

The real challenges for scaling up ART in sub-Saharan Africa

Wim Van Damme, Katharina Kober and Marie Laga

AIDS 2006, 20:653–656

Keywords: antiretroviral therapy, AIDS, treatment, sub-Saharan Africa, health services, human resources for health, health policy, prevention

Introduction

On 1 December 2003, when pilot projects had shown the feasibility of antiretroviral therapy (ART) in the poorest regions of the world, and the prices of antiretroviral drugs had steeply decreased, the World Health Organization (WHO) launched its '3 by 5' initiative, aiming to provide ART to 3 million people by the end of 2005. WHO described the large-scale provision of ART as 'a global health emergency [for which] urgent action is needed' [1]. In June 2005, '3 by 5' released an interim report documenting the impressive progress made, but acknowledging its pace is slower than originally anticipated. However, although the AIDS epidemic in sub-Saharan Africa certainly requires an emergency response with short-term plans and objectives, we argue that the short time horizon risks constricting our insights and that a much longer-term view is now necessary in view of the ultimate goal of universal access to ART [1].

Many health systems in sub-Saharan Africa currently lack the capacity to provide even basic health care to the population, let alone deal with the additional burden of scaling-up ART. AIDS poses a challenge for health systems that is fundamentally different from all of the other health problems ever faced. Transforming a deadly disease into a manageable chronic one turns millions of people into chronic patients, in need of life-long regular follow-up. This implies that the present efforts and commitments will have to be continuously increased for many years to come. Putting many people on ART could

reduce the present burden on the health services in Africa caused by AIDS, as has been seen in the West, but the increasing workload related to maintaining large numbers of patients on ART will compensate for this. Moreover, the case-load will increase as the epidemic is growing older and as long as the incidence of HIV infection is not dramatically reduced; and even then the case-load will continue to increase due to the long delay between reduced transmission and a decreased need for ART.

The growing case load

A simple calculation exercise with rough numbers can illustrate the challenge ahead. With 1 million people on ART in low and middle-income countries in June 2005 [2], let us assume that by the end 2005 this will reach 2 million ('2 by 5'); and that from 2006 on, ART systems world-wide will continue to expand by putting 2 million on treatment every year, and that the annual mortality rate of people on treatment will be 10%. On this basis the health systems of low and middle-income countries would have to deal with over 9 million patients on ART by 2010, close to 14 million by 2015 and in 2025 this would level off at around 18 million. In a country with 30% sero-prevalence, unchanged HIV incidence and an effective ART programme putting two-thirds of those in need on ART, then by 2010 almost 10% of the adult population could be on ART, a figure that might even

From the Institute of Tropical Medicine, Antwerp, Belgium.

Correspondence to Wim Van Damme, MD, PhD, Institute of Tropical Medicine, Nationalestraat 155, 2000 Antwerp, Belgium.
E-mail: wvdamme@itg.be

Received: 15 September 2005; revised: 16 November 2005; accepted: 2 December 2005.

increase to 18% by 2025. Consequently, adult seroprevalence would increase to close to 40% in 2010 and even to 48% in 2025.

Human resources for health and ART delivery models

Such prospects are daunting and will require immensely strengthened health systems, whereas their absorptive capacity is presently considered to be the main bottleneck for scaling-up. The lack of human resources for health (HRH), particularly in sub-Saharan Africa, has been identified as the main constraint [3,4].

Finding solutions for the HRH bottleneck is crucial not just for '3 by 5' (or '2 by 5'), but even more so for dealing with the growing case-load beyond 2005. The challenge is to combine the urgent measures for rapidly increasing the number of HRH available for scaling-up ART, without negatively affecting the rest of the health care provision, with strategies to secure a sufficient long-term supply of HRH [5]. This would involve increasing the intakes in training institutions, creating new cadres of health staff, reversing the brain drain, and/or importing staff from countries with a surplus.

However, it is not only the supply of additional HRH, but also the way in which they are used that needs attention. Present ART delivery models are extremely labour-intensive and quite incompatible with the HRH constraints. Smith has projected that if Zambia and Mozambique were to scale-up ART for all the clinically eligible people within the next 10 years, they would require, for this activity alone, two and four times as many doctors, respectively, as their total current stock of doctors [6]. Thus, context-specific ART delivery models, which require considerably less doctor-time, need to be developed [7–9]. One of these, the WHO's *Integrated Management of Adult and Adolescent Illness* (IMAI) model has designed simplified ART protocols to make it feasible to delegate a number of tasks from medical doctors to nurses and from nurses to community health workers [10].

