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Original

Epidemiological profile of gestational and congenital syphilis in the municipality of Teresina, Piauí

Perfil epidemiológico de sífilis gestacional e congênita no município de Teresina, Piauí

Perfil epidemiológico de sífilis gestacional y congénita en el municipio de Teresina, Piauí

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Abstract

Objective: To analyze the epidemiological profile of gestational and congenital syphilis in the municipality of Teresina/Piauí, from 2015 to 2019. **Methods:** A cross-sectional study conducted with secondary data referring to the gestational and congenital syphilis cases reported in the Notifiable Diseases Information System, the Mortality Information System and the Live Births Information System. **Results:** A total of 1,191 cases of pregnant women with syphilis and 1,021 congenital syphilis cases were notified between 2015 and 2019. 2019 presented the highest detection rate of pregnant women with syphilis: 32.07% of the cases. Congenital syphilis had a similar behavior from 2015 to 2018, especially in 2015, with 21.94% of the cases. The age group with the most notifications was between 20 and 29 years old, in individuals with incomplete Elementary School and brown-skinned. 48.19% of the syphilis diagnoses were made during the 3rd trimester of pregnancy and 77.47% of the treatment schemes were carried out inadequately during prenatal care. **Conclusion:** This study revealed an increasing trend in the number of gestational syphilis cases identified, in addition to deficits in diagnosis and treatment of the disease. Thus, the need to reinforce actions targeted at prevention, early identification and monitoring of pregnant women and newborns stands out.

Descriptors: Pregnancy; Syphilis, Congenital; Disease Notification; Epidemiologic Methods.

Whats is already known on this?
When not diagnosed and treated early in time, gestational and congenital syphilis represent serious problems for pregnant women, fetuses and newborns, resulting in a public health problem.

What this study adds?
Diverse information to help identify areas for improvement in public policies, direct prevention and treatment efforts, and support the implementation of effective measures to control gestational and congenital syphilis.

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Resumo

Objetivo: *Analisar o perfil epidemiológico de sífilis gestacional e congênita no município de Teresina/Piauí, no período de 2015 a 2019.* ***Métodos:*** *Estudo de corte transversal, com dados secundários referentes aos casos de sífilis gestacional e congênita notificados no Sistema de Informação de Agravos de Notificação, Sistema de Informação de Mortalidade e no Sistema de Informação de Nascidos Vivos.* ***Resultados:*** *Foram notificadas 1.191 gestantes com sífilis e 1.021 casos de sífilis congênita, entre 2015 e 2019. O ano de 2019 apresentou maior taxa de detecção de gestantes com sífilis, sendo de 32,07% dos casos. A sífilis congênita teve comportamento semelhante nos anos de 2015 a 2018, com destaque para 2015 com 21,94% dos casos. A faixa etária mais notificada foi entre 20 e 29 anos, de nível fundamental incompleto e cor de pele parda. 48,19% dos diagnósticos da sífilis ocorreram durante o 3° trimestre gestacional e 77,47% de esquemas de tratamento foram realizados de forma inadequada no pré-natal.* ***Conclusão:*** *Este estudo revelou uma tendência crescente no número de casos de sífilis gestacional identificados, além de deficiências no diagnóstico e tratamento da doença. Assim, destaca-se a necessidade de reforçar ações para prevenção, identificação precoce e acompanhamento das gestantes e recém-nascidos.*

Descritores: *Gravidez; Sífilis Congênita; Notificação de Doenças; Perfil de Saúde.*

Resumén

Objetivo: *Analizar el perfil epidemiológico de sífilis gestacional y congénita en el municipio de Teresina/Piauí, entre 2015 y 2019.* ***Métodos:*** *Estudio de corte transversal realizado con datos secundarios referentes a los casos de sífilis gestacional y congénita notificados al Sistema de Información de Problemas de Salud de Notificación Obligatoria, al Sistema de Información sobre Mortalidad y al Sistema de Información de Nacidos Vivos.* ***Resultados:*** *Se notificaron 1191 casos de embarazadas con sífilis y 1021 casos de sífilis congénita entre 2015 y 2019. 2019 presentó la tasa de detección de embarazadas con sífilis más elevada: 32,07% de los casos. La sífilis congénita tuvo un comportamiento similar entre 2015 y 2018, destacándose 2015 con el 21,94% de los casos. El grupo etario con mayor cantidad de notificaciones fue el de 20 a 29 años, en persona con escuela primara incompleta y piel morena. El 48,19% de los diagnósticos de sífilis se realizaron durante el 3er trimestre de embarazo y el 77,47% de los esquemas de tratamiento no se implementaron correctamente en el período prenatal.* ***Conclusión:*** *Este estudio reveló una tendencia en aumento en la cantidad de casos de sífilis gestacional identificados, además de déficits en el diagnóstico y tratamiento de la enfermedad. En consecuencia, se destaca la necesidad de reforzar acciones destinadas a la prevención, detección temprana y control de mujeres embarazadas y recién nacidos.*

