Factors related to the loss of follow-up in pregnant women with syphilis: an integrative review

Fatores relacionados à perda do seguimento de gestantes com sífilis: revisão integrativa

ABSTRACT

Objective: to analyze factors related to the loss of follow-up in pregnant women with syphilis. Methods: Integrative review developed in six databases. The PICo strategy was used to elaborate the guiding question and select the descriptors and keywords through Boolean operators. 20 articles were included in the final sample. Results: the factors related to the loss of follow-up in pregnant women with syphilis were: age; schooling; diagnosis and late onset of treatment; prenatal failure and low adherence of the partner to treatment. In addition, the lack of knowledge of professionals about the management of syphilis and the failures in counseling were found to be factors inherent to the loss of follow-up. Conclusion: pregnant women under 20, low schooling, stigma, fear, non-treatment of partnership, inadequate treatment and lack of professional training and guidance to pregnant women were associated with the loss of follow-up of pregnant women with syphilis.

Descriptors: Syphilis; Lost to Follow-Up; Pregnant Women; Prenatal Care; Review.

RESUMO

Objetivo: analisar os fatores relacionados à perda do seguimento de gestantes com sífilis. Métodos: revisão integrativa desenvolvida em seis bases de dados. A estratégia PICo foi utilizada para elaborar a questão norteadora e selecionar os descritores e as palavras-chave por meio de operadores booleanos. Foram incluídos 20 artigos na amostragem final. Resultados: os fatores relacionados à perda do seguimento de gestantes com sífilis constatados foram: idade; escolaridade; diagnóstico e início tardio do tratamento; falhas no pré-natal e baixa adesão do parceiro ao tratamento. Além disso, o déficit de conhecimento dos profissionais acerca do manejo da sífilis e as falhas no aconselhamento revelaram-se fatores inerentes à perda do seguimento. Conclusão: gestantes menores de 20 anos, baixa escolaridade, estigma, medo, o não tratamento da parceria, o tratamento inadequado e a falta de capacitação profissional e de orientações às gestantes estiveram associadas à perda de seguimento de gestantes com sífilis.

Descritores: Sífilis; Perda de Seguimento; Gestantes; Cuidado Pré-Natal; Revisão.
Introduction

Syphilis, a Sexually Transmitted Infection (STI), of bacterial etiology, caused by Treponema pallidum, can also be transmitted vertically, by blood transfusion and also by direct contact with contaminated blood, which contributes to high prevalence and difficult control in several populations in the world\(^{(1)}\).

On the international scene, the prevalence of syphilis in pregnant women of up to 2.9% in sub-Saharan Africa has been identified\(^{(2)}\). In Brazil, the detection rate for every thousand live births has increased from 3.5 to 21.4, a situation that can cause serious consequences for the newborn, such as congenital malformations, natimortality, prematurity and death\(^{(1)}\).

Thus, the problem of syphilis is a cause of concern in the world due to the high vertical transmission and mortality. A North American study with 6,383 cases of congenital syphilis identified the morbidity of 33.6% and the mortality in 6.5% of the cases. And, of this total, 89.0% of the mothers were untreated or were inadequately treated\(^{(3)}\). In Brazil, from 2008 to 2018, there was an increase in infant mortality by congenital syphilis from 1.9 to 8.2/100 thousand live births\(^{(3)}\), which suggests the need for strategic and effective actions to tackle the problem.

Low schooling of the mother and her ethnicity, late arrival of the pregnant woman at the beginning of prenatal care, insufficient number of appointments, and failure to perform diagnostic tests are factors associated with congenital syphilis\(^{(4)}\). Add to this the late diagnosis and the non-treatment or inadequate treatment of the pregnant woman\(^{(5)}\), which can influence the loss of follow-up in pregnant women with syphilis and contribute to high rates of vertical transmission.

In this sense, identifying studies that address factors related to the loss of syphilis follow-up in pregnant women is fundamental, since evidence-based practice increases the visibility of the problem in order to favor the implementation of public policies, with effective protocols to assist pregnant women with syphilis, aiming at the reduction of syphilis in pregnant women and congenital syphilis, in addition to noting possible gaps in knowledge on the subject, making it possible to detect, understand and draw up action plans aimed at generating new knowledge and a maternal-infant care practice based on an effective and efficient scope of knowledge.

