Evaluation of screening for *Chlamydia trachomatis* among young women in primary health care services in Manaus, Amazonas State, Brazil

Avaliação de rastreamento de *Chlamydia trachomatis* em mulheres jovens em serviços de atenção primaria de Manaus, Amazonas, Brasil

Evaluación de los exámenes de control de *Chlamydia trachomatis* entre mujeres jóvenes en los servicios de salud de atención primaria en Manaus, Amazonas, Brasil

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Abstract

Screening for Chlamydia trachomatis *is not routinely offered to young asymptomatic women in Brazil. This study evaluated the performance, usefulness, and operational suitability of the Digene Hybrid Capture II (HCII) CT-ID DNA-test as an opportunistic screening tool to detect* C. trachomatis *in the public health system in Manaus, Amazonas State. Women aged 14-25 years who attended primary health care services were interviewed and one cervical specimen was collected during cytological screening. The HCII CT test was evaluated for its ability to detect the presence of* C. trachomatis *and against real-time PCR (q-PCR) in a subset of samples. Operational performance was assessed through interviews with providers and patients. Overall, 1,187 women were screened, and 1,169 had a HCII CT-ID test result (292 of these were also tested by q-PCR). Of those, 13.1% (n = 153) were positive. The sensitivity, specificity, positive and negative predictive values of HCII CT were 72.3% (95%CI: 65.4-78.6), 91.3% (95%CI: 84.1-95.9), 93.8% (95%CI: 88.5-97.1), and 64.4% (95%CI: 56.0-72.1), respectively. Sample collection caused discomfort in 19.7% of women. Among health professionals (n = 52), the main barriers reported included positive cases who did not return for results (56.4%), unwillingness to screen without an appointment (45.1%), and increase in their workload (38.8%). HCII CT-ID identified a high proportion of* C. trachomatis *cases among young women in Manaus. However, its moderate sensitivity limits its use as an opportunistic screening tool in primary health care settings in Manaus. Screening was well accepted although the barriers we identified, especially among health professionals, challenge screening detection and treatment efforts.*

Chlamydia trachomatis*; Mass Screening; Women's Health*

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Introduction

Chlamydia trachomatis is the most commonly diagnosed sexually transmitted bacterial infection (STI) worldwide [1,2]. Several countries such as The Netherlands and the United Kingdom have witnessed an increase in *C. trachomatis* case reports over the last decade [3,4], although the overall burden has decreased in other countries including the United States [5].

Genital infection with *C. trachomatis* is asymptomatic in 50-88% of Colombian women [6] and is most common in young women [7]. Untreated infections can cause pelvic inflammatory disease (PID) [8], ectopic pregnancy [9], and subfertility [10]. Risk factors for *C. trachomatis* infection include young age, having more than one sexual partner, and recent change of partner [11,12].

Given the frequent asymptomatic nature of the infection and the importance of early treatment to reduce transmission and prevent *C. trachomatis*-related morbidity, many developed countries are offering opportunistic screening to all sexually active people under the age of 25 years [1,13], except the US where screening focuses only on women younger than 25 years [14]. Evidence from clinical trials suggests that screening is effective in reducing the incidence of PID while a large nonrandomized cohort found no benefit of offering screening in reducing sequelae in women [15].

However, screening implementation might be hampered by operational and technical difficulties [16]. Barriers to health practitioners offering a test include lack of time and reluctance to raise sexual health issues within general practice [17]. Young people are willing to accept screening although low risk perception, poor health seeking behavior mainly due to the asymptomatic nature of the infection, poor understanding of what testing involves, and embarrassment remain important obstacles for screening uptake [18,19].

