

# HIV Testing and Antiretroviral Therapy in Government and Mission Hospitals in Malawi: 2002 – 2007

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## Abstract

HIV testing and antiretroviral therapy (ART) has scaled up tremendously in Malawi in the last 5 years. We analyzed trends of HIV testing uptake in the course of ART scale-up in 25 government and mission hospitals, which were selected because they do not receive support from non-governmental organizations. Data on numbers of clients HIV tested and on cumulative ART registrations were collected from annual country-wide situational analyses and from quarterly ART supervisory visits from 2002 to 2007. In the period before ART scale up, the quarterly number of clients HIV tested increased from 2609 in 2002 to 8197 in 2004, equivalent to an average quarterly increase of 559 tests. During ART scale up, the quarterly number of clients HIV tested increased from 17977 in early 2005 to 35344 in the second quarter of 2007, equivalent to an average quarterly increase of 2171 tests. During this time, the cumulative number of patients started on ART increased from 2441 to 29756. There has been a rapid acceleration of HIV testing uptake and ART in government and mission hospitals. ART may facilitate the decision of clients to have an HIV test and therefore contribute in this way to HIV prevention efforts.

## Introduction

The World AIDS Conference in Durban in 2000 marked a turning point in the response by sub-Saharan Africa to the HIV/AIDS pandemic. With powerful voices advocating for more resources to fight HIV/AIDS and for antiretroviral therapy (ART) to be made available for those in need, action was taken and increased funds became available for hard hit African countries over the next few years<sup>1,2</sup>.

Malawi, a small poverty stricken country in Southern Africa, has been confronting a severe HIV epidemic for two decades. The latest sentinel surveillance data show an estimated HIV prevalence in adults of 14% (range 12-17%), giving a total of 790,000 infected adults (range 780,000 – 1,120,000)<sup>3</sup>. Another 69,000 – 100,000 children are thought to be HIV-infected. As a result of the devastating effects of the epidemic on the country, Malawi was one of the first countries to submit a comprehensive proposal to the GFATM, the main focus of the proposal being the provision of free ART to HIV-infected, eligible patients. In late 2002 the country received the welcome news that its submission

was successful. Plans were set in motion for providing ART to the country. In 2003, the Ministry of Health and the National AIDS Commission carried out the first country-wide situational analysis in order to obtain accurate, base-line data on numbers of persons counselled and HIV tested in the whole country for the previous year 2002. Since then, this activity has taken place without fail every year, and for 2003 onwards the analysis also includes data on the number of patients placed on ART within the public sector (source – HIV Unit, Ministry of Health, Malawi).

From 2002 onwards a number of changes took place that influenced HIV testing and counselling in the country. First, rapid HIV test kits were introduced into all hospitals in Malawi in September 2002, replacing the cumbersome ELISA testing system, and there is no doubt that these facilitated and eased the practice of HIV testing from the client's point of view. Second, the main HIV testing strategy prior to 2002 was voluntary counselling and HIV testing (VCT), which is generally client- or patient- orientated, with the decision left entirely with the client about whether to have the test and with an emphasis on extensive pre-test counselling and the social and preventive implications of being HIV infected or knowing one's serostatus. In 2002, Kevin de Cock and colleagues argued that HIV/AIDS in Africa should be redefined as a public health and infectious disease emergency with an increased focus on treatment, and they advocated for the concept of routine and diagnostic HIV testing (now called "provider-initiated HIV testing) within health-care settings<sup>4</sup>. With this approach, there is greater emphasis on "opting-out" (the patients undergo an HIV test as part of the service routine unless they specifically decline) rather than "opting-in" (patients only have an HIV test if there is a specific request), and there is a higher priority on post-test rather than pre-test counselling, particularly if the patient is HIV-positive. Third, the provision of ART created an incentive for HIV testing as treatment was available if the client had a positive HIV test result and was sick.

Non-governmental organizations (NGOs) that work with HIV/AIDS often provide strong leadership and additional resources for activities such as HIV testing and HIV treatment. We became interested in whether these activities were being scaled up in government institutions that receive no NGO support, and therefore decided to look at the association between the number of patients tested for HIV and the provision of ART within the government and Christian Hospital Association of Malawi (CHAM) health care setting.