Descriptores*: Embarazo; Sífilis Congénita; Notificación de Enfermedades; Perfil de Salud.*

INTRODUCTION

Syphilis is an infectious and contagious systemic pathology caused by the *Treponema pallidum* bacterium. Its main characteristic is a painless ulcer similar to a thrush in the genital organ area.[1] This disease persists as a serious public health problem at the national and international levels. Worldwide, there are up to 11 million new cases per year, with greater prominence in the American, African and Asian continents.[2]

In general, congenital syphilis resulting from vertical transmission occurs within the uterus, but it can also occur during passage of the fetus through the birth canal, should there be an active injury of the syphilis stage on the mother and depending on duration of the exposure during labor.[3] Worldwide epidemiological data even indicated more than half a million congenital syphilis cases in the world in 2016, which resulted in 200,000 stillbirths.[4]

In Brazil, various governmental initiatives have been proposed to eradicate congenital syphilis.[5] Although in 2020 the scenario was alarming, with a detection rate of syphilis in pregnant women of 21.6/1,000 live births, the incidence of congenital syphilis remained at 7.7/1,000 live births and the mortality rate due to congenital syphilis, at 6.5/100,000 live births.[6] As a target to eradicate syphilis, the Millennium Development Goals proposed by the World Health Organization stipulate reaching an incidence rate of 0.5 cases per 1,000 live births.[7,8]

Given the magnitude of this problem for public health, it is of utmost importance to know and constantly update the epidemiological profile at the municipal level since, given the local reality, strategies to reach the regional, national and international scenarios for the control of this disease can be devised. Thus, the objective was to analyze the epidemiological profile of gestational and congenital syphilis in the municipality of Teresina/Piauí, from 2015 to 2019.

METHODS

A cross-sectional study using analysis of secondary data referring to syphilis cases reported in the Notifiable Diseases Information System (*Sistema de Informação de Agravos de Notificação*, SINAN), the Mortality Information System (*Sistema de Informação de Mortalidade*, SIM) and the Live Births Information System (*Sistema de Informação de Nascidos Vivos*, SINASC) accessed by the Unified Health System Informatics Department (DATASUS) and referring to the mandatory notification of gestational and

congenital syphilis cases in Teresina, capital city of the state of Piauí, Brazil,[9,10] with an estimated population of 868,075 inhabitants in 2020.[11]

The data collected referred to the gestational and congenital syphilis cases between 2015 and 2019 in the municipality of Teresina, Piauí, Brazil. The period identified is justified by the significant increase recorded in the incidence rates of congenital syphilis and in the syphilis detection rates in pregnant women per a 1,000 live births between 2010 and 2017, which rose from 2.4 to 8.6 and from 3.5 to 17.2 cases per 1,000 live births, respectively.[12]

The study population defined corresponded to all confirmed gestational and congenital syphilis cases in the state of Piauí, diagnosed between 2015 and 2019 and which were reported to the Notifiable Diseases Information System. Syphilis in pregnancy is a disease of compulsory notification according to Ordinance No. 33/2005.[13] The same is true for congenital syphilis, but according to Ordinance No. 542/1986, which states the obligation to communicate to the health authority when there is confirmation of this disease.[14]

Data collection took place in August 2021. The data sources were the diverse information from the notification forms on gestational and congenital syphilis cases. Sociodemographic and maternal and clinical care variables were selected for the study. The sociodemographic variables were the following: "age", "race or skin color" and "schooling level". The maternal and clinical care variables were as follows: "trimester of pregnancy", "clinical classification", "pregnant woman undergoing treatment", "final diagnosis", "attending prenatal care", "moment when maternal syphilis was diagnosed" and "maternal treatment scheme".

