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KNOWLEDGE OF HEALTHCARE PROFESSIONALS REGARDING THE VERTICAL TRANSMISSION OF SYPHILIS IN FORTALEZA-CE, BRAZIL

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ABSTRACT: The aim of this study was to investigate the knowledge of family health strategy professionals regarding the prevention and control of the vertical transmission of syphilis. This cross-sectional study was carried out in Fortaleza, Ceará, Brazil, from August to October 2009. A questionnaire was used, with its correct answers being in line with the recommendations of the Ministry of Health. Univariate analysis was carried out, with frequency distribution, mean and standard deviation. A total of 269 professionals participated, 44.7% had 6 to 10 years of experience in the FHS, and 60% of the questions regarding their knowledge were answered correctly: 75.8% were aware of the request period of the Venereal Disease Research Laboratory (VDRL) test; 78.1% of the alternative drug for the treatment for pregnant women allergic to penicillin, 55.1% of the request period for VDRL for cure and control, and 50.2% of the conduct with a sexual partner. It was concluded that healthcare professionals are unaware of the appropriate actions for the prevention and control of congenital syphilis.

KEYWORDS: Syphilis. Congenital syphilis. Pregnant women. Family health strategy. Knowledge.

CONHECIMENTO DOS PROFISSIONAIS DE SAÚDE ACERCA DA TRANSMISSÃO VERTICAL DA SÍFILIS EM FORTALEZA-CE, BRASIL

RESUMO: Objetivou-se verificar o conhecimento de profissionais da Estratégia Saúde da Família sobre ações de prevenção e controle da transmissão vertical da sífilis. Estudo transversal, em Fortaleza-CE, Brasil, de agosto a outubro de 2009. Utilizou-se questionário autoaplicado, considerando respostas corretas aquelas consoante às recomendações do Ministério da Saúde. Utilizou-se análise univariada, com distribuições de frequências, médias e desvios padrão. Participaram 269 profissionais, 44,7% com seis a dez anos de atuação na saúde da família; 60% das perguntas foram respondidas corretamente sobre o conhecimento destes da seguinte forma: 75,8% conheciam o período de solicitação do exame *Venereal Disease Research Laboratory*; 78,1%, a droga alternativa para tratamento da gestante alérgica à penicilina; 55,1% a periodicidade de solicitação do VDRL para controle de cura; e 50,2%, a conduta diante do parceiro sexual. Os profissionais de saúde pesquisados não detinham conhecimento adequado acerca das ações preventivas e do controle da sífilis congênita.

PALAVRAS CHAVE: Sífilis. Sífilis congênita. Gestantes. Saúde da família. Conhecimento.

CONOCIMIENTOS DE LOS PROFESIONALES DE SALUD SOBRE LA TRANSMISIÓN VERTICAL DE LA SÍFILIS EN FORTALEZA-CE, BRASIL

RESUMEN: El objetivo fue verificar el conocimiento de profesionales de la Estrategia de Salud de la Familia, con relación a las acciones de prevención y control de la transmisión de la sífilis. Estudio transversal, en Fortaleza-CE, Brasil, realizado de agosto a octubre/2009. Se utilizó cuestionario autoaplicado, se consideró como respuestas aquellas que eran consonantes con las recomendaciones del Ministerio de Salud. Se utilizó el análisis univariado, con distribuciones de frecuencias, medias y desviaciones estándar. Participaron 269 profesionales, 44,7% tenían 6-10 años de experiencia en la estrategia, y 60% de las preguntas fueron respondidas correctamente sobre el conocimiento: 75,8% conocía el período de aplicación de la prueba de *Venereal Disease Research Laboratory* (VDRL); 78,1% conocía la droga alternativa para el tratamiento farmacológico de mujeres embarazadas alérgicas a la penicilina; 55,1% sabía los intervalos para solicitar VDRL para control y cura; y 50,2% conocía la conducta delante del compañero sexual. Los profesionales de la salud no poseían conocimiento adecuado sobre las acciones para prevención y control de la sífilis congénita.

PALABRAS CLAVE: Sífilis. Sífilis congénita. Mujeres embarazadas. Estrategia de salud familiar. Conocimiento.

