

Implementation of HIV rapid testing in prenatal Primary Health Care

Implantação de testagem rápida para HIV na assistência pré-natal da Atenção Básica

Implementación de pruebas rápidas de VIH en asistencia prenatal de Atención Primaria

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ABSTRACT

Objective: to evaluate implementation of HIV rapid testing in prenatal primary health care in a health macro-region. **Method:** this cross-sectional study was conducted with Family Health Strategy teams from a Health Macro-region in Ceará State. Descriptive and inferential statistics were used and p-values determined by applying Pearson's chi-square test (χ^2). **Results:** the structure marker showed 64.6% of the primary care facilities to be achieving a satisfactory degree of implementation ($p < 0.0001$), unlike the process marker, by which 87.3% showed satisfactory implementation ($p < 0.0001$), or the results marker, by which the degree of implementation was satisfactory in 64.6% ($p < 0.0001$). **Conclusion:** implementation was found to be satisfactory by service organization process markers and test results. By structure markers, implementation was partially satisfactory.

Descriptors: Nursing; Primary Health Care; Pregnancy; Prenatal Care; HIV.

RESUMO

Objetivo: avaliar a implantação do teste rápido para HIV na assistência ao pré-natal da atenção básica de uma macrorregião de saúde. **Método:** estudo transversal, realizado com equipes da Estratégia de Saúde da Família de uma Macrorregião de Saúde do Ceará. Foi utilizada a estatística descritiva e inferencial, com a determinação do valor-p, por meio da aplicação do teste do qui-quadrado de Pearson (χ^2). **Resultados:** no marcador relacionado a Estrutura, 64,6% das Unidades Básicas de Saúde apresentaram grau de implantação parcialmente adequado ($p < 0,0001$), diferente do marcador relacionado a Processo, no qual 87,3% obtiveram grau de implantação adequado ($p < 0,0001$), e do marcador de Resultado, onde prevaleceu o grau de implantação adequado em 64,6% ($p < 0,0001$). **Conclusão:** identificou-se uma adequada implantação relacionada aos marcadores de processo de organização do serviço e de resultado da realização dos testes. Com relação aos marcadores de estrutura, apresentou uma implantação parcialmente adequada.

Descritores: Enfermagem; Atenção Primária à Saúde; Gravidez; Cuidado Pré-Natal; HIV.

RESUMEN

Objetivo: evaluar la implementación de la prueba rápida de VIH en la asistencia prenatal en la atención primaria de una macrorregión de salud. **Método:** estudio transversal, realizado junto a equipos de la Estrategia de Salud de la Familia de una Macrorregión de Salud de Ceará. Se utilizó la estadística descriptiva e inferencial, con determinación del valor p, mediante la aplicación de la prueba chi-cuadrado de Pearson (χ^2). **Resultados:** en el marcador relacionado a Estructura, el 64,6% de las Unidades Básicas de Salud presentaron un grado de implementación parcialmente adecuado ($p < 0,0001$), a diferencia del marcador Proceso, en el que el 87,3% obtuvo un grado de implementación adecuado ($p < 0,0001$), y del marcador Resultado, donde prevaleció el grado de implementación adecuado en un 64,6% ($p < 0,0001$). **Conclusión:** se identificó una implementación adecuada relacionada con los marcadores del proceso de organización del servicio y del resultado de la realización de las pruebas. En cuanto a los marcadores de estructura, presentó una implementación parcialmente adecuada.

Descriptores: Enfermería; Atención Primaria de Salud; Embarazo; Atención Prenatal; VIH.

INTRODUCTION

Prenatal care is the right moment to identify changes and, based on this verification, ensure welcoming and resolute assistance to pregnant women. In order for the pregnancy result to be a healthy child and a healthy postpartum woman, it becomes necessary to guarantee accessible prenatal care, of good quality and capable of intervening in unexpected problems. In this sense, qualified care requires strategies involving human, structural and technological resources¹.

