

EPIDEMIOLOGICAL PROFILE OF THE REPORTED CASES OF CONGENITAL SYPHILIS BY HEALTH CARE REGION IN TOCANTINS BETWEEN 2013 AND 2017

Perfil Epidemiológico dos casos notificados de Sífilis Congênita por região de saúde no Tocantins entre os anos de 2013 e 2017

Perfil Epidemiológico de los casos notificados de Sífilis Congênita por región de salud en Tocantins entre los años de 2013 y 2017



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ABSTRACT

This is a descriptive, retrospective cross-sectional epidemiological study, on cases of Congenital Syphilis (CS) reported on the Information System for Notifiable Diseases (SINAN) from 2013 to 2017. This study aims to describe the epidemiological profile of CS cases reported in the eight health regions of the state of Tocantins. The health care regions were related to the variables maternal schooling, prenatal performance, area of residence, moment of diagnosis and treatment of the partner. Of the 1192 cases reported, the majority were in the Capim Dourado region. It was verified that in most cases the mothers studied until elementary or secondary school, performed prenatal care and resided in urban areas, and that the diagnosis occurred during prenatal care, however, the partner was not treated. Only Amor Perfeito region showed a predominance of diagnosis performed at the time of delivery and Ilha do Bananal region was the one with the highest percentage of diagnosis carried out after birth. The increase in SC cases may reflect increase in its incidence and improvement in the notification system. The percentage of untreated partners and late diagnoses may suggest a qualitative and an access deficit in prenatal care.

Descriptors: congenital syphilis; epidemiology; health care regions.

RESUMO

Este é um estudo epidemiológico transversal descritivo, retrospectivo, dos casos de sífilis congênita (SC) notificados no Sistema de Informação de Agravos de Notificação (SINAN) entre 2013 e 2017. O trabalho objetiva descrever o perfil epidemiológico da SC nas oito regiões de saúde do Tocantins nesse período. As regiões de saúde foram relacionadas às variáveis: escolaridade materna, realização de pré-natal, zona de residência, momento do diagnóstico e tratamento do parceiro. Foram notificados 1.192 casos de SC e a região do Capim Dourado foi a que apresentou maior número de casos. Verificou-se que na maioria dos casos as mães estudaram até o ensino fundamental ou médio, realizaram pré-natal e residiam em zona urbana, e que o diagnóstico ocorreu durante o pré-natal, entretanto, o tratamento do parceiro não foi realizado. Apenas a região de saúde Amor Perfeito apresentou uma predominância de diagnósticos no momento do parto e a região da Ilha do Bananal foi onde houve maior percentual de diagnósticos após o parto. O aumento dos casos de SC pode refletir o aumento na sua incidência e a melhora no sistema de notificação. O percentual de parceiros não tratados e diagnósticos tardios pode sugerir um déficit qualitativo e de acesso na assistência pré-natal.

Descritores: sífilis congênita; epidemiologia; regiões de saúde

RESUMEN

Este es un estudio epidemiológico transversal descriptivo, retrospectivo, de los casos de sífilis congénita (SC) notificados en el Sistema de Información de Agravios de Notificación (SINAN) de 2013 a 2017 y objetiva describir el perfil epidemiológico de la SC en las ocho regiones de salud de Tocantins. Las regiones de salud fueron

relacionadas con las variables escolaridad materna, realización de prenatal, zona de residencia, momento del diagnóstico y tratamiento del compañero. Notificaron-se 1192 casos de SC. La región Capim Dorado fue la que presentó mayor número de casos. Se verificó que en la mayoría de los casos las madres estudiaron hasta la enseñanza fundamental o media, realizaron prenatal y residían en zona urbana, y que el diagnóstico ocurrió durante el prenatal, entretanto el tratamiento del compañero no fue realizado. Sólo la región Amor Perfecto presentó un predominio de diagnósticos en el momento del parto y la región Isla del Bananal fue donde hubo mayor porcentaje de diagnósticos después del parto. El aumento de los casos de SC puede reflejar el aumento en su incidencia y la mejora en el sistema de notificación. El porcentaje de compañeros no tratados y diagnósticos tardíos puede sugerir un déficit cualitativo y de acceso en la asistencia prenatal.

Descriptores: sífilis congénita; epidemiología; regiones de salud.

INTRODUCTION

Syphilis is a sexually transmitted infection caused by the bacterium *Treponema pallidum*. When this infection reaches pregnant women who do not carry out the treatment or perform it inadequately, the disease can be transmitted to the conceptus and receive the denomination of congenital syphilis (CS), being one of the most serious adverse preventable pregnancy outcomes (MOREIRA et al., 2017).