In Brazil, although data on *C. trachomatis* population prevalence is scarce, a study conducted in six cities estimated that 9.4% of women in the general population were infected [20] and nationwide, parturient women under 25 years of age showed a prevalence of infection at 9.8% [11]. *C. trachomatis* screening is not systematically offered at health services. The Digene Hybrid Capture II DNA test (Qiagen, Mississauga, Canada) to identify *C. trachomatis* (HCII CT-ID) is the only molecular test approved system for *C. trachomatis* screening in the Brazilian public health system. This nucleic acid hybridization assay is no longer recommended by the US Centers for Disease Control and Prevention (CDC) for routine use based on performance [21]. This test has shown sensitivity ranging from 93.8%-97.7% and specificity ranging from 95.9%-100.0% compared to those of culture [22,23,24,25]. Cell culture was considered the gold standard for detection of *Chlamydia* due to specificity as high as 100% [21]. However, culture presents disadvantages such as high-cost, technical complexity, labour intensity, and low sensitivity (50%) when compared to nucleic acid amplification testing (NAAT) [26]. Compared to culture, polymerase chain reaction (PCR) on cervical swab has shown very high specificity, usually ≥ 99% [21], while a meta-analysis reported a pooled sensitivity of 88.6% [26].

The aims of this study were to evaluate, in primary health care clinics in Manaus, Amazonas State, Brazil, the performance of the HCII CT-ID test using cervical specimens against the real-time PCR (q-PCR) assay as a gold standard; its usefulness to detect *C. trachomatis* cases among women under 25 years; and its operational suitability when used as an opportunistic screening tool from both the health professionals' and women's perspectives.

Material and methods

Study setting and population

Manaus is the capital city of Amazonas State (1,802,014 inhabitants) and has the second highest prevalence of *C. trachomatis* infection in Brazil [20]. The study was conducted in the Central-West Health District of the municipal public health system from the city of Manaus. This area, with two policlinics and 22 primary health care (PHC) services covering 14.1% of Manaus population, was selected because it presented a good health infrastructure system, PHC with equipped rooms for endocervical sample collection, and the health staff offered cervical cancer screening. Throughout the implementation of *C. trachomatis* screening, coordination between the Secretariat of Health in Manaus, the Central-West Health District, and its PHC services was established through regular meetings.

Between October 2012 and December 2013, we recruited women presenting at the two policlinics and 21 PHC services. Screening was offered during patient visits or when cytology to screen for cervical cancer was collected. We included asymptomatic women aged 14 to 25 years who agreed to sign the consent form. We excluded pregnant women and those who had used antibiotics during the previous 15 days.

Study and specimens processing

The target population were informed about the study aims during an advertising campaign that included displaying posters at health services, community health workers advertising during home visits, and educational talks at schools offered by medical students. The campaign was initiated shortly before recruitment and conducted throughout the screening program. Participants provided signed informed consent and completed a 10-minute questionnaire administered by trained health professionals who attended the services. The questionnaire included sections on sociodemographic indicators, sexual behavior, STI and HIV testing history, risk perception for STI, and substance abuse.

A nurse or doctor collected a single cervical specimen during the collection of cytology for cervical cancer screening. For *C. trachomatis* screening, we used a Digene cervical sampler brush (Qiagen, Mississauga, Canada) that was placed into a tube containing 1.0mL of Digene sample transport medium (STM). Samples were stored at room temperature until the end of the week, when they were transferred to the Fundação Alfredo da Matta (FUAM) laboratory and stored at -20ºC until processed.

Digene Hybrid Capture II DNA test procedure

A laboratory technician performed Digene HCII CT-ID according to the manufacturer's instructions as described previously [22]. Samples were processed in batches of up to 88 along with 8 control samples (4 positive, 4 negative). Test results were calculated by using assay-specific software accompanying the DML 2000 luminometer. Relative light units (RLUs) for the positive and negative controls were used to calculate the run-specific cutoff (CO). Specimen results were reported as RLU/CO ratios. Results were considered positive for RLU/CO values > 2.5. Samples with RLU/CO values ranging from 1.0 to 2.5 were considered equivocal and were retested. Test results were returned to the PHC.

