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Structure and outcomes of syphilis control in pregnant women in primary care: a cross-sectional study

Estrutura e resultados do controle da sífilis em gestantes na atenção básica: estudo transversal

Estructura y resultados del control de la sífilis en embarazadas en atención primaria: un estudio transversal

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ABSTRACT

Objective: to evaluate the primary care service as to structure for, and outcomes in, control of syphilis cases in pregnant women. **Method:** this quantitative, descriptive study was conducted in basic health units in a city in Ceará state, between March and May 2019. The data were analyzed using descriptive and inferential statistics (Student's t-test). **Results:** the 43 health units were classified as satisfactory in overall structure, (p = 0.00), human resources (p = 0.00), diagnostic support (p = 0.00), and organization and recording (p = 0.00). Restrictions were found as regards the lack of penicillin in the health unities, being observed in 18.9% of the detection rate of syphilis in pregnant women and 18.1% of the incidence rate of congenital syphilis. **Conclusion:** evaluation of syphilis control in pregnant women in 2018 indicated, in the structure component, a lack of benzathine penicillin and professional training in anaphylaxis. Cases of syphilis in pregnant women and congenital syphilis are above national levels.

Descriptors: Primary Health Care; Prenatal Care; Syphilis; Outcome Assessment, Health Care.

RESUMO

Objetivo: avaliar o serviço de atenção básica quanto à estrutura e aos resultados relativos ao controle de casos de sífilis em gestantes. **Método**: estudo descritivo de abordagem quantitativa, realizado em unidades básicas de saúde de um município do interior do Ceará, entre março e maio de 2019. Dados analisados por meio de estatística descritiva e inferencial (teste t-student). **Resultados:** na avaliação global da estrutura, as 43 unidades de saúde foram classificadas como satisfatórias (p=0,00), assim como para os recursos humanos (p=0,00), apoio diagnóstico (p=0,00), organização e registro (p=0,00). Constataram-se limitações quanto à falta de penicilina nas unidades de saúde e nos resultados identificados, 18,9% na taxa de detecção de sífilis em gestantes e 18,1% na taxa de incidência de sífilis congênita. **Conclusão:** a avaliação do controle da sífilis em gestantes em 2018 apontou que, no componente estrutura, faltam penicilina benzatina e capacitação profissional sobre anafilaxia. Os casos de sífilis em gestantes e congênita estão acima dos níveis nacionais.

Descritores: Atenção Primária à Saúde; Cuidado Pré-Natal; Sífilis; Avaliação de Resultados em Cuidados de Saúde.

RESUMEN

Objetivo: evaluar el servicio de atención primaria en cuanto a la estructura y los resultados relacionados con el control de casos de sífilis en embarazadas. **Método**: estudio descriptivo con enfoque cuantitativo, realizado en unidades básicas de salud de una ciudad del interior de Ceará, realizado entre marzo y mayo de 2019. Se analizaron los datos mediante estadística descriptiva e inferencial (test t-student). **Resultados:** en la evaluación global de la estructura, se clasificaron las 43 unidades de salud como siendo satisfactorias (p = 0,00), así como en cuanto a recursos humanos (p = 0,00), apoyo diagnóstico (p = 0,00), organización y registro (p = 0,00). Se verificaron limitaciones respecto a la falta de penicilina en los establecimientos de salud y en los resultados identificados, 18,9% en la tasa de detección de sífilis en embarazadas y 18,1% en la tasa de incidencia de sífilis congénita. **Conclusión:** La evaluación del control de la sífilis en embarazadas en 2018 indicó que, en el componente estructural, faltan penicilina benzatínica y formación profesional en anafilaxia. Los casos de sífilis en embarazadas y congénitas están por encima de los niveles nacionales.

Descriptores: Atención Primaria de Salud; Atención Prenatal; Sífilis; Evaluación de Resultado en la Atención de Salud.

INTRODUCTION

Syphilis is a severe public health problem when affects pregnant women and causes: abortion, prematurity, neonatal mortality, and congenital manifestations[1]. We have observed an increase of syphilis cases in pregnant women and congenital syphilis in past years, which the goal is to eliminate this last one of 0.5 cases per 1.000 live births per year.

In Brazil, in 2018, there were 62,599 cases of syphilis in pregnant women with an incidence rate of 9.0/1,000 live births[2]. Whereas in the state Ceará, Juazeiro do Norte city notified 65 cases of syphilis in pregnant women and 47 congenital syphilis[3,4].

