

FOLLOW-UP OF CHILDREN BORN TO WOMEN DIAGNOSED WITH SYPHILIS DURING PREGNANCY: A SCOPING REVIEW

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Highlights: (1) There are weaknesses and inconsistencies in the management of a child's diagnosis and pharmacological treatment. (2) The investigation of neurosyphilis during follow-up needs to be the focus of studies. (3) Follow-up within the Healthcare Network is fragmented, with deficiencies in record-keeping, communication between services, and the coordination of follow-up care by Primary Health Care. (4) The reconstruction of follow-up care entails structural innovations and particular consideration of psychosocial determinants—areas pointing to the need for future studies.

PRE-PROOF

(as accepted)

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ABSTRACT

Objective: To map evidence regarding follow-up care within the healthcare system for children born to women diagnosed with syphilis during pregnancy. **Methods:** A scoping review was conducted in accordance with JBI and PRISMA-ScR. Primary studies from four electronic databases were included, with language restrictions to Portuguese, English, and Spanish, and no time restrictions. **Results:** A total of 283 documents were retrieved. Following selection stages, 19 were analyzed—most originating from Brazil and all published between 2011 and 2024. Evidence regarding follow-up care is presented based on the following themes: Diagnostic tests for syphilis and associated damage; Pharmacological treatment; Follow-up within the Healthcare Network; and Social support. **Conclusion:** Follow-up care was found to be compromised, notably due to inconsistencies regarding diagnosis and pharmacological treatment, as well as poor coordination within the care network. This network operated under a disease-centered approach that failed to adequately account for the determinants of life and health.

Keywords: Syphilis; Congenital Syphilis; Follow-up Care; Child Health; Public Health; Review.

INTRODUCTION

Congenital syphilis (CS) results from transplacental transmission of the bacterium *Treponema pallidum* during pregnancy or childbirth¹. The World Health Organization aims for its elimination by 2030², and Brazil maintains a high average incidence rate, around ten cases per 1,000 live births³.

Sickle cell disease impacts neonatal and infant morbidity and mortality³, posing a risk of harm to the child's development³⁻⁴. A large proportion of cases are asymptomatic at birth, with manifestations appearing during the child's first two years⁵. Consequences of CS include

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hepatomegaly, splenomegaly, jaundice, nasal discharge, maculopapular rash, generalized lymphadenopathy, and skeletal abnormalities¹. Diagnosis involves assessing the management history of gestational syphilis (GS) in conjunction with clinical, laboratory, and imaging investigations of the newborn (NB)/child¹. The primary treatment is benzylpenicillin (potassium/crystalline, procaine, or benzathine), depending on the maternal treatment during pregnancy, the infant's non-treponemal test titer compared to the mother's, and/or the infant's clinical and laboratory findings¹. Thus, follow-up care is essential. The Brazilian protocol recommends follow-up until the child is 18 months old, with disease-specific assessments at 1, 3, 6, 12, and 18 months of age¹.

Scientific evidence focuses on preventing the occurrence of CS⁵⁻⁶, with the relevance of increasing knowledge about child follow-up care in this context. Furthermore, a child's first 1,000 days of life represent a "window of opportunity" to promote their development, health, and well-being⁷. Furthermore, in addition to follow-up care being strategic for timely interventions regarding child development, it fosters health education and parenting support initiatives⁸.

This study aimed to map evidence regarding follow-up care within the healthcare system for children born to women diagnosed with syphilis during pregnancy.

METHODS

This is a scoping review conducted in accordance with JBI recommendations⁹, utilizing the Preferred Reporting Items for Systematic Reviews and Meta-Analyses for Scoping Reviews¹⁰ for assessing the materials. Its public record is available at the following link: <https://doi.org/10.17605/OSF.IO/9VE3U>. It is noteworthy that no reviews matching the proposed scope were found registered in the International Prospective Register of Systematic Reviews.

