

# Acceptance of Routine Testing for HIV among Adult Patients at the Medical Emergency Unit at a National Referral Hospital in Kampala, Uganda

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**Abstract** HIV testing is an entry point to comprehensive HIV/AIDS prevention and care. In Uganda, Routine Testing and Counseling for HIV (RTC) is not widely offered as part of standard medical care in acute care settings. This study determined the acceptance of RTC in a medical emergency setting at Mulago national referral hospital. We interviewed 233 adult patients who were offered HIV testing. Overall, 83% were unaware of their HIV serostatus and 88% of these had been to a health unit in the previous six months. Of the 208 eligible for HIV testing, 95% accepted to test. Half the patients were HIV infected and 77% of these were diagnosed during the study. HIV testing was highly acceptable and detected a significant number of undiagnosed HIV infections. We recommend adoption of RTC as standard of care in the medical emergency unit in order to scale HIV diagnosis and linkage to HIV/AIDS care.

**Keywords** Acceptance · Routine HIV-testing · Hospital · Africa

## Introduction

As the Acquired Immune Deficiency Syndrome (AIDS) epidemic enters the third decade, the spread of HIV is still at a frightening pace. Globally, about 14,000 new infections were reported daily in 2005 (Mbulaiteye et al., 2002; UNAIDS, 2005). In Uganda, the Ministry of Health surveillance report of June 2005 showed that over 1 million people were living with HIV. Only 20% of adults in Sub-Saharan Africa know their HIV sero-status (UNAIDS, 2004). Despite the widespread availability of voluntary counseling and testing centers in Uganda, the unmet need for HIV testing is great as evidenced by data from a national sero-behavioral survey which showed that only 15% of the Ugandan population is aware of their HIV sero-status (Ministry of Health, 2005). Lack of routine HIV testing in hospital settings has contributed to this gap since many patients are treated and discharged from health units with undiagnosed HIV infections (Wanyenze et al., 2006).

With the increased availability of antiretroviral therapy (ART), there is global movement to scale up HIV testing in the health care setting in order to increase HIV diagnosis and linkage to HIV/AIDS care in developing countries. HIV testing using rapid testing kits has been shown to increase uptake of HIV testing in Uganda since results are delivered to patients almost immediately (Downing et al., 1998; Kassler et al., 1998). Routine Testing and Counseling for HIV (RTC) is a provider-initiated approach where HIV testing is offered as an explicit policy in a clinical setting unless an individual elects not to have the test (UNAIDS/WHO, 2004). RTC with same day results' delivery is being promoted in the health care setting as

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a strategy to increase early diagnosis of HIV/AIDS and thus increase access to HIV/AIDS care (UNAIDS/WHO, 2004); thereby reducing mortality and improving the quality of life of people living with HIV/AIDS. The UNAIDS/WHO testing policy recommends that routine HIV testing should become standard care in curative health care facilities if the benefits of ART and prevention of opportunistic infections are to reach all the people that need them (Centers for Disease Control and prevention, 1993; De Cock, Marum, & Mbori-Ngacha, 2003; De Cock, Mbori-Nagcha, & Marum, 2002).

Acceptance of HIV testing in acute care settings has not been widely evaluated in Sub-Saharan Africa. RTC is a new concept at curative health care units/hospitals and has not yet expanded to the medical emergency unit. Knowledge of the acceptance of HIV testing in a hospital setting is essential to scaling up HIV testing services and it is an important step in the development of a comprehensive HIV/AIDS care package at health care units in Uganda. This study was designed to assess the level of patient acceptance of routine HIV testing offered as part of standard medical care at the medical emergency unit at Mulago hospital. This is the largest public hospital in Uganda and it is one of the two national referral hospitals. About 2,000 patients go through the medical emergency unit every month and they miss the opportunity of HIV testing since it is not offered as part of the routine medical care. Amidst the high HIV prevalence, access to HIV testing services is still limited.