Through Ordinance No. 1,459 of June 24th, 2011, the Ministry of Health (*Ministério da Saúde*, MS) instituted *Rede Cegonha* with the intention of qualifying the Maternal-Child Care Network throughout the country, as well as reducing the maternal and infant mortality rates². This care network includes comprehensive assistance with actions and services developed in Primary Health Care (PHC), as well as in secondary- and tertiary-level health care³.

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In PHC, high-risk pregnant women are detected and activities for the prevention and treatment of infections such as the human immunodeficiency virus (HIV) are carried out. In this context of *Rede Cegonha*, implementation of the rapid test for diagnosis of the HIV infection qualifies primary care and provides greater care resoluteness and quality, in addition to allowing restructuring and expanding the care network for people living with HIV/AIDS, as well as development of health education, welcoming, prevention and health care activities⁴.

In Brazil, according to data from the MS HIV/AIDS Epidemiological Bulletin, 134,328 pregnant women infected with HIV were reported from 2000 to June 2018. Of these, it was verified that 18.1% lived in the Northeast region. In 2019 alone, 8,312 pregnant women with HIV were identified in Brazil, 22.0% in the Northeast⁵.

However, access to diagnosis alone is not sufficient to ensure improvements in the quality of the care provided to pregnant women with HIV. Implementation of rapid tests in the services that comprise the SUS is a process that requires not only the training of a large number of professionals, but the organization of a care network within the Unified Health System (*Sistema Único de Saúde*, SUS), which guarantees access to pregnant women, parturient women and newborns to diagnostic conclusion, control and management of the HIV infection^{6,7}.

Given the scenario for the implementation of the rapid HIV test in the prenatal care context by the Family Health Strategy (FHS) teams and the complexity involved in implementing this strategy, this study aims at evaluating the implementation of the rapid HIV test in Primary Prenatal Care in a health macro-region.

METHOD

A cross-sectional and evaluative study conducted with Family Health Strategy (FHS) teams of a Regional Health Coordination Office (*Coordenadoria Regional de Saúde*, CRES) from the Cariri-CE Health Macro-region. The Donabedian triad (structure, process and result) was used to evaluate implementation of the rapid HIV test in Primary Prenatal Care⁸.

A health professional was selected from each team working in the municipalities of the CRES researched, trained to perform the rapid HIV test and responsible for this technology. A total of 91 of all 92 FHS teams were selected, as one of the researchers acts as a nurse in one of these teams. The professionals excluded were those distanced from the service due to vacation, sick leave or maternity leave. Eventually, 79 teams took part in the research.

For data collection, an already created and validated form was used for rapid HIV testing in the general population, with the need to modify it to include issues related to Primary Prenatal Care⁹.

To evaluate the implementation of the rapid HIV test in CRES primary care, three markers constructed based on the instrument were created: structure for the performance of counseling and rapid HIV testing; service organization process and HIV counseling and rapid testing practices; and result of the rapid HIV test.

The FHS teams showed to meet or not the conditions that comprise the set of items of the markers for implementing the rapid HIV test. The answers to each of the items evaluated were classified as MEETS (value 1) and as DOES NOT MEET (value 0), according to the criteria recommended by the Ministry of Health.

The teams were classified by adding up the markers according to a scale assessing the rapid HIV test implementation degree. For Structure: 0-4 points (inadequate); 5-7 points (partially adequate); 8-10 points (adequate). For Process: 0-10 points (inadequate); 11-19 points (partially adequate); 20-24 points (adequate). For Result: 0-2 points (inadequate); 3-5 points (partially adequate); 6-5 points (adequate). For total markers: 0-15 points (inadequate); 16-30 points (partially adequate); 31-39 points (adequate).

Descriptive statistics were used through absolute and relative frequencies, in addition to inferential statistics with p-value determination by applying Pearson's chi-square test (χ^2) with a 95% confidence interval ($p < 0.05$). The data were also analyzed with the help of the *Statistical Package for the Social Sciences*® (SPSS), version 23.0.

The study was conducted according to the guidelines contained in Resolutions No. 466/12 and 510/16 of the National Health Council, which deal with research studies involving human beings. The research protocol was approved by the Research Ethics Committee of the aforementioned institution.