Evaluation of the HCII CT-ID test against q-PCR

A subset of stored cervical specimens was used to evaluate the performance of HCII CT-ID against the Kit Artus CT Plus RG q-PCR 96 CE (Qiagen, Hilden, Germany) according to the assay package instructions. A laboratory technician, blind to the HCII CT results, tested all specimens that were positive by HCII CT test (n = 153) and the same number of those samples that tested negative. Negative samples were randomly selected from 15 storage boxes (ten per box) by another laboratory technician. A 300µL aliquot was transferred from each selected specimen to a 1.5mL tube before HCII CT-ID was performed. DNA was extracted using QIAamp DNA Mini Kit (Qiagen, Hilden, Germany) and the q-PCR performed on the Rotor-Gene 3000 instrument (Corbett Research, Australia). The interpretation of all q-PCR results followed the algorithms in the manufacturer's package insert. The only sample identifiers were specimen numbers.

Evaluation of operational characteristics

To identify factors that might influence test acceptability and operational performance, 52 health professionals attending the health services and all participants were interviewed. Information was gathered on service characteristics, opinions about *Chlamydia* screening, experience regarding STI, financial resources, time and other potential barriers to screening, and test's acceptability to participants. For participants, these questions were part of the initial interview and focused on reasons for *C. trachomatis* testing, STI knowledge, screening acceptability and its barriers.

Statistical analysis

Data were analyzed using Stata/SE version 11.2 (StataCorp LP, College Station, USA). Descriptive analyses were used to summarize participants' characteristics and the operational characteristics of screening to both participants and health professionals. The performance characteristics of HCII CT test compared to that of q-PCR (sensitivity, specificity, and positive and negative predictive values) were calculated by standard methods and are presented with 95% confidence intervals (95%CI).

Ethical statement

The study protocol was approved by the Ethics Research Committee of FUAM (approval number: 028/2011) and by the Ethics Committee of the Health Secretariat in Manaus. All participants signed a written consent form that was approved by the Ethics Committee. Testing with q-PCR was approved by the Ethics Research Committee of FUAM (approval number: 742.410). This study component had a waver for consent form because all samples were completely anonymized before being processed.

Results

Subjects' characteristics

A total of 1,187 consenting women were included in this study. The characteristics of study participants by age group are shown in Table 1. Mean age was 20.1 years (SD: 2.9). Most participants (82%) had at least completed primary school, and were single or did not live with a partner (85.9%). Almost half (47.4%) were evangelical christians, 20.2% earned less than minimum wage (< US$ 230.84/month), 35.4% had had an STI, 47.8% had been tested for HIV, and 57.4% had no or low risk perception for STIs. The majority (63.3%) had their first sexual intercourse at 15 years or older, 25.5% had had more than one partner during the preceding six months, 78.7% currently had a regular partner, and 16.1% had a new partner during the preceding 6 months. Among participants, 4.9% currently exchanged money for sex, 30.1% always used a condom during sexual intercourse in the preceding 6 months. During the preceding 6 months, recreational drug use was low (0.2%), 29.5% consumed alcohol, and 57.1% practised binge drinking which was defined as having at least 4 drinks in one occasion.

Performance of HCII CT-ID test

Among the 1,187 women screened, 10 were not tested with the HCII CT-ID test and were excluded from the analysis. Eight women had an indeterminate result and were also excluded from analysis. Therefore, 1,169 participants had a HCII CT-ID test result. Among those 13.1% (153/1,169) tested positive for *C. trachomatis*, including 16% (82/512) of women aged 14-19 years and 10.8% (71/657) of those aged 20-25 years. Overall, 292 specimens were tested by q-PCR. Of those, one resulted in no amplification and was excluded from the evaluation of the performance analysis. The sensitivity of HCII CT-ID compared to q-PCR was 72.3% (95%CI: 65.4-78.6) (136/188), specificity 91.3% (95%CI: 84.1-95.9) (94/103), positive predictive values 93.8% (95%CI: 88.5-97.1) (136/145), and negative predictive values 64.4% (95%CI: 56.0-72.1) (94/146). The HCII CT-ID test detected 72.3% (136/188) of *C. trachomatis* cases with a positive q-PCR result.