## Method

### Participants and Procedures

This was a cross sectional study to determine the acceptance of RTC by adult patients who came to the medical emergency unit at Mulago national referral hospital from October through December 2004. Previous studies done in Uganda and other developing countries showed a high acceptance of HIV counseling and testing ranging from 65 to 99% (Cartoux et al., 1998; Matovu et al., 2002) none of which was in an acute care setting. In this study, we anticipated an acceptance of 82% and estimated a minimum sample size of 226 patients.

We selected every sixth patient from the patients' register at the medical emergency unit. This was to cater for the staggered nature in which patients attend the medical emergency unit based on the pilot study findings. Written informed consent, to both participa-

tion in the study and HIV testing, was obtained from all participants. Patients who scored less than 26 out of 30 in the Mini Mental State Exam (MMSE) were excluded as they were incompetent to understand the pretest information and give informed consent.

All enrolled patients were offered information about HIV testing as part of their routine medical care. This was done by a doctor in the consultation room as part of history and physical evaluation. HIV tests were offered to those patients that accepted to be tested. Blood samples were screened for HIV infection using three sequential rapid HIV tests as is recommended by the Uganda Ministry of Health series algorithm for rapid HIV testing using Determine™ (Abbot Laboratories by Abbot Japan CO. LTD, Minato-Ku, Tokyo Japan), HIV1/2 Stat-Pak (ChemBio Diagnostics Systems, 3661 Horseblock Road, Med Ford, New York 11763, USA) and Unigold™ (Trinity Biotech PLC, IDA Business Park, Bray, Cowicklow, Ireland) testing kits. Specimens negative on Determine™ HIV1/2 were considered negative and specimens positive on Determine™ HIV1/2 and HIV1/2 Stat-Pak were considered positive. Specimens with discordant results on Determine™ HIV1/2 and HIV1/2 Stat-Pak were re-tested on Unigold™ as a tie-breaker. Specimens negative on the tie-breaker were considered negative while specimens positive on the tie-breaker were considered positive. Results were delivered within 30 min. The attending doctor used an average of 5 min to give post-test information to each patient on delivery of his/her HIV test results and the information given was tailored to the HIV test result.

### Measures

We measured socio-demographic characteristics, patients' knowledge of their HIV status, history and reasons of prior HIV testing, acceptance to take an HIV test and finally the current HIV sero-status.

### Data Analysis

Acceptance of routine HIV testing was measured by the proportion of patients that accepted to take an HIV-test. All analyses were performed using SPSS version 12.0.

## Results

### Study Population Characteristics

Of 245 patients screened, the majority (233) met the inclusion criteria (MMSE  $\geq$ 26 out of 30 and consented

to participate in the study). These were interviewed and assessed for acceptability of RTC in a medical emergency setting (see Fig. 1). The median age of the study population was  $32 \pm 14$  years. Most participants were Christians and more than half (56%) were female. About half of the patients were not married and majority of them (89%) had received formal education. Only 126 out of 233 (54%) had some form of employment and 166 out of 233 (71%) had a monthly income less than 50,000 Uganda shillings (25 USD) see Table 1.