The objective of this study, considering the above mentioned problem, was to analyze the factors related to the loss of follow-up of pregnant women with syphilis.

Methods

Integrative review structured in six phases\(^{(6)}\). In the first one, the topic was defined (loss of follow-up of pregnant women with syphilis) and the research question was constructed using the acronym PIcO\(^{(7)}\), P being the population (pregnant women), I the phenomenon of interest (factors related to loss of follow-up) and Co the context (syphilis). Thus, we have: “What factors are related to the loss of follow-up in pregnant women with syphilis?”.

The second phase consisted of sampling or literature search, the third was the selection of studies, the fourth, extraction of data, the fifth, the evaluation and analysis of results, and in the sixth phase consisted of the synthesis of findings\(^{(6)}\).

Indexed primary studies, in English, Portuguese or Spanish, were included for the period 2011 to 2019 and that answered the guiding question. The time clipping was based on the establishment of the Stork Network, a political framework that guaranteed integral and humanized assistance to women in the gravity-purple period\(^{(8)}\).

The database searches were performed in September 2020 using the Nursing Database (BDENF), the Latin American and Caribbean Health Sciences Literature Bibliographic Index (LILACS), via Virtual Health Library, the Medical Literature Analysis and Retrieval System online (MEDLINE via PubMed), Web of Science, Scopus and Cumulative Index to Nursing and Allied Health Literature (CINAHL-Ebsco).
The descriptors and keywords were selected through research in the Health Science Descriptors (DeCS), Medical Subject Headings (MeSH) and List of Headings of CINAHL Information Systems. The search expressions were combined with “OR” and “AND”. Different search expressions were performed due to the peculiarities of the bases and the index. The syntax of the searches is described in Figure 1.

| Descriptors in Health Sciences                  |
|-----------------------------------------------|
| **P**                                        |
| D | Pregnant women                              |
| KW | Pregnant women; Pregnant woman; Parturient women; Parturients |
| **I**                                        |
| D | Loss of Follow-up; Prenatal Care            |
| KW | Loss of Follow-up; Prenatal Care            |
| **Co**                                      |
| D | Syphilis                                    |
| KW | Syphilis                                    |

| LILACS and BDENF | (tw:((mh:(Pregnant women)) OR (tw:(Pregnant women)) OR (tw:("Pregnant woman ")) OR (tw:(Pregnant woman))) OR (tw:(Pregnant)) OR (tw:("Pregnant woman ")) OR (tw:(Parturient)) OR (tw:(Parturients))) AND (tw:(mh:("Loss of Follow-up")) OR (tw:("Loss of Follow-up")) OR (tw:(("Prenatal Care"))) OR (tw:(("Prenatal Care"))))) AND (tw:((mh:Syphilis)) OR (tw:Syphilis))) |

| **Medical Subject Headings**                  |
|-----------------------------------------------|
| **P**                                        |
| D | Pregnant woman                              |
| KW | Women, pregnant; pregnant woman; woman, pregnant |
| **I**                                        |
| D | Lost to Follow-Up; Prenatal Care            |
| KW | Lost to Follow-Up; Prenatal Care            |
| **Co**                                      |
| D | Syphilis                                    |
| KW | Syphilis                                    |

| MEDLINE | (((("pregnant woman"[MeSH Terms]) OR (pregnant woman[Text Word])) OR ("women, pregnant"[Text Word])) OR ("pregnant woman"[Text Word])) OR ("woman, pregnant"[Text Word])) AND ((("lost to follow up"[MeSH Terms]) OR ("lost to follow up"[Text Word])) OR ("prenatal care"[MeSH Terms]) OR ("prenatal care"[Text Word])) AND ("syphilis"[MeSH Terms]) OR ("syphilis"[Text Word])) |
| CINAHL | ("pregnant woman" OR "women, pregnant" OR "pregnant woman") AND ("Lost to Follow-Up" OR (MH "Prenatal Care") OR ("Prenatal Care") ) AND ( (MH "Syphilis") OR "Syphilis") |
| Web of Science | (TS=(("pregnant woman") OR TS=("women, pregnant") OR TS=("pregnant woman") OR TS="("woman, pregnant") AND (TS="("Lost to Follow-Up") OR TS="("Prenatal Care") AND TS="(Syphilis)) |
| SCOPUS | ((TITLE-ABS-KEY ("pregnant woman") OR TITLE-ABS-KEY ("women, pregnant")) AND ((TITLE-ABS-KEY ("Lost to Follow-Up") OR TITLE-ABS-KEY ("Prenatal Care") ) AND ((TITLE-ABS-KEY ( syphilis)) |