Approximately 40% of pregnancies result in fetal and perinatal losses and, in the remaining ones, around 50% of newborns may suffer from physical, sensory or developmental sequelae (KOMKA and LAGO, 2017)

According to the Epidemiological Bulletin of the Secretariat of Health Surveillance of the Ministry of Health (2017), syphilis affects one million pregnant women per year worldwide, leading to more than 300,000 fetal and neonatal deaths and putting at risk of premature death more than 200 thousand children.

In the last five years, Brazil has observed a constant increase in the number maternal and congenital syphilis cases, which can be partially attributed to the testing coverage increase, with the expansion of rapid tests usage, condom use reduction, resistance of health professionals to the administration of penicillin in Primary Care and worldwide shortage of penicillin. In addition, the increase in reported cases may reflect the enhancement of the surveillance system (MOREIRA et al., 2017)

Since 1986, CS has been included among the notifiable diseases in Brazil. However, when the national panorama is observed over time, it is noticed that little has changed, concerning data, since syphilis is a treatable / curable disease, with a low cost treatment when there are no complications (MOREIRA et al., 2017).

According to the Basic Health Indicators for Health: IDB 2017 Tocantins, the current Ministry of Health recommendations for the screening of syphilis during prenatal care should be executed at the first consult, still in the first trimester, and in the third trimester of pregnancy.

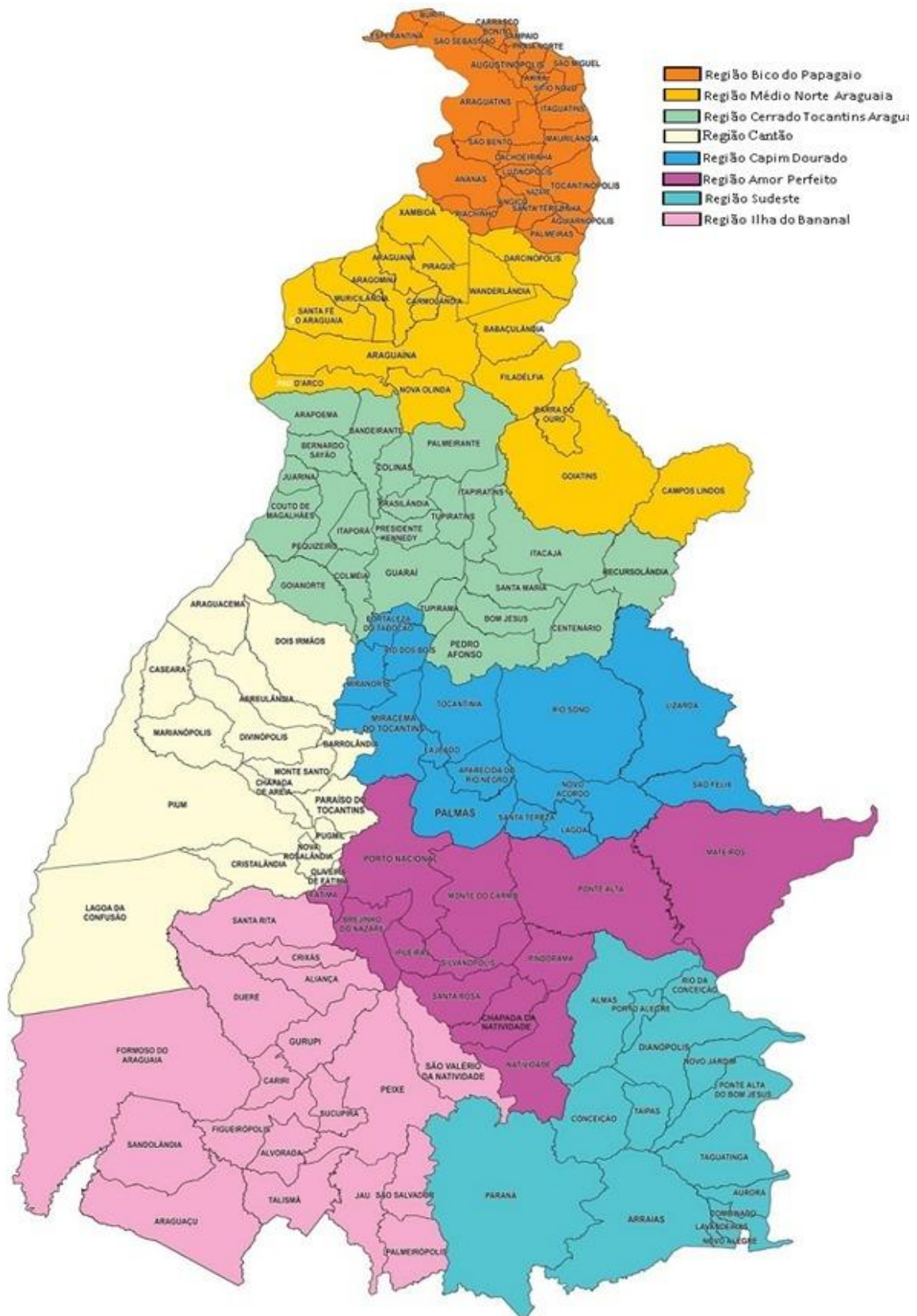
Numerous evidences indicate that adequate prenatal monitoring is an important factor in reducing the incidence of disorders such as low birth weight, prematurity, congenital infections and perinatal death. In order to avoid such outcomes, it is necessary that the assistance offered meet minimum requirements, which has traditionally been attributed only to the minimum number of consults and the time of beginning of the prenatal care.

