Epidemiological Profile of Patients with Congenital Syphilis in the Municipality of Porto Velho, RO

Perfil Epidemiológico dos Pacientes com Sífilis Congênita no Município de Porto Velho - RO

Perfil Epidemiológico de los Pacientes con Sífilis Congénita en el Municipio de Porto Velho, RO

RESUMO

Objetivo: Analisar o perfil epidemiológico da sífilis congênita em Porto Velho entre 2021 e 2023. **Método:** Estudo ecológico, descritivo e retrospectivo, baseado em dados secundários públicos do sistema nacional de notificações. Foram incluídos todos os casos registrados no período. Resultado: Foram identificados 63 casos de sífilis congênita, com variação anual e maior ocorrência em 2022. A distribuição temporal sugeriu instabilidade no controle da transmissão vertical e possíveis falhas no cuidado pré-natal e no acompanhamento das gestantes. **Conclusão:** Os resultados evidenciam a persistência da sífilis congênita como importante desafio para a saúde materno-infantil em Porto Velho. Observou-se necessidade de aprimorar ações de rastreamento, tratamento oportuno e vigilância epidemiológica, além de fortalecer políticas que enfrentam determinantes sociais associadas ao agravo. O estudo aponta lacunas que podem orientar futuras pesquisas sobre qualidade do pré-natal e barreiras de acesso aos serviços de saúde.
DESCRITORES: Sífilis Congênita; Epidemiologia; Saúde Materno-Infantil; Vigilância Epidemiológica; Transmissão Vertical de Doença.

ABSTRACT

Objective: To analyze the epidemiological profile of congenital syphilis in Porto Velho between 2021 and 2023. **Method:** Ecological, descriptive and retrospective study using publicly available secondary data from the national notification system. All confirmed cases reported during the period were included. **Result:** A total of 63 cases were identified, with temporal fluctuation and a peak in 2022. The pattern observed suggests instability in the control of vertical transmission and possible weaknesses in prenatal follow-up, maternal care and surveillance activities. **Conclusion:** The findings indicate that congenital syphilis remains a significant challenge for maternal and child health in Porto Velho. The study reinforces the need to strengthen early testing, timely treatment, continuous surveillance and actions addressing social determinants associated with the condition. The investigation also highlights gaps related to information quality and access to care, which may guide future research focused on prenatal services and barriers within the local health system.
DESCRIPTORS: Congenital Syphilis; Epidemiology; Maternal and Child Health; Epidemiological Surveillance; Vertical Transmission of Disease.

RESUMEN

Objetivo: Analizar el perfil epidemiológico de la sífilis congénita en Porto Velho entre 2021 y 2023. **Método:** Estudio ecológico, descriptivo y retrospectivo basado en datos secundarios públicos del sistema nacional de notificación. Se incluyeron todos los casos confirmados registrados en el período. **Resultado:** Se identificaron 63 casos, con variación temporal y mayor frecuencia en 2022. El comportamiento observado sugiere inestabilidad en el control de la transmisión vertical y posibles debilidades en el seguimiento prenatal, la atención materna y las actividades de vigilancia. **Conclusión:** Los hallazgos indican que la sífilis congénita sigue siendo un desafío importante para la salud materno-infantil en Porto Velho. El estudio refuerza la necesidad de fortalecer la detección temprana, el tratamiento oportuno, la vigilancia continua y las acciones dirigidas a los determinantes sociales relacionados con el agravio. También se identifican vacíos que pueden orientar futuras investigaciones sobre el prenatal y las barreras de acceso al sistema de salud local.
DESCRIPTORES: Sífilis Congénita; Epidemiología; Salud Materno-Infantil; Vigilancia Epidemiológica; Transmisión Vertical de Enfermedad.