Yet, we contend that the millions of people on ART who need life-long care in sub-Saharan Africa pose an even more fundamental challenge for today's ART models, with their reliance on the medical and paramedical professions. The escalating demands for long-term care runs the risk of becoming unsustainable for the health systems, with the potential crowding-out of most non-AIDS patients. Such prospects put into question the adequacy of a 'medical paradigm' for ART in high-burden HIV/AIDS countries [11]. Given the HRH constraints, there is a need for innovative, de-medicalized delivery models, based primarily on the communities and

on the capacity and resourcefulness of the people living with HIV/AIDS themselves, supported by professional back-up when required [12]. A rigorously evaluated, community-based pilot experience in Haiti has shown impressive results both in terms of adherence and patient outcome [13]. For such a paradigm shift to become generally accepted, more such evidence will be needed.

Prevention

All efforts to increase access to ART, and keep millions on ART, can only be sustainable if the number of new HIV infections can be dramatically reduced in the years to come. At the end of 2004, an estimated 25.4 million people in sub-Saharan Africa were living with HIV, compared with 24.4 million in 2002. This apparent stabilization of HIV prevalence rates does not mean the epidemic is slowing. It disguises the fact that the number of people newly infected with HIV (estimated at 3.1 million in 2004 in Africa alone), is almost equal to the number of people dying of AIDS [14].

Some success stories in HIV prevention have been documented in sub-Saharan Africa, indicating that reducing HIV incidence is both possible and feasible [15,16]. However, these efforts were too small in scale to have resulted in a significant decline of the overall HIV incidence. It is shocking to note that more than 20 years after AIDS has been described, less than one person in five of those in need in sub-Saharan Africa have access to essential prevention services. In 2003, 1.5% of adults had received HIV testing and counseling, 5% of pregnant women had access to prevention of mother-to-child transmission programmes, and 31% of sex workers had access to outreach prevention programmes [17]. The reasons for this 'prevention implementation gap' are multiple, ranging from denial, stigma, lack of financial, human and technical resources over cultural, political or religious barriers, to disagreement among programme managers on efficacy and mix of prevention strategies.

It is important to recognize the potential pitfalls related to the scaling-up of ART, which could in itself further weaken the current prevention efforts. The focus, energy and resources, especially the already scarce human resources, could easily be absorbed by the formidable needs posed by the treatment programmes, resulting in an even greater reduction in the scale of prevention activities. As an example, in Africa many grass roots organizations and non-governmental organizations for people living with HIV, which were traditionally involved in community mobilization and prevention, have shifted their focus to treatment support activities. Furthermore, the lessons learned from gay communities in industrialized countries indicate that the large-scale introduction of ART in a

community does not automatically result in prevention benefits. The anticipated benefit of ART on prevention, through individual transmissibility reduction by reducing viral load in treated AIDS patients, was outweighed by an increase in risky behaviour by a growing number of HIV-positive men returning to sexual activity, and in some instances led to an increase of HIV incidence [18]. We have no evidence that this is happening in Africa today, but data collection on the impact of the availability of ART on sexual behaviour in those communities has just started.

Currently, the efforts and momentum around '3 by 5' also offer many opportunities to strengthen prevention. At a policy level, unprecedented commitment to tackling HIV/AIDS, new funding streams and new partnerships could give a boost to global HIV prevention. At a programme level, access to life-saving drugs breaks the cycle of despair and is undoubtedly an incentive for the uptake of HIV testing in sub-Saharan Africa. This may, in turn, reduce stigma and denial by giving a face to the epidemic. The growing and expanding chronic care services for millions of HIV-infected people also provide many opportunities for prevention within the health care setting by delivering prevention messages during multiple patient–health worker contacts. As an example, adherence support efforts could be more effectively used to address prevention issues and an increasing number of people living with HIV and aware of their status could become active in mobilizing change in the community. It is of paramount importance that these care–prevention synergies are recognized and fully integrated into the current ART scale-up efforts now.

A recent modelling exercise clearly indicated that a meaningful impact of the response against AIDS, which includes both reduction of HIV incidence and of AIDS-related mortality, can only be achieved if both prevention and treatment are enhanced simultaneously [19]. A similar conclusion is obvious from UNAIDS' comprehensive scenarios up to 2025 [20]. Treatment can make prevention more effective, and prevention will make treatment more feasible and affordable. All countries should therefore (re)emphasize both emergency and long-term strategies for enhancing HIV prevention in synergy with their rapidly expanding treatment programmes. An extraordinary commitment, activism and co-ordinated planning comparable to the '3 by 5' movement will be needed to give prevention the attention it needs and the challenge for the countries will be to creatively involve all partners in bringing prevention to a meaningful scale and scope within both the healthcare sector and all other relevant sectors.