*D: descriptor; KW: keyword*

**Figure 1 –** Descriptors, keywords and search expressions used to retrieve the articles. Teresina, PI, Brazil, 2020

The productions were accessed from the Periodical Portal of the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES). In order to reduce likely errors or biases in the assessment of studies, the selection was developed by two independent reviewers in two stages. In the first, the title and abstract were read, and in the second, the articles were read in their entirety. In cases of disagreement between the two reviewers, there was discussion to reach a consensus.

The search resulted in 1,010 productions. Duplicate studies were counted only once, 68 of which were removed by duplicates. First, 942 articles were selected for title and abstract reading. Using the inclusion criteria, 880 studies were discarded (59 were literature reviews, 580 did not answer the guiding question and 242 were not within the time cutout). In the second stage, 62 articles were eligible for full text reading, being excluded 42 productions, since they did not answer the guiding question of the review, remaining 20 articles, which composed the sample and were analyzed.

The data was extracted through the use of our own tool, containing information about the main author, journal, year of publication, level of evidence, design, and location of the study, sample and main results.
The level of evidence was classified according to the model below: Level I - systematic review or meta-analysis of randomized controlled trials; Level II - well-designed randomized controlled trials; Level III - well-designed non-randomized controlled trials; Level IV - well-designed cohort and case-control studies; Level V - systematic review of descriptive and qualitative studies; Level VI - descriptive or qualitative study and Level VII - opinion of authorities and/or reports. The data was analyzed and synthesized in a descriptive way through semantic similarity. The flowchart of the selected articles is described in Figure 2.

---

**Results**

We identified 1,010 productions in the indexed databases and bibliographic index, and the sample consisted of 20 studies.

It is observed that the periodicals Epidemiology and health services and Sexually transmitted diseases presented two publications each. The year 2017 was the most prevalent, with six studies. The predominant type of study was the cross-sectional one in 14 productions, being that 18 presented level of evidence VI. Brazil was the country with the largest number of studies on the subject, with a total of ten studies (Figure 3).

Non-treatment of the partner, inadequate treatment, failure to perform serological tests and diagnosis, late onset and/or failure to perform prenatal care were the main causes of loss of follow-up in pregnant women with syphilis.

In addition, pregnant women under 20 years of age, with low schooling, low knowledge of pregnant women about STIs, lack of knowledge in the manage-

---

**Figure 2** – Flowchart of selected articles. Teresina, PI, Brazil, 2020
Factors related to the loss of follow-up in pregnant women with syphilis: an integrative review

The lack of orientation of doctors regarding the syphilis test as well as stigma related to syphilis, are factors associated with loss of follow-up in pregnant women with syphilis.