RESULTS

Of all 79 FHS teams taking part in the research, 45 (58.2%) are from the rural area and, according to the health professionals, 76 (96.2%) are in areas accessible to the population. All the study professionals are nurses and a majority of 41 (51.9%) have less than three years of experience in the BHU. Nurses perform the rapid HIV test in all the BHUs and physicians do so only in nine (11.4%).

The highest number of training sessions to perform the rapid HIV test at CRES occurred from 2015 to 2017 (82.3%). The period with the highest percentage of training sessions was related to the years when there was a higher number of BHUs that implemented the rapid HIV test: from 2015 to 2017. In 51 (64.6%) BHUs, the hour load of these training sessions was below 20 hours and, in 54 (68.4%), they were promoted by the primary care team of the municipalities.

In relation to the number of pregnant women tested in the BHUs, 62 (78.5%) interviewees reported that it was not possible to obtain this information. However, in 41 (51.9%) BHUs, the nurses reported that no pregnant woman received reagent results, whereas in seven (8.9%), at least one pregnant woman had already received HIV reagent results.

In the set of items that comprise the structure markers for counseling and rapid HIV testing, the BHUs percentages meeting the listed conditions are presented, according to Table 1.

TABLE 1: Distribution regarding the number of BHUs, according to the structure markers for counseling and rapid HIV testing. Fortaleza, CE, Brazil, 2021.

Structure Markers	Yes		No		p-value
	N	%	N	%	
S1. Items that comprise the physical space to perform the HIV rapid test (adequate lighting and ventilation, washable floor, waterproof table/bench, sink for hand hygiene, clock/stopwatch, trash can).	16	20.3	63	79.7	<0.0001
S2. The physical space where the rapid HIV test is performed allows for privacy and confidentiality.	78	98.7	1	1.3	<0.0001
S3. The physical space where counseling and delivery of the results are carried out allows for privacy and confidentiality.	78	98.7	1	1.3	<0.0001
S4. It has a room or mobile cart to carry out the counseling and rapid HIV testing.	69	87.3	10	12.7	<0.0001
S5. It has materials to perform the rapid HIV test (alcohol, gauze, adhesive dressing, gloves, protection goggles, mask, lab coat/apron, specific printed forms).	33	41.8	46	52.2	0.177
S6. It has a specific refrigerator or thermal box to store the rapid tests.	53	67.1	26	32.9	0.003
S7. It has a sufficient amount of rapid HIV tests (test 1) as per demand.	77	97.5	2	2.5	<0.0001
S8. It has a sufficient amount of rapid HIV tests (test 2) as per demand.	55	69.6	24	30.4	0.001
S9. It has a sufficient amount of prevention inputs (male condoms).	61	77.2	18	22.8	<0.0001
S10. It has a sufficient amount of prevention inputs (male condoms).	19	24.1	60	75.9	<0.0001

The 80% cut in affirmative answers is considered a good index to evaluate an adequate implementation of rapid HIV tests; it is identified that items S1, S5, S6, S8, S9 and S10 are those that were below this parameter, which are also considered points that hinder an adequate implementation of rapid HIV tests in relation to the structure of the BHUs.

The markers for Service organization process and HIV counseling and rapid testing practices are presented in Table 2.

TABLE 2: Distribution of the number of BHUs, according to the markers for Service organization process and HIV counseling and rapid testing practices. Fortaleza, CE, Brazil, 2021.

