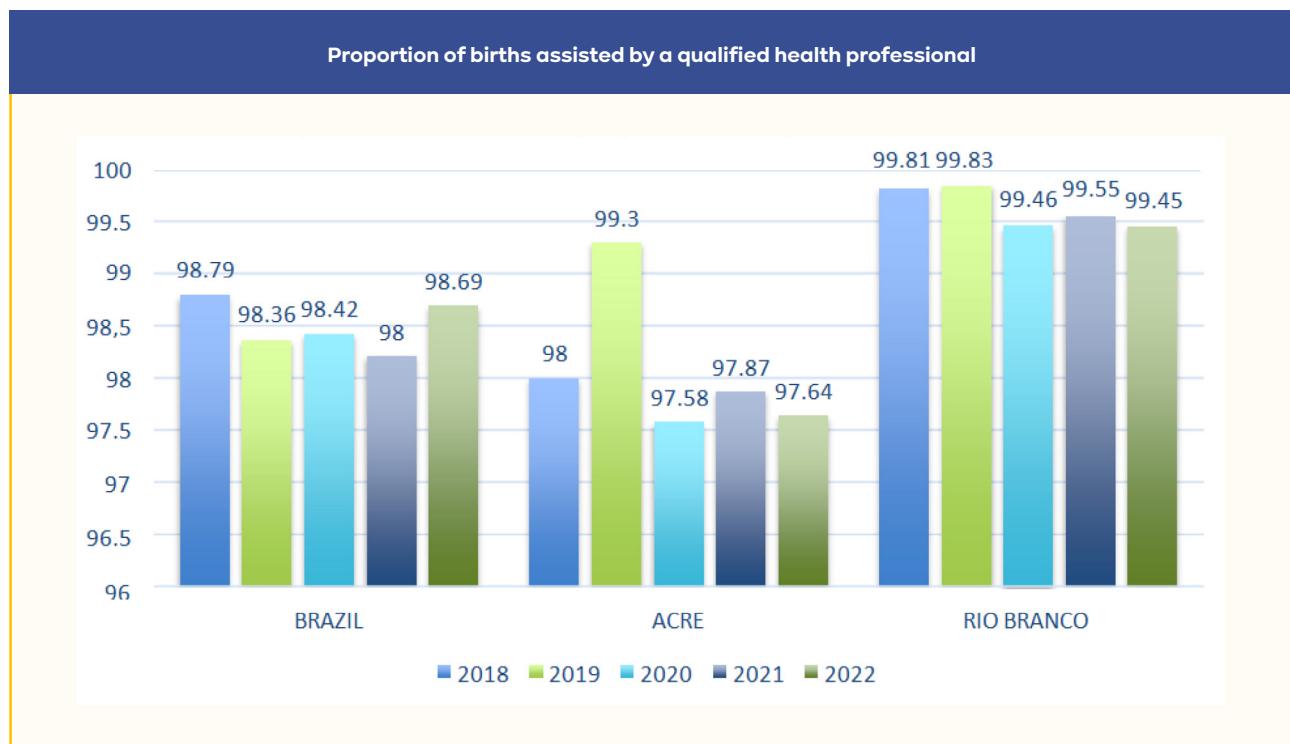


Source: Prepared by the authors based on data from the Live Birth Information System – Sisab (2024).

The maternal mortality monitoring panel in Brazil, through data from the live birth system (Graph 3), points out that the proportion of births assisted by qualified health professionals between 2018 and

2022 was relevant, reaching almost 100% of the population, with percentages of 98, 69%, 97.64% and 99.45%, in Brazil, state of Acre and Rio Branco, respectively, in 2022.

**Graph 3 –** Proportion of births assisted by a qualified health professional in Brazil, state of Acre and Rio Branco, in the years 2018-2022



Source: Prepared by the authors based on data from the Health Information System for Primary Care – Sisab (2024).