## Methods

### Background

National roll out of free ART started in June 2004 to a few sites in the country, with scale up starting in earnest in 2005 (source: HIV Unit, Ministry of Health, Malawi). The

details of ART scale up and the administration of ART to patients has already been described<sup>5,6</sup>. In brief, the national programme focuses on a simple, standardised approach: use of one generic, fixed dose combination treatment (stavudine, lamivudine, nevirapine); a standardised system of registration, monitoring and reporting of cases and outcomes; and quarterly monitoring and supervision visits to all ART sites conducted by the HIV Unit of the Ministry of Health and its partners<sup>7</sup>. During ART supervision, the supervisors check the accuracy, completeness and consistency of the ART register and ART treatment master cards. Cohort analyses of numbers placed on therapy and their outcomes for the previous quarter are checked and collected into structured proforma. The supervising teams also visit the HIV testing and counselling units of the health facilities providing ART and collect data from the HIV Counselling Registers about the number of clients tested, the number HIV-positive and the number referred for ART over the course of the previous quarter. For every ART site in the country, the data are entered into an EXCEL data base for the quarter in question, and this enables national level aggregation and reporting.

### Selection of hospitals, data collection and analysis

The criteria for a hospital ART site to be included in this present study were: - i) facilities had to operate under the umbrella of government or CHAM with no support from NGOs; ii) facilities had to have been included in all country-wide situational analysis visits from 2002 to 2006, and iii) facilities had to start providing free ART between January and April 2005. Data were collected from all selected hospitals for the second (Q2) and the fourth (Q4) quarters of the year from 2002 up to June 30th 2007.

Between 2002 and 2004, before ART was introduced, data on numbers of clients HIV tested were obtained from HIV testing registers during the country-wide situational analysis. When these data were collected, they were aggregated at the time for a 12-month calendar period, and thus the quarterly data for this study were calculated (by dividing by 4), assuming that HIV testing was uniformly distributed month by month. From 2005 onwards, data were obtained on numbers of clients HIV tested from HIV testing registers and numbers cumulatively started on ART from ART registers during quarterly ART supervision visits.

### Ethical approval

This study was not formally submitted for ethical clearance, as the Malawi National Health Science Research Committee provides general oversight and approval for the collection and use of routine programmatic data for monitoring and evaluation.

### Results

The Table shows the annual total of people HIV tested and counselled for the whole country, the number HIV tested and counselled in all public sector health facilities and the number started on ART for the years 2002 – 2006. The number of people HIV tested each year has risen dramatically, and every year a growing percentage of people are being HIV tested in health care facilities.

*Table: HIV testing and counselling and provision of antiretroviral therapy in the public sector in Malawi: 2002 – 2006*

Year	Total number of clients HIV tested each year	Number (%) of clients HIV tested each year in health facilities	Number of new patients placed on ART each year
2002	149,540	35,407 (24%)	No data
2003	215,269	79,584 (37%)	3,000 (estimate)
2004	283,467	129,199 (46%)	10,183
2005	482,364	302,205 (63%)	24,657
2006	661,400	508,500 (77%)	43,981

Of the 25 hospitals selected for the analysis, 5, 12 and 8 were located in the Northern, Central and Southern Region, respectively; 16 were district hospitals and 9 were CHAM hospitals. The Figure shows the quarterly number of clients HIV tested before the background of cumulative ART registrations, clearly illustrating the acceleration of HIV testing from the time of ART scale-up. In the period before ART scale up, the quarterly number of clients HIV tested increased from 2609 in 2002 to 8197 in 2004, which is equivalent to an average quarterly increase of 559 tests. During ART scale up, the quarterly number of clients HIV tested increased from 17977 in early 2005 to 35344 in the second quarter of 2007. This is equivalent to an average quarterly increase of 2171 tests. At the same time, the cumulative number of patients started on ART increased from 2441 to 29756.

### Discussion

HIV testing in the selected health facilities showed a moderate but steady increase during the three years prior to the introduction of ART. This may have been due to several factors including the need to know about diagnosis of HIV in the clinical assessment of patients, increased public awareness of HIV/AIDS, easier access to HIV testing through the provision of rapid HIV tests, some limited provision of ART in a few facilities and added benefits of cotrimoxazole preventive therapy being provided at this time to HIV-positive TB patients<sup>8</sup>. However, the start of ART availability in 2005 marked a turning point in HIV testing uptake and was followed by a dramatic acceleration of HIV testing. During both periods, the increase of testing was approximately linear. We believe that this trend is a result of two main initiatives: large efforts placed on scaling up HIV testing and counselling services in the country and ART being provided at increasing numbers of health facilities.