The formulation of the review question was based on the PCC mnemonic, in which Population (P) consisted of children born to women diagnosed with syphilis during pregnancy; Concept (C) was follow-up care; and Context (C) was healthcare. Therefore, the review question was: What is the evidence regarding follow-up care for children born to women diagnosed with syphilis during pregnancy in healthcare settings?

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The searches were conducted independently in September 2024 by two reviewers—both PhDs specializing in maternal and child health—one of whom had experience with search strategies and training in scoping reviews. The search was validated by a librarian.

The databases explored were the US National Library of Medicine National Institutes of Health (MEDLINE/PubMed), the Excerpta Medica dataBASE (EMBASE), the SciVerse Scopus, and the *Literatura Latino-Americana e do Caribe em Ciências da Saúde* (LILACS), correlating the descriptors “Follow-Up”, “Congenital Syphilis”, and “Child Health Services”. Studies in Portuguese, English, and Spanish were selected. No date filters were applied. The process of developing the search strategies followed Peer Review of Electronic Search Strategies recommendations and is presented in Chart 1.

Chart 1 - Database search strategies. São Carlos, SP, Brazil, 2024

Base de Dados	Estratégias de Busca
<i>Medical Literature Analysis and Retrieval System Online (MEDLINE)</i>	((follow up[Title/Abstract] OR Continuity of Patient Care[Title/Abstract] OR Secondary care[Title/Abstract] OR Postpartum care[Title/Abstract] OR Ambulatory care[Title/Abstract] OR Maternal-child health care[Title/Abstract] OR Primary health care[Title/Abstract] OR Comprehensive Health[Title/Abstract]) AND (congenital syphilis OR syphilis[MeSH Terms])) AND (Child health services OR Preventive health services OR Maternal health services OR Community health services[MeSH Terms])
SciVerse Scopus	(follow-up)AND(syphilis OR congenital AND syphilis) AND (child AND care)
Excerpta Medica dataBASE (EMBASE)	(follow up) AND (syphilis OR congenital AND syphilis) AND (child AND care)
Literatura Latino-Americana e do Caribe em Ciências da Saúde (LILACS)	(follow up) AND (syphilis OR congenital AND syphilis) AND (child AND care)

Publications addressing follow-up care for children born to women diagnosed with syphilis during pregnancy within the healthcare context were included. Duplicate publications across databases, letters to the editor, abstracts, clinical protocols, conference proceedings, and publications that did not address the review question were excluded.

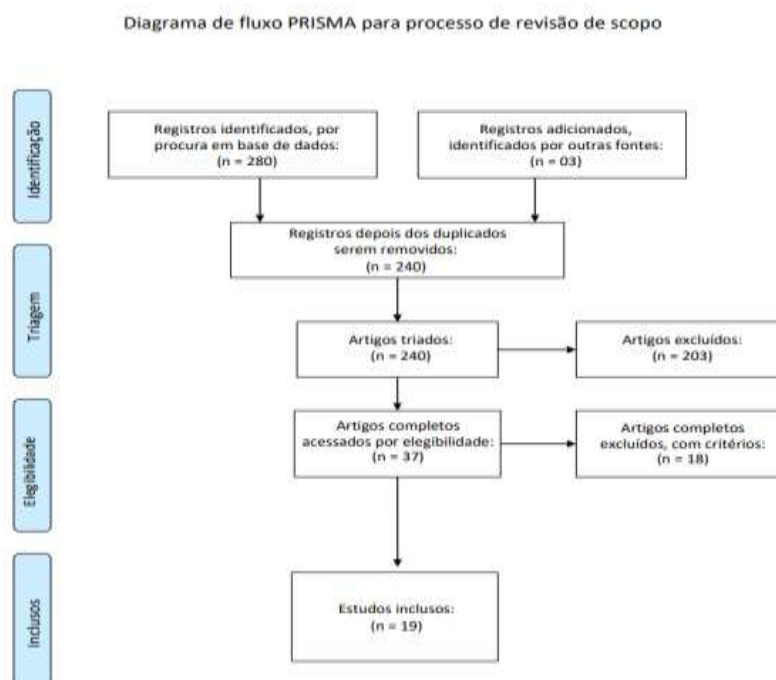
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The search results were imported into the reference management software Rayyan.ai (<https://www.rayyan.ai/>), in which the process of filtering, selecting materials, and organizing was carried out by the first five authors. Initially, duplicates were removed, then the study criteria were applied. Subsequently, titles and abstracts were independently reviewed by the first five authors, and inconsistencies were resolved among them by consensus. The remaining set of materials was read in its entirety by two dyads—comprising the second through fifth authors of this manuscript—and, in cases of disagreement, the first and sixth authors contributed to reaching a consensus. Subsequently, the full-text assessment of the selected materials was conducted independently by the first five authors.