The Previne Brasil indicators demonstrate relevant weaknesses in prenatal coverage at the national level. Data from 2022 indicate that only 45% of Brazilian pregnant women started prenatal care up to the 12th week of pregnancy; in Acre and Rio Branco, this percentage is about 52.4% and 51.7%, respectively. Until

2022, Brazil did not reach the goal established by the Program in the 1st quarter, in 2019, 2020, 2021, 2022 and 2023, in indicators I and III (Table 1). In the states of Acre and Rio Branco, this result persists until 2023. However, it is observed that indicator II has remained above the target since 2022.

**Table 1** - Comparative result of the 1st quadrimester period (Q1) of the Previne Brasil indicators, between Brazil, the state of Acre and Rio Branco, for the years 2019–2023

Performance Indicator	Goals	Place	Q1 2019	Q1 2020	Q1 2021	Q1 2022	Q1 2023
1. Proportion of pregnant women with prenatal onset until the 12th week of pregnancy and with at least six consultations performed until the moment of delivery.	60 45%*	Brazil Acre Rio Branco	23% 23.6% 26%	26% 28.4% 22%	40% 26.6% 34%	40% 29% 38%	50% 36% 41%
2. Proportion of pregnant women undergoing tests for syphilis and HIV.	60%	Brazil Acre Rio Branco	26% 46.9% 48%	31% 46.9% 38%	47% 49.3% 44%	57% 62% 65%	69% 75% 77%
3. Proportion of pregnant women with dental care performed.	60%	Brazil Acre Rio Branco	16% 11.1% 5%	19% 14.1% 5%	26% 11.3% 2%	44% 26% 5%	58% 42% 10%

\*Goal set by 2022.

\*\*Goal changed to 2023.

Source: Prepared by the authors based on data from the Indicators Panel of the PrevineBrasil/Sisab Program (2023). Q1= Quadrimester 1.

The comparative analysis of the indicators of the 1st quarter of 2022 and the 1st quarter of 2023 shows that Brazil rose the goal in the indicator of the proportion of pregnant women with prenatal onset up to the 12th week of pregnancy and with at least six consultations carried out until the moment of delivery from 40% to 50%. This same behavior was observed in indicator 2. Proportion of pregnant women with tests for syphilis and HIV, in which the country presented a goal above the agreed, with 69%, in the first four months of 2022 and 2023. The result of the second indicator, in Acre and Rio Branco, was the only one that sustained itself above the agreed goal (60%) throughout 2022, ending the first quarter of 2023 with 75% and 77%, respectively.

The state of Acre and the capital Rio Branco showed an upward behavior, when observing the history of Indicators 1 and 2 referring to the 1st quarter of 2022 and 2023. However, the rates remained below what was agreed regarding the proportion of pregnant women with the beginning of prenatal care up to the 12th week of pregnancy and with at least six consultations performed until the moment of delivery, 36% in Acre and 41% in Rio Branco, and the proportion of pregnant women with dental care performed, totaling 42% in Acre and 10% in the capital, in the first four months of 2023.

## DISCUSSION

In the proposed study, it was possible to show that the ratio of maternal death in Brazil showed an increase in 2020, with a

peak in 2021, as well as in the state of Acre and in the capital Rio Branco. The discrepancy between 2020 and 2021 occurred as a consequence of the covid-19 pandemic. During this period, the risks of viral transmission and restrictive measures of isolation and social distancing removed many pregnant women from the routine of prenatal care<sup>(15)</sup>, which favored the increase in the number of maternal deaths. This result corresponds to the inadequacy of prenatal care due to the distance of pregnant women from PHC actions during the pandemic period.

Regarding PHC coverage, there is a considerable decline when comparing January 2018 (78%) and January 2021 (46%). Low coverage is also associated with the pandemic scenario, since the challenges to the effectiveness of this service were great, due to the limited accessibility to some resources that were aimed at emergency care<sup>(15)</sup>, as well as the illness and/or removal of health professionals. Although different strategies have been created or improved in order to increase adherence to prepartum care, tele-service, for example, especially in PHC, they were not sufficient to maintain adequate coverage of services.