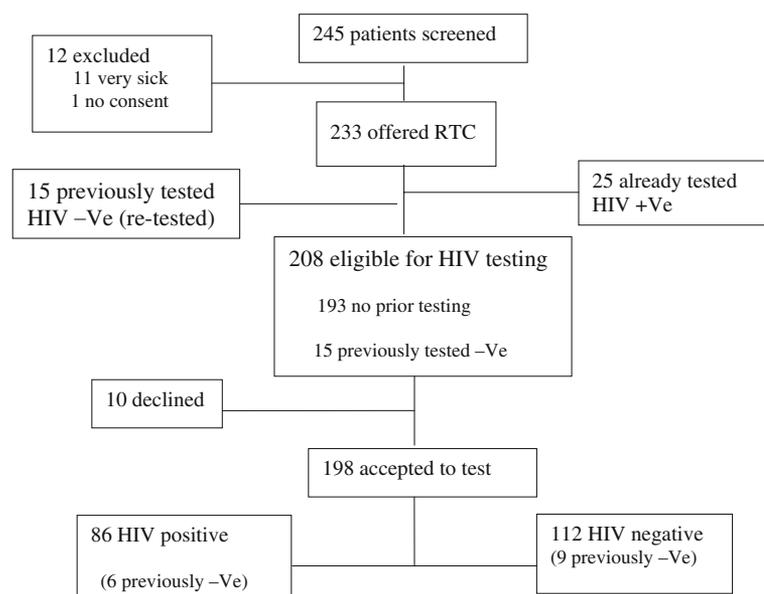
### HIV Testing History

Out of 233 patients, 193 (83%) were unaware of their HIV sero-status at the time of presentation and 88% (171 out of 193) of these had been to a health unit in the previous six months; (51%) had been to both public and private health units. The main reasons for lack of prior HIV testing were no perceived individual risk for HIV infection (77%) and lack of access to free testing (25%) patients (see Table 2). Forty patients had prior knowledge of their HIV status; of these 15 (6%) had previously tested HIV negative and were re-tested while 25 (11%) had previously tested HIV positive and therefore exempt from repeat HIV testing. All the 40 patients had disclosed their HIV test results to a third party, often a relative or spouse and most (60%) of them had been tested because of recurrent illnesses (see Table 2).

### Acceptance of RTC at the Medical Emergency Unit

Of the 208 patients eligible for HIV testing, including 193 who were unaware of HIV status and 15 who had previously tested negative, 198 (95%) accepted to test while 10 declined. Eighty six out of 198 patients (43%) tested HIV-positive during our study (including 6 who had previously tested negative) and this constituted 77% of the HIV infections at the medical emergency unit. All patients received their test results within 30 min except one who left the hospital without informing the attending doctor/nurse. Ninety three out of 198 (47%) accepted to take the test because they wanted to find the cause of their illness and receive treatment and a similar number accepted to test because the test was available at no cost. Of the patients who declined to test for HIV, 3 declined due to fear to learn of their HIV sero-status (see Table 3). All patients were given information about risk reduction, disclosure of results to their sexual partner(s) and the importance of encouraging their sexual partner(s) to test for HIV. HIV positive patients were told about the available HIV/AIDS care options like basic care, antiretroviral therapy and management of opportunistic infections. The HIV positive patients were given written referrals to HIV/AIDS care centers within the hospital or closest to their respective homes. Confidentiality was ensured by not disclosing participants' sero-status to their caretakers unless they gave verbal consent to do so. Patients were informed that the

**Fig. 1** Study profile



**Table 1** Study population characteristics of 233 patients attending the Mulago medical emergency unit, October–December 2004

Characteristic	Frequency (%)
Sex	
Female	132(57)
Age (years)	
≤35	136(58)
>35	97(42)
Marital status	
Married	112(48)
Never married before	39(17)
Separated	52(26)
Widowed	21(9)
Dependants	
None	43(18)
1–4	114(49)
5 and more	76(33)
Income Level	
Below 50,000	166(71)
Above 50,000	67(29)
District of residence	
Kampala	151(65)
Others	82(35)
Employment	
Unemployed	72(31)
Peasant farmers	35(15)
Involved in Business	76(33)
Salaried employees	50(21)

results would be made available to their attending doctors (in cases where the attending doctor was not limited to the study doctor); however HIV results were to be as confidential as the rest of the other patients' medical information and access was limited to the study team.

When interviewed, almost all patients (99%) expressed the need to integrate routine HIV testing and counseling into the medical care at the medical emergency unit. Two hundred out of 233 (86%) thought routine HIV testing in this setting will help patients be linked to HIV/AIDS care.

## Discussion

Demand for Routine HIV testing in the medical emergency unit was high. Our study found that the majority (83%) of patients who came to the Mulago hospital medical emergency unit did not know their HIV sero-status yet most (88%) of them had been to a health unit in the previous six months. These patients missed opportunities for HIV testing at health units as it was not offered routinely. Our findings are consistent with existing data which showed that less than half of the patients admitted in the same hospital had ever participated in HIV testing (Wanyenze et al. 2006).