The inclusion criteria adopted were the following: all congenital and syphilis in pregnancy cases notified in the city of Teresina available in the Notifiable Diseases Information System (SINAN), extracted from the national public database of the Unified Health System Informatics Department (DATASUS).[9] Notifications with records outside the period defined were excluded and the variables were not analyzed in the study.

Data tabulation was performed in the TabNet Win32 3.0 app, which is a public domain data tabulator used to obtain epidemiological data within the Unified Health System (*Sistema Único de Saúde*, SUS) scope.[10] Microsoft Excel 2010 was also used for data organization, grouping and analysis, in which descriptive statistical analysis was performed (absolute and relative frequencies).

In addition, the detection rate of syphilis in pregnant women was calculated by the number of cases notified per year, divided by the number of live births in the same year/locus and multiplied by 1,000. To calculate the congenital syphilis incidence rate, the number of new cases per year was used, divided by the number of live births in the same year/locus and multiplied by 1,000; and, for the coefficient of deaths due to congenital syphilis in infants younger than one year old, the number of detected neonatal deaths due to syphilis was calculated, divided by the number of live births and multiplied by 1,000.[15]

As this study used public and free domain secondary data indexed in "DATASUS",[09] where there is no possibility of identifying the participants, due processing in the Research Ethics Committee (according to National Health Council Resolution No. 466/2012 and to the current ethical regulations) was waived.

RESULTS

In the five-year period from 2015 to 2019, 1,191 syphilis cases were recorded in pregnant women; the highest number of records identified was in 2019, with 382 (32.07%), and the lowest was in 2015 with 129 (10.83%). The detection rates for syphilis in pregnant women presented the same behavior, with 9.2/1,000 live births in 2015 and 27.1/1,000 live births standing out in 2019.

Regarding congenital syphilis, 1,021 cases were identified, with a behavior relatively close between 2015 and 2018: 224 (21.94%), 204 (19.98%), 205 (20.08) and 223 (21.84%) for each year, respectively; 2015 and 2018 stood out as the most worrying years, with a reduction to 165 (16.16%) in 2019. The detection rates declined similarly from 16/1,000 live births in 2015 to 11.7/1,000 live births in 2019, with 2015 as the most alarming year. However, the incidence rate rose from 9.79/1,000 live births in 2015 to 10.36/1,000 in 2018, followed by a drop to 7.83/1,000 live births in 2019. The number of deaths due to congenital syphilis stood out in 2018 with 4 (28.4%), followed by 2017 with 3 (21.3%), highlighting that there were no recorded cases of deaths due to this disease in 2016 and 2019 (Table 1).

Table 1. Behavior of the epidemiological indicators related to syphilis in pregnant women and to congenital syphilis according to year when the diagnosis was made in the five-year period from 2015 to 2019. Teresina, Piauí, Brazil, 2021.

VARIABLE	2015	2016	2017	2018	2019
SYPHILIS IN PREGNANT WOMEN					
Cases of syphilis in pregnant women recorded per year	129	139	184	357	382
Percentage from the total cases recorded in the five-year period	10,83	11,67	15,46	29,97	32,07
Detection rate for syphilis in pregnant women/1,000 live births	9,2	10,3	13,1	25,4	27,1
Total cases recorded in the five-year period: 1,191					
CONGENITAL SYPHILIS					
Congenital syphilis cases recorded per year	224	204	205	223	165
Percentage from the total cases recorded in the five-year period	21,94	19,98	20,08	21,84	16,16
Congenital syphilis detection rate/1,000 live births	16	15,1	14,6	15,8	11,7
Congenital syphilis incidence rate/1,000 live births	9,79	9,59	9,52	10,36	7,83
Death cases due to congenital syphilis in children under one year old	1	0	3	4	0
Coefficient of deaths due to congenital syphilis in children under one year old	7,2	0	21,3	28,4	0
Total cases in the five-year period: 1,021	22.877	21.266	21.538	21.529	21.074

Source: Unified Health System Informatics Department (DATASUS).

