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Construction and evaluation of a technical guide for syphilis case management: a methodological study*

Construção e avaliação de um guia técnico para gestão de casos de sífilis: estudo metodológico

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ABSTRACT

Objective: Develop and evaluate a technical guide as an instructional and didactic resource to assist health professionals in managing acquired syphilis and gestational syphilis cases. **Method:** A methodological study with a quantitative approach. A technical guide was developed and submitted to a committee of experts. The responses were analyzed considering a minimum agreement of 80% for the criteria and descriptive statistics. **Results:** The "Technical Guide for the Management of Acquired Syphilis and Gestational Syphilis Cases" was created using PowerPoint, has 150 pages, and was made available in Portable Document Format. It was divided into sections covering the identification, care, reporting, and monitoring of acquired and gestational syphilis cases. In addition, two fictitious clinical cases were included to apply the knowledge. The committee consisted of 5 nurses (83.3%) and 1 physician (16.7%), all practicing in Rio Grande do Sul, with a predominance of female members (83.3%). The mean age of the participants was 45.83±7.22 years, and the mean work experience was 7.3 (3.8-17) years. The agreement was 100% for all criteria. **Conclusions:** The guide was an important instructional and didactic resource, providing a quick, objective reference for healthcare professionals.
Descriptors: Syphilis; Pregnancy; Health Personnel; Informative Guide; Evaluation Study.

RESUMO

Objetivo: Elaborar e avaliar um guia técnico como recurso instrucional e didático para auxiliar profissionais de saúde na gestão de casos de sífilis adquirida e sífilis gestacional. **Método:** Estudo metodológico, com abordagem quantitativa, que elaborou o guia técnico e submeteu à avaliação de um Comitê de Especialistas. As respostas foram analisadas pela concordância dos critérios de no mínimo 80% e estatística descritiva. **Resultados:** O "Guia Técnico para Gestão de Casos de Sífilis Adquirida e Sífilis Gestacional" foi elaborado no editor *Power Point*, contendo 150 páginas, disponibilizado como *Portable Document Format* (PDF). Ele foi estruturado em seções que incluem a abordagem da identificação, assistência, notificação e monitoramento da sífilis adquirida e gestacional, além de conter dois casos clínicos fictícios para praticar o conhecimento. O Comitê de Especialistas foi composto por 5 (83,3%) enfermeiros e 1 (16,7%) médico, todos atuando no Rio Grande do Sul, prevalecendo o sexo feminino 5 (83,3%), a idade média de 45,83±7,22 anos e a mediana de 7,3(3,8-17) anos de trabalho. A concordância foi plena (100%) em todos os critérios avaliados. **Conclusão:** O guia revelou-se um importante recurso instrucional e didático para consulta rápida e objetiva dos profissionais de saúde.
Descritores: Sífilis; Gravidez; Pessoal de Saúde; Guia Informativo; Estudo de Avaliação.

INTRODUCTION

Syphilis is an infectious disease primarily transmitted through sexual intercourse, classified as a Sexually Transmitted Infection (STI), with consequences at both the individual and collective levels. Its etiologic agent is the bacterium Treponema pallidum, and, in addition to sexual transmission, it can be transmitted vertically from mother to fetus during pregnancy. The disease occurs in different forms, including acquired, gestational and congenital syphilis, which are notifiable[1].

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Most cases are asymptomatic, contributing to the spread of transmission. Furthermore, if left untreated, syphilis can develop severe systemic complications several years after the initial infection. The consequences can be even more concerning during pregnancy, including miscarriage, premature birth, low birth weight, and stillbirth[2]. Syphilis is classified into stages, including early syphilis (which includes primary, secondary, and early latent - up to one year of development) and late syphilis (which includes late latent - more than one year of development - and tertiary stages)[2]. Each stage requires specific approaches and recommendations for identification, care, reporting, and appropriate surveillance of cases. This differentiation is essential to ensure adequate care of patients with syphilis and to enable the adoption of preventive and therapeutic measures at each stage of the disease[3].

The diagnosis of syphilis requires a correlation between a detailed medical history, attention to clinical signs, laboratory tests, history of previous infections, and investigation of recent exposure. Both diagnosis and treatment are free of charge in public health services in Brazil, requiring skilled professionals to manage the process until the cure[3].