**Table 2** HIV testing history of patients attending the Mulago medical emergency unit, October–December 2004

Variable	Frequency (%)
Unknown HIV sero-status ( $N = 233$ )	193 (83)
Reasons for lack of prior HIV testing* ( $N = 193$ )	
Cost and availability of HIV test	48 (25)
No perceived risk of HIV infection	147 (77)
Fear to know test results	7 (4)
Others	8 (4)
Health unit attendance in the last 6 months	
Twice or more	128 (66)
Once	43 (22)
None	22 (12)
Type of health units attended	
Public health units	45 (22)
Private health units	55 (28)
Both private and public health units	70 (51)
Known HIV Status ( $n = 40$ )	
Previously tested positive	25 (63)
Previously tested negative	15 (37)
Site where HIV test was done	
Tested at private clinic/hospital	7 (17)
Tested at VCT site	15 (38)
Tested at public hospital	6 (15)
Tested at Mulago hospital	12 (30)
Reasons for previous HIV testing	
Loss of sexual partner	3 (7.5)
Recurrent illnesses	24 (60)
Pre-marital	3 (7.5)
Pre-employment	2 (5)
Others	8 (20)
Disclosure of test results	
Relative	27(67)
Sexual partner	12(30)
Friend	1 (3)

\*Some patients gave more than one reason for previously testing for HIV

**Table 3** Acceptance of RTC and HIV sero-status of patients attending the Mulago medical emergency unit, October–December 2004

Variable	Frequency (%)
Acceptance ( $n = 208$ )	
Accepted to test	198 (95)
Reasons for accepting to test for HIV	
Find cause of symptoms and plan treatment	93 (47)
Availability of free HIV test	94 (47)
Other reasons	11 (6)
Declined to test ( $n = 10$ )	
Reasons for decline to test	
Feared to know HIV sero-status	3 (30)
Need more time to think about it	4 (40)
No perceived need to test	1 (10)
Others	2 (20)
HIV sero-status ( $n = 223$ )	
Positive	111 (50)
HIV infections diagnosed through RCT ( $n = 111$ )	
Newly diagnosed	86 (77)
Previously confirmed positive	25 (23)

This implies a high need for RTC in acute care settings that requires intervention in order to attain universal knowledge of HIV sero-status and increase access to HIV/AIDS care.

We demonstrated high acceptability of routine HIV testing in a medical emergency setting (95%). This is comparable to acceptability of HIV testing in different settings. In an international VCT efficacy survey in Kenya, Tanzania and Trinidad, 95% of the participants accepted to be tested and received their test results (The Voluntary HIV-1 Counseling and Testing Efficacy Study Group, 2000). Similarly, in Botswana, 90% of pregnant women had an HIV test due to introduction of routine HIV testing as a national policy in antenatal clinics (Center for Strategic and International Studies, 2004, Seipone et al, 2004). Rapid testing with timely delivery of results may have contributed to the high acceptability level as has been demonstrated in a VCT setting where rapid testing and same-day results' delivery increased acceptability of HIV testing in Uganda (Kassler et al., 1998). Similarly, in Malawi the proportion of people that received their test results increased from 69 to 99.7% with the switch to "same-day results" testing (Bureau for Global Health, 2003). Rapid tests are recommended, in the UNAIDS/WHO policy on HIV testing, so that results are provided in a timely fashion and can be followed by immediate post-test counseling for both HIV-negative and HIV-positive individuals (UNAIDS/WHO, 2004). The high acceptability of routine HIV testing in a medical emergency setting makes RTC a good strategy to identify undiagnosed HIV infected individuals who come for emergency medical care.