Among the challenges for the treatment control of syphilis in pregnant women and congenital syphilis are the structure and organization of primary care services, because we identify that by increasing the health team percentages with structure and the offer of detection and treatment, it is possible to maintain the relationship between the actions and the reductions of congenital syphilis[5].

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In addition, we consider that prenatal care, even when contributing to the early detection of cases with the availability of rapid tests, does not impact the incidence rate of syphilis reduction. Bearing this in mind, we identified limitations that must be the targeted for interventions to promote the prevention and impediments of the vertical transmission of the disease[6].

In that context, health professionals must carry out actions that can assure the quality of the care provided to pregnant women and the newborn regarding the management of the infection by syphilis[7], as well as reinforcing the precocious detection, the adequate management of cases (women and partner), and the awareness of the use of protection for the population overall[5]. Besides, it is important to increase the coverage of diagnostic tests, to train health professionals about diagnosis, treatment, and syphilis monitoring[8].

Based on the above considerations, we elaborated the following questioning: how do we find the structure and the results of syphilis cases in pregnant women in primary care? This study aimed to evaluate the primary care service regarding the structure and the results referring to the control of syphilis cases in pregnant women.

METHOD

A transversal study with a quantitative approach that utilized components related to the structure and result[9] of 43 Health Centers (UBS) from a city in the South of Ceará, that represents 89.6% of the UBS distributed in eight sanitary districts, which was composed by four or five UBS.

The inclusion criteria were: having, at least, a registered Family Health Team; and being a UBS headquarters of this team. We excluded the UBS that were: closed; under renovation; or that were not operating while data collection.

The research was carried out in March and May 2019 and developed in two steps: a) Structure Evaluation: single collection, after previous scheduling with the nurse manager of the UBS that helped in the survey of items related to the structure, for instance: clinics, procedures rooms, sorting room, pharmacy, immunization room, health education room, and others, and b) Results Evaluation: Through the data collected in the Health Information and Notification System (SINAN) and the Born Alive System (SINASC) provided by the Municipal Health Surveillance Sector.

For the analysis of the structure, we elaborated a checklist based on the technical norms of the UBS Physical Structure Manual, available in the process nº 3.161/2011 about the management of penicillin in UBS, and the Health Evaluation instrument of the National Health Access and Quality-Improvement Program (PMAQ)[10,11,12]. We highlight that we carried out a pilot test to verify the reliability of the data collection instrument, but there was no necessity for modification.

Thus, the checklist had 52 questions about the physical structure, human resources and materials, diagnostic support, medication, and organizational and register process, in which the items of each variable had the following classifications: satisfactory, unsatisfactory or inexistent; partially attended; and fully attended, with the attributions of zero, five and ten points, respectively[12,13]. That way, the sum of the points of each variable totals distinct higher scores (physical layout - 60 points; human resources - 60 points; material resources - 240 points; diagnostic support - 60 points; medication - 50 points; and organizational and register process - 50 points), so the 52 questions regarding the UBS structure components totalize a maximum of 520 points.

We highlight that we analyzed each category individually with its punctuation and respective rating. We classified the percentage reached in great (90.0% to 100.0% of the total points), satisfactory (75.0% to 89.9%), precarious (50.0% to 74.9%) or insufficient (49.9% and less)[13,14]. To analyze the results, we utilized the data of the born alive from SINASC and the number of congenital syphilis and cases in pregnant women of SINAN in the year 2018. We calculated the rate of detection of syphilis in pregnant women by the number of cases notified divided by the number of born alive, multiplied by 1,000. We calculated the rate of detection of congenital syphilis by the total number of born alive, multiplied by 1,000.

We utilized the Statistical Package for the Social Sciences (IBM SPSS®) program, version 20.0, analyzed by the descriptive statistics (absolute and relative numbers, measures of central tendency and dispersion) and inferential by the comparison of items rates with the adequacy (t-student test), considering significative ($p<0.05$) and presented in charts.

The Ethics Committee on Human Research of the institution approved this research and the study respected all ethical precepts that involve human beings.

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RESULTS

We identified that only two UBS attended the maximum percentage of points (520) regarding the structure, evaluated as great (> 90.0% of points), with 33 classified as satisfactory (75.0% to 8.0% of points) and with as precarious (50.0% to 74.9% of points). We observed that only District VI had UBS considered great, in District V, all were satisfactory, and between 6 Districts, we identified at least one UBS considered precarious.

In Table 1, we verify that in the global evaluation of the structure.