Data extraction was performed based on JBI recommendations for scoping reviews⁹, independently selecting information related to the year, producing country, objectives, population and sample size, methodology used, outcomes, and results related to the review question. The extracted data were tabulated and are presented through a narrative synthesis developed according to the principles of thematic analysis¹¹. The study selection flow process is presented in Figure 1.

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Figure 1 - Flowchart according to Preferred Reporting Items for Systematic Reviews and Meta-Analyses for Scoping Reviews¹² for study selection



Fonte: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097
 Modificado: The Joanna Briggs Institute Reviewers' Manual 2015. Methodology for JBI Scoping Reviews. Published by the Joanna Briggs Institute, 2015.
 For more information, visit www.joannabriggs.org
http://joannabriggs.org/assets/docs/sumari/Reviewers-Manual_Methodology-for-JBI-Scoping-Reviews_2015_v2.pdf

RESULTS

The review identified 283 items: 280 from database searches and 3 identified and added from the references of the materials examined. Subsequently, duplicates (n=43) were removed, leaving a total of 240 articles for screening. Of these, 203 were excluded based on their titles and abstracts, resulting in 37 articles eligible for full-text reading and analysis. After reading, 18 items that did not meet the review's established criteria were excluded, resulting in a final set of 19 items, comprising journal articles (n=18) and one thesis.

The 19 studies span the period from 2011 to 2024, with a concentration of publications in 2023 (n=6). The vast majority originated in Brazil (n=14) and were published in Collective health journals (n=10). Quantitative studies predominate (n=15), particularly observational studies of an epidemiological nature (n=12). Information regarding the materials is presented in Chart 2.

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Chart 2 - Information on the materials included in the scoping review. São Carlos, SP, Brazil, 2024