| Main author, magazine/year | Outline and Level of Evidence | Location and Sample | Main results |
|-----------------------------|-------------------------------|---------------------|--------------|
| Tridapalli et al. Arch Dis Child Fetal Neonatol/2012 | Cross-sectional study, VI | Italy (303) | Significant factors were lack of prenatal screening and inadequate maternal treatment |
| Domingues et al. Rev Bras Saúde Matern Infant/2012 | Cross-sectional study, VI | Brazil-RJ (2,353) | Failures in counseling in carrying out serological examinations of pregnant women and in approaching partners |
| Domingues et al. Rev Saúde Pública/2013 | Cross-sectional study, VI | Brazil-RJ (46) | Late onset prenatal care, failure to make the diagnosis in pregnancy and lack of partnership treatment |
| Nonato et al. Epidemiol Serv Saúde/2015 | Historical cohort IV | Brazil-MG (353) | Under 20 years of age, antenatal late start, absence of VDRL and low schooling |
| Gasito; Pérez, Rev Cuhana Invest Bioméd/2015 | Cross-sectional study, VI | Equador-Guayaquil (71) | Of the 18 pregnant women with syphilis, only three were treated |
| García et al. Sex Transm Dis/2015 | Cross-sectional study, VI | Peru (114) | Out of 144 women, 46 (31.9%) had concomitant partner-patient treatment. |
| Suto et al. Rev Enferm Atenção Saúde/2016 | Cross-sectional study, VI | Brazil-BA (6) | Inadequate treatment in 2/3, lack of professional training and low prenatal coverage. |
| Lafetá et al. Rev Bras Epidemiol/2016 | Descriptive/ retrospective study, VI | Brazil-MG (214) | Late diagnosis, after delivery, and inadequate treatments |
| Cavalcante et al. Epidemiol Serv Saúde/2017 | Descriptive study VI | Brasil-TO (375) | Failures in the diagnosis and monitoring of pregnant women, children and partners |
| Moreira et al. Cogitare Enferm/2017 | Descriptive study VI | Brazil-RO (326) | Failure in early diagnosis of gestational syphilis |
| Barbosa et al. Rev Enferm UFPE on line/2017 | Descriptive study VI | Brazil-PI (388) | Fifteen percent of pregnant women without prenatal care and inadequate treatment of sexual partners |
| Nkamba et al. BMC Health Serv Res/2017 | Estudo transversal VI | Zambia and Democratic Republic of Congo (112) | Lack of knowledge and training, reservations about same day screening and treatment, lack of treatment and stigma |
| Garcés et al. Biomédica/2017 | Estudo transversal VI | Colombia (306) | Knowledge deficits in gestational syphilis management were detected among professionals |
| Silva-Chávarro; Bois-Melli, Rev Mex Pediatr/2017 | Case-control study IV | Argentina (206) | Age equal to 18 years and number of consultations equal to five were significant risk factors for treatment failure |
| Gunha et al. Arq Catarin Med/2018 | Cross-sectional study, VI | Brazil-SC (117) | Only 30.4% of partners received treatment |
| Slutsker et al. Morb Mortal Wkly Rep/2018 | Cross-sectional study, VI | USA-New York (578) | Failure to perform prenatal and syphilis testing before 45 days of delivery, as well as syphilis infection after the first examination |
| Kanai et al. J Compilation/2018 | Cross-sectional study, VI | Japan (9) | The lack of orientation of doctors regarding the syphilis test and the low knowledge of pregnant women about sexually transmitted infections |
| DiOrio et al. Sex Transm Dis/2018 | Cross-sectional study, VI | USA-Indiana (23) | Failure to adhere to prenatal care |
| Silva Neto et al Rev Soc Bras Med Trop/2018 | Cross-sectional study, VI | Brazil-SP (149) | Low quality prenatal care is a key factor for high rates of congenital syphilis in Itapeva |
| Nakku-Joloba et al. BMC Infect Dis/2019 | Cross-sectional study, VI | Uganda (54) | Low partner compliance associated with limited knowledge, fear of injection and lack of communication skills |

Figure 3 – Summary of studies included (n=20). Teresina, PI, Brazil, 2020
Discussion

The limitations of this review are related to the low level of evidence from the selected studies and the reduced number of studies on factors related to loss of follow-up in pregnant women with syphilis. Gaps in syphilis coping strategies in pregnant women were noted, mainly related to attracting sexual partners. This reinforces the need for the engagement of professionals, especially of the Primary Care, with educational actions, quality prenatal care and active search, both of the pregnant woman and the partnership, in order to ensure the effective treatment of syphilis in pregnancy.

However, the data from this research has the potential to contribute to the development and/or improvement of actions aimed at the management of gestational syphilis with a focus on professional training and factors that contribute to the loss of follow-up.

In this study, young pregnant women and those with low schooling with syphilis presented association with the loss of follow-up. Research conducted in Tocantins corroborates these findings. It is suggested that socio-demographic conditions should be evaluated in the approach to young women of reproductive age, as well as the active and timely search for women to begin prenatal care, at the ideal time, in the logistics of the principles of Primary Care.

Pregnant women with a late onset and failure to perform prenatal care show greater loss of follow-up to syphilis treatment. Difficulty in accessing health services and low prenatal adherence were a reality identified in New York from 2010 to 2016, reinforcing the findings of this study. Thus, it is necessary to promote greater access of pregnant women to health care networks, focusing on Primary Care, the main gateway to the Unified Health System, following the principles of territoriality and longitudinality, in addition to actively seeking out the absentees for greater adherence to maternal care.