In relation to the epidemiological profile of the pregnant women with notified syphilis cases, there was predominance of the age group from 20 and 29 years old with 626 (52.60%) of brown-skinned individuals with 833 (69.94%) and of Incomplete Elementary School with 352 (29.55%). The diagnosis of syphilis during pregnancy prevailed in the third trimester with 574 (48.19%), followed by the second trimester with 311 (26.11%) and being less frequent in the first trimester: 263 (22.08%). Among the clinical classifications, latent syphilis was predominant in 590 (49.54%), followed by tertiary syphilis with 180 (15.11%) and by primary syphilis with 175 (14.69%).

Regarding treatment, the Notifiable Diseases Information System only recorded data between 2016 and 2019, until the data collection moment; therefore, the total number of recorded cases corresponded to 1,062 pregnant women. Penicillin was the most used antibiotic in 960 (90.40%) cases, opting for another treatment in 9 (0.85%) of the cases; and 81 (7.63%) of the pregnant women did not receive any treatment (Table 2).

Table 2. Sociodemographic, clinical and epidemiological characteristics of pregnant women with notified syphilis cases in the five-year period from 2015 to 2019. Teresina, Piauí, Brazil, 2021. N=1,191.

SOCIODEMOGRAPHIC CHARACTERISTICS	N	%
Age		
≤19 years old	277	23,28
20-29 years old	626	52,60
30+ years old	287	24,12
Race/Skin color		
White	94	7,89
Black	153	12,85
Asian	24	2,02
Brown	833	69,94
Indigenous	3	0,25
Unknown/Blank	84	7,05
Schooling level		
Illiterate	6	0,50
Incomplete Elementary School	352	29,55
Complete Elementary School	103	8,65
Incomplete High School	243	20,40
Complete High School	271	22,75
Incomplete Higher Education	28	2,35
Complete Higher Education	17	1,43
Not applicable	1	0,08
Unknown/Blank	170	14,27
Trimester of pregnancy		
1st	263	22,08
2nd	311	26,11

3rd	574	48,19
Unknown gestational age	43	3,61
Unknown/Blank	0	0,00
Clinical classification		
Primary syphilis	175	14,69
Secondary syphilis	39	3,27
Tertiary syphilis	180	15,11
Latent syphilis	590	49,54
Unknown/Blank	207	17,38
Pregnant woman undergoing treatment (Data from 2016 to 2019 / N=1,062)		
Penicillin	960	90,40
Another scheme	9	0,85
Not performed	81	7,63
Unknown/Blank	12	1,13

Source: Unified Health System Informatics Department (DATASUS).

The congenital syphilis notifications proved to follow a similar pattern than the profile identified in the notification forms of pregnant women with syphilis. The predominant age group of the mothers ranged between 20 and 29 years old in 502 (49.17%) cases, brown skin color prevailed with 742 (72.67%) and Incomplete Elementary School, with 354 (34.76%). The recent congenital syphilis diagnosis was made in 934 (91.48%) cases, followed by 49 (4.80%) miscarriages and 38 (3.72%) stillbirths due to syphilis. Prenatal care was complied with in 816 (79.92%) cases; however, 179 (18.71%) pregnant women did not undergo this monitoring. The maternal syphilis diagnosis was mostly made during prenatal care (558 [54.65%]), followed by the delivery/curettage moment, with 370 (36.24%). Regarding the maternal treatment scheme, it was inadequate in 791 (77.47%) cases, followed by those in which no treatment was performed, with 162 (15.87%) (Table 3).

Table 3. Sociodemographic characteristics and those related to prenatal care, pregnant women's treatments, clinical aspects and evolution of the congenital syphilis cases in the five-year period from 2015 to 2019. Teresina, Piauí, Brazil, 2021.

CHARACTERISTICS	N	%
Mother's age		
≤19 years old	240	23,51
20-29 years old	502	49,17
30+ years old	259	25,37
Unknown/Blank	20	1,96
Mother's race or skin color		
White	92	9,01
Black	107	10,48
Asian	11	1,08
Brown	742	72,67
Indigenous	0	0,00
Unknown	69	6,76
Mother's schooling level		
Illiterate	8	0,78
Incomplete Elementary School	354	34,67
Complete Elementary School	100	9,79
Incomplete High School	206	20,18
Complete High School	196	19,20
Incomplete Higher Education	22	2,15
Complete Higher Education	7	0,69
Not applicable	11	1,08
Unknown/Blank	117	11,46
Final Diagnosis		
Recent congenital syphilis	934	91,48
Late congenital syphilis	0	0,00
Miscarriage due to syphilis	49	4,80
Stillbirth due to syphilis	38	3,72
Attending prenatal care		

Yes	816	79,92
No	191	18,71
Unknown/Blank	14	1,37
Maternal syphilis diagnosis moment		
During prenatal care	558	54,65
At delivery/curettage	370	36,24
After delivery	66	6,46
Not performed	16	1,57
Unknown/Blank	11	1,08
Maternal treatment scheme		
Adequate	34	3,33
Inadequate	791	77,47
Not performed	162	15,87
Unknown	34	3,33

Source: Unified Health System Informatics Department (DATASUS).