Operational characteristics

Table 2 presents reasons and potential barriers for *C. trachomatis* screening among young women. The mean time for patients to reach the PHC service was 15 minutes (IQR: 5-20), and most women (77.7%) reached it by walking. Only 27.9% received screening information during the advertisement campaign, mainly at the PHC service (38.6%). Only 40.6% were aware that testing for HIV and syphilis was offered at the PHC service. The main motivation for testing was that screening was offered during the campaign or at the PHC in 58.7% of the women. Overall, 80.8% women did not report problems with screening although 17.9% reported discomfort during endocervical sample collection. Screening acceptance was high (90.9%) and 98.1% were willing to test again. Overall, knowledge about STIs was high, with 92.5% of the women correctly identifying that condoms should be used before sexual intercourse starts, and 95.9% reporting that partners need treatment when someone has an STI.

The health professionals interviewed (n = 52) were 7 doctors (13.5%), 32 nurses or nurse technicians (61.5%), 8 community health agents (15.4%), and 5 social workers (9.7%). Health professionals (n = 52) found that screening for *C. trachomatis* is a priority (87.8%) and would support maintenance of the screening program (91.8%), although 38.8% believed that it would increase their work load. Most (76%) reported sufficient working experience to attend to STI patients, and 86% felt comfortable discussing patients' sexual health. Health professionals identified time pressure (27.4%), lack of human resources (28.5%), lack of privacy (55.8%), lack of sample collection material (26%), the existence of positive cases who did not return for their results (56.4%), lack of resources to perform active case finding of *Chlamydia* positive cases (53.9%), delays in delivery of testing results (46.8%), and lack of support from administrative staff (9.6%) as obstacles for offering *C. trachomatis* screening. Almost three-fourths (74.5%) correctly identified that screening was opportunistic (i.e. offered regardless of the women's reason for attending the PCH services), though only 45.1% reported that they would screen women with no appointment.

Discussion

This is the largest *C. trachomatis* screening study to date providing an evaluation of the introduction of HCII CT-ID test in PHC clinics in Brazil. The study results can help to revise the national recommendation of using HCII CT-ID, which is the only test available to detect *C. trachomatis* in the Brazilian public health system. The study results showed that the HCII CT-ID test had performed moderately well detecting *C. trachomatis* among asymptomatic women in Manaus. Although it had excellent specificity, its sensitivity was lower than that of q-PCR due in

Table 1

Sociodemographic characteristics, sexually transmitted infection (STI) and HIV testing history, STI risk perception, behavioral characteristics, and Digene Hybrid Capture II (HCII CT) test result in young women in Manaus, Amazonas State, Brazil, by age group.

Variables	Total sample (N = 1,187) n (%)	14-19 years (n = 520) n (%)	20-25 years (n = 667) n (%)
Education			
< Primary school	213 (18.0)	115 (22.2)	98 (14.7)
At least primary school	970 (82.0)	403 (77.8)	567 (85.3)
Marital status			
Married/Living with partner	167 (14.1)	39 (7.5)	128 (19.2)
Single/Not living with partner	1,019 (85.9)	481 (92.5)	538 (80.8)
Religion			
Evangelical christian	562 (47.4)	249 (47.9)	313 (46.9)
Others	625 (52.6)	271 (52.1)	354 (53.1)
Monthly income less than minimum wage (US$ *)			
Yes	222 (20.2)	97 (20.9)	125 (19.7)
No	878 (79.8)	368 (79.1)	510 (80.3)
Ever had an STI			
No	764 (64.6)	337 (65.1)	427 (64.3)
Yes	418 (35.4)	181 (34.9)	237 (35.7)
Ever tested for HIV			
Yes	561 (47.8)	155 (30.2)	406 (61.6)
No	612 (52.2)	359 (69.8)	253 (38.4)
Perceive themselves at risk for STIs			
Moderate/High	504 (42.6)	218 (42.1)	286 (42.9)
None/Low	680 (57.4)	300 (57.9)	380 (57.1)
Age at first sexual intercourse (years)			
< 15	435 (36.7)	251 (48.3)	184 (27.6)
≥ 15	751 (63.3)	269 (51.7)	482 (72.4)
Number of sexual partners, last 6 months			
0-1	884 (74.5)	364 (70.0)	520 (77.9)
> 1	303 (25.5)	156 (30.0)	147 (22.1)
Currently have a regular partner **			
No	236 (21.3)	118 (24.5)	118 (18.9)
Yes	872 (78.7)	364 (75.5)	508 (81.1)
Have a new partner, last 3 months			
No	961 (83.9)	408 (82.4)	553 (84.9)
Yes	185 (16.1)	87 (17.6)	98 (15.1)
Currently exchange money for sex			
No	1,108 (95.1)	484 (94.5)	624 (95.6)
Yes	57 (4.9)	28 (5.5)	29 (4.4)
Always used a condom with any partner, last 6 months			
Yes	357 (30.1)	176 (33.9)	181 (27.1)
No	830 (69.9)	344 (66.2)	486 (72.8)
Recreational drugs use, last 6 months			
No	1,180 (99.8)	515 (99.6)	665 (100.0)
Yes	2 (0.2)	2 (0.4)	0 (0.0)
Alcohol consumption, last 6 months			
No	830 (70.5)	370 (71.8)	460 (69.4)
Yes	348 (29.5)	145 (28.2)	203 (30.6)