Process markers	Yes		No		p-value
	N	%	N	%	
P1. There is a professional responsible for controlling the rapid tests' temperature.	68	86.1	11	13.9	<0.0001
P2. There is a professional in charge for controlling the rapid tests' stock.	79	100.0	0	0	1.000
P3. There is no delay in delivery of the rapid HIV tests.	79	100.0	0	0	1.000
P4. There is no loss of rapid HIV tests due to expiration date.	76	96.2	3	3.8	<0.0001
P5. The users have autonomy to access the prevention inputs.	37	46.8	42	53.2	0.653
P6. The inputs are distributed according to the need/amount requested by the users.	46	58.2	33	41.8	0.177
P7. Performs the rapid HIV test in prenatal care.	79	100.0	0	0	1.000
P8. Availability of professionals to perform the rapid HIV tests.	77	97.5	2	2.5	<0.0001
P9. Counseling and execution of the rapid test and preparation of the report are in charge of a single professional.	72	91.1	7	8.9	<0.0001
P10. Prioritizes performance of the rapid HIV test in pregnancy.	78	98.7	1	1.3	<0.0001
P11. Discloses the rapid HIV test results in the BHU.	78	98.7	1	1.3	<0.0001
P12. Carries out external activities in the community related to HIV/AIDS.	61	77.2	18	22.8	<0.0001
P13. The user does not find it difficult to undergo the rapid HIV test in the BHUs in relation to the professionals available or to lack of vacancies and materials.	78	98.7	1	1.3	<0.0001
P14. The user does not find it difficult to access the rapid HIV test in the BHUs.	77	97.5	2	2.5	<0.0001
P15. Performs pre-test counseling.	71	89.9	8	10.1	<0.0001
P16. Performs the consented approach before performing the rapid HIV test.	78	98.7	1	1.3	<0.0001
P17. The professional performs the rapid test.	79	100.0	0	0	1.000
P18. Performs post-test counseling.	73	92.4	6	7.6	<0.0001
P19. Records diverse information about performing the quick test and delivering the result.	74	93.7	5	6.3	<0.0001
P20. The professional feels able to perform HIV counseling and rapid test.	69	87.3	10	12.7	<0.0001
P21. The professional understands that performing the rapid HIV test is part of his/her duties.	75	94.9	4	5.1	<0.0001
P22. The professional does not find it difficult to perform the rapid HIV test in his/her everyday practice.	38	48.1	41	51.9	0.822
P23. Guides the user's return for a new test in case of an immune window.	70	88.6	9	11.4	<0.0001
P24. Notifies cases with reagent diagnosis for HIV infection.	63	79.7	16	20.3	<0.0001

A set of items was identified that makes up the way in which the services are organized to try to incorporate rapid testing into the routine, as well as performance of the HIV counseling and rapid test specific actions.

In the set of markers for Service organization process and HIV counseling and rapid test practices, five conditions that were not met in the services were observed (items P5, P6, P12, P22 and P24), as they obtained percentages below 80%.

Based on these conditions, it was observed that only in 37 (46.8%) of the BHUs, the users enjoy autonomy to access the prevention inputs, without having the need to go through an appointment or consultation before fetching them (item P5). In addition to that, in 46 (58.2%) cases, the inputs are distributed according to the amount requested by the users (item P6).

It was also identified that 61 (77.2%) of the BHUs perform external activities related to HIV/AIDS, such as events, task forces and commemorative dates, according to given examples (item P12). In item P22, it is also observed that only in 38 (48.1%) of the BHUs, health professionals do not find difficulties to perform the rapid HIV test in their everyday practice, with notification of the cases diagnosed for HIV infection by the professionals participating in the research not reaching 80% (item P24).

Table 3 presents the result markers corresponding to performance of the rapid HIV test in the BHUs under study.

TABLE 3: Distribution of the BHUs according to the markers corresponding to Result of the rapid HIV test. Fortaleza, CE, Brazil, 2021.

Result markers	Yes		No		p-value
	N	%	N	%	
R1. The professionals rely on the counseling they offer when delivering a reagent HIV result.	35	44.3	44	55.7	0.368
R2. They seek to sensitize users with a diagnosis of HIV infection to reveal or summon their partner.	77	97.5	2	2.5	<0.0001
R3. Referral to the specialized reference service.	57	72.2	22	27.8	<0.0001
R4. Counter-referral of all the information from the reagent cases for HIV infection.	56	70.9	23	29.1	<0.0001
R5. Users with a reagent HIV result arte summoned.	78	98.7	1	1.3	<0.0001

A set of items related to the way in which health professionals conduct closure of the testing process with possible reagent HIV results was identified.