We think that new ART delivery models for coping with the escalating case loads as well as enhanced prevention are the real challenges for ART in sub-Saharan Africa. Both are compelling reasons why we must look beyond

the 2005 time horizon, useful as it has been for an emergency mobilization. We believe the time has come for policy-makers to take a fresh look at the global need for AIDS control by starting to simultaneously build novel systems to support chronic care for millions and plan for large-scale HIV prevention efforts. This requires a focus on a mid-term horizon such as 2010, or a longer-term horizon up to 2025.

Acknowledgement

Sponsorship: Funded by the Belgian Directorate General of Development Cooperation as part of a Framework Agreement with the Institute of Tropical Medicine, Antwerp.

References

1. WHO. *Treating 3 million by 2005. The WHO strategy*. Geneva: WHO; 2003.
2. WHO and UNAIDS. '3 by 5' Progress Report. Progress on Global Access to HIV Antiretroviral Therapy, 2005. <http://www.who.int/3by5/publications/progressreport/en/index.html> Accessed: May 20, 2005.
3. Kober K, Van Damme W. **Scaling up access to antiretroviral treatment in southern Africa: who will do the job?** *Lancet* 2004; **364**:103–107.
4. Ncayiyana D. **Doctors and nurses with HIV and AIDS in sub-Saharan Africa.** *BMJ* 2004; **329**:584–585.
5. Joint Learning Initiative. *Human resources for health. Overcoming the crisis*. Boston Massachusetts: Harvard University, 27 November 2004.
6. Smith O. **Human resource requirements for scaling-up antiretroviral therapy in low-resource countries.** In: Curran J, Debas H, Arya M, Kelley P, Knobler S, Pray L, editors. *Scaling up treatment for the global AIDS pandemic. Challenges and opportunities*. Washington DC: The National Academies Press; 2005. pp. 292–308.
7. WHO. *Scaling up HIV/AIDS care: service delivery and human resources perspectives*. Geneva: WHO; 2004.
8. Dovlo D. **Using mid-level cadres as substitutes for internationally mobile health professionals in Africa. A desk review.** *Hum Resour Health* 2004; **2**:1–12.
9. Hongoro C, McPake B. **How to bridge the gap in human resources for health.** *Lancet* 2004; **364**:1451–1456.
10. WHO. *Integrated Management of Adolescent and Adult Illness (IMAI)*, 2004. <http://www.who.int/3by5/publications/documents/imai/en/> Accessed 20 May 2005.
11. Marchal B, Kegels G, De Brouwere V. **Human resources in scaling up HIV/AIDS programmes: just a killer assumption or in need of new paradigms?** *AIDS* 2004; **18**:2103–2105.
12. Jaffar S, Govender T, Garrib A, Welz T, Grosskurth H, Smith PG, et al. **Antiretroviral treatment in resource-poor settings: public health research priorities.** *Trop Med Int Health* 2005; **10**:295–299.
13. Koenig SP, Leandre F, Farmer PE. **Scaling-up treatment programmes in resource-limited settings: the rural Haiti experience.** *AIDS* 2004; **18**:S21–S25.
14. UNAIDS, WHO. *AIDS epidemic update: December 2004*. Geneva: UNAIDS; 2004.
15. Laga M, Alary M, Nzila N, Manoka A, Tuliza M, Behets F, et al. **Condom promotion, STD treatment leading to a declining incidence of HIV-1 infection in female Zairean sex workers.** *Lancet* 1994; **344**:246–248.
16. Merson M, Dayton J, O'Reilly K. **Effectiveness of HIV prevention interventions in developing countries.** *AIDS* 2000; **14**: 68–84.

17. USAID, UNAIDS, WHO, UNICEF. *Coverage of selected services for HIV/AIDS Prevention, care and support in low and middle income countries in 2003*. Washington, DC: The Policy Project; 2004.
18. Katz MH, Schwarcz SK, Kellogg TA, Klausner JD, Dilley JW, Gibson S, *et al.* **Impact of highly active antiretroviral treatment on HIV seroincidence among men who have sex with men: San Francisco.** *Am J Public Health* 2002; **92**:388–394.
19. Salomon J, Hogan DR, Stover J, Stanecki KA, Walker N, Ghys PD, *et al.* **Integrating HIV prevention and treatment: from slogans to impact.** *PLoS Med* 2005; **2**:50–56.
20. UNAIDS. AIDS in Africa: Three Scenarios to 2025, 2005. http://www.unaids.org/en/AIDS+in+Africa_Three+scenarios+to+2025.asp