INTRODUCTION

The difficulty in the treatment and control of syphilis during pregnancy configures a serious public health problem and, although there are defined and accredited health policies in most countries,[1] including Brazil,[2] congenital syphilis (CS) is still portrayed as a global problem that is worrying national and international bodies responsible for the health of the population.[3] Evidence suggests that worldwide there are more than twelve million new cases of syphilis, and at least half a million children have the disease. In addition, maternal syphilis still results in half a million abortions and stillbirths.[4] In Brazil, from 1998 to June 2009, 55,124 cases of CS in infants under one year of age were reported. Of the 1,010 cases reported in 2008, 39% were in the Southeast region of Brazil, 33.9% in the Northeast, 13.4% in the North, 7.3% in the South, and 6.3% in the Central-west, indicating the nationwide coverage of the disease.[5]

In 2009, 4,536 cases of syphilis in pregnant women were registered, with the Southeast region remaining in first position with a reduction to 30%, and with the Northeast region also remaining in the same position as the previous year (second), and also showing a reduction to 24.8%.A mean of five thousand cases of the disease are registered per year,[6] with an estimate that about 50,000 parturients diagnosed with syphilis.[7] A study conducted by the Ministry of Health (MH),[8] in six Brazilian state capitals, found a prevalence of syphilis in pregnant women at approximately 2.6%, with the city of Fortaleza presenting a prevalence of 2.3%.

Although considered a notifiable disease, the registration of cases of syphilis in pregnant women and of CS are still far below what is expected, demonstrating significant weaknesses in the quality of the information and complicating further analysis of the extent of the problem.[9] Although having appeared more recently, HIV/AIDS has more structured surveillance and prevention actions, despite the fact that CS is a much more prevalent neonatal infection.[10] It is also worth noting that syphilis passed from mother to child, still persisting as a worldwide public health disease, becomes a key indicator to evaluate quality in prenatal consultations, explaining any deficiencies, such as those of a technical or structural nature.[11]

Some situations contribute to the persistence of syphilis,[12] among which the weakness in the operational dynamics of the health services and the low quality of prenatal care can be highlighted, jeopardizing the implementation of the recommendations for its control.[12-13] A study performed in Belo Horizonte-MG showed that 79% of the mothers of children born with CS attended some prenatal consultations. Of these, 55% had a diagnosis of syphilis in the pregnancy, and in 66% of all the cases the partner was not treated.[12] It is possible to see that even when the diagnosis of syphilis occurs during the prenatal care, some women are not adequately treated,[12,14] demonstrating the weakness of this care. Conversely, a study which examined the perception of women regarding syphilis demonstrated that they feel guilty for having transmitted the infection to the baby and hold the partners responsible,[15] a situation that may be hindering the appropriate referral of cases by healthcare professionals, since they do not feel qualified to handle the potential conflicts generated with a STD diagnosis.[16]

The control of CS therefore requires greater engagement from the professionals working in primary care, since it is at this level of assistance that the prenatal monitoring occurs, being a unique opportunity for an early request for the Venereal Disease Research Laboratory (VDRL) test and to provide the first care related to the prevention of the vertical transmission of syphilis. Furthermore, it is imperative to train professionals regarding technical issues of the disease management, such as in the approach toward pregnant women with syphilis, respecting the specificities and difficulties experienced in appropriately following the treatment.

Strategies should be developed to involve the partner in the treatment, and consequently to prevent and possibly abolish the disease.[9] The monitoring of pregnant women with positive VDRL requires healthcare professionals to adopt updated and appropriate behaviors. Therefore, it is necessary that the professionals responsible for conducting prenatal care within the primary healthcare system are empowered and committed to quality care[17] directed towards the prevention of CS, thereby improving the indicators of maternal and perinatal morbidity and mortality.[18]

Regarding the issues related to sexually transmitted diseases with the focus on syphilis and health promotion, through information, education and communication, it is necessary, given the specificity of the disease, to show the importance of ongoing in-service training. It is considered that gaps in the knowledge of professionals regarding the management of syphilis in pregnancy can jeopardize a favorable outcome in relation to the

prevention and control of CS. In this context, this study aimed to analyze the knowledge of professionals in the Family Health Strategy (FHS) in relation to the vertical transmission of syphilis in Fortaleza-CE.