Information about HIV/AIDS was given to all patients using the national Ministry of Health protocol for HIV testing in clinical settings which describes routine HIV testing and HIV/AIDS information that should be offered as part of standard medical care in health units. HIV results were ready in 5–10 min and were delivered to patients within 30 min together with the prescriptions for their presenting illnesses. Our study showed that it is possible to integrate HIV testing into routine health care in an acute care setting without detailed counseling; a strategy that is recommended for countries with high HIV/AIDS prevalence (UNAIDS/WHO, 2004).

The major reasons why patients accepted to take an HIV test were availability of the test at no cost and the need to find the cause of their presenting illnesses. Majority (77%) of them had never tested for HIV because the test had never been availed to them free of charge. This was consistent with the reasons that the patients gave for not testing for HIV prior to this study

in addition to what has been reported in other studies (Nuwaha, Kabatesi, Muganwa, & Whalen 2002; UNAIDS/WHO, 2004). On evaluation of patients' attitude towards RCT, almost all (99%) the patients were of the view that HIV counseling and testing should be provided as part of routine patient care in hospitals. This was mainly because patients anticipated linkage to HIV/AIDS care facilities for ART as well as treatment of opportunistic infections without extra burden of going to VCT sites after seeking standard medical care. These findings highlight the potential impact of routine HIV testing programs in hospital settings on increasing access to HIV/AIDS care services.

The few patients (5%) that declined to test for HIV gave reasons like fear of consequences of test results, lack of perceived risk of HIV infection, need to consult sexual partner prior to HIV testing and need for more time to think about it. These reasons are similar to those given in the US when routine HIV testing was offered in hospital associated urgent-care settings where 47% did not feel at risk and 11% felt too ill to test (Walensky, Freedberg, Skolnik, Barton, & O'Connor 2002). Our findings are comparable with what was found in a qualitative study in Western Uganda where individuals feared consequences of the test results and were concerned about linkage to HIV/AIDS care (Nuwaha, Kabatesi, Muganwa, & Whalen 2002). In a previous study acceptability of HIV counseling and testing was largely affected by cost of the test and physical accessibility to testing site (Nuwaha, Kabatesi, Muganwa, & Whalen 2002); which factors were not applicable in our study since HIV testing was provided free of charge.

The majority (77%) of the HIV infections were diagnosed during the study period. These patients would not have undergone HIV testing if it was not provided by the study. Similar results were found in the US where provision of routine HIV testing in a hospital setting doubled the number of HIV infections diagnosed (Walensky, Freedberg, Skolnik, Barton, & O'Connor 2002). This shows that RTC has unexploited potential to scale up HIV testing and access to HIV/AIDS care in the medical emergency unit. This study did not evaluate sexual behavior in an acute care setting and we did not evaluate patients' psychological reactions to disclosure of HIV positive results. However, HIV infected patients were referred to HIV/AIDS care programs that will offer detailed counseling and follow up to address these issues. HIV negative patients were encouraged to use condoms and take their partners to test for HIV. We referred them to post-test clubs in their communities for social support and empowerment to stop risky sexual behaviors and remain HIV negative. More studies are required to evaluate RTC in different settings.

In summary, majority of patients who attend the medical emergency unit at Mulago national referral hospital are unaware of their HIV sero-status in spite of the fact that they had been to a health unit/hospital in the previous six months. Many patients missed opportunities for HIV prevention, diagnosis and care because HIV testing had not been offered at the health care facilities.

We showed that a routine HIV screening program at the medical emergency unit at Mulago hospital is highly acceptable, can be incorporated into routine patient care and is successful in identifying a significant number of patients with undiagnosed HIV who can then be linked to HIV/AIDS care.

We recommend that RTC be adopted as a policy at the medical emergency unit in order to increase patients' awareness of HIV sero-status, increase the number of HIV infections diagnosed and treated in addition to contributing to prevention and reduction of transmission of HIV. We also recommend that RTC should be integrated into standard practice in curative health care units/hospitals in order to meet individuals at their earliest contact with the health care system. This will increase early diagnosis of HIV infection in the health care setting, increase access to HIV/AIDS care, empower the HIV negative to maintain their sero-status and reduce HIV transmission in Uganda.

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