Authors/year	Location	Objectives	Participants	Methodology
Minicucci; Silva; Mendes; Abreu; Acácio, 2024 ¹³	Taubaté, São Paulo, Brazil	Analyze the implementation of recommended laboratory follow-up for cases of congenital syphilis.	38 pregnancies	Observational, descriptive, and retrospective study
Soares; Holzmann; Alves; Lima; Caldeira, 2023 ¹⁴	Montes Claros, Minas Gerais, Brazil	Describe the characteristics of mothers and children seen at a congenital syphilis follow-up clinic and identify factors associated with confirmed cases.	200 mother-child dyads	Prospective study
Pironi; Araújo; Oliveira; Junior, 2023 ¹⁵	Vila Velha, Espírito Santo, Brazil	Compare clinical outcomes based on treatment and assess follow-up care at health facilities.	Medical records of 121 children	Observational study
Vicente; Sanguino; Riccioppo; Santos; Furtado, 2023 ¹⁶	São Paulo, Brazil	Understand the meaning women attribute to the diagnosis of syphilis and congenital syphilis, the treatment, and the child's outpatient follow-up.	30 mothers	Qualitative study
Oliveira; Araújo; Barros; Guanabara; Vasconcelos; Sena, 2023 ¹⁷	Fortaleza, Ceará, Brazil	Analyze well-child care and the follow-up of children exposed to or reported with congenital syphilis within Primary Health Care.	715 children	Descriptive study
Silva; Herculano; Feitosa; Brasil; Carvalho; Presado, 2023 ¹⁸	Ceará, Brazil	Understand the feelings of mothers following a diagnosis of congenital syphilis, through the lens of phenomenology.	14 postpartum women	Descriptive study
Lima; Silva; Mesquita; Mazza; Freitas, 2022 ¹⁹	Ceará, Brazil	Analyze the social support network of young mothers of children diagnosed with congenital syphilis.	Six young people	Qualitative study
Hu; Guo; Lu; Hua; Song; Lin; Zhu, 2020 ²⁰	Guangzhou, China	Assess the validity of an algorithm using the timing of maternal anti-syphilis treatment and non-treponemal antibody titers as predictors of congenital syphilis.	1,558 children	Quantitative study
Santos; Pereira; Sena, 2020 ²¹	Bahia, Brazil	Describe the audiological follow-up of a child with a positive serological test for syphilis.	One child	Case report
Cavalcante; Araújo; Nobre; Almeida, 2019 ²²	Fortaleza, Ceará, Brazil	Analyze factors associated with inadequate outpatient follow-up for children reported with congenital syphilis.	460 children	Non-concurrent cohort study
Vicente, 2019 ²³	Ribeirão Preto, São Paulo, Brazil	Analyze the maternal-infant profile and examine the association between adequate syphilis treatment during	112 pediatric medical records	A quantitative-qualitative study involving medical

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		pregnancy and maternal and neonatal variables.	30 mothers of children undergoing follow-up for congenital syphilis	record analysis and semi-structured interviews
Rode; Ryder; Su, 2018 ²⁴	Australia	Investigate whether the management of infants at risk of congenital syphilis was carried out in accordance with Centers for Disease Control guidelines and to assess the outcomes of these children at 12 months of age.	33 children	Quantitative study
Landi; Balestrin; Souza; Fernandes, 2018 ²⁵	Campos dos Goytacazes, Rio de Janeiro, Brazil	Assess the diagnosis and treatment of syphilis during pregnancy, as well as the management of infants exposed to congenital syphilis.	84 dyads (mothers/children)	Cross-sectional, retrospective study
Tertuliano; De Souza Portal, 2017 ²⁶	Cachoeirinha, Rio Grande do Sul, Brazil	Assess the profile of live births with early congenital syphilis regarding adherence to follow-up therapy, in order to investigate potential failures that led to vertical transmission.	16 children	Descriptive epidemiological study
Marangoni; Foschi; Capretti; Nardini; Compri; Corvaglia; Faldella; Cevenini, 2016 ²⁷	Bologna, Italy	Assess the diagnostic value of a comparative Western Blot method finalized to match the IgG immunological profiles of mothers and their own babies at birth, in order to differentiate between passively transmitted maternal antibodies and antibodies synthesized by the babies against <i>Treponema pallidum</i> .	30 children	Retrospective study
Feliz; Medeiros; Rossoni; Tahnus; Pereira; Rodrigues, 2016 ²⁸	Paraná, Brazil	Describe the clinical and epidemiological characteristics of newborns exposed to syphilis, as well as the gestational and sociodemographic characteristics of their mothers, and to investigate factors associated with discontinuation of follow-up.	254 children	Observational, descriptive, analytical, and retrospective study
Ramos; Figueiredo; Succi, 2014 ²⁹	São Paulo, Brazil	Identify potential barriers to controlling the vertical transmission of syphilis and HIV by analyzing the process of referring pregnant women from prenatal care services to the obstetric center.	56 pregnant women	Retrospective cross-sectional study
Magalhães;	Distrito Federal,	Characterize pregnant women with	67 pregnant or	Descriptive study

