

# Eligibility for HIV/AIDS treatment among adults in a medical emergency setting at an urban hospital in Uganda

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### Abstract

**Background:** Despite global effort to scale up access to antiretroviral therapy (ART), many people in need of HIV/AIDS care in Uganda have not been reached. HIV testing and ART are not widely offered as routine medical services and data on HIV/AIDS in emergency settings in Sub-Saharan Africa is limited. We determined the HIV prevalence and eligibility for ART in a medical emergency unit at Mulago hospital.

**Methods:** In a cross-sectional study, we interviewed 223 patients who were systematically selected from the patients' register from October through December 2004. HIV testing was offered routinely and results were delivered within 30 minutes. We evaluated HIV infected patients for WHO clinical stage of disease and referred them for HIV/AIDS care.

**Results:** Out of 223 patients, 111 (50%) had HIV infection of whom 78 (70%) had WHO clinical stage 3 and 4 of disease thereby requiring ART. Overall, 84 out of 111 (76%) HIV positive patients had not received any specific HIV/AIDS care.

**Conclusion:** The burden of HIV infection in the medical emergency unit is high and majority of the patients who required ART had no prior HIV/AIDS care. We recommend scale up of HIV/AIDS care in acute care settings in order to increase access to ART.

**Key words:** HIV/AIDS, Eligibility for antiretroviral therapy, Hospitals, Africa

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### Introduction

Despite global effort to scale up access to antiretroviral therapy (ART), majority of people who need HIV/AIDS care in Uganda have not been reached. HIV testing and ART are not widely offered as part of routine medical care in acute care settings. As HIV testing interventions are scaled up to achieve universal knowledge of HIV sero-status, linkage to HIV/AIDS care becomes a critical component of medical care and support programs as a strategy to attain universal access to ART for all in need.

Globally, only 20% of people with advanced HIV infection are receiving ART<sup>1</sup>. Most HIV-infected patients in many developing countries still cannot access ART, and this is primarily due to socio-economic barriers<sup>2</sup>. In Uganda, the Ministry of health estimated that half of the 120,000 estimated patients in need of ART should have received it by the end of 2005. This target was achieved by June 2005 through funding from the Global fund to Fight AIDS, Tuberculosis and Malaria (GFATM), US President's Emergency Plan for AIDS Relief (PEPFAR) and other initiatives such as employer

programs. By April 2006, about 75,000 patients were receiving antiretroviral therapy in about 170 health facilities in the country<sup>3</sup>.

As the HIV/AIDS epidemic enters the third decade, increasing numbers of HIV infected adults need hospital care. HIV/AIDS contributes up to over 50% of hospital admissions in Sub-Saharan Africa. In Uganda, 64% of patients who tested for HIV during hospitalization were HIV positive<sup>4</sup>. In the neighboring countries, Ethiopia & Kenya, HIV/AIDS accounts for 13% and 39% of medical admissions at Addis Ababa University hospital and Kenyatta National Hospital respectively<sup>5,6</sup>.

HIV prevalence has been evaluated in emergency units in low prevalence areas where it accounts for 3-6% of patients in acute care settings<sup>7,8</sup>. There is limited data on the burden of HIV infection and need for ART in the medical emergency setting in high HIV prevalence areas including Uganda.

In order to maximize the use of highly active antiretroviral therapy (HAART) in resource limited settings, there is need to integrate HIV care with existing health services to increase uptake of ART and deliver more comprehensive higher-quality care<sup>1</sup>, for example by linking HIV care with emergency care. This study determined prevalence of HIV infection and patients' eligibility for ART, using the World Health organization (WHO) clinical criteria, in a medical emergency unit at

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an urban hospital in Uganda.

## Methods

All study procedures were approved by the institutional review boards of Makerere University Kampala and Case Western Reserve University, Cleveland. Final approval to conduct the study was obtained from the Uganda National Council of Science and Technology.

**Study design and subject recruitment:** This was a cross sectional study to determine the prevalence of HIV/AIDS and eligibility for ART among patients attending the medical emergency unit at Mulago national referral and teaching hospital from October through December 2004. Using an HIV sero-prevalence of 9% in Kampala (9), we estimated a minimum sample size of 126 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 participation 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.

**Procedures:** 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 minutes of the test. The attending doctor used an average of 5 minutes (range 2 - 15) 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.

We interviewed the HIV positive patients to find out whether they had received any form of HIV/AIDS care including prior HIV testing, HIV specific basic care plus cotrimoxazole prophylaxis and antiretroviral therapy. We managed the patients' presenting illnesses as required according to the medical diagnosis. We evaluated the HIV infected patients for WHO clinical stage of disease and used it as an indicator for eligibility for HAART<sup>10</sup>.