The epidemiological scenario of syphilis in the country shows an increase in the number of cases and a high rate of vertical transmission (6.5 cases of CS per 1,000 live births), in addition to the serious repercussions of morbidity and mortality due to this infection (MOREIRA et al. 2017). Hence, the importance of describing the epidemiological profile of CS cases in Tocantins health regions.

According to Tocantins state health department (SES-TO), the first state regionalization occurred in 2002 with the definition of two macro-

regions (macro regions of Araguaína and Palmas) and six micro-regions of health. This process has gone through two more redesigns and since 2012 divides the

Figure 1. Tocantins health care regions



state in eight health regions: Médio Norte Araguaia, Bico do Papagaio, Sudeste, Serrado Tocantins Araguaia, Ilha do Bananal, Capim Dourado, Cantão e Amor Perfeito (figure 1). Regionalization of health care is one of the principles that guide the organization of the Unified Health System (SUS) health services and actions in a given region. It is also understood as a process of health actions and services organization in a given region, aiming at universality of access, equity, integrality and resolution. Finally, the health region has the purpose of integrating the organization, planning and execution of health actions and services.

The above shows the importance of studies focused on the health regions in order to identify the remaining challenges for the interruption of the transmissibility of this disease.

METHODS

A retrospective descriptive, cross-sectional epidemiological study of the cases of CS reported in the Information System for Notifiable Diseases (SINAN) from 2013 to 2017 was carried out, fed by the compulsory notification forms, which consist of standard forms with sociodemographic and clinical information filled out by health professionals.

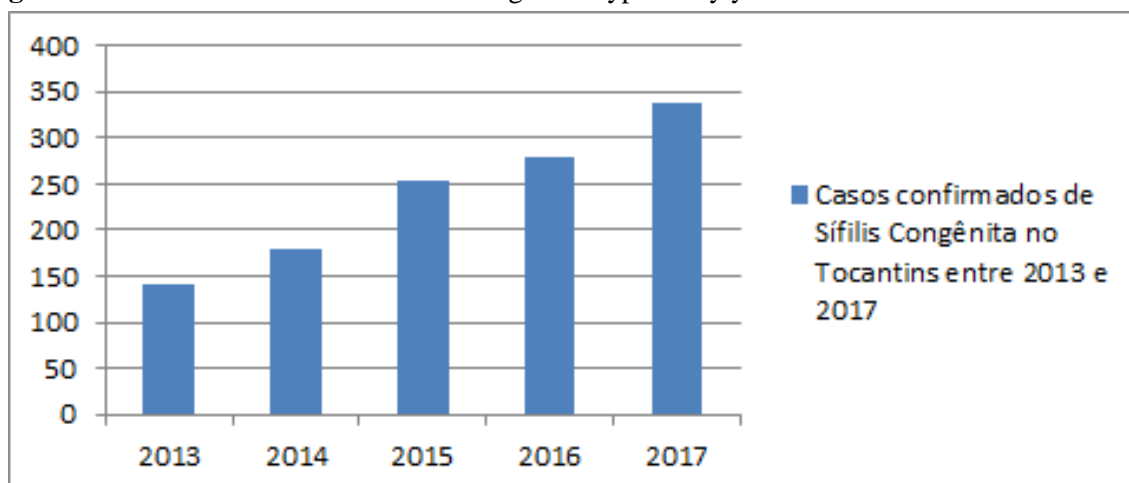
The epidemiological variables were studied in each health region, being: mother's education; performing prenatal care; area of residence; moment of diagnosis and treatment of the partner.