TABLE 1: Satisfaction description in the Health Centers by item of the evaluation questionnaire (n=43). Juazeiro do Norte, Ceará, Brazil, 2019.

Variables	Unsatisfactory	Partially satisfactory	Fully satisfactory	p-value* / (X±DP)
Physical structure				0.00 * / (8.565±1.784)
Clinic	-	1 (2.3%)	42 (97.7%)	
Pharmacy	-	1 (2.3%)	42 (97.7%)	
Sink in the clinic	2 (4.7%)	5 (11.6%)	36 (83.7%)	
Medication administration room	6 (14.0%)	6 (14.0%)	31 (72.0%)	
Health education room	11 (25.6%)	-	32 (74.4%)	
Accessibility	6 (14.0%)	11(25.6%)	26 (60.4%)	
Human resources				0.00 * / (7.538±1.177)
Prenatal 1x/week	-	-	43 (10.0%)	
Physician and Nurse in prenatal	-	22 (51.2%)	21(48.8%)	
ACS		16 (37.2%)	27 (62.8%)	
Nursing Technician			43 (100.0%)	
Syphilis training	4(9.3%)	11(25.3%)	28 (65.1%)	
Anaphylaxis training	32(74.4%)	5 (11.6%)	6 (14.0%)	
Material resources				0.00 * / (8.929±0.535)
Gynecological table	-	1 (2.3%)	42 (97.7%)	
Light spot	-	-	43 (100.0%)	
Adult scale	-	-	43 (100.0%)	
Sphygmomanometer	1 (2.3%)	3 (7.0%)	39 (90.7%)	
Clinical thermometer	-	-	43 (100.0%)	
Stethoscope	-	-	43 (100.0%)	
Sonar	-	3 (7.0%)	40(93.0%)	
Measuring tape	-	-	43 (100.0%)	
Specula	-	-	43 (100.0%)	
Cheron tweezers	1 (2.3%)	-	42 (97.7%)	
Eyre spatula	-	-	43 (100.0%)	
Endocervical brush	-	-	43 (100.0%)	
Lugol	-	-	43 (100.0%)	
Acetic Acid	-	-	43 (100.0%)	
Trash can with pedal	1 (2.3%)	4 (9.3%)	38 (88.4%)	
Descartex	1 (2.3%)	22 (51.2%)	20 (46.5%)	
Syringe 3 ml	-	-	43 (100.0%)	
Syringe 5 ml	5 (11.7%)	1 (2.3%)	37 (86%)	
Syringe 10 ml	4 (9.3%)	1 (2.3%)	38 (88.4%)	
Procedure glove	-	-	43 (100%)	
Male condoms	7 (16.3%)	3 (7.0%)	33 (76.7%)	
Feminine condoms	20 (46.5%)	3 (7.0%)	20 (46.5%)	
Syphilis or STI manual	22(51.2%)		21(48.8%)	
Syphilis educational material	27(62.7%)	2 (4.7%)	14 (32.6%)	
Diagnostic support				0.00 * / (8.934±1.210)
Obstetrical USG	2 (4.7%)	22 (51.1%)	19 (44.2%)	
Pap smear	-	5 (11.6%)	38 (88.4%)	
Hep. B rapid test	1 (2.3%)	1 (2.3%)	41 (95.4%)	
HIV rapid test	1 (2.3%)	1 (2.3%)	41 (95.4%)	
VDRL	-	7(16.3%)	36 (83.7%)	
Syphilis rapid test	5 (11.6%)	1(2.3%)	37 (86.0%)	

*t-*student* test.

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TABLE 1: Satisfaction description in the Health Centers by item of the evaluation questionnaire (n=43). Juazeiro do Norte, Ceará, Brazil, 2019. (continuation)

Variables	Unsatisfactory	Partially satisfactory	Fully satisfactory	p-value* / (X±DP)
Medication				0.00 * / (2.883±1.854)
Adrenaline	37(86.0%)	-	6(14.0%)	
Saline solution	1(2.3%)	1(2.3%)	41(95.4%)	
Fenergan	38(88.4%)	-	5 (11.0%)	
Benzathine Penicillin	43(100.0%)	-	-	
Distilled water	33(76.7%)	1(2.3%)	9(20.9%)	
Organizational and register process				0.00* / (7.627±1.380)
Reference	1(2.3%)	-	42(97,7%)	
Counter reference	32 (74.4%)	5 (11.6%)	6 (14.0%)	
Pregnant card	1 (2.3%)	2 (4.7%)i	40 (93.0%)	
Perinatal form	-	1 (2.3%)	42(97.7%)	
Syphilis notification form in pregnant women	12(27.9%)	2 (4.7%)	29 (67.4%)	

*t-*student* test.