## Results

**Study population characteristics:** We enrolled and offered HIV testing to 223 patients who had a median age of 32 years (IQR, 26-42). Twenty five out of 223 had previously tested HIV positive at reputable HIV testing centers and so were not re-tested while the 15 patients who had tested HIV negative over three months prior to our study were re-tested. The socio-demographic characteristics were similar among the HIV and non-HIV infected patients (see Table 1).

### Need for Antiretroviral therapy

Overall, 111 out of 223 (50%) were HIV positive of whom 78 (71%) had stage 3 and 4 of the WHO clinical classification of HIV disease (see Table 2). Eighty four out of 111 (76%) of the HIV positive patients had not received any form of HIV/AIDS care (see Table 2). About 53 out of 78 (68%) of the patients with advanced HIV disease had no prior HIV testing. Over half of the patients who had no WHO clinical stage 3 or stage 4 event tested positive for HIV and majority of them presented with respiratory tract infections and other acute illnesses (see Figure 1). Six out of 15 (40%) who had previously tested HIV negative were HIV positive on repeat testing.

## Discussion

We found that half of the patients who attended the medical emergency unit at Mulago hospital had HIV infection. The HIV disease burden in this setting is similar to what Fabiani et al reported in northern Uganda in 1999 (11). However, our findings are higher than what has been reported in other national teaching hospitals in Ethiopia and Kenya (5, 6). We attribute this to the fact that routine HIV testing and HAART are not widely offered as part of standard medical care in hospitals in sub-Saharan Africa (4). However, the differences could also be accounted for by the different HIV testing policies within the respective countries.

Majority (70%) of the HIV infected patients had advanced and severe disease that required highly active antiretroviral therapy (HAART) according to the

**Table 1: Study population characteristics of 223 adult patients attending the Mulago medical emergency unit, October to December 2004.**

Characteristic	HIV Negative Frequency(%) <i>n=112</i>	HIV Positive Frequency(%) <i>n=111</i>	PValue*
<b>Sex</b>			
Female	62	64	0.671
<b>Age</b>			
≤ 45 yrs	83(74)	89(80)	0.297
<b>Marital status</b>			
Separated	22(40)	35(57)	0.010
Never married before	27(49)	12(19)	0.074
Widowed	6(11)	15(24)	0.035
Married	57(51)	49(44)	
<b>Religion</b>			
Christians	77(69)	79(71)	0.811
Muslim	21(19)	18(16)	0.873
Others	14(13)	14(13)	
<b>Education</b>			
Formal education	98(87)	101(91)	0.413
<b>Dependants</b>			
1-4	51(45)	60(54)	0.067
5 and more	35(32)	35(32)	0.205
None	26(23)	16(14)	
<b>Employment</b>			
Unemployed	58(52)	45(40)	0.078
<b>Monthly Income</b>			
Below 50,000 Ug.Shs (25 USD)	83(74)	78(70)	0.495
<b>District of residence</b>			
Kampala (Urban)	67(60)	78(70)	0.112