DISCUSSION

This study presents data about the epidemiological characteristics of gestational and congenital syphilis in the municipality of Teresina/Piauí with the potential to size the public health problem and reinforce actions targeted at syphilis prevention, detection, treatment and follow-up. It also stimulates continuing education strategies intended to the health professionals responsible for the courses of action in fighting against the infection.

During the five-year period from 2015 to 2019, there was an increase in the number of recorded cases of syphilis in pregnant women, both in Brazil and at the international level.[12,16] Increasing incidence patterns were found in previous studies in the Brazilian Northeast region. In Maranhão, municipality of Caxias, a 73% increase in the incidence of cases of gestational syphilis was verified between 2013 and 2017, especially in 2016 and 2017.[17] In Piauí, between 2010 and 2013, the highest incidence rate of syphilis in pregnant women was in 2012 (8.2/100,000 inhabitants).[18] Internationally, a global study also indicated an increase in the prevalence of gestational and congenital syphilis cases in the Americas Region and in the Mediterranean.[20]

During prenatal care, the main objective is to ensure development of a safe pregnancy both for the mother and for the fetus.[20] Public policies through Epidemiological Surveillance[21] have expanded the availability of rapid diagnostic tests for syphilis, in addition to monitoring the notifications, although late syphilis detection is still present during prenatal care.[22]

Syphilis control is done by paying attention to more exposed population groups, as would be the case of families with low schooling and income levels; in addition to other behavioral factors such as non-adherence to condom use, early onset of sexual life and not having a steady sexual partner. Healthcare-related factors related such as lack of access/quality of care in the health system to attend prenatal care imply a correlation between poverty and vulnerability,[16,20,22] in addition to increasing the miscarriage, stillbirth or neonatal death risks.[23] A study pointed out that less than 50% of the prenatal care services in Brazilian cities did not offer penicillin application by the medical team.[22]

Regarding congenital syphilis, an increase in the incidence approximately similar to other studies was verified, with 8.6 congenital syphilis cases for every 1,000 live births.[25] This context results in an increase in costs to the health system in terms of hospitalizations, tests, medications and long-term follow-up for children.[20] Thus, the increase in prenatal care coverage has not been sufficient to prevent maternal-fetus infection,[7,8,20] indicating the need for training courses intended to health professionals to reinforce the health promotion actions and complete filling-in of the epidemiological notification forms.[16,20]

A limitation of this study is the fact that it used secondary data; therefore, there may be underreporting of cases or incomplete information, which may not accurately reveal the magnitude of this problem. However, it is important to note that, from the data presented, it is possible to devise goals and strategies for syphilis control, considering that it is related to failures in prenatal care, to the training of health professionals, to strengthening policies and programs for sexual education and intimate health in the young population, and to strict control of how notification forms are filled-in.

CONCLUSION

This paper showed the need to strengthen actions targeted at gestational and congenital syphilis prevention and control through actions in family planning, syphilis screening during pregnant women's prenatal care and including the sexual partners in the treatments. The incidence of gestational and congenital syphilis was related to the age and schooling level of the pregnant women with notified cases. An increasing trend in the number of gestational syphilis cases was identified, as well as deficits in diagnosis and treatment of the disease, with the consequent need to strengthen and restructure the assistance provided in Primary Health Care services by adopting measures to intensify health prevention strategies, create educational materials and technologies that promote new health practices for the population, and disclose the importance of the Testing and Counseling Centers (*Centros de Testagem e Aconselhamento*, CTA) for early diagnosis coverage, thus allowing strict monitoring of the epidemiological data by health professionals.