The non-performance of serological tests and diagnosis was evidenced in this study, corroborating a research carried out in Mato Grosso do Sul, Brazil, where the poor quality of prenatal care contributed to the high prevalence of syphilis, resulting in low adherence to follow-up. Authors concluded that timely syphilis screening in the first and third trimesters of pregnancy contributed to the non-occurrence of congenital syphilis. There is an urgent need to improve the quality of assistance, with reinforcement of the increase of material inputs, professional qualification and articulation between the different points of the support networks for diagnosis, treatment and follow-up.

It is important to point out that pregnant women who are not treated properly and the failure to treat the partnership are associated with the loss of follow-up. Such a situation is common in several Brazilian regions and in other countries, such as Peru and Argentina, showing the low adherence of the pregnant woman and the partnership to the treatment, the majority had less than five consultations and this was considered a risk factor for failures in the treatment of syphilis.

The importance of raising awareness among pregnant women and partners about the need for proper treatment of syphilis during antenatal visits is reinforced, as well as providing guidance on the consequences of not treating these infections for maternal and child health. Furthermore, professional training is essential because it allows the correct treatment of gestational syphilis, taking into consideration the clinical classification of the disease, which contributes to the reduction of the transmission chain.

In this investigation, the knowledge deficit in syphilis management by professionals and the lack of training were present in the loss of follow-up. Research conducted in Japan corroborates these findings by identifying that the lack of orientation regarding the syphilis test after the first trimester, the lack of adequate knowledge of the professional to treat gestational syphilis, and the lack of awareness of pregnant women regarding STIs contribute to the loss of
Factors related to the loss of follow-up in pregnant women with syphilis: an integrative review

follow-up\(^{(25)}\). A study conducted in Zambia and the Democratic Republic of Congo identified difficulties in the diagnosis and treatment of syphilis, including the lack of knowledge and training of professionals on the evolution of best practices in screening with diagnostic tests and early treatment\(^{(20)}\). This reinforces the need to invest in continuing education and enrolment in the care field in order to qualify assistance and have practices based on the best scientific evidence.

Pregnant women have low knowledge and stigma in relation to syphilis, which compromises the treatment. International study corroborates these findings\(^{(20)}\). It is necessary to stimulate the creation of therapeutic groups with pregnant women to better link and address the different factors that influence the clinical follow-up of syphilis cases with emphasis on the health education process.

In view of the above, it is clear that the loss of follow-up in pregnant women with syphilis is a worldwide problem, with different proportions, being an important factor for the high number of cases of vertical transmission. Studies, with high levels of evidence, may be important for a better visibility of the problem, providing public policies for maternal-infant integral health. In addition, research of this nature should be expanded, in different social, environmental and cultural contexts, in order to create strategies that ensure greater adherence of pregnant women with syphilis, as well as the permanent and continued qualification of health professionals for care with good clinical and scientific practices.

**Conclusion**

Pregnant women under 20 years of age, low schooling, little knowledge about sexually transmitted infections, stigma related to syphilis, limited knowledge, fear and non-treatment of the sexual partner, inadequate treatment, as well as lack of knowledge and training in the management of syphilis by professionals and lack of guidance to pregnant women were associated with the loss of follow-up of pregnant women with syphilis.

**Collaborations**

Silva PL and Magalhães RLB contributed in the conception and design, analysis and interpretation of the data and in the final approval of the version to be published. Silva EF, Borges BVS and Lira JAC collaborated in the writing of the article and relevant critical review of the intellectual content. Galvão MTG contributed in the final approval of the version to be published.