The syphilis epidemic is a global event, and according to the latest Epidemiological Bulletin of the Ministry of Health, published in 2022, Brazil achieved the highest detection rates of acquired syphilis and syphilis in pregnant women in the last decade, reaching 78.5 cases per 100,000 inhabitants and 27.1 cases per 1,000 live births, respectively[4].

Healthcare professionals, especially nurses, play a fundamental role in syphilis care. However, studies show that despite the various documents offered by the Department of Chronic Diseases and Sexually Transmitted Infections (DCCI), the lack of preparedness of professionals on this issue persists[5]. In addition, another study points out that there is an obstacle in the management of syphilis due to the lack of training for nurses to identify screening and confirmatory tests for diagnosis, the stages of recent syphilis, the drug of choice for treatment in pregnant women, as well as the difficulty in recognizing syphilis as a notifiable disease[6].

Therefore, the present article aims to develop and evaluate a technical guide as an instructional and didactic resource to assist health professionals in managing acquired syphilis and gestational syphilis cases.

METHOD

This is a methodological study with a quantitative approach, aiming to provide clear and robust information about data acquisition and organization techniques for the development, validation, and evaluation of effective research instruments, with the goal of future utilization by the user[7]. The Research Ethics Committee approved the study under approval number 4.398.536.

The contents of the guide were developed based on references from the Ministry of Health, the National Health Surveillance Agency (ANVISA), the State Health Department of Rio Grande do Sul, the Municipal Health Department of Porto Alegre, Rio Grande do Sul (RS), and also on updated scientific literature. To create the guide, text editing tools such as Word, and presentation tools like PowerPoint, both from Microsoft, were utilized. Symbols and figures were obtained from accessible, royalty-free websites, like Flaticon and Rawpixel. Additionally, a color palette was chosen to provide a consistent, coherent, and appealing visual identity to the products generated by this study.

Data collection took place between July and August 2021. For the selection of the Expert Committee that evaluated the guide, invitations were sent to ten healthcare professionals (physicians and nurses) who had previously participated in a study assessing the challenges and difficulties faced by professionals in identifying, providing care, notifying, and monitoring cases of acquired and gestational syphilis. These professionals expressed interest in participating in the subsequent stages of the research. The questionnaire used in the study contained 74 questions and was completed by 20 professionals, including 17 (85%) nurses and 3 (15%) physicians working in Primary Health Care (PHC) or Specialized Services in Sexually Transmitted Infections (SEIST). To ensure the representativeness of different professional categories and roles, four individuals working in SEIST (two physicians and two nurses) and one physician working in PHC were automatically included. The remaining participants were all nurses working in PHC. Subsequently, five nurses were randomly drawn using the "Sorteador" application (http://sorteador.com) to represent the PHC category.

The first draw took place in July 2021, selecting five nurses from PHC, and invitations were sent via email, with a 15-day response deadline. At this point, three nurses confirmed their participation in the evaluation of the guide; however, a

minimum of six experts was required. Therefore, a second draw was conducted 20 days after the previous one, under the same conditions, and three more professionals accepted to participate, totaling six experts who evaluated the guide.

For data collection, the tool named "Validation of the Technical-Scientific Content Guide and Clinical Cases", created on *Google Forms*, was used. This tool included 16 questions divided into three main domains: A – Technical-scientific content; B – Clinical cases of acquired and gestational syphilis; and C – Sociodemographic and employment characterization of the specialists. The variables that comprised the content evaluation instrument in the first dimension were: overall presentation, content, language, organization, learning, objectivity in the management of acquired and gestational syphilis cases, and observations or recommendations related to the content. In the evaluation of clinical cases, in the second section, the management of acquired and gestational syphilis cases, along with the related recommendations, were considered. To characterize the specialists, the following variables were collected: professional category, sex, age, municipality and state, and length of experience in PHC or SEIST.

A Likert scale with five degrees was adopted to assess agreement, ranging from one to five. The evaluation parameters established were: 5) fully agree; 4) partially agree; 3) neither agree nor disagree; 2) partially disagree; and 1) fully disagree. Additional questions were included for comments, observations, or tips[7]. The agreement was calculated using the Content Validity Index (CVI), which is considered acceptable when reaching at least 80%. The CVI calculation is performed by dividing the sum of responses 4 and 5 by the total sum of all responses[8].