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Pahola Fonseca dos Santos
Medical student at the São Lucas University Center - Afya.
ORCID: https://orcid.org/0009-0008-4234-0181

Amanda Antunes de Paula
Medical student at São Lucas University Center - Afya.
ORCID: https://orcid.org/0009-0000-6885-9880

Beatriz Gago Pereira
Medical student at São Lucas University Center - Afya.
ORCID: https://orcid.org/0009-0007-7781-8299

Maikon Barbosa Barros
Medical student at São Lucas University Center - Afya.
ORCID: https://orcid.org/0009-0005-6278-7659

Laiane Reis Teixeira Médica
pecialist in Pediatrics. Faculty member at São Lucas University Center - Afya.
ORCID: https://orcid.org/0009-0008-5236-3782

Arlindo Gonzaga Branco Junior Médico
Physician. Master's in Family and Community Medicine – Federal University of Rondônia – UNIR. PhD in Biodiversity and Biotechnology – FIOCRUZ/RO.
ORCID: https://orcid.org/0000-0003-4821-8677

INTRODUCTION

Congenital syphilis is an infection caused by the vertical transmission of the bacterium Treponema pallidum, occurring during pregnancy or at the time of delivery. It is a condition that remains a global public health challenge, despite the availability of effective diagnostic methods and low-cost treatment. Globally, the World Health Organization (WHO) warns that the elimination of vertical transmission remains a distant goal, especially in regions with structural inequalities and limited access to reproductive health services[1].

In Brazil, the disease has seen a significant increase in recent decades, highlighting shortcomings in prenatal care, treatment coverage for sexual partners, and epidemiological surveillance. The Ministry of Health notes that, although there have been advances in diagnostic methods and the expansion of screening strategies, congenital syphilis still results in high rates of neonatal morbidity and adverse pregnancy outcomes, such as preterm birth, low birth weight, and perinatal mortality[2]. National studies show that economically vulnerable regions have a higher incidence of the infection, a consequence of social barriers, difficulties in accessing prenatal care, and gaps in maternal follow-up[3]. International research reinforces that the persistence of the disease is directly associated with social inequalities, delayed diagnosis, and during pregnancy[4].

In the Amazonian context, the municipality of Porto Velho faces particular challenges due to geographical and socioeconomic barriers that impact access to health services. Recent data from the Municipal Epidemiological Bulletin (2025) indicate a in reported cases of acquired syphilis and syphilis in pregnant women during the 2021–2023 period[5]. This increase in incidence rates may be associated with the disruption of health services during the COVID-19 pandemic, which resulted in delayed diagnoses and failures in timely treatment of pregnant women and their sexual partners[6]. Given this situation, it is imperative to analyze the sociodemographic and clinical variables that characterize these patients in order to inform more effective public policies for control and prevention.

Therefore, the present study aims to analyze the epidemiological profile of congenital syphilis in Porto Velho between 2021 and 2023, describing the main maternal characteristics and neonatal outcomes recorded in the epidemiological surveillance system.

METHOD

A descriptive, retrospective, ecological study with a quantitative approach was conducted, using secondary data from the Notifiable Diseases Information System (SINAN) and the Department of Informatics of the Unified Health System (DATASUS). The databases were accessed in accordance with current legislation on public transparency, ensuring the collection of official information regarding cases of congenital syphilis reported in the municipality of Porto Velho, Rondônia.

All cases recorded between 2021

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and 2023 with complete records containing maternal and neonatal data were included. The variables analyzed included maternal age, education level, race or ethnicity, place of residence, type of delivery, and clinical outcome of the newborn. Duplicate, incomplete, or inconsistent records were excluded, as were reports regarding pregnant women who did not undergo or did not complete treatment, ensuring the consistency of the analysis.

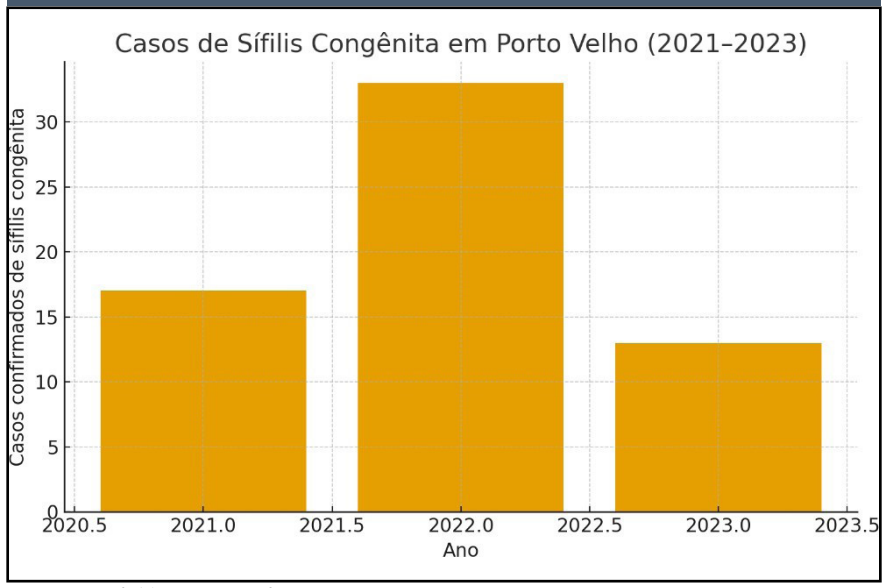
After case selection, morbidity and mortality rates were calculated, and the observed epidemiological characteristics were described. The interpretation of the findings considered the principles of Social Epidemiology, allowing the patterns found to be linked to the structural inequalities that influence the health of the population in the studied territory.