(continues)

Table 1 (continued)

Variables	Total sample (N = 1,187) n (%)	14-19 years (n = 520) n (%)	20-25 years (n = 667) n (%)
Binge drinking (at least 4 drinks in one occasion), last 6 months			
No	144 (42.9)	69 (49.6)	75 (38.3)
Yes	191 (57.1)	70 (50.4)	121 (61.7)
HCII CT result			
Negative	1,016 (86.9)	430 (84.0)	586 (89.2)
Positive	153 (13.1)	82 (16.0)	71 (10.8)
Total ***	1,169	512	657

* US$ 230.84;

** Defined as a husband, steady partner, or boyfriend, regardless of living arrangements;

*** Total corresponds to number of patients with a HCII CT result. Of the total sample of 1,187 women, 18 were excluded from the performance analysis (10 were not tested, and 8 had an indeterminate HCII CT result).

Table 2

Reasons and potential barriers for *Chlamydia trachomatis* screening among 1,187 women. Manaus, Amazonas State, Brazil.

	Total sample (N = 1,187) n (%)
Mean time to reach the PHC service (IQR) in minutes	15 (5-20)
Mode of transport to the clinics	
Walking	918 (77.7)
Others (bus, taxi, own car)	264 (22.3)
Received screening information during the campaign	330 (27.9)
If so, where	
At school	29 (8.4)
Through a friend	35 (10.1)
Community health agent	119 (34.5)
PHC	133 (38.6)
Other places	29 (8.4)
Aware that HIV and syphilis tests are offered at the PHC service	472 (40.6)
Main reasons for testing	
To know their own health status	373 (31.4)
Perceive themselves at risk	131 (11.1)
It was offered during campaign or at the PHC service	697 (58.7)
Perceived problems with screening	
None	959 (80.8)
Discomfort	212 (17.9)
Waiting time in the clinic or for testing	16 (1.3)
Accept *Chlamydia* test as a screening test	897 (90.9)
Willing to test again	1,029 (98.1)
Correctly answered questions relating to STI topic	
Condom should always be put on before sexual intercourse	1,076 (92.5)
Having a regular partner does not reduce the risk of acquiring STIs	911 (78.1)
Need for partner treatment if either person has an STI	1,135 (95.9)
A person can be infected with STIs without showing any signs	992 (84.3)

IQR: interquartile range; PHC: primary health service; STI: sexually transmitted infection.

part to differences regarding the limit of detection for these assays (> 100 *C. trachomatis* copies for the HCII CT test compared to > 1 copy for q-PCR) [21]. Previous studies that compared the performance of HCII CT and Amplicor PCR for the diagnosis of genital *C. trachomatis* infection reported higher sensitivity, ranging from 93.3% to 95.4%, and specificity, ranging from 99% to 100% [22,24]. Interestingly, the HCII CT-ID-test identified a high proportion of *C. trachomatis* cases among young women in the 14-19 years of age group.