**References**

1. Ministério da Saúde (BR). Departamento de Doenças de Condições Crônicas e Infeccões Sexualmente Transmissíveis. Boletim Epidemiológico Sífilis [Internet]. 2019 [cited Sep 29, 2020]. Available from: http://www.aids.gov.br/pt-br/pub/2019/boletim-epidemiologico-sifilis-2019
2. Hussen S, Tadesse BT. Prevalence of syphilis among pregnant women in sub-saharan africa: a systematic review and meta-analysis. Biomed Res Int. 2019; 2019:4562385. doi: https://doi.org/10.1155/2019/4562385
3. Su JR, Brooks LC, Davis DW, Torrone EA, Weinstock HS, Kamb ML. Congenital syphilis: trends in mortality and morbidity in the United States, 1999 through 2013. Am J Obstet Gynecol. 2016; 214(3):381.e1–381.e9. doi: https://doi.org/10.1016/j.ajog.2015.10.007
4. Domingues RMSM, Leal MC. Incidência de sífilis congênita e fatores associados à transmissão vertical da sífilis: dados do estudo Nascer no Brasil. Cad Saúde Pública. 2016; 3(6):e00082415. doi: https://doi.org/10.1590/0102-311X00082415
5. Lafetá KRG, Júnior Martelli H, Silveira MF, Paranaíba LMR. Maternal and congenital syphilis, underreported and difficult to control. Rev Bras Epidemiol. 2016; 19(1):63-74. doi: https://doi.org/10.1590/1980-5497201600010006
6. Whittemore R, Knafl K. The integrative review: updated methodology. J Adv Nurs. 2005; 52(5):546-53. doi: 10.1111/j.1365-2648.2005.03621.x
7. The Joanna Briggs Institute. Joanna Briggs Institute Reviewers. Manual: 2014 edition [Internet]. 2014 [cited Jun 10, 2020]. Available from: http://joannabriggs.org/assets/docs/sumari/reviewersmanual-2014.pdf
8. Ministério da Saúde (BR). Portaria nº 1.459, de 24 de junho de 2011: institui, no âmbito do Sistema Único de Saúde - SUS - a Rede Cegonha [Internet]. 2011 [cited July 29, 2020]. Available from: http://bvsms.saude.gov.br/bvs/saudelegis/gm/2011/prt1459_24_06_2011.html

9. Melnyk BM, Fineout-Overholt E. Making the case for evidence-based practice. In: Melnyk BM, Fineout-Overholt E. Evidence based practice in nursing & healthcare. A guide to best practice. Philadelphia: Lippincot Williams & Wilkins; 2005. p.3-24.

10. Tridapalli E, Capretti MG, Reggiani MLB, Stro- nati M, Faldella G. Congenital syphilis in Italy: a multicentre study. Arch Dis Child Fetal Neonatal. 2012; 97(3):211-3. doi: https://doi.org/10.1136/adc.2010.183863

11. Domingues RMSM, Hartz ZMA, Leal MC. Avaliação das ações de controle da sífilis e do HIV na assistência pré-natal da rede. Rev Bras Saúde Matern Infant. 2012; 12(3):269-80. doi: https://doi.org/10.1590/S1519-38292012000300007

12. Domingues RMSM, Saraceni V, Hartz ZMA, Leal MC. Congenital syphilis: a sentinel event in antenatal care quality. Rev Saúde Pública. 2013; 47(1):147-57. doi: https://doi.org/10.1590/S0034-89102013000100019

13. Nonato SM, Melo APS, Guimarães MDC. Syphilis in pregnancy and factors associated with congenital syphilis in Belo Horizonte-MG, Brazil, 2010-2013. Epidemiol Serv Saúde. 2015; 24(4):681-94. doi: https://doi.org/10.5123/S1679-49742015000400010

14. Castro ORA, Pérez YS. Determinación de sífilis por método serológico em gestantes da cidade de Guayaquil. Rev Cubana Invest Bioméd [Internet]. 2015 [cited Jul 20, 2020]; 34(3):224-36. Available from: http://scielo.sld.cu/pdf/ibi/v34n3/ibi03315.pdf

15. García PJ, Williams E, Cárcamo CP, Chiappe M, Holmes KK, Peeling RW, et al. Partner notification among Peruvian pregnant women with syphilis. Sex Transm Dis. 2015; 42(8):457-62. doi: https://doi.org/10.1097/OLQ.0000000000000314

16. Suto CSS, Silva DL, Almeida ES, Costa LEI, Evangelista TJ. Prenatal assistance to pregnant women diagnosed with syphilis. Rev Enferm Atenç Saúde. 2016; 5(2):18-33. doi: https://doi.org/10.18554/reas.v5i2.1544

17. Cavalcante PAM, Pereira RBL, Castro JGD. Syphilis in pregnancy and congenital syphilis in Palmas, Tocantins state, Brazil, 2007-2014. Epidemiol Serv Saúde. 2017; 26(2):255-64. doi: https://doi.org/10.5123/S1679-49742017000200003

18. Moreira KFA, Oliveira DM, Alencar LN, Cavalcante DFB, Pinheiro AS, Órfão NH. Profile of notified cases of congenital syphilis. Cogitare Enferm. 2017; 22(2):e48949. doi: https://doi.org/10.5380/ce.v22i2.48949

