Editorial: Scale□up of antiretroviral therapy in sub□Saharan Africa□priorities for public health research

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Editorial: **Scale-up of antiretroviral therapy in sub-Saharan Africa – priorities for public health research**

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The scale-up of antiretroviral therapy (ART) in Africa is the largest health delivery programme ever contemplated on the continent. About 1.3 million people are now on ART and a further 3.5 million are estimated to be in current need of ART. Research is required urgently to identify strategies of scaling-up ART delivery to ensure that it has high coverage, is effective and is available equitably. Furthermore, the number of new infections occurring daily far outstrips the number of patients being placed on ART (World Health Organization, 2007), and to halt the expanding number eligible for treatment, a pressing priority for research is to determine ways of effectively integrating human immunodeficiency virus (HIV) prevention with ART delivery strategies.

At present, most government-led ART programmes are based in district or tertiary-level hospitals. This limits the number who can be treated; as hospital services are overburdened, there is a severe shortage of clinical staff, especially physicians, and most hospitals are in urban settings and difficult to access by the majority of people who live in rural areas (Jaffar *et al.* 2005; Gilks *et al.* 2006). Home-based care may not be acceptable in many settings because of stigma issues, but it is being evaluated in at least one cluster randomized trial (Jaffar *et al.*, unpublished data). Peripheral health facilities, run by nursing staff or clinical assistants, provide basic primary care in rural communities across Africa. Research is required to determine if ART could be initiated and maintained from such centres. Could the centres monitor patients for side effects from therapy? Could they make referrals to hospitals as and when appropriate? What kind of adherence support and behaviour counselling should the centres provide? How often should patients be followed up and by whom? What should be the minimum cadre of staff involved in the different components of ART delivery and how should they be trained and supported? What are the costs of ART both to the health services and to the patients?

Rigorous studies are needed to address these questions, ideally randomized trials. The focus should be on identifying cost-effective packages of monitoring and support needed for ART delivery, with comparisons made with a standard hospital delivery model. There is an urgency to find answers, and biological endpoints such as virological failure can be used as the primary endpoints if these are considered to be good surrogate measures of treatment failure and survival in ART-naïve populations.

In settings with high HIV prevalence, 10% of the adult population could be on ART within a few years (Van Damme *et al.* 2006). The scale-up of ART services provides a unique opportunity for intensifying HIV prevention efforts as more resources are directed towards HIV programmes and more people come forward for HIV-testing. Integrating HIV prevention with ART roll-out is crucial and might ensure that prevention remains the key priority.

Existing HIV prevention efforts such as condom promotion and voluntary counselling and testing (VCT) should be strengthened and more widespread use of circumcision to decrease susceptibility to HIV infection needs to be promoted and implemented. Research is needed to identify strategies that maximize the uptake of these and to determine how the availability of ART might be used to strengthen prevention efforts. Reinforcing prevention activities to household members of those on ART may be an effective strategy, though issues of stigma remain a major impediment in many societies.

It is possible that more widespread use of ART may reduce HIV incidence, but equally the opposite effect is possible if those on treatment indulge in more risky sexual behaviour, or if the notion that HIV is treatable encourages more risky behaviour among those uninfected. Both of these aspects are an important topic for public health research.

A high priority is to reduce the risk of transmission among HIV-infected persons who are not on ART as they will likely have higher viraemia than those on ART. A possible way of achieving this would be to promote the early identification of HIV-infected persons and to start such persons on ART early in the course of infection, before their CD4 counts have shown substantial decline. There are now good clinical grounds for considering earlier initiation of treatment to reduce the incidence of opportunistic infections, a strategy which may be feasible with the increasingly better side-effect profiles and better dosing regimens of new drugs (Phillips *et al.* 2007). A trial of early treatment of HIV has started (Cohen 2007) but is not due to report its findings until around 2013. However, given the difficulty and costs of implementing an early treatment programme, it is unlikely that a single trial will influence policy across the continent. Further studies to assess the efficacy of early ART treatment should be considered, particularly if combined with enhanced adherence support measures (e.g. intensive adherence counselling).

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