The study has the limitations of this type of operational research. Data were collected from registers used in the routine health care system, and it is possible that there were errors of documentation. In the period 2002 – 2004, we also do not have quarterly breakdown of HIV testing data, and the extrapolations to quarterly numbers based on an assumption of uniform month to month HIV testing may not be valid. However, there were a large number of district and mission hospitals selected in all three regions of the country, and these are probably representative of government health facilities in the country that are managed without NGO support.

It is highly encouraging that ever increasing numbers of

clients and patients are undergoing HIV testing. Knowledge of HIV status is the gateway to care and prevention of further infection. Evidence has emerged from Africa on the efficacy and cost-effectiveness of HIV testing and counselling in promoting behaviour change and reducing the sexual transmission of HIV<sup>9,10</sup>. The outcomes of HIV-infected patients in WHO Clinical Stage 3 or 4 without ART are very poor<sup>11</sup>, and there is no doubt that ART greatly improves survival<sup>12,13</sup>, provided the medication is started early enough. National programmes must respond to this growing demand for HIV testing and ART by ensuring that there are no stock-outs of HIV test kits and drug supplies.

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## References

1. Editorial. A positive result for AIDS. *Lancet* 2003; 361: 539.
2. Clinton WJ. Turning the tide on the AIDS epidemic. *N Eng J Med* 2003; 348: 1800-1802.
3. National AIDS Commission. HIV and syphilis sero-survey and national HIV prevalence estimates. Report 2005. Lilongwe, Malawi.
4. De Cock KM, Mbori-Ngacha D, Marum E. Shadow on the continent: public health and HIV/AIDS in Africa in the 21st century. *Lancet* 2002; 360: 67-72.
5. Libamba E, Makombe S, Harries AD, et al. Scaling up antiretroviral therapy in Africa: learning from tuberculosis control programmes – the case of Malawi. *Int J Tuberc Lung Dis* 2005; 9: 1062 – 1071.
6. Libamba E, Makombe SD, Harries AD, et al. Malawi's contribution to "3 by 5": achievements and challenges. *Bulletin World Health Organization* 2007; 85: 156- 160.
7. Libamba E, Makombe S, Mhango E, et al. Supervision, monitoring and evaluation of nationwide scale up of antiretroviral therapy in Malawi. *Bulletin World Health Organization* 2006; 84: 320 – 326.
8. Chimzizi RB, Harries AD, Manda E, Khonyongwa A, Salaniponi FM. Counselling, HIV testing and adjunctive cotrimoxazole for TB patients in Malawi: from research to routine implementation. *Int J Tuberc Lung Dis* 2004; 8: 938 - 944.
9. The Voluntary HIV-1 Counselling and Testing Efficacy Study Group. Efficacy of voluntary HIV-1 counselling and testing in individuals and couples in Kenya, Tanzania, and Trinidad: a randomised controlled trial. *Lancet* 2000; 356: 103-112.
10. Sweat M, Gregorich S, Sangiwa G, et al. Cost-effectiveness of voluntary HIV-1 counselling and testing in reducing sexual transmission of HIV-1 in Kenya and Tanzania. *Lancet* 2000; 356: 113- 121.
11. van Oosterhout JG, Laufer MK, Graham SM, et al. A community-based study on the incidence of trimethoprim-sulfamethoxazole-preventable infections in Malawian adults living with HIV. *J Acquir Immune Defic Syndr* 2005; 39: 626 – 631.
12. Coetzee D, Hildebrand K, Boulle A, et al. Outcomes after two years of providing antiretroviral treatment in Khayelitsha, South Africa. *AIDS* 2004; 18: 887 - 895.
13. Ferradini L, Jeannin A, Pinoges L, et al. Scaling up of highly active antiretroviral therapy in a rural district of Malawi: an effectiveness assessment. *Lancet* 2006; 367: 1335 – 1342.