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Kawaguchi; Dias; Calderón, 2013 ³⁰	Brazil	reactive Venereal Disease Research Laboratory tests and newborns of mothers with syphilis who exhibited clinical signs of congenital syphilis, and assess clinical management in accordance with established guidelines.	postpartum women	
Vanegas-Castillo; Cáceres-Buitrago; Jaimes-González; Ángel-Muller; Rubio-Romero, 2011 ³¹	Bogotá, Colombia	Assess adherence to Centers for Disease Control and Prevention recommendations for the treatment of hospitalized cases of gestational and congenital syphilis.	40 cases of congenital syphilis	Retrospective study

The narrative synthesis of the evidence regarding follow-up care for children is presented based on four themes: Diagnostic tests for syphilis and associated damage; Pharmacological treatment; Follow-up within the Healthcare Network; and Social support.

Diagnostic tests for syphilis and associated damage

Diagnostic assessment regarding a child's exposure to syphilis during pregnancy and at birth revealed shortcomings^{14-15,17,22,25,28}, particularly regarding failures in testing at birth^{14-15,17} and in ordering the Venereal Disease Research Laboratory (VDRL) test during the child's follow-up^{13,22}. A Brazilian cohort study identified only 18.1% of participants with complete follow-up, including regarding examinations²². An Australian study found that assessment and treatment at birth complied with national guidelines, whereas subsequent clinical and serological follow-up did not²⁴.

Regarding CS diagnosis, the detection of cases undiagnosed at birth was facilitated by the use of a comparative Western blot method to match the IgG immunological profiles of mothers and their infants at birth²⁷. Another study highlighted the contributions of adopting algorithms that combine maternal non-treponemal titers with the timing of treatment during pregnancy for CS diagnosis²⁰.

Notes regarding cerebrospinal fluid (CSF) cytology/protein and CSF VDRL were identified less frequently during the diagnostic workup^{21-22,25,30}. Furthermore, X-rays of long bones were mentioned for diagnostic purposes in the studies included in this review^{14,22,26,28,30}, although radiological findings typical of CS were uncommon^{14,22}.

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NB hearing screening was highlighted as a fundamental assessment at birth, with particular emphasis on the urgent need for close follow-up in cases of screening failures²⁹. In this context, Speech-language pathology assessment during the child's follow-up—guaranteeing an Auditory Brainstem Response (ABR) test and a retest of Transient Evoked Otoacoustic Emissions—was indicated²¹, even though the evidence shows that approximately one-third of children are not referred by the hospital for ABR testing²³.

Pharmacological treatment

Regarding pharmacological treatment, there is a variety of approaches; however, the use of crystalline penicillin for eight days²¹ or ten days^{16,20,26,28,30}, sometimes followed by the addition of benzathine penicillin, predominates^{21,30}. Other regimens are described, such as the use of a single dose of benzathine penicillin at birth^{13,15,28}, the use of ceftriaxone¹⁵, and the combination of gentamicin and ampicillin²⁵. A study found that treatment with ceftriaxone is not as effective as crystalline penicillin when comparing disease progression and clinical manifestations during follow-up¹⁵.

Failure to treat the NB was among the findings in cases of infants asymptomatic at birth¹³—despite the GS treatment having been deemed adequate²⁹—or where maternal test results were not released prior to the hospital discharge of the mother-infant dyad²⁹.

Medication management inconsistent with official Brazilian recommendations was evidenced in one study³⁰, although suggested in others^{13,15-16,20,25-26,28}. In turn, an Australian study identified treatment compliance with the country's guidelines for 57% of infants at high risk for CS and for 73% of infants at low risk for CS²⁴. Thus, a significant proportion of infants (43%) received alternative treatment regimens—using a third-generation cephalosporin or intramuscular penicillin—in place of part of treatment²⁴.

Neurosyphilis occurred in 8.3% of asymptomatic NBs who received 50,000 units/kg/dose of intravenous crystalline penicillin every 12 hours for 14 days³¹.