The collected data were recorded on *Google Sheets*, available on *Google Drive*, and organized by name and numerical labels for professional identification. For example, "E1" represents the first nurse, "E2" the second nurse, "M1" the first physician, and so on. The obtained information was presented in textual and tabular format, using absolute and relative frequencies to better visualize and understand the results. The analysis of the information included coding to identify inconsistencies and incoherencies, enabling the application of relevant statistical tests to the study[9-10].

RESULTS

The technical guide (Figure 1) was created using PowerPoint 2016, developed by Microsoft, in a widescreen 16:9 format, with 150 pages. Each page measures 33.87 × 19.05 centimeters (cm), and the file was provided in Portable Document Format (PDF) version 1.7, with a total size of 5.30 megabytes (MB).

The material is responsive and adaptable, adjusting to different screen sizes for viewing. Its design was created by the authors following the principles of RGB (red, green, blue) colorimetry and using the Adobe Color palette. Primary colors such as light purple, cherry red, light blue, light green, and light yellow were chosen. In addition, secondary colors such as gray, black, white, dark blue, and purple were added to contrast with the primary colors.

The icons and images, taken from open-access websites, were chosen to illustrate and enhance the content of the guide and provide a better understanding of the topics covered.

It has been organized into several sections including the approach to identification, care, reporting, and monitoring of acquired and gestational syphilis cases. It includes a presentation chapter, clinical cases, references, and credits (Figure 2).

The technical guide comprises a first section titled "Presentation", which addresses topics related to safe sex and combined prevention. This section provides information about the screening of syphilis and other STIs, how to approach the topic of sexuality with an individual, concepts of safe sex, the adoption of appropriate protective measures, and the development of communication skills to assess a patient's risk.

The second topic is titled "Identification" and is subdivided into two parts: "Genital Ulcer Syndrome" and "Syphilis". Under the subtopic "Genital Ulcer Syndrome", aspects related to the definition of this syndrome, which includes various conditions presenting genital ulcers as a symptom, are addressed. In the subtopic "Syphilis", several aspects of the disease are discussed, ranging from its definition and clinical classification to information about transmission, susceptibility, vulnerability, immunity, diagnosis, and peculiarities in special populations.

In the "Assistance" section, guidelines and directions for treating acquired syphilis and gestational syphilis are presented. The focus is on appropriate and individualized therapeutic approaches, considering the specific needs of each patient

Figure 1 – Title page of the Technical Guide for the Management of Acquired Syphilis and Gestational Syphilis Cases. Porto Alegre, RS, Brazil, 2023

Figure 2 - Title Page of Each Chapter of the Technical Guide. Porto Alegre, RS, Brazil, 2023

attended by healthcare professionals. Aspects related to the use of Benzathine Penicillin G (BPG) are discussed, including its administration, the occurrence of the Jarisch-Herxheimer reaction, and the safety and efficacy of this medication. The guide also explores the importance of penicillin sensitivity testing, the treatment of pregnant individuals, the treatment of sexual partners, and the promotion of combined prevention strategies. The topic "Notification Records" addresses the importance of adequate reporting for understanding the epidemiological scenarios of syphilis. It is structured into four main points: definition of notification criteria for acquired, gestational, and congenital syphilis cases; objectives of conducting epidemiological surveillance; compulsory notification of syphilis; and strategies for disease prevention and control.

In the "Monitoring" section, aspects related to the follow-up and monitoring of syphilis cases are addressed. It consists of four main points: the individual's immune response to syphilis treatment; titer and dilution of samples; retreatment criteria: reactivation or reinfection; and definition, treatment, and monitoring of neurosyphilis. Finally, the "Clinical Cases" section presents practical examples of acquired syphilis and gestational syphilis cases. These fictitious cases were developed based on real situations encountered in daily health services in PHC and SEIST. At the end of the technical guide, an answer key with feedback is provided, enabling review and verification of the given responses, and clarification of doubts. It is important to note that the guide was developed with clickable buttons in PDF format, allowing professionals to quickly access topics of