The exploratory data analysis was performed from the calculation of absolute and relative frequencies for categorical variables and the organization of the results in tables and figures, using simple descriptive statistics through Microsoft Excel 2010 software.

RESULTS AND DISCUSSION

In the period from 2013 to 2017 in Tocantins 1,192 cases of congenital syphilis (CS) were identified. The number of cases reported was increasing in the period studied (Figure 2). This behavior resembles the outline observed by NETO (2017) and CAVALCANTE et al. (2017), in Palmas, state capital. It has also been identified in municipalities and states of different Brazilian regions, such as Aracaju - SE (SANTOS et al., 2016), Rondônia (MOREIRA et al., 2017), Belo Horizonte - MG (NONATO et al., 2015) and Goiás (REZENDE and BARBOSA, 2015), which exposes the national nature of the difficulty of eliminating CS as a public health problem.

Figure 2. Number of cases confirmed of congenital syphilis by year from 2013 to 2017 in Tocantins.



Source: Ministry of Health/Secretariat of Health Surveillance – Information System for Notifiable Diseases – Sinan Net

Among the health regions, there were a greater number of cases in Capim Dourado region, followed by Médio Norte Araguaia,

The Capim Dourado region is the one that presents the highest frequency of the disease in all the years of the studied period except for 2016, the year in which Médio Norte Araguaia region notified more cases. It is important to emphasize that that is the most populous region of the state and the one with the highest population growth rate according to IDB (Basic Health Indicators for Health) 2017 Tocantins.

In relation to schooling, in Médio Norte Araguaia, Bico do Papagaio and Cerrado Tocantins Araguaia there was a predominance of women who studied until elementary school, being respectively 53%, 56% and 42%. In the regions Ilha do Bananal,

Bico do Papagaio, Amor Perfeito, Cantão, Ilha do Bananal, Cerrado Tocantins Araguaia and Sudeste (Table 1).

Cantão and Amor Perfeito the predominance was of women who studied until high school, corresponding to 41%, 51% and 45% respectively. In Capim Dourado region, there was 43% of the women studied until elementary or secondary education. In the Southeast, 32% studied until high school, 25% until elementary school, and 43% of the notifications were ignored, left blank or did not apply (Table 2).

A study conducted in Palmas, state capital, between 2007 and 2014, showed that 76% had from incomplete elementary school to high school education (CAVALCANTE et al. 2017).

Table 1. Cases confirmed by year of diagnosis and health region of residence

Year	Médio Norte	Bico do Papagaio	Sudeste	Cerrado Tocantins	Ilha do Bananal	Capim Dourado	Cantão	Amor Perfeito	Total
	(N)	(N)	(N)	(N)	(N)	(N)	(N)	(N)	(N)
2013	46	26	3	2	6	49	8	1	141
2014	44	19	7	12	7	55	14	22	180
2015	63	38	5	16	9	74	18	30	253
2016	84	59	4	14	8	63	20	28	280
2017	83	41	9	23	7	115	15	45	338
Total	320	183	28	67	37	356	75	126	1192

Source: Ministry of Health/Secretariat of Health Surveillance – Information System for Notifiable Diseases – Sinan Net

The predominance of low schooling reflects a difficulty in relation to the prevention and appropriate treatment of these pregnant women diagnosed with

syphilis. It is expected that the higher the level of education, the greater the understanding of the

pathology and of the attitudes required in its management.

Prenatal follow-up was predominantly performed in all health regions. The highest percentage of pregnant women who did not perform prenatal care occurred in the Southeast, corresponding to 21%. Bico do Papagaio region had the greatest coverage, corresponding to 94% of pregnant women assisted by prenatal care (Table 3).

At the state level, there was a total of 9% of non-prenatal care performance between 2013 and 2017.

A review study carried out between the years 2005 and 2015 at the national level demonstrated a progressive increase in prenatal care coverage in almost all the regions studied. However, in terms of quality, there was a high level of inadequacy due to the lack of routine laboratory tests, recommended basic procedures, prescriptions and guidelines during the consultations. It was evidenced that the prenatal care of Brazil during this period could not be considered adequate, needing to improve significantly in several aspects of care, mainly in a qualitative way (NUNES et al., 2016).