Follow-up within the Healthcare Network

Follow-up in Primary Health Care (PHC) is weak, with appointment attendance and adherence falling short of recommendations^{13,15,17,22,28-29}, including for children born preterm and/or with low birth weight¹⁷. Failures in PHC registration without mention of CS²² and failure

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to attend any follow-up appointments at this level of care were identified^{13,15,22,29}, despite the fact that attending a follow-up appointment was the norm^{13,15,22,29}. Among Brazilian children who underwent appropriate follow-up, 78.3% attended either the referral outpatient clinic or the primary care unit²², but not both services.

Communication between hospitals and PHC services was assessed as lacking or incipient^{24,30}, with weaknesses in referral records^{15,30}. Furthermore, the post-discharge referral process for NBs at risk of CS was found to be poorly established among the neonatal unit team²⁹. Furthermore, the discharge summaries were lacking in information regarding the risk of congenital heart disease and the need for close, longitudinal follow-up²⁴. Counter-referral reports between primary care and specialized care are missing, as are data regarding the child's clinical history and adherence to protocol steps in medical records¹³.

The need to define the role of PHC in the child follow-up process—for the purpose of organizing the Healthcare Network following hospital discharge—was highlighted²². It is recommended that children leave the maternity ward with a primary care appointment and scheduled tests¹⁷, with records of their condition in the discharge documents^{14,17}. Deficiencies in the documentation for the follow-up of cases of CS or those at risk of developing it became evident^{13,30}.

Referral to the infectious disease outpatient clinic occurs at a high rate, but attendance does not^{13,15}, with few children completing the follow-up¹⁵. In a Brazilian study, 15.3% of them received a diagnosis of CS at 18 months of age¹⁵.

A child's failure to attend the health facility is a determinant of inadequate continuing care, though structural issues also contribute to this²². The majority of children reported with CS in a Brazilian study visited a PHC unit. However, the care provided to them did not meet the standards established by the country's Ministry of Health²². Thus, the absence of specialized services in the municipality of residence—necessitating travel to referral cities for laboratory and professional follow-up—was highlighted and compromised follow-up completeness¹³.

Furthermore, low adherence to follow-up could be mitigated if healthcare professionals—both at the time of hospital discharge and during consultations—reinforced the importance of follow-up and appointment attendance, explaining that a large proportion of children are asymptomatic at birth²² and/or do not exhibit early signs and symptoms^{14,16-17}, and noting that a positive treponemal test at birth is rare^{14,17}. Indications suggest that this

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information is available in the rooming-in unit^{17,26} and in other healthcare facilities involved in CS follow-up^{17,23,26}. It was further noted that raising awareness among the mother and family members regarding the link between adherence to follow-up and child development assessments—particularly concerning hearing and speech and language development—is essential²¹.

A child's active seeking of healthcare workers was identified as a pressing matter^{17,26}. Studies have revealed that the greatest loss to follow-up of children exposed to syphilis during pregnancy occurred at 6 months of age, following two negative VDRL results^{14,17}.

Social support

The social support network must be identified and considered when establishing follow-up care^{19,23}. Brazilian studies have highlighted partners, extended family members, or healthcare professionals themselves as sources of social support^{19,23}.

Spirituality, religiosity, and the connection to the church also served as sources of social support in the context of CS, even though it was common for individuals to share their situation with only a few people²³.

The humanized care provided by healthcare professionals awakened feelings of gratitude and hope in the mothers, fostering confidence in the continuation of treatment and their child's recovery¹⁸.

DISCUSSION

The evidence mapping identified weaknesses in CS management—or situations predisposing to it—within the Healthcare Network, particularly regarding the diagnosis and treatment of the condition, but also concerning the consequences of this event for individuals and their family³². Cases of CS are notable and persistent on a global scale, occurring even in high-income countries, which indicates that current public health strategies have not been entirely successful in reversing the rising trends³³. Furthermore, it demonstrates that the number of cases remains significant in low- and middle-income countries³³⁻³⁴, representing one of the leading causes of stillbirths and neonatal deaths, such as in sub-Saharan Africa³³. CS is being discussed as a re-emerging disease, highlighting the urgent need to revamp and advance healthcare services³².