Regarding delivery assisted by qualified health professionals, it is observed that it is adequate in the three spheres analyzed. However, there is fragility in the prenatal coverage of primary care, since, even before the pandemic period, it is observed that Brazilian (50%), Acre (64%) and Rio Branco (59%) pregnant women were not assisted by a health professio-

nal in the first quarter of pregnancy, which highlights the need to expand access to prenatal services in primary care. The first contact stands out as one of the attributes of PHC that enables pregnant women to seek these health units as their main resource, and this sphere is responsible for assessing gestational risk and referring them to reference services, when necessary<sup>(2)</sup>, thus avoiding complications to the binomial.

Thus, there is fragility in prenatal coverage in the result of Previne program, indicator 1, which refers to the proportion of pregnant women with prenatal onset until the 12th week of pregnancy and with at least six consultations performed until the moment of delivery, in Brazil, Acre and Rio Branco, remained below the recommended percentage (60%) throughout the historical series. In 2022, in addition to Acre, 20 more states in the country did not reach the goal<sup>(13)</sup>. The panorama changed in the 1st quadrennium of 2023, decreasing to six states below the percentage, five in the North region, including Acre<sup>(13)</sup>. Findings related to the results of the study show regional inequalities in Brazil, especially regarding access barriers, late onset of prenatal care, absence of qualified professionals, social and economic inequalities between regions and geographical difficulties<sup>(2)</sup>, contributing to unfavorable outcomes for the mother-child binomial in the country.

Regarding the second indicator – proportion of pregnant women with tests for syphilis and HIV –, it is clear that the comparative analysis of the 1st quadrennium of 2022 and 2023 presents percentages in accordance with the agreement of Previne, in Brazil, Acre and Rio Branco. When comparing the same four-month

periods with other states in the country, it is observed that, in 2022, in addition to Acre, 13 states, plus the Federal District (DF), achieved the goal<sup>(13)</sup>. In 2023, the positive result reached 25 states in Brazil and the Federal District, with only the state of São Paulo remaining below that established for this indicator<sup>(13)</sup>. These results are not influenced by the low coverage of prenatal care in PHC, since this percentage is calculated regardless of the trimester in which the exams are performed.

With regard to the third indicator – proportion of pregnant women with dental care – the situation is more delicate. Despite the subtle rise observed in the historical series, the country and the state of Acre approached the goal(60%) only in the 1st quadrennium of 2023. As for the capital Rio Branco, there is an inefficiency of this indicator related to low prenatal coverage and difficult access. Corroborating the findings of the study, a survey carried out with data from Previne shows that, in this period, 13 states had less access to dental consultations during pregnancy, not reaching the goal, mainly in the North, Southeast and Midwest regions<sup>(13)</sup>. Ordinance number 2,979, of November 12, 2019, which establishes the PrevineBrasil Program, highlights that the first dental consultation must occur in the first quarter of pregnancy<sup>(16)</sup>, and the others must be carried out at least once every quarter, but accessibility barriers to the health service influence low adherence, in addition to the insecurity of professionals in providing care<sup>(17)</sup>, which compromises pregnancy in a negative way due to possible periodontal infections that can affect mother and baby.

Considering the relevance of the care coordinated by PHC, the fullness of its operation has losses due to organiza-

tional barriers, poorly defined flows at the various levels of care, absence of information technologies for unified records, precariousness in the communication process between the different levels of care, absence of effective counter-reference to the BHU and integration into the network, which interferes with the continuity of care in a timely manner<sup>(18-20)</sup>. In addition, there is persistence of the traditional care model, centered on the physician, reflecting non-collaborative care practices that weaken comprehensive care.