Since the data were secondary, in the public domain, and did not include individual identifiers, there was no need to submit the study to the Research Ethics Committee, in accordance with the guidelines of Resolution No. 466 of the National Health Council.

RESULTS

Sixty-three confirmed cases of congenital syphilis were identified in the municipality of Porto Velho, Rondônia, from 2021 to 2023, according to records provided by the Notifiable Diseases Information System. An annual variation in the number of notifications was observed, with 17 cases in 2021, a significant increase to 33 cases in 2022, and a decrease to 13 cases in 2023.

Figure 1 – Cases of Congenital Syphilis in Porto Velho (2021–2023)



Source: Notifiable Diseases Information System (SINAN) – DATASUS, 2025.

The temporal distribution showed an increase of approximately 94 percent between 2021 and 2022, followed by a 60.6 percent decrease between 2022 and 2023. Despite the decrease in the last year analyzed, the results revealed instability in the pattern of congenital syphilis occurrence in the municipality, suggesting fluctuations in vertical transmission, the quality of prenatal care, or the sensitivity of epidemiological surveillance. The consolidated figures point to the persistence of congenital syphilis as a significant public health concern in Porto Velho, reinforcing the need for continuous monitoring and interventions focused on prevention, early diagnosis, and appropriate treatment of pregnant women.

During the three-year period from 2021 to 2023, the municipality of Porto Velho recorded an upward trend in syphilis indicators. Acquired syphilis showed a of 74%, jumping from 536 cases in 2021 to 933 in 2023[5]. This increase directly impacts maternal and child health, with syphilis cases among pregnant women rising from 215 to 393 cases in the same period, highlighting challenges persistent challenges regarding the effectiveness of prenatal care and the interruption of the vertical transmission chain[5,7].

Characterization of the variables revealed that social vulnerability plays a decisive role in the clinical course of the cases. Analysis of maternal data showed a predominance of young, brown-skinned women with low educational attainment, factors that correlate with the increase in cases of congenital syphilis, which reached 50 reported cases in 2023[5,6]. The complexity of the situation is compounded by the fact that the majority newborns are asymptomatic at birth, requiring rigorous postnatal follow-up to prevent late sequelae resulting from untreated infection treated[5]. It is worth noting that, although preliminary analyses of secondary databases might suggest a lower number, the 2025 Syphilis Epidemiological Bulletin, published by the Municipal Health Secretariat of Porto Velho (SEMUSA), points to a more severe reality: 133 cases of congenital syphilis were confirmed during the three-

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year period studied, with 40 cases in 2021, 43 in 2022, and a peak of 50 notifications in 2023. This discrepancy in the numbers underscores the importance of constantly updating surveillance systems and indicates that the magnitude of vertical transmission in the municipality may be greater than initially reported, showing a continuous growth trend of 25% over the period.