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CS management and elimination involves addressing inadequacies in prenatal care, late diagnoses, weaknesses in the treatment of the woman and her partner³⁵, as well as the approach adopted in care, taking into consideration the life determinants of the child exposed to *Treponema pallidum* and their family. CS incidence in the United States, for instance, increased by more than 300% between 2015 and 2022, a rise attributed to missed screening opportunities during pregnancy and inadequate prenatal care³³. Prioritizing the bond and trust is paramount, reflecting a person- and family-centered approach to humanized care—an aspect that is both recognized and valued¹⁸.

The fact that CS can present as asymptomatic or symptomatic at birth, with diverse manifestations, many of which are nonspecific when viewed in isolation, has implications for follow-up. Thus, it is important to inform caregivers about early manifestations (hepatosplenomegaly, anemia, jaundice, palmar and plantar syphilitic pemphigus, Parrot's pseudoparalysis), those occurring within the child's first two years of life, as well as late manifestations (dental and skeletal malformations, neuropsychomotor developmental delays, deafness, and others), and those appearing after the child is two years old. The studies conducted focus primarily on late-onset manifestations, with indications of research directed toward early-onset manifestations.

In this context, it is worth highlighting neurosyphilis, a potential neurological complication, which necessitates a focused assessment of the child that goes beyond the mere collection of CSF. Few studies have addressed this area. CSF testing is recommended for children with CS to diagnose neurosyphilis. In Brazil, in 2022, neurosyphilis was present in approximately 11% of children with CS³.

Diagnosing CS is complex and requires longitudinal monitoring of the child, using an approach that integrates information regarding the mother's syphilis diagnosis and treatment, the child's signs and symptoms, and the transfer of maternal antibodies to the child³⁶. The effectiveness of universal syphilis screening during pregnancy and appropriate maternal treatment is crucial for CS prevention. This prevention strategy was confirmed by the retrospective cohort study in Switzerland, which identified no cases of CS during the ten-year period analyzed (2010–2019). The success was attributed to the screening for asymptomatic cases of maternal syphilis within current prenatal care programs, enabling timely treatment³⁷. The literature indicates that children born to women who contracted syphilis during pregnancy

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are at a higher risk of developing congenital infection compared to those whose mothers were infected prior to pregnancy³².

Treponemal and non-treponemal serological tests, microscopy, or PCR for the direct detection of *Treponema pallidum* are used to assess the clinical presentation and diagnose infection in children^{32,35-36}. When treponemal tests remain positive after the child is 6 months old, this suggests endogenous production³⁶ and, consequently, an association with CS.

Concerning imaging findings, Wimberger's sign, destruction of the medial region of the proximal tibial metaphyses, is suggestive of CS³⁸, highlighting the importance of studies that address this aspect during follow-up. Few resources addressing this topic were found.

In relation to CS treatment, the indicated regimen is procaine benzylpenicillin for ten days, provided neurosyphilis is not present³⁹. During this phase, the recommended treatment is crystalline benzylpenicillin for ten days, usually administered every 12 hours for the first seven days and every eight hours for the last three days^{32,39}. The results regarding the materials examined during the review revealed a lack of alignment with internationally established recommendations or deficiencies in treatment completeness. Given this scenario, interventions are warranted to facilitate access to and dissemination of the recommendation, both in professional training and in-service continuing education, as well as studies to explore the factors underlying this gap, particularly among prescribing professionals. Aligning healthcare professionals' practices with recommended guidelines remains a challenge²².