19. Barbosa DRM, Almeida MG, Silva AO, Araújo AA, Santos AG. Epidemiological profile of cases of gestational syphilis. Rev Enferm UFPE online [Internet]. 2017 [cited Jul 23, 2020]; 11(5):1867-74. Available from: https://periodicos.ufpe.br/revistas/revistaenfermagem/article/view/23335/18933

20. Nkamba D, Mwenechanya M, Kilonga AM, Cafferata ML, Berrueta AM, Mazzoni A, et al. Barriers and facilitators to the implementation of antenatal syphilis screening and treatment for the prevention of congenital syphilis in the Democratic Republic of Congo and Zambia: results of qualitative formative research. BMC Health Serv Res. 2017; 17(1):556. doi: https://doi.org/10.1186/s12913-017-2494-7

21. García JP, Rubiano LC, Orobio Y, Castaño M, Benavides E, Cruz A. La educación del personal de salud: clave para la eliminación de la sífilis congénita en Colombia. Biomédica. 2017; 37(3):416-24. doi: https://doi.org/10.7705/biomedica.v37i3.3397

22. Silva-Chávarro AM, Bois-Melli F. Factors associated with failure in the diagnosis and treatment of maternal syphilis. Study of cases and controls. Rev Mex Pediatr [Internet]. 2017 [cited Jul 23, 2020]; 84(2):54-60. Available from: https://www.medigraphic.com/pdfs/pediat/sp-2017/sp172c.pdf

23. Cunha NA, Biscaro A, Madeira K. Prevalência de sífilis em parturientes atendidas em uma maternidade na cidade de criciuma, Santa Catarina. Arq Catarin Med [Internet]. 2018 [cited Jul 23, 2020]; 47(1):82-94. Available from: http://www.acm.org.br/acm/seer/index.php/arquivos/article/view/282/229#
24. Slutsker JS, Hennessy RR, Schillinger JA. Factors contributing to congenital syphilis cases - New York city, 2010–2016. Morb Mortal Wkly Rep. 2018; 67(39):1088-93. doi: https://doi.org/10.15585/mmwr.mm6739a3

25. Kanai M, Arima Y, Shimada T, Hori N, Yamagishi T, Sunagawa T, et al. Sociodemographic characteristics and clinical description of congenital syphilis patients and their mothers in Japan: a qualitative study 2016. Sexual Health. 2018; 15:460-7. doi: https://doi.org/10.1071/SH18033

26. DiOrio D, Kroeger K, Ross A. Social vulnerability in congenital syphilis case mothers: qualitative assessment of cases in Indiana, 2014 to 2016. Sex Transm Dis. 2018; 45(7):447-51. doi: https://doi.org/10.1097/OLQ.0000000000000783

27. Silva Neto SE, Silva SSBE, Sartori AMC. Syphilis in pregnancy, congenital syphilis, and factors associated with mother-to-child transmission in Itapeva, São Paulo, 2010 to 2014. Rev Soc Bras Med Trop. 2018; 51(6):819-26. doi: https://doi.org/10.1590/0037-8682-0377-2017

28. Nakku-Joloba E, Kiguli J, Kayemba CN, Twimukye A, Mbazira JK, Parkes-Ratanshi R, et al. Perspectives on male partner notification and treatment for syphilis among antenatal women and their partners in Kampala and Wakiso districts, Uganda. BMC Infect Dis. 2019; 19(1):124. doi: https://doi.org/10.1186/s12879-019-3695-y

29. Benedetti KCSV, Ribeiro ADC, Queiroz JHFS, Melo ABD, Batista RB, Delgado FM, et al. High prevalence of syphilis and inadequate prenatal care in Brazilian pregnant women: a cross-sectional study. Am J Trop Med Hyg. 2019; 101(4):761-6. doi: https://doi.org/10.4269/ajtmh.18-0912

30. Matthias JM, Rahman MM, Newman DR, Peterman TA. Effectiveness of prenatal screening and treatment to prevent congenital syphilis, Louisiana and Florida, 2013-2014. Sex Transm Dis. 2017; 44(8):498-502. doi: https://doi.org/10.1097/OLQ.0000000000000638

This is an Open Access article distributed under the terms of the Creative Commons