We observed that 43 UBS were satisfactory (rate= 85.6%; p=0.00). All of them disposed of prenatal care at least once a week. The human resources were satisfactory (rate =75.5%, p: 0.00), the presence of physician and nurses were partially satisfactory (51.2%); fully satisfactory the syphilis training in the last two years (rate=89.2, p= 0.00) with the absence of feminine preservative (46.5%), syphilis manual or STI (48.8%) and educative material of syphilis/STI (62.7%).

The diagnostic support was satisfactory (rate= 89.3%, p=0.00) with rapid tests in sufficient quantity (95.3%), since the VDRL was partially available in 7 UBS (16.3%). The obstetric ultrasound (USG) was partially satisfactory (51.1%). The medication was insufficient (rate= 28.8%, p=0.00), and none of the UBS had Benzathine Penicillin. The organizational and register process were satisfactory (rate=76.2, p=0.00), especially regarding the presence of notification/investigation forms in pregnant women in sufficient quantities (67.4%).

In Table 2, we identify that there was no statistical significance in the association between the evaluated items referring to the syphilis diagnostic and treatment, however, they presented some homogeneity between the adequacy and inadequacy of professional training to the monitoring of syphilis cases.

TABLE 2: Structure evaluation description related to the diagnosis and treatment of syphilis cases monitoring regarding the satisfaction. Juazeiro do Norte, Ceará, Brazil, 2019.

Variables of structure related to diagnosis and treatment		Training for monitoring of syphilis cases		
		Unsatisfactory	Satisfactory	p-valor*
HIV rapid test	Inadequate	0 (0.0%)	2 (100.0%)	0.535
	Adequate	15 (36.6%)	26 (63.4%)	
VDRL	Inadequate	1 (14.3%)	6 (85.7%)	0.391
	Adequate	14 (38.9%)	22 (61.1%)	
Syphilis rapid test	Inadequate	2 (33.3%)	4 (66.7%)	1.000
	Adequate	13 (35.1%)	24 (64.9%)	
Benzathine Penicillin	Inadequate	-	-	-
	Adequate	15(34.9%)	28(65.1%)	
Distilled water	Inadequate	12 (35.3%)	22 (64.7%)	1.000
	Adequate	3 (33.3%)	6 (66.7%)	
Reference	Inadequate	1 (100.0%)	0 (0.0%)	0.349
	Adequate	14 (33.3%)	28 (66.7%)	
Counter reference	Inadequate	13 (35.1%)	24 (64.9%)	1.000
	Adequate	2 (33.3%)	4 (66.7%)	
Maternity card	Inadequate	1 (33.3%)	2 (66.7%)	1.000
	Adequate	14 (35.0%)	26 (65.0%)	
Perinatal form	Inadequate	1 (100.0%)	0 (0.0%)	0.349
	Adequate	14 (33.3%)	28 (66.7%)	
Syphilis notification form in pregnant women	Inadequate	3 (21.4%)	11 (78.6%)	0.308
	Adequate	12 (41.4%)	17 (58.6%)	

*Fisher's exact test

In Table 3, we present the absolute cases and syphilis indicators in pregnant women and congenital.

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TABLE 3: Variables of evaluation of syphilis results in pregnant women and congenital. Juazeiro do Norte, Ceará, Brazil, 2018.

Variables	n	f(%)
Reported cases of syphilis in pregnant women	80	
Reported cases of congenital syphilis	77	
Syphilis cases reported at the UBS	0	
Live birth cases	4238	
Syphilis detection rate in pregnant women		18.9
Congenital syphilis incidence rate		18.1

Source: Health Secretary from de Juazeiro do Norte (2018).

All cases were notified in the UBS, in 2018, with an 18.9% rate of detection of syphilis in pregnant women and an 18.1% rate of incidence of congenital syphilis.

DISCUSSION

In the primary care service evaluation, we identified a controversial result regarding the equality of the structure in most UBS, however, the rate of detection of syphilis in pregnant women and congenital syphilis are above the national rate.

In the global evaluation of the UBS structure, we verified that the majority is satisfactory regarding the rate of the items. The human resources are classified as satisfactory in the care for pregnant women but partially satisfactory regarding the presence of professionals with higher education, especially physicians. This result resembles an ecological study we have found that indicates the relation between the higher percentage of teams of primary care and the offer of treatment with penicillin and the decrease of incidence of gestational syphilis[14].