Figure 2 - Epidemiological Overview and Profile of Syphilis in Porto Velho (2021–2023)

Category	Variable	Indicator / 2021	2022	2023	Observed Trend
Number of Cases	Acquired Syphilis	536	781	933	74% increase
	Syphilis in Pregnant Women	215	315	393	82.8% increase
	Congenital Syphilis	40	43	50	25% increase
Maternal Profile	Predominant Age Group	20–29	20–29	20–39	Concentration in Childbearing Age
	Race/Ethnicity (Brown)	~70%	~74%	~79%	Most Vulnerable Group
	Education (Incomplete Elementary School)	High	High	High	Correlation with late prenatal care
Outcome	Newborn Outcome (Asymptomatic)	Stable	Stable	Stable	Most are born without immediate symptoms

Source: Prepared by the author based on Porto Velho (2025)[5]; Pereira et al. (2025)[7]; Kisner et al. (2021)[6].

DISCUSSION

The fluctuation observed in cases of congenital syphilis in Porto Velho is consistent with national trends described in the literature, indicating that the persistence of this condition is associated with social inequalities and the fragility of prenatal care. In a national ecological study, Costa et al.[8] demonstrated that the incidence of congenital syphilis is higher in municipalities with less access to testing, treatment, and follow-up for pregnant women, reinforcing that prenatal care is a key determinant for controlling vertical transmission. This inequality is corroborated by Marques dos Santos et al.[9] who identified a progressive increase in congenital syphilis in Brazil between 2007 and 2017, driven by failures structural issues in the surveillance system and in prenatal care coverage.

In the North region, studies reveal that congenital syphilis remains more prevalent in settings characterized by socioeconomic vulnerability, low maternal education, and difficulty accessing health services—conditions observed in Amazonian municipalities similar to

Porto Velho[10]. Spatial analyses over a decade show that areas with poorer sanitation and greater inequality have higher concentrations of the disease, highlighting the influence of social determinants of health[11].

The literature also warns that isolated reductions in the number of cases may reflect fluctuations in reporting and not necessarily epidemiological improvement. Rodrigues et al.[12] demonstrated significant underreporting of congenital syphilis in Brazilian surveillance systems, especially in regions with weaker operational infrastructure. Similarly, Amaral et al.[13] observed difficulties with early detection and inconsistencies in record-keeping, factors that may mask the true magnitude of the problem.

Furthermore, failures in treating sexual partners and the difficulty in ensuring complete treatment for pregnant women remain among the main factors perpetuating vertical transmission, as pointed out by Abrão et al.[14]. International studies reinforce

In this context: Korenromp et al.[15] demonstrated that delays in diagnosis and treatment account for a large proportion of preventable cases of congenital syphilis worldwide, while Bowen et al.[16] emphasize that the coordination of surveillance efforts is essential for reducing adverse outcomes.

Given this body of evidence, the results observed in Porto Velho likely reflect not only actual changes in incidence but also varying levels of diagnostic efficiency, prenatal care coverage, and surveillance capacity over the years. The persistence of the disease indicates an urgent need to strengthen health education strategies, expand testing at multiple stages of pregnancy, ensure appropriate treatment for pregnant women and their partners, and improve integration between primary care and epidemiological surveillance.

Among the study's limitations, the use of secondary data stands out, which is subject to underreporting and incomplete data entry , a widely recognized problem in

literature on congenital syphilis in Brazil[17]. These limitations reduce the accuracy of the analysis and prevent the assessment of more detailed clinical variables, although they do not compromise the study's ability to identify trends relevant to health planning.

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CONCLUSION

The study enabled an analysis of the epidemiological profile of congenital syphilis in Porto Velho from 2021 to 2023, highlighting annual variations in the incidence of the condition and revealing weaknesses in prenatal care, epidemiological surveillance, and addressing the social determinants of health. The identified fluctuation suggests that ad hoc interventions have not been sufficient to ensure the sustained interruption of vertical transmission, reinforcing the need for permanent strategies for screening, monitoring, and appropriate treatment of pregnant women and their partners.

The findings demonstrate that congenital syphilis remains an important indicator of the structural inequalities that impact maternal and child health in the region. The analysis highlights gaps related to the quality of data entry in notification forms, continuity of care, integration between primary care and surveillance, as well as the absence of more detailed clinical information that would allow for a comprehensive understanding of the factors associated with neonatal outcomes. These limitations indicate the need for future research that explores social, territorial, and clinical variables in greater depth, as well as studies that evaluate the effectiveness of implemented public policies and the impacts of health education strategies. There is also potential for research examining barriers faced by pregnant women and health professionals, contributing to the development of interventions that are more responsive to local realities.

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