Also considering the 80% cut in affirmative answers, it was observed that, in 35 (44.3%) of the BHUs, the professionals reported that they trust the counseling they did when they delivered a reagent HIV result (item R1). After an HIV infection diagnosis, 57 (72.2%) of the BHUs refer the user to the specialized reference service (item R3) and 56 (70.9%) of the BHUs receive counter-referrals of the referred cases (item R4), not meeting these conditions, as they present a percentage below 80%.

It was observed that, in the marker related to the Structure for HIV counseling and rapid test, 51 (64.6%) of the BHUs presented a partially adequate degree of implementation, unlike the marker related to Service organization process and HIV counseling and rapid HIV test practices, in which 69 (87.3%) of the BHUs obtained the appropriate degree of implementation, and the Result of the rapid HIV test marker, which the adequate degree of implantation also prevailed in 51 (64.6%) of the BHUs.

After the Friedman test, it was verified that there was a difference between the markers ($p < 0.0001$). Conover's test confirmed that process structure ($p < 0.0001$) and result structure ($p < 0.0001$) differed, as well as result process ($p < 0.0001$).

In the statistical analysis, based on application of Pearson's chi-square test, all markers had $p > 0.05$, indicating that there is no significant difference between the BHUs with a training hour load of less than and more than 20 hours in terms of Structure, Process and Result of the rapid HIV test. Thus, training hour load does not statistically interfere in the degree of implementation of rapid HIV tests in the BHUs of this CRES.

DISCUSSION

Over the years, from 2009 to 2018, the number of training sessions was intensified and, consequently, so was implementation of the rapid HIV test in the BHUs, more specifically in the period from 2015 to 2017, showing that this new technology is still in the implementation phase in Primary Health Care in Brazil.

Considering that the rapid HIV test has simplified techniques and can be performed in the medical and nursing offices themselves, it becomes imperative to invest so that its implementation occurs effectively in primary care and during the first appointment of pregnant women in prenatal care¹⁰.

In the BHUs characterization, in relation to the profile of the professionals taking part in this research, the nurses were the professionals who answered the form as responsible for the rapid HIV test in all BHUs. Nurses are indispensable professionals in this rapid testing process, articulating all the stages with the pregnant women, from offering the test to delivering its result. A study carried out in Rio Grande do Sul concluded that expanding the view on the importance of nurses for the care of women in the pregnancy-puerperal period is something crucial and which demands hard work, verifying the relevance of the Nursing category as the most qualified in this study for performing the rapid test for syphilis and HIV in primary care.

According to the Guiding Guide for the training sessions for executors and multipliers in Rapid Tests for HIV and Syphilis and Counseling in STIs/AIDS in Primary Care for pregnant women, states and municipalities enjoy autonomy to plan and carry out the training sessions according to their objectives, needs and conditions, with the possibility of resorting to remote courses to reduce the training sessions' face-to-face hour load. However, according to the Ministry of Health recommendations, the total hour load of the training sessions must have at least 30 hours: 15 hours in person and 15 hours in the remote modality¹².

In this study, it is noticed that this recommendation was followed until 2015, when the implementation of rapid tests in the municipalities that comprise the CRES under study was initiated; however, from 2016, the training sessions had a reduction in their hour load contributing to a deficit in deepening on the topic by the professionals in the performance of tests and adequate delivery of the results.

The limited training time is not enough to prepare the professionals to deal with the other stages involved in rapid testing, such as counseling and referral of users with reagent results. Thus, in order to improve implementation of the rapid HIV test in the municipalities, it becomes necessary to implement a permanent education policy that addresses, in addition to the technical procedures of testing, the psychological, emotional and social aspects that permeate HIV/AIDS¹³.

Another element that draws the attention in this study is the fact of the remarkable participation of nurses in the training sessions, as well as the absence of other professional categories, even when testing is characterized as a multiprofessional procedure. Only one municipality included physicians in the training, expanding access to this technology to the population since, in addition to developing care and educational activities, nurses assume administrative functions such as management of the BHUs, making it difficult to offer the tests in the service routine.