The majority of women attending PHC services accepted the test offered as a screening tool and were willing to test again, although low STI risk perception, low awareness that screening and other HIV/STI tests were offered in PHC, and discomfort caused by sample collection were identified as barriers to engage young people in screening. In fact, most women tested simply because it was offered, suggesting that the introduction of routine screening across all PHC may encourage testing among women who would otherwise not seek it, mainly because they are asymptomatic.

From a health professionals' perspective, *C. trachomatis* screening was considered a priority and was offered by staff with sufficient working experience to deal with STI cases and who felt comfortable discussing sexual health. However, the fact that less than half of health professionals interviewed would test without appointment – upon which routine offer of screening to control *C. trachomatis* infection hinges – is cause for concern. The increase in workload reported by health professionals, which has been identified as a barrier to screening delivery, is of additional concern [17]. Other barriers identified were poor supply chain management that leads to shortage of speculum and gloves to collect material by the municipality. Given that the objective of a *C. trachomatis* screening program is to decrease transmission and prevent sequelaes, the success of any program is dependent not only on the ability to screen women but also on the ability to ensure treatment of those who test positive. In our study, early treatment of infection faced challenges, including infected cases who did not return for their results, delays in delivering test results to patients, and shortage of health professionals to perform active case finding. In most of the PHCs (18/22, 85.7%), service providers took advantage of routine cytological examination to offer *C. trachomatis* screening. Offering both screenings together might be more convenient for both the patient and the health professional. However, restricting *C. trachomatis* screening to only women who seek cytology would miss opportunities to test women that attend the PHC for other reasons.

This study had a few limitations. The detection of *C. trachomatis* by use of the HCII CT DNA-test is dependent on the number of organisms present in the specimen and may be affected by patient factors, such as the presence of symptoms [27]. Although the q-PCR assay is highly sensitive and specific [28], it can be affected by contamination or inhibitors [29].

In conclusion, our results suggest that HCII CT-ID is not an appropriate test to identify chlamydial organisms in endocervical samples due to its moderate sensitivity compared to that of q-PCR. Screening for *Chlamydia* in PHC services was feasible and well accepted by participants and health professionals who considered it a priority. In light of this finding, we recommend offering *C. trachomatis* routine screening for young women at PHCs in Manaus but using a test with better performance, such as q-PCR. Evidence on cost-effectiveness will be needed to guide the decision on test selection and registration in the Brazilian public health system. High levels of coverage will be needed to ensure an effective screening programme. In fact, most screening programmes have experienced difficulties in achieving the 30-50% coverage among young people needed to reduce *C. trachomatis* prevalence [16].

We identified several operational barriers that may limit screening uptake. Health professionals struggled to deliver screening due to an increase in their workload and problems with supply chain management. They were reluctant to offer *C. trachomatis* screening without appointment and preferred to offer screening together with cytology for cervical cancer screening instead. Early treatment of positive cases faced challenges that might limit *Chlamydia* control efforts. Among young women, none or low risk perception of STIs, which was a risk factor for *C. trachomatis* infection, was also found to be a barrier to engaging them in screening. The successful implementation of screening programs for *Chlamydia* in similar settings will need to overcome such barriers. While still under debate, early *C. trachomatis* detection and treatment will produce the most benefits if opportunistic screening is offered as part of a national coordinated program.

Contributors

D. Neves and N. S. Benzaken contributed to the field work, intepreted data and reviewed the article. M. Sabidó contributed to the data analyses and wrote the article. C. Bôtto-Menezes contributed to the field work and data analysis and interpretation. L. Jardim, C. Ferreira, A. Leturiondo, and C. G. Santos performed laboratory testing, interpreted results and reviewed the article. A. S. Benzaken conceived and coordinated the study, interpreted results and reviewed the article.

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Conflict of interests

The authors declare that they have no conflicts of interest.

