

Improvement of the patient flow in a large urban clinic with high HIV seroprevalence in Kampala, Uganda

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Summary: Antiretroviral treatment roll-out programmes in Africa often have difficulties to cope with the increasing number of clients. Based on the findings of a survey carried out in 2005 that showed long waiting times, innovative organizational changes (nurse visits and pharmacy-only refill visits) were introduced in our clinic. In August 2007, the survey was repeated to evaluate the impact of these changes. During both surveys we used the same standardized questionnaire. In 2007, 400 patients visited the clinic on the study day compared to 250 in 2005. The median time spent at the clinic decreased from 157 minutes in 2005 (range 22–426) to 124 minutes (15–314). All the waiting times for different services decreased except the time between the visit to the triage nurse and the doctors' visit. A similar methodology could be used by other health services to evaluate and compare different models of care.

Keywords: HIV infection, antiretroviral treatment, patients flow, survey, models of care

INTRODUCTION

A rapid scale-up in the number of individuals receiving anti-retroviral treatment (ART) is in progress in sub-Saharan Africa¹ and the demand for HIV care and ART is increasing, especially in areas with high seroprevalence.

Free ART programmes now face major challenges, especially in terms of facilities and human resources.² In this context, where clinics register thousands of patients, new and innovative models of care are needed.

The Infectious Diseases Institute (IDI) is a large urban clinic with 20,000 registered patients, providing free care such as counselling, clinical evaluation, prophylaxis for opportunistic infections, laboratory testing including CD4+ cell count measurement and ART. Antiretroviral drugs are provided through Global Fund and the Presidential Emergency Plan for AIDS Relief (PEPFAR) programme.

Since 2004, 19,500 patients have been registered at IDI, of which 9000 are still under active follow-up and 4500 on ART. In January 2005, in order to cope with the increasing number of patients we performed a one-day survey of the patient flow.³

The survey revealed prolonged waiting times and a long total time spent at the clinic. The study identified bottlenecks and generated information to improve the efficiency of the services provided at IDI.

Based on these findings, organizational changes were proposed and implemented. Nurse visits, rather than assessments by clinicians, were introduced for patients with minor complaints, as this intervention was shown to be able to reduce waiting lists and congestion in ART centres in similar settings.^{4,5}

Extra dispensers were hired and groups rather than individual counselling sessions were introduced with patients starting ART to speed-up the process of scaling-up ART delivery.

In addition, a pharmacy-only refill programme was started for patients on ART for at least 12 months, who were asymptomatic with good adherence levels and with CD4+ cell count ≥ 200 cells/ μ L. Such patients see a doctor or a nurse every three months and visit a window at the pharmacy designated to this programme to collect their monthly drugs.

On 20 August 2007, we repeated the one-day survey to document and evaluate the impact of these organizational changes.

METHODS

We used the same standardized questionnaire that was used in 2005. Health-care providers recorded the time of presentation at reception, waiting times and the in and out time for triage, nurse or doctor visit, counselling session, laboratory testing and pharmacy refill for all patients. Information regarding the patients' status (new or old clients, symptomatic or asymptomatic, on ART or not) was also collected.

The exercise was conducted on a Monday, the same day of the week as during the 2005 survey and a particularly busy day at the IDI clinic.

RESULTS

During the 2007 survey, 400 patients visited the clinic the study day compared with 250 in 2005. Of these, 393 (98.2%) were clients already registered at IDI, compared with 92.5% in 2005. The unscheduled visits decreased from 33% to 22% and the number of asymptomatic patients increased from 20% to

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37%. Two hundred and seventy-six (69%) were on ART compared with 38% in 2005 of which one-third (87/276, 32%) were followed-up in the pharmacy-only refill programme (Table 1).

During the 2005 survey, the total number of doctors and nurses was 12 and 10, respectively (22 in total); during the 2007 survey there were eight doctors and 13 nurses (21 in total) involved in patient care.

The median time spent at the clinic (not including patients in the pharmacy-only refill programme) decreased from 157 minutes in 2005 (range 22–426) to 124 minutes (range 15–314) in 2007.

The median time from reception to triage/vital signs measuring unit decreased from 34 minutes (range 3–92) to 14.5 minutes (range 1–155); for doctor visit from 10 (range 1–51) to 7 (range 2–46) and for nurse visit from 10 (range 5–15) to 8 (2–25) and from doctor to pharmacy from 24 minutes (range 5–292) to 16 minutes (range 0–104). Median waiting time at the pharmacy decreased from 30 minutes (range 10–175) to five (0–42) minutes (range 0–42). Only the median time from triage nurse to doctor increased from 51 minutes (range 1–205) to 64.5 minutes (range 0–423). For patients who also attended counselling sessions the median time was 23 minutes (10–55) compared with 20 minutes in 2005. In 2007, there was only one group of counselling session during the day of the survey and it lasted for 30 minutes (median time in 2005 was 25 [range 19–50]) (Table 2).