interest, ensuring a more intuitive and facilitated navigation. Thus, it is possible to advance to the next page, return to the previous page, or return to the table of contents to select another topic.
Regarding evaluating the technical guide, the Expert Committee comprised six professionals, with 5 (83.3%) nurses and 1 (16.7%) physician. Most participants were female, representing 5 (83.3%) of the specialists, and the observed average age was 45.83 ± 7.22 years. All committee participants worked in services located in Rio Grande do Sul, with half coming from Porto Alegre and the other half from Canoas, Viamão, and Uruguaiana. The median service length was observed at 7.33 (3.87-17) years.
The guide obtained complete agreement (CVI = 1.00) from the specialists regarding all evaluated items, including the technical-scientific content, fictional cases, and the overall assessment, as shown in Table 1. Additionally, the specialists were able to use the material for the simulation of syphilis clinical cases.
The experts pointed out that "the return options minimized the other alternatives" (E3) and suggested "reducing the amount of text, replacing it with mind maps or algorithms" (E5). In addition, one of the specialists described the content as "excellent material, easy to read and understand. Very good!" (E5). Despite these suggestions, it was decided to keep the text format, considering that access through specific mobile devices or physical printing of the material would reduce design scale, affecting the presentation by requiring scroll bars or omitting important information. In addition, access to the product through mobile devices has been planned, considering its development in a widescreen (horizontal) format.
The Technical Guide for the Management of Acquired and Gestational Syphilis Cases was officially registered with the Brazilian Book Chamber and received the International Standard Book Number (ISBN) 978-65-00-32462-4, and a corresponding barcode. The copyright was also registered under DA-2021-014428, and the guide is licensed under the Creative Commons Attribution 4.0 International License (CC BY-NC-SA). This license allows others to distribute, adapt, and build upon the material in any medium or format, as long as it is for non-commercial purposes and the author is credited.
The guide can be accessed at https://bit.ly/GuiaTrateSifilis or the Virtual Library of Primary Health Care of Porto Alegre. Currently, the guide has more than 300 hits on the web.

Table 1 - Content Validation Index of the Technical Guide for the Management of Acquired Syphilis and Gestational Syphilis Cases. Porto Alegre, RS, Brazil, 2023 (n=6)

Variables	CVI
Overall presentation contributes to qualified practice	1,00
Content clarifies doubts and provides reflection	1,00
The language of the content is appropriate	1,00
Contents are presented in a logical, objective, appropriate sequence	1,00
Content sparks interest, stimulates learning, and contributes to knowledge	1,00
Identification, assistance, reporting, recording, and monitoring were clear and objective	
Acquired syphilis	1,00
Gestational syphilis	1,00
The clinical case simulation offered information needed for decision-making in a clear, objective way, in line with their daily practice	
Acquired syphilis	1,00
Gestational syphilis	1,00
Overall content validation index	1,00

DISCUSSION

Healthcare professionals must maintain a high index of clinical suspicion to diagnose syphilis, test asymptomatic patients, and treat and monitor all cases, including their sexual partners, to control the syphilis epidemic. However, studies show that health services face difficulty screening, tracking, and diagnosing syphilis. This can be due to the lack of necessary testing requests, late initiation of prenatal care by pregnant women, and inadequate treatment or reinfection by partners. Together, these weaknesses contribute to the high rates of syphilis reinfection and vertical transmission[11].
Identifying the stages of syphilis is also a challenge for professionals, as shown in a study where 58.7% of participants could not correctly define their differences. Distinguishing between stages is extremely important because treatment varies according to the stage of the disease. In addition, the same study showed that some of the

professionals interviewed could not distinguish between treponemal tests (which detect specific antibodies to Treponema pallidum antigens) and non-treponemal tests (which detect non-specific antibodies to the bacteria) recommended by the Ministry of Health[12].

It is crucial to emphasize that health professionals should be adequately trained to provide effective reception and qualified listening to patients, thus establishing a bond with users. When effectively established, this bond plays a powerful strategic role in transforming daily health practices[13]. Inadequate attention to each individual's needs, subjectivities, and vulnerabilities hinders both understanding of the scope of syphilis treatment and treatment adherence[14-15].