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Resumo

O rastreamento de Chlamydia trachomatis *não é feito de rotina em mulheres jovens assintomáticas no Brasil. O estudo avaliou o desempenho, utilidade e adequação operacional do teste de DNA Digene Hybrid Capture II (HCII) CT-ID como ferramenta de rastreamento oportunista para detectar* C. trachomatis *no sistema público de saúde em Manaus, Amazonas. Mulheres entre 14 e 25 anos de idade que frequentavam serviços de atenção básica foram entrevistadas, com a coleta de uma amostra cervicouterina durante o rastreamento citológico. O teste HCII CT foi avaliado em relação à capacidade de detectar a presença de* C. trachomatis, *e comparado à PCR em tempo real (q-PCR) em um subconjunto de amostras. O desempenho operacional foi avaliado através de entrevistas com profissionais e pacientes. Foram examinadas 1.187 mulheres, das quais 1.169 tiveram um resultado de teste HCII CT-ID (destas, 292 foram testadas também com q-PCR). Um total de 153 mulheres (13,1%) testaram positivas para* C. trachomatis. *A sensibilidade, especificidade e valores preditivos positivo e negativo do HCII CT foram 72,3% (IC95%: 65,4-78,6), 91,3% (IC95%: 84,1-95,9), 93,8% (IC95%: 88,5-97,1) e 64,4% (IC95%: 56,0-72,1), respectivamente. A coleta de amostras provocou desconforto em 19,7% das mulheres. As principais barreiras relatadas pelos profissionais de saúde (n = 52) eram casos positivos que não retornavam para os resultados (56,4%), falta de disponibilidade de realizar o rastreamento sem consulta agendada (45,1%) e aumento da carga de trabalho (38,8%). O HCII CT-ID identificou alta prevalência de* C. trachomatis *em mulheres jovens de Manaus. Entretanto, a sensibilidade moderada limita o uso como ferramenta de rastreamento oportunista em serviços de atenção básica naquela cidade. O rastreamento era bem-recebido, mas as barreiras identificadas, principalmente entre profissionais de saúde, limitam a detecção através do rastreamento e as iniciativas de tratamento.*

Chlamydia trachomatis*; Programas de Rastreamento; Saúde da Mulher*

Resumen

Los exámenes de control de Chlamydia trachomatis *no se ofrecen habitualmente a las mujeres jóvenes asintomáticas en Brasil. Este estudio evaluó los resultados, utilidad e idoneidad operativa del test Digene Hybrid Capture II (HCII) CT-ID DNA como una herramienta de examen apropiada para detectar la* C. trachomatis *en el sistema de salud público de Manaus, Amazonas. Las mujeres con una edad comprendida entre los 14-25 años que asistieron a un centro de atención primaria fueron entrevistadas, y se recogió una muestra cervical durante el examen citológico. Se evaluó el test HCII CT, debido a su habilidad para detectar la presencia de* C. trachomatis, *frente al realtime PCR (q-PCR) en un subconjunto de muestras. El resultado operativo fue evaluado mediante entrevistas con proveedores y pacientes. Globalmente, se examinaron a 1.187 mujeres, y 1.169 de ellas contaban con los resultados de la prueba HCII CT-ID (a 292 de las cuales también se les aplicó el test q-PCR). Entre ellas, un 13,1% (n = 153) eran positivo. La sensibilidad, especificidad, los valores predictivos positivos y negativos del HCII CT fueron 72,3% (IC95%: 65,4-78,6), 91,3% (IC95%: 84,1-95,9), 93,8% (IC95%: 88,5-97,1), y 64,4% (IC95%: 56,0-72,1), respectivamente. La toma de muestras resultó incómoda en un 19,7% de las mujeres. Entre los profesionales de la salud (n = 52), las barreras principales informadas incluyeron casos positivos que no volvieron a recoger los resultados (56,4%), reticencia a realizarse el examen sin cita previa (45,1%), e incremento en su carga laboral (38,8%). El HCII CT-ID identificó un alto porcentaje de casos de* C. trachomatis *entre mujeres jóvenes en Manaus. No obstante, su moderada sensibilidad limita su uso como una herramienta idónea en los centros de atención primaria en Manaus. El examen fue bien aceptado, pese a que identificamos obstáculos, especialmente entre los profesionales de salud, lo que supone un desafío para la detección de la enfermedad que requiere esfuerzos para su tratamiento.*

Chlamydia trachomatis*; Tamizaje Masivo; Salud de la Mujer*

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