Table 2. Cases confirmed by health region and maternal schooling

Health Region	Illiterate		Elementary School		High School		Graduation		Ignored		Total (N)
	(N)	(%)	(N)	(%)	(N)	(%)	(N)	(%)	(N)	(%)	
Médio Norte Araguaia	4	1%	170	53%	129	40%	12	4%	5	2%	320
Bico do Papagaio	2	1%	103	56%	48	26%	3	2%	27	15%	183
Sudeste	0	0%	7	25%	9	32%	0	0%	12	43%	28
Cerrado Tocantins Araguaia	2	3%	28	42%	24	36%	2	3%	11	16%	67
Ilha do Bananal	1	3%	12	32%	15	41%	1	3%	8	22%	37
Capim Dourado	1	0%	153	43%	152	43%	7	2%	43	12%	356
Cantão	0	0%	33	44%	38	51%	1	1%	3	4%	75
Amor Perfeito	0	0%	26	21%	57	45%	3	2%	40	32%	126
Total	10	1%	532	45%	472	40%	29	2%	149	13%	1192

Source: Ministry of Health/Secretariat of Health Surveillance – Information System for Notifiable Diseases – Sinan Net

In all regions, the majority of the studied population resided in urban areas. Bico do Papagaio was the region with the highest percentage of residents in rural areas, corresponding to 17%, followed by Ilha do Bananal with 16% (Table 4).

Thus, no direct relationship between the area of residence and prenatal coverage was identified in this study, since Bico do Papagaio region presented the highest percentage of coverage.

Table 3. Cases confirmed by region of health and the performing of prenatal care

Health Region	Ignored		Yes		No		Total (N)
	(N)	(%)	(N)	(%)	(N)	(%)	
Médio Norte Araguaia	4	1%	288	90%	28	9%	320
Bico do Papagaio	6	3%	172	94%	5	3%	183
Sudeste	1	4%	21	75%	6	21%	28
Cerrado Tocantins Araguaia	3	4%	56	84%	8	12%	67
Ilha do Bananal	0	0%	32	87%	5	13%	37
Capim Dourado	11	3%	308	87%	37	10%	356
Cantão	2	3%	67	89%	6	8%	75
Amor Perfeito	10	8%	103	82%	13	10%	126
Total	37	3%	1047	88%	108	9%	1192

Source: Ministry of Health/Secretariat of Health Surveillance – Information System for Notifiable Diseases – Sinan Net

According to PNDS 2006 (National Survey of Demography and Child and Women's Health), access to prenatal care has increased considerably, considering that among the live births in the five years prior to the two surveys, the percentage of mothers who did not have any consultation during pregnancy decreased from 14% to 1%. This reduction was equally significant in urban and rural contexts. It is also worth noting that 77% of mothers performed at

least six prenatal consultations, as recommended by the Ministry of Health since 2000.

In most of the studied regions, the majority of the cases was detected during the prenatal follow-up, being in Médio Norte Araguaia 54%, Bico do Papagaio 44%, Southeast 54%, Cerrado Tocantins Araguaia 58%, Ilha do Bananal 54%, Capim Dourado 61% and Cantão 61% of diagnoses at this time. In Amor Perfeito region, the majority of the diagnoses was performed at the time of delivery, corresponding

to 52%. The Bico do Papagaio region was where the highest percentage of diagnoses performed after childbirth occurred, being 23%, while Ilha do Bananal

region was the one with the highest percentage of diagnoses not performed, corresponding to 5% of these (Table 5).

Table 4. Cases confirmed by health region and area of residence

Health Region	Ignored		Urban		Rural		Periurban		Total
	(N)	(%)	(N)	(%)	(N)	(%)	(N)	(%)	
Médio Norte Araguaia	4	1%	302	94%	13	4%	1	0%	320
Bico do Papagaio	2	1%	148	81%	32	17%	1	1%	183
Sudeste	1	4%	26	93%	1	4%	0	0%	28
Cerrado Tocant Araguaia	0	0%	58	87%	9	13%	0	0%	67
Ilha do Bananal	1	3%	30	82%	6	16%	0	0%	37
Capim Dourado	17	5%	328	92%	11	3%	0	0%	356
Cantão	1	1%	67	89%	7	9%	0	0%	75
Amor Perfeito	6	5%	106	84%	14	11%	0	0%	126
Total	32	3%	1065	89%	93	8%	2	0%	1192

Source: Ministry of Health/Secretariat of Health Surveillance – Information System for Notifiable Diseases – Sinan Net

It is noticed that, despite the high coverage of prenatal care, some regions presented considerable percentages of diagnoses performed after this period, making the quality of this assistance questionable.