For the patients in the pharmacy-only refill programme, the median time spent at the clinic was two minutes (range 1–8).

DISCUSSION

In 2005 it became clear for health-care providers and patients at IDI that the waiting times at the clinic were very long and destined to become even longer in the future, due to the continuous registration of new patients (7187 patients were registered at IDI in 2005), and the rapid scale-up of the patients on ART. Due to cost issues and space constraints, simply hiring more staff was not a sustainable solution. The 2005 survey helped us to identify bottlenecks, and gave us information on how to reorganize our clinic. We set up some innovative measures, particularly group counselling, nurse visits for patients with no or minor complaints, and a pharmacy refill-only programme.

Two years later, in spite of the increasing numbers of registered patients and the higher numbers attending daily, the total time spent in the clinic and the waiting times, except time between triage nurse and doctor, decreased. This was achieved with similar staff strength of doctors and nurses during both surveys. This certainly demonstrates that these changes have been successful in improving the patient flow at our clinic.

Table 1 Comparison of patients who attended the clinic during the one day exercise in 2005 and 2007

	2005	2007
Total number of patients	250	400
Already registered patients	221 (92.5%)	393 (98.25%)
Scheduled	189 (77%)	353 (88.25%)
Asymptomatic	36 (20%)	150 (37.5%)
Total on ART	63 (37.5%)	276 (69%)
On ART seen by doctor/nurse	63 (37.5%)	189 (47.25%)
On pharmacy refill-only programme	NA	87 (21.75%)

ART = antiretroviral treatment; NA = not available

Table 2 Comparison of waiting times patients who attended the clinic during the one day exercise in 2005 and 2007

	2005 Time in minutes (range)	2007 Time in minutes (range)
Triage	34 (93–92)	14.5 (1–155)
Time from triage to doctor/nurse	51 (1–205)	64.5 (0–423)
Doctor visit	10 (1–51)	7 (2–46)
Nurse visit	10 (5–15)	8 (2–25)
Individual counselling session	23 (10–55)	20 (4–50)
Group counselling session	25 (19–50)	30 (NA*)
Time from doctor to pharmacy	24 (5–292)	16 (0–104)
Pharmacy	30 (10–175)	5 (0–42)
Total	157 (22–426)	124 (15–314)
Pharmacy-only refill	NA	2 (1–8)

NA = not available

*There was only one group counselling session on that day

However, it is to be noted that other factors could have contributed to the improvement of the patients flow in our clinic. Comparing the patient population in 2005 and 2007, the proportion of patients on ART seen in a day clinic increased from 37% to 47%, and the proportion of asymptomatic patients from 20% to 37%. It may indeed be easier to follow-up asymptomatic patients who are stable on ART than symptomatic patients who need to be prepared for ART.

A way forward for congested ART roll-out programmes is to implement more pharmacy-only refill programmes; a recent analysis from our centre shows that, if patients are carefully selected, this intervention reduces the number of clinician visits without compromising the quality of care and without a negative effect on clinical, immunological and adherence outcomes.⁶

Since ART delivery is a dynamic process, we plan to repeat such a survey once a year to identify promptly any bottleneck and implement organizational changes if necessary.

We believe that a similar methodology could be used in other ART roll-out clinics in order to implement organizational changes and evaluate different models of care.

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REFERENCES

- World Health Organization. *Progress on Global Access to HIV Antiretroviral Therapy: A Report on '3 by 5' and Beyond*. Geneva: World Health Organization, 2006:www.who.int/hiv/fullreport_en_highres.pdf (Last accessed 1 April 2008)
- Kober K, Van Damme W. Scaling up access to antiretroviral treatment in southern Africa: who will do the job? *Lancet* 2004;**364**:103–7
- Colebunders R, Bukenya T, Pakker N, et al. Evaluation of the patient flow at the infectious diseases institute. *AIDS Care* 2007;**19**:149–51
- Spirig R, Nicca D, Voggensperger J, Unger M, Werder V, Niepmann S. The advanced nursing practice team as a model for HIV/AIDS caregiving in Switzerland. *J Assoc Nurses AIDS Care* 2004;**15**:47–55
- Miles K, Clutterbuck DJ, Seitio O, Sebege M, Riley A. Antiretroviral treatment roll-out in a resource-constrained setting: capitalizing on nursing resources in Botswana. *Bull World Health Org* 2007;**85**:555–60
- Obuku A, Lubwama E, Babigumira J, et al. Impact of an antiretroviral (ART) pharmacy refill program (PRP) in a resource constrained setting: experience at the Infectious Diseases Institute (IDI), Uganda. 11th European AIDS Conference, Madrid, 24–27 October 2007 (Abstract P19.2/01)