CONTRIBUITIONS

Contributed to the conception or design of the study/research: Rocha GST, Vieira RNB, Jorge HMF, Dutok-Sánchez CM. Contributed to data collection: : Rocha GST, Vieira RNB, Jorge HMF, Dutok-Sánchez CM. Contributed to the analysis and/or interpretation of data: Rocha GST, Vieira RNB, Jorge HMF, Dutok Sánchez CM. Contributed to article writing or critical review: Rocha GST, Vieira RNB, Jorge HMF, Dutok Sánchez CM. Final approval of the version to be published: Rocha GST, Vieira RNB, Jorge HMF, Dutok Sánchez CM.

REFERENCES

1. Silva IMD, Leal EMM, Pacheco HF, Souza Júnior JGD, Silva FSD. Perfil Epidemiológico da Sífilis Congênita. Rev enferm UFPE online. [Internet]. 2019;13(3):604-13. doi: https://doi.org/10.5205/1981-8963-v13i3a236252p604-613-2019

2. Maschio-Lima T, Machado ILL, Siqueira JPZ, Almeida MTG. Epidemiological profile of patients with congenital and gestational syphilis in a city in the State of São Paulo, Brazil. Rev. Bras. Saúde Mater. Infant. [Internet]. 2020;19:865-872. doi: https://doi.org/10.1590/1806-93042019000400007

3. Domingues CSB, Duarte G, Passos MRL, Sztajnbok DCN, Menezes MLB. Protocolo Brasileiro para Infecções Sexualmente Transmissíveis 2020: vigilância epidemiológica. Epidemiol. Serv. Saude. [Internet]. 2021;30(Esp.1):e2020597. doi: https://doi.org/10.1590/S1679-4974202100002.esp1

4. Organização Mundial da Saúde (OMS). Organização mundial da saúde pública novas estimativas sobre sífilis congênita. [Internet]. 2019. Available from: https://www.paho.org/pt/noticias/28-2-2019-organizacao-mundial-da-saude-publica-novas-estimativas-sobre-sifilis-congenita

5. Ministério da Saúde (BR). Guia para Certificação da Eliminação da Transmissão Vertical de HIV e/ou Sífilis. Brasília, DF. [Internet]. 2021;(ed.2):48. Available from: https://bvsms.saude.gov.br/bvs/publicacoes/guia_certificacao_eliminacao_trasmissao_vertical_hiv_sifilis.pdf

6. Ministério da Saúde (BR). Secretaria de Vigilância em Saúde. Boletim Epidemiológico. Sífilis. Brasília, BR. [Internet]. 2021. Available from: https://www.gov.br/saude/pt-br/centrais-de-conteudo/publicacoes/boletins/epidemiologicos/especiais/2022/boletim-epidemiologico-de-sifilis-numero-especial-out-2022

7. Almeida AS, Andrade J, Fermiano R, Jamas MT, Carvalhaes MABL, Parada CMGL. Sífilis na gestação, fatores associados à sífilis congênita e condições do recém-nascido ao nascer. Texto Contexto Enferm. [Internet]. 2021;30:e20200423. doi: https://doi.org/10.1590/1980-265X-TCE-2020-0423

8. Organização Mundial da Saúde. 29ª Conferência sanitária pan-americana: 69ª Sessão do comitê regional da OMS para as américas. Washington, D.C., EUA. CSP29/6, Rev. 3. [Internet]. 2017. Available from: https://iris.paho.org/bitstream/handle/10665.2/34460/CSP29-6-p.pdf .

9. Ministério da Saúde (BR). Banco de dados do sistema único de saúde-DATASUS. Painel de monitoramento da mortalidade infantil. Brasília; DF. [Internet]. 2017. Available from: https://datasus.saude.gov.br/ .

10. Ministério da Saúde (BR). Banco de dados do Sistema Único de Saúde-DATASUS. TABNET. Brasília; DF. [Internet]. 2020. Available from: https://datasus.saude.gov.br/informacoes-de-saude-tabnet/ .

11. Instituto Brasileiro de Geografia e Estatística (IBGE). Censo Brasileiro de 2020. Rio de Janeiro: IBGR. Rio de Janeiro; RJ. [Internet]. 2020. Available from: https://www.ibge.gov.br/ .