MATERIALS AND METHODS

This descriptive study was carried out in Family Health Units (FHUs) in Fortaleza, Ceará. At the time of the study this municipality had 89 primary healthcare units, and 231 Family Health Teams, totaling 515 professionals working within the network. The data collection was conducted from August to October 2009 in 67 FHUs. Only those FHUs that had the complete Family Health Team during the data collection period were included. A self-administered questionnaire with 11 questions was used. The questionnaire was divided into two parts: the first investigated sociodemographic variables (age and gender) and variables relative to the training of the professionals (professional category, time of graduation, practice in the FHS, and training related to syphilis). The second part contained specific questions related to the recommendations of the MH for the prevention of the vertical transmission of syphilis.[2] The questions were divided into three themes: diagnosis, treatment, and monitoring of pregnant women diagnosed with syphilis. The following variables were analyzed: gender, age, length of time since graduation, length of time working in the FHS, period for the request for the VDRL in pregnancy, identification of the treponemal tests, treatment for pregnant women allergic to penicillin, frequency of the performance of the VDRL for cure and control, and conduct with the sexual partner.

The study population was composed of healthcare professionals, physicians and nurses, who performed prenatal care. The sample was calculated using an expected frequency of correct answers of 47%,[19] a confidence interval of 95%, and 5% error, giving a required sample of 220 professionals. This quantity was distributed proportionally among the six Regional Executive Secretariats (SERs), from the total number of professionals in each region. The field researchers attended each unit three times a week and the professionals were approached before the start of their daily activities. All were invited to participate and asked to answer the questionnaire and return it to the researcher while the field researcher was still in the unit, not allowing the instrument to be taken home. The aim was to avoid bibliographic consultations, which could compromise the study results. The researcher did not impose a maximum response time on the professional. A pilot test of the questionnaire was carried out with some professionals of the units in order to improve it and make the necessary adjustments to improve the understanding of the aspects studied. The questionnaires from the pilot test were not used in the data analysis.

The data were entered into the Statistical Package for the Social Sciences (SPSS) version 15.0, and presented using descriptive statistics. Univariate analysis through frequency distributions was used for the characterization of the professionals, and means and standard deviations for the numeric variables. The questions were classified as correct and incorrect. They were considered correct when they were in agreement with the standards recommended by the MH.[2] The questions that were not answered by the professionals studied were considered to be incorrect responses.

The study was approved by the Research Ethics Committee of the University of Fortaleza, with protocol n. 072/2009. The entrance of the researchers into the field was authorized by the Municipal Health Secretariat. All the participating professionals signed the Terms of Free Prior Informed Consent.

RESULTS

A total of 275 FHS professionals of Fortaleza, Ceará, were invited to participate in the study, with the refusal of six (2%). Of the 269 professional, 160 (59.5%) were nurses and 109 (40.5%) physicians. There was a predominance of females, with 189 (70.3%), and the age range was from 20 to 69 years. The majority of individuals, 150 (56.6%) were in the age group 31 to 40 years, and the mean age was 36 years (SD 8.2).

In relation to the variables length of time since graduation and length of time working in the FHS, there was a greater proportion in the period ranging from 6 to 10 years for both variables, with 110 (41.0%) and 119 (44.7%), respectively. It is noteworthy that four professionals did not report their age, one, the time since graduation, and three, the length of time working in the FHS. A total of 143 (53.2%) professional, 86 (53.8%) nurses and 57 (52.3%) physicians, had undergone training related to syphilis. Of all the professionals who had undergone training, 107 (74.8%) had performed this after joining the FHS.

Regarding the analysis of the total responses concerning the knowledge of the professionals on the management of pregnant women with VDRL, 1,775 (60%) of the questions were answered correctly. Figure 1 shows the analysis of the responses of the professionals for the study variables. The analysis by variable showed a considerable percentage of errors for all the variables.