Another important factor is underreporting, which is a recurrent problem in Brazil. The lack of reporting, combined with the unsatisfactory quality of records, hinders the development of effective disease control strategies since the problem's true magnitude is unknown[5]. A survey showed that 4.7% of participating healthcare professionals did not recognize congenital syphilis as a disease requiring reporting. This finding is worrisome because it has been included in the National List of Diseases, Conditions, and Public Health Events to be reported since 1986, and yet some professionals are not aware of this obligation, which favors the underreporting of the disease[12].

In the same vein, a study of the knowledge of syphilis management among professionals providing antenatal care in primary care settings found that they still have practices that contradict protocols, such as inadequate treatment, which contribute to the ongoing transmission of the infection. Thus, health education plays a fundamental and indispensable role in the provision of care since the provision of relevant information, the identification and active search for sexual partners, and the adoption of preventive measures are essential strategies that, together with patient empowerment, can contribute to the reduction of syphilis[12].

Therefore, tools for professional improvement, such as technical guides, stand out as opportunities to contribute to the continuous education of health professionals in the management of syphilis. A study conducted in Goiânia showed positive results after continuous training action among professionals regarding their understanding of the disease, allowing the transformation of their care practices for a rapid response to syphilis and more qualified care in the prevention, support, surveillance, and treatment of the disease[16].

Other studies dealing with primary care nursing in the context of syphilis management show significant interest and search by professionals for specialization programs and knowledge updates. As a result, these studies show the existence of a contingent of motivated and committed nurses willing to improve and deepen their professional practice[17-18]. In a study conducted with Family Health Strategy (FHS) teams, most professionals observed good adherence to improvement tools and ongoing health education. In addition, over than 95% of participants reported having received specific training and/or capacity building identifying syphilis during pregnancy in the last five years[19].

Finally, based on the results of the current study, the technical guide was subjected to an evaluation phase by a committee of experts to improve and enhance the educational resource. Evaluation of the content of educational materials is a crucial step before their implementation in nursing practice. In this study, pre-established criteria were used to evaluate the quality of the guide, and a CVI higher than 80% was obtained, a result also found in other studies that emphasize the quality of their educational tools as a way to fill gaps in their work practice[20-21].

This study had some limitations, mainly related to the discrepancy between the estimated sample and the sample involved since the number of participants was lower than initially planned. This situation may have been caused by the COVID-19 pandemic, which led to healthcare workers' physical and emotional exhaustion. In addition, the study did not include the participation of dental professionals to clarify their specific needs in the care of users with syphilis. In addition, it is not possible to generalize the results of this study since there was no geographical representation of professionals from all over the country, and the location of the study was mainly concentrated in the southern region of Brazil.

CONCLUSION

The present study allowed the development and evaluation of a technical guide for managing acquired and gestational syphilis based on references from public organizations and updated literature. Thus, the results demonstrate that the training and updating of professionals through continuous and permanent health education play a fundamental role in combating the spread of syphilis.

It is essential to make health professionals aware of their strengths and challenges so that they can reflect on their professional practice. This reflection identifies areas for improvement and information not yet fully understood by professionals to provide quality care to people with acquired or gestational syphilis.

Using resources such as the guide developed in this study can contribute to the technical and scientific improvement and updating of health professionals, stimulating the development of skills in syphilis management. The guide provides a solid foundation for providing appropriate care to users with syphilis, recording complete and quality information in patient records, correctly completing notification forms, and conducting effective surveillance of active cases. In this way, its use contributes to a better understanding of the real epidemiological conditions of syphilis and helps to adopt more effective measures to achieve disease control and cure.

The practical use of the guide by the expert committee in activities such as identification, support, registration, and surveillance of clinical cases allowed professionals to apply it directly and concretely. This experience highlights the effectiveness and relevance of the guide as a support tool for health professionals dealing with syphilis cases in their daily work.

Based on the CVI obtained, the guideline achieved excellent results in all items evaluated by experts. This reflects its quality as an instructional and didactic tool that provides a quick and practical reference to assist healthcare professionals in caring for individuals with acquired or gestational syphilis.

*Paper extracted from the master's dissertation "Prototype mobile application for managing cases of acquired syphilis and gestational syphilis", presented to the Federal University of Health Sciences of Porto Alegre, Porto Alegre, RS, Brasil.

CONFLICT OF INTERESTS

The authors have declared that there is no conflict of interests.

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