12. Figueiredo DCMM, Figueiredo AM, Souza TKB, Tavares G, Vianna RPT. Relação entre oferta de diagnóstico e tratamento da sífilis na atenção básica sobre a incidência de sífilis gestacional e congênita. Cadernos de Saúde Pública. [Internet]. 2020;36(3):e00074519. doi: https://doi.org/10.1590/0102-311X00074519

13. Ministério da Saúde (BR). Portaria nº. 33, de 14 de julho de 2005. Inclui doenças à relação de notificação compulsória, define agravos de notificação imediata e a relação dos resultados laboratoriais que devem ser notificados pelos Laboratórios de Referência Nacional ou Regional. Brasília; DF. [Internet]. 2005. Available from: https://bvsms.saude.gov.br/bvs/saudelegis/svs/2005/prt0033_14_07_2005.html

14. Ministério da Saúde (BR). Portaria nº 542 de 22 Dezembro de 1986. Diário Oficial da República Federativa do Brasil, Brasília; DF: Seção 1, p. 19827. [Portaria nº. 33, de 14 de julho de 2005]. 1986. Available from: https://portaldeboaspraticas.iff.fiocruz.br/biblioteca/portaria-no-542-de-22-dezembro-de-1986/

15. Gordis L. Epidemiologia. 4. ed. São Paulo: Revinter; 2010.

16. Benítez J, Yépez MA, Hernández-Carrillo M, Martínez DM, Cubides-Munevar Á, Holguín-Ruiz JA, et al. Sociodemographic and clinical characteristics of gestational syphilis in Cali, 2018. Biomedica. [Internet]. 2021;41(Sp. 2):140-152. doi: https://doi.org/10.7705/biomedica.6003

17. Conceição HN, Câmara JT, Pereira BM. Análise epidemiológica e espacial dos casos de sífilis gestacional e congênita. Saúde em Debate. [Internet]. 2019;43(123):1145-1158. doi: https://doi.org/10.1590/0103-1104201912313

18. Barbosa DRM, Almeida MGD, Silva AO, Araújo AA, Santos AG. Perfil epidemiológico dos casos de sífilis gestacional. Rev. Enfer. UFPE. [Internet]. 2017;11(5):1867-1874. Available from: https://periodicos.ufpe.br/revistas/revistaenfermagem/article/view/23335

19. Korenromp EL, Rowley J, Alonso M, Mello MB, Wijesooriya NS S. Guy, et al. Global burden of maternal and congenital syphilis and associated adverse birth outcomes-estimates for 2016 and progress since 2012. PLoS One. [Internet]. 2019;14(7):e0219613]. doi: https://doi.org/10.1371/journal.pone.0211720

20. Soares MAS, Aquino R. Associação entre as taxas de incidência de sífilis gestacional e sífilis congênita e a cobertura de pré-natal no Estado da Bahia, Brasil. Cadernos de Saúde Pública. [Internet]. 2021;37 (7):e00209520. doi: https://doi.org/10.1590/0102-311X00209520

21. 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. Brasília; DF. [Internet]. 2011. Available from: https://bvsms.saude.gov.br/bvs/saudelegis/gm/2011/prt1459_24_06_2011.html

22. Figueiredo DCMM, Figueiredo AM, Souza TKB, Tavares G, Vianna RPT. Relação entre oferta de diagnóstico e tratamento da sífilis na atenção básica sobre a incidência de sífilis gestacional e congênita. Cad Saude Publica. [Internet]. 2020;36(3):e00074519. doi: https://doi.org/10.1590/0102-311X00074519

23. Lima TM, Machado ILM, Siqueira JPZ, Almeida MTG. Perfil epidemiológico de pacientes com sífilis congênita e gestacional em um município do Estado de São Paulo, Brasil. Rev. Bras. Saúde Mater. Infant. [Internet]. 2019;19(4):873-880. doi: https://doi.org/10.1590/1806-93042019000400007

24. Ministério da Saúde (BR). Protocolo clínico e diretrizes terapêuticas para atenção integral às pessoas com Infecções Sexualmente Transmissíveis (IST). Brasília; DF. [Internet]. 2021. Available from: http://conitec.gov.br/images/Relatorios/2021/20210422_Relatorio_PCDT_IST_SECRETARIO_588_2021.pdf

25. Toldo MKS, Menegazzo LS, Souto AS. A recrudescência da sífilis congênita. Arq. Catarin Med. [Internet]. 2018;47(1):02-10. doi: https://doi.org/10.1590/2317-6431-2015-1629

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