It is observed that a major challenge for implementation of the FHS is the physical structure of the BHUs. The existence of units often with inadequate physical structure is noticed, which compromises the work process and, consequently, consolidation of the SUS principles and guidelines¹⁴. In several studies analyzed in Brazil on the implementation of rapid tests in the FHS, it can be observed that most of the BHUs present certain inadequacy of their physical space or in some structural aspect evaluated, compromising effective implementation of the tests^{4,9,10,13}.

In relation to the process of service organization and HIV counseling and rapid test practices, it is emphasized that release of condoms should not necessarily be tied to an appointment. This action avoids the difficulty that the user may have in exposing his/her intimacy to the professional and compromise care continuity⁹.

Another strategy that should be encouraged by managers to expand access to rapid HIV tests in primary care is the performance of health actions in the community. Health education activities should be implemented in primary care, disclosed through the dissemination of mass campaigns to the entire population and by specific intervention actions in the community, focusing on popular participation in the planning and execution process to attract better results and, consequently, reduce vulnerabilities of the enrolled population¹⁵.

Considering the result markers of the rapid HIV test in the BHUs surveyed, less than half of the nurses interviewed rely on the counseling they performed when they had to deliver a reagent HIV result. In a research study, primary care professionals evaluated that knowing the characteristics of the different population groups that are served eases the support approach. Thus, a closer relationship strengthens the bonds for the personalization of counseling¹⁶.

Also in relation the result markers of the rapid HIV test, deficits were identified in the referral of reagent cases to the specialized reference service and in receiving the counter-referral of these cases. Absence of adequate referral or ignorance about the locus to which to refer users with reagent HIV results contribute to further aggravating their suffering, as it can lead them to travel several paths, sometimes distant, until arrival at the correct reference service¹³.

In this sense, communication between the services becomes fundamental for care continuity and effective care to users with HIV reagent results. Thus, the users' and health professionals' knowledge about organization of the service network is crucial for the functioning of the referral and counter-referral system. Lack of knowledge about the referral calls into question the quality of the training received by the health professionals and can also be attributed to the lack of a permanent education policy focused on rapid testing in the FHS context¹³.

Regarding these degrees of implementation, in this study it was identified that the markers related to the structure for the performance of HIV counseling and rapid tests found a partially adequate implementation in most of the BHUs. This result was also verified in previous studies, indicating that, in general, BHUs have structural aspects that do not interfere with implementation of the rapid HIV test, but that these aspects can be improved so that there is adequate implementation of the tests⁹.

In the set of markers related to the process of organizing the service and result of performing the tests, adequate implementation prevailed in most of the BHUs researched, indicating that, even with the difficulties faced, BHUs can organize themselves to perform the rapid HIV test. Even with the lack of structural, human and material resources, the FHS tries to incorporate offer of the rapid test in the routine of the appointments at the BHUs⁹.

The limitations of this study include the classification of the implementation and the type of study. In a cross-sectional study, the data indicate a single moment, not showing the changes in the implementation of the rapid HIV test over time. In addition to that, there may have been underestimation in the answers given by the professionals interviewed in relation to some markers analyzed.

CONCLUSION

The Basic Health Units (BHUs) presented adequate implementation related to the markers of the process of service organization and result of the tests. In relation to the structure markers, most of the BHUs had partially adequate implementations.

Nurses are the most qualified health professionals and those who most perform rapid HIV tests in the BHUs, also being responsible for administrative, managerial and care activities, with the possibility of being overloaded with countless duties. Rapid HIV testing should be decentralized to the other categories that comprise the multiprofessional team, promoting an increase in the offer of tests for the population.

The training sessions with hour loads below 20 hours are not enough to prepare the professionals to deal with the stages involved in rapid testing. Thus, it becomes necessary to carry out a permanent education policy that addresses the psychological, emotional and social aspects that permeate HIV/AIDS.

The findings of this research offer support in order to contribute to proper implementation of the rapid HIV test in Primary Prenatal Care, contributing with managers and also to the teaching, research and care practice. It also becomes needed to conduct new studies that consider the health professionals' and users' perspectives in the evaluation of how the rapid HIV test is implemented in primary care.

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