Impact of rapid HIV testing on the return rate for routine test results in sexually transmitted infection testing centres

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Summary: To strengthen HIV screening in the French West Indies (FWI), we evaluated the feasibility of rapid tests in sexually transmitted infection (STI) testing centres. Rapid testing was offered to each user ahead of the standard screening tests. Between October 2007 and December 2008, 847 users had HIV rapid testing, and 1724 users did not have rapid testing. The results of rapid testing were returned to 99.1% of testers. However, clients who underwent rapid testing were significantly more likely than others to have not returned to get the results of their standard screening tests (for HIV and other STIs): 27.4% versus 14.0% with a relative risk of 1.96 (95% confidence interval [CI] 1.67–2.30, $P < 0.0001$). Rapid HIV testing has the capacity to reduce the return rates for confirmatory results of HIV testing and other STIs.

Keywords: HIV, rapid HIV testing, STI testing, Caribbean islands, Martinique, Saint-Martin

INTRODUCTION

The French West Indies (FWI) are the hardest hit by the HIV/AIDS pandemic among the French territories. Despite an active screening programme through free and anonymous voluntary counselling and testing (VCT), patients with late diagnosis and treatment of HIV infection are more numerous in the FWI than in mainland France.[1] Access to screening should therefore be improved and increased by using new testing tools and by ensuring that all HIV-positive persons detected are referred to care.[2] Rapid HIV testing with high sensitivity and specificity (except at the early seroconversion phase) is of particular interest in this context.[3] The aim of our study was to evaluate the feasibility and acceptability of rapid test utilization for VCT in the FWI.

METHODS

This prospective study was conducted in the VCT centres of Fort-de-France University Hospital (Martinique) and Saint-Martin Hospital (Guadeloupe) between 1 October 2007 and 31 December 2008. All patients in the two small islands live less than one hour and less than 30 kilometres away from the VCT sites. Two days a week out of three, clients were offered a rapid test (Determine® [Abbott Laboratories, Wiesbaden, Germany] HIV-1/2 test) in addition to routine blood screening tests for HIV infection and for other sexually transmitted infections (STIs): commercial automated enzyme-linked immunosorbent assays (ELISAs) and confirmatory test (Western blot) for HIV infection, both rapid plasma reagin and *Treponema pallidum* haemagglutination tests for syphilis, hepatitis B virus serology and hepatitis B surface antigen, and also hepatitis C virus serology. All visits and laboratory tests were free of charge for all. Clients were therefore included in two groups: group 1 included those who came on a day when the rapid tests were available and accepted the offer of rapid testing; group 2 included those who came on a day the rapid tests were not available or those who refused rapid test. Verbal consent was obtained after each participant had been informed of the rapid test's performance, the possibility of technical failure, and the significance of negative and positive results. The patients also completed a self-administered questionnaire while awaiting their results. The necessity for clients to come back and collect their routine test results (including HIV ELISA and other STIs) was communicated clearly to all patients. The rapid tests were performed by a health-care worker (physician or nurse) on a 50-mL whole blood sample obtained by venipuncture (Martinique) or by fingerprick (Saint-Martin), according to the Centers for Diseases Control and Prevention guidelines.[4] The results were available within 30 minutes for rapid tests, and within three days for routine tests.

Data were analysed using STATA version 10.0 (College Station, TX, USA). Comparison of variables between groups was done by Fisher's exact test for categorical variables and by the Wilcoxon rank-sum test for continuous variables. All *P* values presented are two sided.

RESULTS

A total of 847 users underwent HIV rapid testing (group 1). Group 2 included 1724 users who did not have rapid testing.

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Table 1 **Demographic data, results of the HIV rapid tests and routine tests (HIV ELISA and STIs), and return rates for the results among persons with and without a rapid test**

	Both rapid and routine tests (group 1, *n* = 847)		Routine tests only (group 2, *n* = 1724)
Gender			
Male, *n* (%)	408 (48.2)		879 (51.0)
Female, *n* (%)	439 (51.8)		845 (49.0)
Median age [IQR 25–75] (years)	28 [21–37]		28 [21–36]
Test results	Rapid tests	Routine tests	
Positive	11	11	8
Negative	827	836	1716
Indeterminate	9	0	0
Return of results, *n* (%)	839 (99.1)*	615 (72.6)†	1483 (86.0)

ELISA = enzyme-linked immunosorbent assay; STI = sexually transmitted infection; IQR = interquartile range
*Difference in return rate of rapid test results between group 1 and group 2 = 13.1%, $P < 0.0001$
†Difference in return rate of rapid test results between group 1 and group 2 = −13.4%, $P < 0.0001$

The results are shown in Table 1. No difference was found between the two groups regarding age, gender or sexual orientation. No false-positive or false-negative results were observed, as compared with HIV ELISA results. Patients who tested HIV-positive were immediately referred to the infectious diseases unit for support and care.

The acceptability rate of rapid testing was 85%. Age, gender, risk factors for HIV infection and sexual orientation were not associated with acceptance of rapid HIV testing. The questionnaire was completed by 93% of those tested. The rapid test was their first ever HIV test for 34% of participants. The main reasons for seeking HIV screening were a recent HIV risk behaviour (41%), simple curiosity (31%) or the wish to stop using condoms with a regular partner (4%).

The results of the rapid HIV tests were returned to 99.1% of those tested, while only 86.0% of those who had only routine screening tests (no rapid test) came back to get their results ($P < 0.0001$, see Table 1). In contrast, those who underwent rapid testing (group 1) were significantly less likely than others (group 2) to have not returned to get the results of their routine tests (for HIV and other STIs): 27.4% versus 14.0% with a relative risk of 1.96 (95% confidence interval [CI] 1.67–2.30, $P < 0.0001$).

DISCUSSION

Although the evaluation of the use of rapid HIV tests is still ongoing in France, in a preliminary study[5] and in the present one we have confirmed the feasibility of rapid testing by trained health-care professionals in VCT centres. The rapid test has been well accepted by users and has clearly reduced the time to HIV diagnosis and increased access to medical care that was available on the same premises as the VCT centres.

Unexpectedly our data highlight a negative collateral effect of rapid HIV testing with a high proportion of persons (more than one-quarter) tested with rapid HIV tests failing to return for routine test results despite having been specifically counselled at the time of the rapid test. This could have a negative impact for those infected with another STI, such as syphilis or hepatitis B. It might also be deleterious if the rapid tests fail to detect infection in patients with very early HIV, since rapid HIV antibody-only tests are less sensitive than fourth-generation ELISA tests to detect primary infection.

These findings led us to modify the content of pre- and post-rapid HIV test counselling in VCT: now we emphasize that negative HIV rapid test results are unreliable in the case of recent HIV risk behaviours and repeated testing is warranted; we also stress that diagnosis and treatment of STIs other than HIV are of great importance.

Even though the practicality of rapid HIV testing is attractive for both clinicians and users, its capacity to reduce the return rates for confirmatory results of HIV testing and other STIs should be considered in HIV testing policies, particularly in low-prevalence regions (<1%).

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