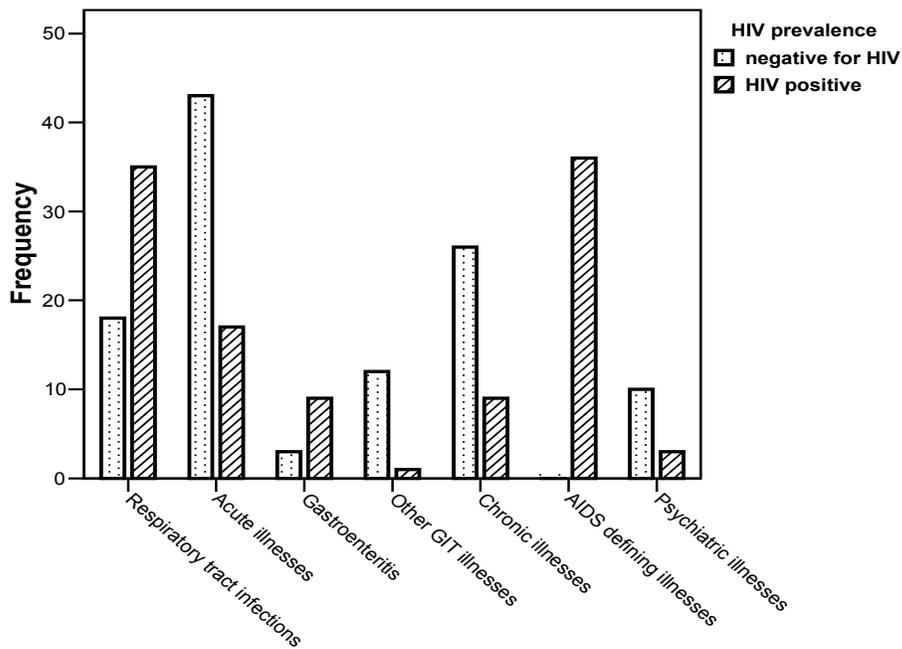
\*Chi square test was used

**Table 2: HIV infection among adult patients attending the Mulago medical Emergency Unit, October to December 2004.**

Variable	Frequency (%)
<b>HIV Sero-status (N = 223)</b>	
Positive	111 (50)
<b>Previous HIV/AIDS care (N= 111)</b>	
None	84(76)
HIV testing and prevention messages	25(22)
HAART	1
Cotrimoxazole prophylaxis	2*
<b>WHO Classification of HIV-Associated disease (N= 111)</b>	
Stage 1 - Asymptomatic	4(3)
Stage 2 - Mild	29(26)
Stage 3 - Advanced	54 (49)
Stage 4 - Severe	24 (22)

\* One patient was receiving both HAART and cotrimoxazole prophylaxis

**Figure 1: Diagnosis at presentation at the medical emergency unit**



*Respiratory tract infections* included upper respiratory tract infections, pneumonias and tuberculosis; *acute illnesses* included malaria, urinary tract infections, bacterial meningitis, encephalitis, arthritis; *other GIT illnesses* included abdominal discomfort, gastritis, acute pancreatitis, GIT bleeding and peptic ulcer disease; *chronic illnesses* included diabetes mellitus and its complications, hypertension and its complications, asthma, chronic bronchitis, previously diagnosed cardiac disease, chronic renal disease; *psychiatric illnesses* included anxiety, panic attacks and conversion disorders; *AIDS defining illnesses* included WHO clinical stage 4 events.

WHO guidelines for ART initiation in resource limited settings where CD4 counts are not readily available(10). It is of interest that the present study also demonstrated that 76% of the HIV positive patients had not received any prior specialized HIV/AIDS care including HIV testing and prevention messages, cotrimoxazole prophylaxis and antiretroviral therapy. In addition, two thirds of the patients who were eligible for HAART had no prior HIV testing. This is similar to what was reported at the longest serving ART center in Uganda where many HIV infected patients presented for treatment late in the course of their disease(12). Our findings suggest that although Uganda had achieved her '3 by 5' target of initiating HAART for 50% of the patients who needed it by June 2005 (3), a significant number of patients with advanced HIV disease have not been reached. These patients represent missed opportunities for early HIV/AIDS diagnosis and treatment which would reduce HIV-related morbidity and mortality among people living with AIDS. Some of the patients who had previously tested HIV negative had sero-converted and almost all the pa-

tients that had previously tested positive for HIV had not attended any HIV/AIDS care centre. This data implies that strengthening HIV prevention messages and linkage to care for early treatment are critical as we scale up HIV testing and access to ART.

We included patients who required acute hospital based care because it is invariably a major element of an urban referral hospital. Furthermore, most HIV infected patients will fall sick and require emergency hospital care because of underlying immune suppression at some stage of their disease process. However, majority of the patients diagnosed with HIV infection had no AIDS defining illnesses at presentation to the emergency unit. Patients had a spectrum of illnesses ranging from acute infections that included among others; malaria, bacterial meningitis and urinary tract infections; respiratory tract infections that included upper respiratory tract infections, pneumonias and tuberculosis to chronic illnesses that included diabetes mellitus, hypertension and asthma where patients were treated for the exacerbation of symptoms and complications. This emphasizes the need for routine screening for HIV in-

fection in acute care settings, in high HIV prevalence settings, irrespective of patients' presenting illnesses. Our findings suggest that the emergency unit is an important entry point to identify patients who are eligible for HAART and link them to comprehensive HIV/AIDS care including prevention, basic care and HAART in order to expand access to HIV/AIDS care in Uganda.

We were unable to do CD4 counts because of limited resources, which is the case in many health care units in Uganda. However, patients were given written referrals to the HIV/AIDS care clinic in the hospital to receive HIV specific basic care and HAART for those who were eligible and ready to start ART. Further work is clearly needed to find other predictors of undiagnosed advanced HIV disease in high prevalence settings in order to modify the strategies to increase access to early diagnosis, prevention and treatment interventions that will control the HIV/AIDS epidemic.

### Conclusion

These observations suggest that despite increased access to HIV/AIDS treatment in Uganda, the burden of HIV infection is still high in the medical emergency unit at Mulago national referral and teaching hospital and so is the unmet burden of advanced HIV disease in need for ART. Our study implies missed opportunities for active HIV case identification and timely interventions in the acute care setting; hence the need to integrate HIV/AIDS care and ART into the existing medical care systems including the emergency setting. We recommend adoption of HIV testing and provision of specific HIV/AIDS care as part of the routine medical care for patients attending medical emergency care at Mulago hospital, irrespective of the diagnosis at presentation, since many of them have undiagnosed/ untreated advanced HIV disease.

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