The diagnosis with the early capture of pregnant women up to 12 weeks and the classification of gestational risk<sup>(21)</sup> are determinant for the reduction of the phenomena that cause unfavorable outcomes in the pregnancy-puerperal cycle and, therefore, for the reduction of the maternal mortality rate<sup>(5)</sup>. In this context, nurses stand out, who, according to Brazilian legislation on the professional practice of nursing, fully assume the NC in prenatal care of usual risk<sup>(22)</sup> for being qualified to intervene with strategies of health promotion, disease prevention and use humanization in the care provided<sup>(23)</sup>, with elaboration of the care plan, identification and prioritization of needs, establishment of interventions, guidelines and referrals to other services, promoting the interdisciplinarity of actions<sup>(24)</sup>.

However, weaknesses in team communication, lack of information and/or communication with pregnant women, gaps in professional training and performance, difficulty in accessing, distance from the BHU, ineffective family planning, pregnancy not diagnosed early, number of consultations less than six and lack of adequate care generate negative impacts and influence the nurses' potential and ef-

fectiveness of the service<sup>(12-24)</sup>.

Thus, the pioneering role of nurses in coping with maternal mortality plays a leading role in the achievement of SDG 3, as it is the health profession dedicated to care, health promotion, disease prevention, treatment and rehabilitation of people, families and communities, helping to achieve health-related goals in the face of the challenge of reducing maternal mortality<sup>(11)</sup>. Added to this is the monitoring of records in the PHC information system, to achieve the goals of PrevineBrasil, in the management of care for pregnant women and their families, with the support of other health professionals.

It should be noted that the implementation of the PrevineBrasil Program in 2019 and the evolution of indicator records in Sisab may have been impacted by the covid-19 pandemic. Social isolation and fear drove away and/or decreased the contact of pregnant women in the BHU – the care protocols, at first, suspended the face-to-face services, which were subtly adapted to the needs<sup>(25)</sup>.

The limitations of the present study are those inherent to descriptive research without statistical association that could evidence the causal relationship. The difficulty of further deepening the analysis, specifically the PrevineBrasil Program, is another limitation, due to the scarcity of studies of this nature in the state of Acre and its capital, Rio Branco. Sub-registrations also limit studies based on secondary data due to the possibility of not identifying some events, which, although not reducing the reliability of the research, should be considered in the interpretation of the results.

The research offers subsidies for the reflection of collaborative care networks

focused on the coordination of care by PHC, emphasizing the role of nurses in the care of pregnant women. Thus, the results contribute to the improvement of the practices of the family health teams and the maternal-child care line, in order to minimize actions that present nonconformities and cause distance of pregnant women to PHC.

## FINAL CONSIDERATIONS

The results of the research point to the need to re-signify the work process of nurses in the family health team as a strategy for understanding the maternal-child care line based on team care, and collaborative for the qualification of prenatal care in the context of PHC.

The study showed that the indicators of the Primary Health Care Information System, MIS, SINASC and the PrevineBrasil Program, a prenatal component of Brazil, the state of Acre and the municipality of Rio Branco, were unsatisfactory when analyzing the historical series of the last five years. This means that, in order to achieve the reduction stipulated by Goal 3.1 of the 2030 Agenda, adapted to the national reality to 30 maternal deaths per 100,000 live births, in the three spheres surveyed, emergency measures must be adopted.

Considering the reality encountered in the research regarding the demands of pregnant women, which transcend the biological and psychosocial sphere, with basic health care also directed to their families and communities, strategies for health promotion and disease prevention should be adopted to qualify assistance to this public. In addition, it should be promoted the approximation of this to the spaces of the PHC teams. Guidelines on the

importance of early start of prenatal care, dental care, regularity in routine consultations, exams, vaccination, among other topics, are necessary for the target audience.

Thus, qualitative studies on the adequacy of prenatal care in this sphere will make it possible to understand the subjective and the true meaning for real life, which can hardly be perceived through quantitative aspects of health care.

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