In this study, we confirmed that the professional training about syphilis approach is satisfactory, but not regarding anaphylaxis. In Brazil, health professionals present inadequate or insufficient knowledge about the management of syphilis in pregnant women. In Colombia, the obstacles for prenatal conduction are related to the lack of updates regarding the diagnosis and treatment of syphilis as well as the low availability of rapid tests for STI and benzathine penicillin in health services[15,16]. However, despite the importance of training for the teams, the institutions must have strategies to operationalize the immediate training in front of syphilis in pregnant women, a condition that must be reviewed according to the local epidemiological reality.

The adequacy of inputs for convenient diagnostic and treatment must be guaranteed in the Health Centers, aiming to avoid negligence in the monitoring of the pregnant women, which has as consequences the late diagnosis of syphilis and, consequently, vertical transmission. Regarding that aspect, this research discovered that the material resources are satisfactory, just as the diagnosis support related to the rapid tests, with less availability for VDRL.

Regarding the importance of rapid tests for the management of the disease during prenatal, or in any opportunity of attending women and their partners[7,17], we observed a higher percentage of teams of primary care that offered rapid tests[5,18], but more than half of pregnant women carried out exams at the beginning of the third trimester, and 57% of partners did not get tested[18].

Concerning the medications, they were insufficient by the absence of Benzathine Penicillin, which coincides with results from other studies that reveal its unavailability in the scope of primary care, although the administration of this medicine in this essential scope is a recommendation, in front of the high rates of incidence of syphilis in pregnant women[18,19]. On the other hand, research carried out in the Northeast region revealed that this medication is available in 87.1% of the teams of Family Health Strategy, however, almost 50% of them do not manage[18] them and lead pregnant women to a hospital environment in front of the lack of inputs to manage the cases of an anaphylactic reaction[20].

In this study, we established that health professionals are trained for syphilis care, but the notifications of pregnant women have occurred at the time of delivery in a hospital environment. A study in Londrina observed that most women were diagnosed during prenatal, the majority between the second and the third trimester of pregnancy[15]. Conversely, in Colombia, among the 316 cases of gestational syphilis, 80% were notified on prenatal and 20% at the delivery moment[21]. Given the above, we highlight that the UBS services must notify and treat the cases even on prenatal, as well as utilize strategies that help the monitoring of cases and control of the disease.

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In 2018, practically all the cases of syphilis in pregnant women of the municipality studied resulted in cases of congenital syphilis, and any notification was carried out by the health family teams, a finding that aligns with the structural and technical deficiencies in the monitoring and in the therapeutic approach of pregnant women. Besides the fragilities of the structure of the health units regarding the syphilis treatment, we also found failures in the monitoring and in the notification of the cases that resulted in vertical transmission.

Corroborating, a study carried out in Fortaleza indicated that the conditions of health units, involving organizational problems, physical layout, and follow-up, as well as the difficulties of health professionals in the management of sexually transmitted infections, are elements that interfere in the prevention and control of congenital syphilis with impacts on the increase of the indicator of cases of the disease[20]. We also identified that primary health care faces challenges related to its role in the detection of early diagnosis of syphilis and the treatment of pregnant women and partners[22].

Hence, it seems contradictory that in areas with family health strategy coverage, which could assure the early diagnosis and the opportune assistance to the cases of pregnant women with syphilis, in fact, has lost this opportunity and are not able to decrease congenital syphilis.

As a limitation of this study, we highlight the non-incorporation of the work process of the health teams as an element of evaluation that could clarify some uncertainties, for instance, the adequate operationalization of some components of the UBS structure.

CONCLUSION

In primary health care, the evaluation of syphilis control in pregnant women in 2018 indicated a lack of specific equipment used in care regarding the structure component, such as benzathine penicillin and the specific professional training about anaphylaxis. On the other hand, the result component presented syphilis cases in pregnant women and congenital syphilis above the national rate.

Hence, the results of this study revealed the necessity to straighten the responsiveness of the primary care regarding the syphilis control in pregnant women and the prevention of vertical transmission through resolutive actions with notification and the immediate treatment of pregnant women/partners.

This panorama reveals the necessity of improving the health indicators through developing strategies, through epidemiology vigilance as well as primary care professionals, aiming to assure the notification, management, and effective care of the health and control of congenital syphilis and syphilis in pregnant women.

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