According to the Technical Manual for the Diagnosis of Syphilis of 2016, every pregnant woman should be tested twice for syphilis during prenatal care. One in the first trimester of pregnancy and the second in the third trimester. It is also mandatory to perform a treponemal or non-treponemal test,

immediately after admission to labor in the maternity ward. It also emphasizes that the choice of the flowchart adopted in the testing for syphilis in pregnant women, both during prenatal care and before delivery, is made by each service. That would be according to their convenience, which should take into account the available laboratory infrastructure, including on weekends, the availability of professionals for the prompt execution of the chosen

tests and, finally, the type of tests available in the institution.

Table 5. Cases confirmed by health region and moment of diagnosis

Health Region	Ignored		Prenatal		Time of birth/ curettage		After Birth		Not performed		Total (N)
	(N)	(%)	(N)	(%)	(N)	(%)	(N)	(%)	(N)	(%)	
Médio Norte Araguaia	3	1%	174	54%	131	41%	8	3%	4	1%	320
Bico do Papagaio	5	3%	81	44%	52	28%	42	23%	3	2%	183
Sudeste	0	0%	15	54%	11	39%	2	7%	0	0%	28
Cerrado Tocantins Araguaia	0	0%	39	58%	21	31%	7	10%	0	0%	67
Ilha do Bananal	1	3%	20	54%	12	32%	2	5%	2	5%	37
Capim Dourado	3	1%	216	61%	118	33%	15	4%	4	1%	356
Cantão	1	1%	46	61%	13	17%	15	20%	0	0%	75
Amor Perfeito	1	1%	53	42%	65	52%	6	5%	1	1%	126
Total	14	1%	644	54%	423	35%	97	8%	14	1%	1192

Source: Ministry of Health/Secretariat of Health Surveillance – Information System for Notifiable Diseases – Sinan Net

Regarding the treatment of the partner, all the health regions presented a predominance of non-treatment, and the region where the partners were least treated was Médio Norte Araguaia, corresponding to 84% of the studied population. Among the regions, Cantão was where the treatment most commonly occurred, but with a percentage of only 39% of partners treated in the analyzed period. A high percentage of ignored or left blank cases were observed in the filling of the notification form, the largest of which was in the Amor Perfeito region,

corresponding to 49%, followed by the Southeast with 39% (Table 6).

In a study carried out in the city of Porto Velho, state capital of Rondônia, during the period from 2009 to 2014, 60.1% of the partners of pregnant women with syphilis did not receive treatment, as in this study, where most partners were not treated in all the analyzed regions. In order to reduce the incidence of maternal syphilis, it is essential to treat the partner(s) of the pregnant woman concomitantly in order to reduce or avoid reinfection. (MOREIRA et al., 2017).

Table 6. Cases confirmed by health region and treatment of the partner

Health Region	Ignored		Yes		No		Total (N)
	(N)	(%)	(N)	(%)	(N)	(%)	
Médio Norte Araguaia	13	4%	38	12%	269	84%	320
Bico do Papagaio	45	25%	23	13%	115	63%	183
Sudeste	11	39%	5	18%	12	43%	28
Cerrado Tocant Araguaia	6	9%	11	16%	50	75%	67
Ilha do Bananal	8	22%	7	19%	22	59%	37
Capim Dourado	68	19%	106	30%	182	51%	356
Cantão	14	19%	29	39%	32	43%	75
Amor Perfeito	62	49%	19	15%	45	36%	126
Total	227	19%	238	20%	727	61%	1192

Source: Ministry of Health/Secretariat of Health Surveillance – Information System for Notifiable Diseases – Sinan Net

CONCLUSION

The congenital syphilis epidemiological profile by state health region in the period studied shows considerable growth in the number of cases, which may indicate, besides the increased incidence, an improvement of the notification system. This increase, coupled with the fact that in all health regions most partners did not receive treatment and many diagnoses were performed in a late time, reflects the failure of assistance and an insufficiency in the quality of prenatal care actions, despite its growing coverage. It is therefore necessary to work on strategies to subsidize

the prevention and disease control actions in order to reduce the number of cases.

Todos os autores declararam não haver qualquer potencial conflito de interesses referente a este artigo.

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