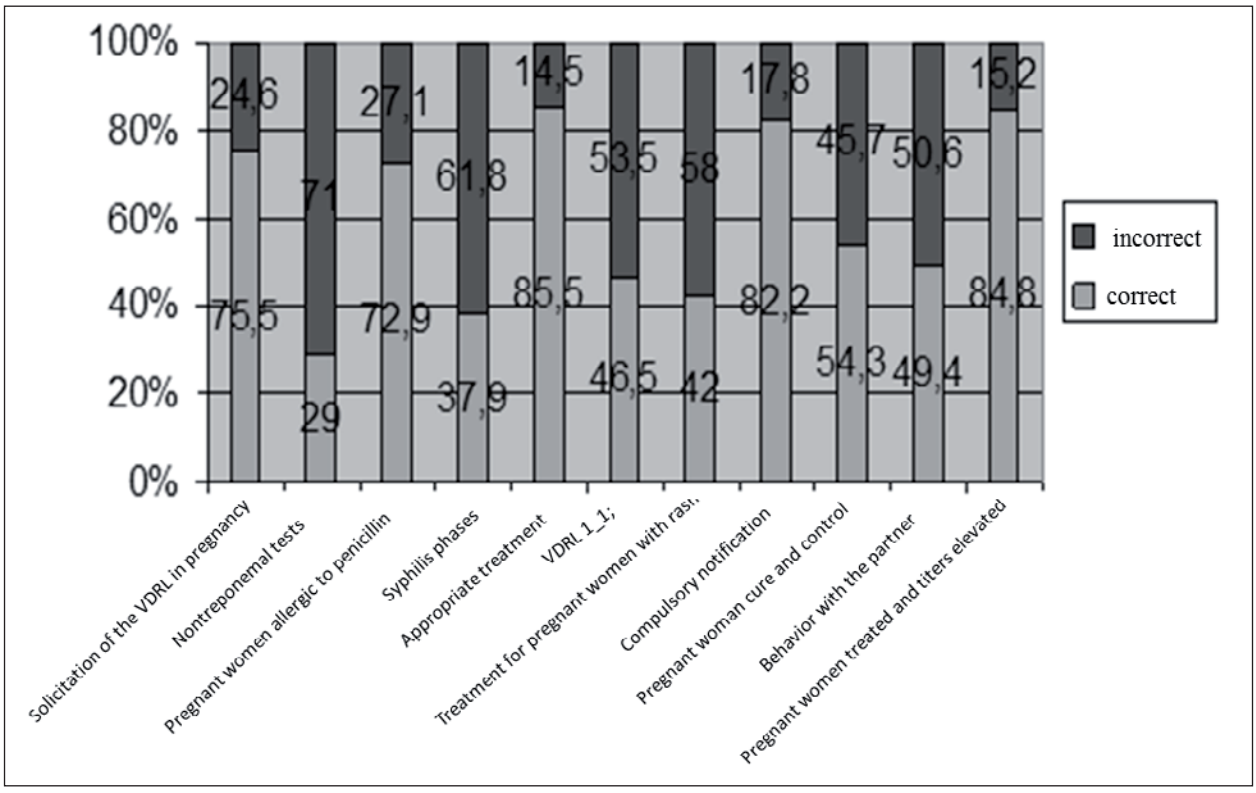

Figure 1 - Analysis of the correct and incorrect answers by variable regarding the knowledge of the professionals on the prevention of the vertical transmission of syphilis. Fortaleza-CE, 2009

Table 1 shows the relative frequencies of the variables: period for the request for the VDRL in pregnancy, identification of treponemal tests, treatment for pregnant women allergic to penicillin, frequency of the cure and control for the pregnant woman, and conduct with the sexual partner.

Table 1 - Knowledge of the healthcare professionals regarding the management of gestational syphilis. Fortaleza-CE, 2009

Variable	n	%
Period for VDRL performance in the pregnancy (according to the trimester) (n=269)		
1st and 3rd	204	75.8
1st 2nd and 3rd	56	20.8
1st	09	3.4
2nd and 3rd	-	-
Nontreponemal tests (n=256)*		
FTA-Abs and VDRL	109	42.6
VDRL and RPR	78	30.5
Elisa and TPHA	26	10.1
RPR and FTA-Abs	24	9.4
TPHA, FTA-Abs and Elisa	19	7.4
Treatment for pregnant women allergic to penicillin (n=252)*		
Erythromycin stearate	197	78.1
Doxycycline	34	13.5
Tetracycline	11	4.4
Amoxicillin	10	4.0
Frequency of the VDRL for cure and control (n=265)*		
Monthly	146	55.1
Quarterly	76	28.7
Bimonthly	30	11.3
Fortnightly	13	4.9
Behavior with the partner (n=269)		
Solicit the VDRL and treat according to the result	135	50.2
Treat with the same dose as the pregnant woman	133	49.4
Wait for elevation of the titrations before treating	01	0.4
De not treat if he is not showing signs and symptoms	-	-

* Some professionals did not answer the question.

A total of 204 (75.8%) professionals correctly responded that the VDRL test should be requested in the 1st and 3rd trimesters of the pregnancy, and 78 considered the VDRL and RPR to be nontreponemal tests (30.5%). Regarding alternative drugs for the treatment of pregnant women allergic to penicillin, 197 (78.1%) responded that they would use erythromycin stearate and 55 (21.9%) reported that they would treat pregnant women with tetracycline, doxycycline or amoxicillin. For 146 (55.1%) of the professionals the request for the VDRL for the cure and control of the pregnant woman should be monthly, and 133 (49.4%) reported that the sexual partner should be treated immediately, regardless of the result of the VDRL. The bivariate analysis showed that greater than ten years experience in the FHS was significantly associated with the period for the request for the VDRL in pregnancy 40 (78. 4%).