The follow-up care for the child with CS or under observation due to exposure to *Treponema pallidum* revealed inadequacies. Healthcare services and their professionals are committed to inquiring about the presence of GS in the child's history, exploring the management of this situation, and obtaining information regarding the birth and procedures performed, in addition to conducting a thorough assessment of the child with a focus on neurodevelopment^{36,37}. Detailed documentation of these data in medical records facilitates follow-up care; however, this review revealed deficiencies in this regard, highlighting an urgent need to strengthen the scientific basis of the practice.

Furthermore, a professional is tasked with reconstructing follow-up care by considering the woman's and her family's living environment and how psychosocial determinants shape her unique history—while maintaining a professional commitment to understanding how these factors influence attendance and adherence to follow-up. Among the determinants that tend to

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have an impact are: the woman's years of education, knowledge and understanding of the disease, existing social vulnerability in the child's and their family's living environment, access to services, including considering the distance from the child's home, some of which are present in the results of this review. Furthermore, the studies conducted did not address the territorial and collective approach—issues that warrant a deeper understanding.

In any case, it is important for the professional to invest in the relationship and in establishing a bond with the woman and her family, starting from the prenatal period. The presence of a professional during prenatal care is crucial to the woman's connection with healthcare services. Home visits are distinct technologies in this regard⁴⁰ and did not appear in any of the materials reviewed. The same occurred with remote technologies, such as teleconsultations and virtual groups⁴¹. There is an urgent need to improve the quality of these encounters; they tend to be brief, characterized by a lack of information, steeped in stigma and judgment, and far removed from being meaningful or truly welcoming⁴⁰. Shifting this pattern is urgent in order to facilitate the recognition of needs and the development of tailored interventions, extending to a child's follow-up care.

Health education needs to advance in order to achieve learning outcomes. Superficial knowledge—or a lack thereof—regarding CS undermines adherence to follow-up and may lead to the perception that care in the context of CS is limited to the administration of antibiotics and the performance of tests. Superficial explanations couched in convoluted language—far removed from the level of understanding of the individual woman or family—do not translate into actual knowledge. To what extent do professionals invest in interaction for the purpose of dialogue and information sharing? Educational materials are useful, provided they are viewed as complementary to the process of health information and education. It is through dialogue with the professional that the opportunity arises to explain concepts and address specific questions unique to each person's history and context.

In any case, booklets are valuable resources, and Ministries of Health and related agencies favor them due to their low cost and wide reach. The guidelines call for concise, specific content using clear, objective language that takes a broad audience into account, including those with low levels of formal education. In this context, educational videos are on the rise⁴². Professionals are advised to use these resources to address fake news and health-related misinformation.

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This review reinforces that improving follow-up care for sickle cell disease requires advancements in PHC. The adoption of PHC as a distinctive element of the Healthcare Network is facilitated by the incorporation of co-management mechanism, enabling managers and workers to discuss their work with the aim of effecting change⁴³, yet this is another issue that did not emerge from the results of this review.

Finally, it is worth highlighting the issue of stigmatization in the context of syphilis care, specifically how it is perpetuated in interactions with healthcare professionals, the community, and the local territory, thereby undermining the relationship and follow-up care⁷, even though we did not obtain specific materials regarding this aspect. Furthermore, it is worth noting the absence of studies focused on policies and programs as well as discussions centered on this area.

Given the number of materials included in the review, there is limited research on the topic of CS follow-up, with a concentration of Brazilian studies, which inevitably reflects insights derived from a specific social, economic, and political context.

FINAL CONSIDERATIONS

The mapping of evidence regarding follow-up care for children born to women diagnosed with syphilis during pregnancy revealed weaknesses and inconsistencies in the management of the child's diagnosis and pharmacological treatment. Furthermore, it pointed out gaps in the management of follow-up within the Healthcare Network, particularly regarding documentation, communication between services, and the role of PHC. Few discussions regarding informational and social support were achieved.

Rebuilding follow-up care entails upgrading professional practices, but also calls for structural and methodological innovations. This review aims to stimulate further studies on follow-up care in the context of heart failure, fostering advancements in practices and guiding documents directed toward this goal.

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