When analyzing the variables related to the performance of the treatment of syphilis, among the professionals surveyed the highest number of correct answers, 112/143 (78.3%), was related to the period for the request for the VDRL in pregnancy. However, in the questions concerning knowledge about the nontreponemal tests and the stages of syphilis, there was a higher percentage of errors, with 101 (70.6%) and 84 (58.7%), respectively (Table 2). When faced with a pregnant woman with a VDRL test with titer 1:1, 72 (60.5%) of the professionals reported that they would not treat her because the treatment would leave a serological scar, and 67 (56.3%) reported that they would not treat the sexual partner.

Table 2 - Knowledge of the healthcare professionals regarding the management of gestational syphilis. Fortaleza-CE, 2009

	Treatment for the pregnant women					Pregnant women allergic to penicillin					Cure control of the pregnant women					Period for request for the VDRL					Syphilis stages					Behavior with the partner				
	Correct (n=230)		Incorrect (n=39)		p value	Correct (n=196)		Incorrect (n=73)		p value	Correct (n=146)		Incorrect (n=123)		p value	Correct (n=203)		Incorrect (n=66)		p value	Correct (n=102)		Incorrect (n=167)		p value	Correct (n=133)		Incorrect (n=136)		p value
	n	%	n	%		n	%	n	%		n	%	n	%		n	%	n	%		n	%	n	%		n	%	n	%	
Professional category					0.461					0.000					0.834					0.008					0.174					0.000
Physician	94	86.2	15	13.8		96	88.1	13	11.9		60	55.0	49	45.0		73	67.0	36	33.0		49	45.0	60	55.0		71	65.1	38	34.9	
Nurse	136	85.0	24	15		100	62.5	60	37.5		86	53.8	74	46.2		130	81.3	30	18.7		53	33.1	107	66.9		62	38.8	98	61.2	
Time since graduation					0.643					0.316					0.730					0.064					0.531					0.314
≤5 years	55	87.3	08	12.7		49	77.8	14	22.2		33	52.4	30	47.6		42	66.7	21	33.3		26	41.3	37	58.7		35	55.6	28	44.4	
> 5 years	175	85.0	31	15.0		147	71.4	59	28.6		113	54.9	93	45.1		161	78.2	45	21.8		76	36.8	130	63.1		98	47.6	108	52.4	
Time in the FHS					0.740					0.763					0.591					0.028					0.228					0.235
≤5 years	83	86.5	13	13.5		71	74.0	25	26.0		50	52.1	46	47.9		65	67.7	31	32.3		41	42.7	55	57.3		53	55.2	43	44.8	
> 5 years	147	85.0	26	15.0		125	72.3	48	27.7		96	55.5	77	44.5		138	79.8	35	20.2		61	35.3	112	64.7		26	51.0	25	49.0	
Syphilis training					0.490					0.032					0.734					0.246					0.229					0.420
Yes	120	83.9	23	16.1		112	78.3	31	21.7		79	55.2	64	44.8		112	78.3	31	21.7		59	41.3	84	58.7		74	51.7	69	48.3	
No	110	87.3	16	12.7		84	66.7	42	33.3		67	53.2	59	46.8		91	72.2	35	27.8		43	34.1	83	65.9		59	46.8	67	53.2	

DISCUSSION

The healthcare professionals studied did not present satisfactory knowledge about the measures recommended by the MH for the prevention and control of CS. This situation, although occurring among the professionals in Fortaleza, may reflect the reality of other Brazilian states and municipalities.[20] Studies in different locations show that women with a positive VDRL are treated inappropriately during the prenatal period,[12,21-24] and that there is a lack of technical/scientific knowledge on behalf of the professionals regarding syphilis,[19,25] as well as other topics related to the healthcare.[26]

A percentage of correct responses higher than 80% occurred in the question related to considerations about the adequate treatment for pregnant women, which, in addition to the drug and the dose, should include the concomitant treatment of the partner. However, with regard to the attitude toward the treatment for the partner, just over half the professionals (50.2%) would provide treatment according to the VDRL test result. In the city of Campos, Rio de Janeiro state, a study of pregnant women with syphilis found that the majority of the partners were not treated, the main justification being a nonreactive VDRL result.[27] This situation is highlighted in other studies which evidence pregnant women and partners with syphilis being managed improperly, especially with regard to treatment,[16, 27-28] and the lack of reception and guidance for the sexual partners.[18]

The majority of the professionals demonstrated knowledge of the periods for the realiza-

tion of the VDRL tests in pregnancy, stating that it should occur in the first and third trimesters (75.8%). However, studies show low coverage of VDRL testing,[12,16,23,28] or its performance only once during the prenatal period, with a considerable number of cases of women who are not reevaluated in the third trimester.[3,12,27] It is possible that this low covering of syphilis testing in pregnant women could also be related to the limitations imposed by the healthcare services, which in some places do not make the screening test available or do not return the result within an appropriate amount of time.

A high proportion of the professionals studied could not correctly identify the treponemal and nontreponemal tests, as seen in Figure 1 (71%). It is possible that, since they do not know the types of tests recommended for the screening and confirmation of the diagnosis of syphilis, these professionals are also unaware of their interpretations, thus compromising the behaviors that should be adopted. It is important to consider that 21.9% of the physicians reported that they would treat pregnant women who are allergic to penicillin with another drug that was not erythromycin stearate (tetracycline, doxycycline and amoxicillin). These drugs are contraindicated in pregnancy due to the risks of harm to the fetus and the possibility of maternal toxicity.[2] In pregnant women treated with a drug other than penicillin, the fetus is not considered to have been treated, with the investigation and treatment of the child after the birth being compulsory.[2,29]

A considerable percentage of the professionals (44.2%) were unaware that the cure and control of the pregnant woman should be monthly, compromising the clinical monitoring of the pregnant woman, which was also found in the city of Olinda-PE.[30] It was also noted that 56.7% of the professionals had a lack of knowledge about the treatment for pregnant women in the secondary stage of syphilis, reinforcing the findings of other studies that indicated inadequacy in the treatment for pregnant women.[8,16] When a pregnant woman presents a VDRL test with titer of 1:1, the majority of the professionals said that they would order the confirmatory test. Faced with the impossibility of the performance of treponemal tests within the primary healthcare system, the MH recommends the treatment of pregnant women with reactive nontreponemal serology, regardless of the titration.[2,29] The notification of cases of syphilis in pregnant women is important for monitoring the problem and evaluating the actions implemented. The majority of the professional demonstrated the knowledge that syphilis in pregnancy is considered a notifiable disease (82.2%), however, few of them adhered to the notification process,[30] considering that in Fortaleza more cases of congenital syphilis were reported than cases of syphilis in pregnant women in the years 2005-2009.

This study involved FHS physicians and nurses, the professionals responsible for the diagnosis, treatment and monitoring of pregnant women with positive VDRL test results. It is worth mentioning the importance of ongoing education programs as a key factor for the development of healthcare practices based on scientific principles,[31] considering that more than half of these professionals had never undergone training related to syphilis. Training programs should develop attractive methodological strategies, as a study in the city of Duque de Caxias-RJ showed that FHS professionals did not feel motivated to participate in training, alleging that these programs did not add to the professional experience and that they were eminently theoretical.[32]

There is a consensus regarding the need for the periodic training of professionals,[26] to prevent improper conduct in attending the population. It is therefore necessary that attractive strategies are recognized as essential for the development of care activities and valued by the FHS professionals.

CONCLUSION

The professionals studied demonstrated a lack of knowledge regarding the diagnosis, treatment and monitoring of pregnant women with positive VDRL test results. Despite the general analysis of the total responses having shown that 60% of them were answered correctly, this percentage is considered lower than expected because syphilis is an easily treated disease, included in training programs, which has received investments for its control from the agencies responsible for public health policies.

Some professionals refused to answer the questionnaire, which may have caused a limitation in the study. However, this was minimized by increasing the participant sample size, which enabled the reduction of the sampling error. The need for a diagnosis within the appropriate time and, above all, for the adequate treatment of pregnant women with syphilis was considered ideal, with a percentage very close to 100% of correct

responses. It is possible that the lack of knowledge of the FHS professionals regarding the management of pregnant women with syphilis is reflecting actions that need to be strengthened through training and supervision within the services, aiming to promote quality care for pregnant women with syphilis. Given these results, it is urgent to rethink the formation and the ongoing training processes of FHS professionals in order to provide quality prenatal care.

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