

## Letter from the editor

### Using evidence to inform HIV/AIDS-prevention policy and practice in Africa: challenges and opportunities

Sub-Saharan Africa bears the brunt of the global HIV/AIDS burden, and must make do with less than 3% of the world's healthcare workforce.<sup>[1]</sup> With no HIV vaccine available in the foreseeable future, and with ongoing barriers that deny many people access to antiretroviral treatment, evidence-based prevention of HIV/AIDS remains integral to reducing the region's disease burden. Regional and country-level prevention policy and practice must be based on up-to-date clinical research findings. Randomised controlled trials (RCTs), which provide the best evidence for establishing whether interventions work, and systematic reviews, which collate the data from pooled RCTs, are increasingly recognised as the necessary platform on which to build evidence-based policy and practice. Given the resource constraints across the African continent, there are numerous challenges to using evidence to inform HIV/AIDS prevention policy and practice — but opportunities are also apparent.

There are relatively few systematic reviews relevant to low-income countries.<sup>[2]</sup> This is due in part to a lack of local researchers with the necessary skills to conduct reviews relevant to low-income settings, and to a lack of primary research conducted on the African continent.<sup>[3]</sup> In an analysis of all reported HIV/AIDS trials conducted in sub-Saharan Africa between 1985 and 2003, only 77 trials were identified, with 42 of these evaluating preventive interventions.<sup>[4]</sup> Where there is reliable evidence, policy makers and researchers in Africa may find it difficult to access this information, because journal subscriptions and internet connections are often costly.<sup>[5]</sup> Those based in Francophone and Lusophone African countries face an additional challenge as English continues to be the language of choice for scientific publication and dissemination. The application of best available evidence and its transformation into an effective preventative policy at a national level requires a skilled ministerial and health departmental bureaucracy, as well as a supportive regulatory environment. Many African countries are unable to provide the necessary training for such staff, and those who have the necessary skills may join the ever-increasing 'brain drain' of professionals leaving the continent.<sup>[6]</sup>

HIV prevention interventions can be broadly categorised as biomedical interventions (such as microbicides and male circumcision) or behavioural interventions (such as condom promotion, partner reduction, HIV counselling and testing, and the multi-component ABC approach [Abstain, Be faithful, and use Condoms]). Evidence-based behavioural interventions can offer accessible strategies for health systems that lack the structural or human capacity to provide pharmacological interventions and clinical treatment. Although behavioural interventions are central to global efforts to reduce transmission of HIV, there is limited evidence for the effectiveness of such interventions to prevent HIV transmission in sub-Saharan Africa. Of the 42 HIV-prevention trials conducted in Africa before 2004, only five evaluated behavioural prevention interventions.<sup>[4]</sup> Ideally, clinical trials evaluate the efficacy (impact on health under experimental conditions) of interventions to prevent HIV by measuring the biological endpoint of reduction of HIV transmission. However, trials of behavioural interventions often use outcomes based on self-report (for example, number of sexual partners over time) rather than the more objective biological outcome of the proportion of participants infected with HIV at the end of the trial, limiting the validity of their results.<sup>[7]</sup> Proving the effectiveness (impact on health under real-world conditions) of both biomedical and behavioural interventions is problematic with few trials collecting data on social or cultural acceptability and intervention uptake beyond the trial setting.<sup>[7]</sup>

There are additional theoretical and practical reasons for continuing to investigate behavioural HIV-prevention interventions specifically in Africa. Findings from RCTs in other locations may lack external validity in Africa, as the motivations, meanings, and norms that determine health behaviours are shaped by culture and context. So, there is an urgent and ongoing need to increase the number of behavioural

HIV-prevention trials in Africa, ideally led by African investigators familiar with the context of HIV prevention in the local setting. Techniques for implementing effective behavioural interventions are also context-dependent, and in traditional or impoverished African settings these implementation considerations include the setting for programme delivery (e.g. whether in school, churches or clinics), delivery technique (e.g. individual versus small-group counselling, peer- versus expert-based counselling), intervention messages (e.g. using culturally and gender-appropriate language), and materials (e.g. use of media, written or other visual presentations; accoutrement for condom demonstrations). Some settings might lack programme-implementation resources, and some programme-implementation strategies might be inappropriate for particular settings because of local standards and norms of etiquette and acceptability.

Successful translation from research to practice depends on fidelity to the original programme tested in the trial but, in many cases, published reports of effective behavioural interventions lack information about the above-mentioned implementation characteristics, which are crucial for determining where and how to replicate or roll out the programme.<sup>[8]</sup> Transportation of effective behavioural programmes to African settings therefore depends on both improved reporting about potentially complex intervention trials and improved access to these reports by African researchers.

Much attention has been given to the use of biomedical interventions to prevent HIV in the past year. Provision of antiretroviral agents to prevent mother-to-child transmission has been proven to significantly reduce infections,<sup>[9]</sup> and is arguably the best strategy for reducing large-scale childhood infections and the societal tragedy of HIV-infected orphans. Researchers, policy makers, and funding agencies have an opportunity, if not a responsibility, to work closely together to ensure rapid implementation of this intervention across the continent. Closer working relationships will ideally lead to increasing use of pragmatic and cluster RCTs to enhance the strength of evidence supporting effective programme implementation. Other biomedical interventions for preventing HIV transmission continue to demand our attention.<sup>[7]</sup> Despite compelling findings favouring male circumcision as a prevention strategy,<sup>[10][11][12]</sup> policy makers are left with little robust evidence of how to implement this intervention across fragmented health systems in complex cultural contexts. Vaginal microbicides represent a female-controlled strategy for preventing HIV transmission, but findings from primary research have not yet established whether these interventions are effective.<sup>[13][14]</sup> If evidence for effectiveness is promising, then further research must interrogate the methods to promote this strategy and to improve women's access to microbicial preparations for everyday use.

Researchers and policy makers working in HIV prevention in Africa continue to face considerable challenges. However, there are many opportunities for increasing the evidence base for both biomedical and behavioural interventions, including conducting more primary research, conducting pragmatic trials of the implementation of proven biomedical interventions, and improving partnerships between researchers and policy makers. Fully exploiting these opportunities requires a commitment from the international, regional, and local science and policy communities. It is reassuring that the WHO's Department of HIV/AIDS has made progress in this area. The WHO is tasked to provide governments with advice on policy and best practice, but a recent study revealed that systematic reviews are rarely used for developing WHO recommendations.<sup>[15]</sup> Despite the findings of this study, the WHO is to be commended for basing recent prevention guidelines for people living with HIV in resource-limited settings on a solid evidence base derived from RCTs wherever possible.<sup>[16]</sup> The alternative of basing policy on unproven and belief-driven interventions will, at best, lead to the continuation of the *status quo* and, at worst, an ever-increasing rate of HIV infection.

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**Conflict of interest:** Nandi Siegfried is the Deputy Co-ordinating Editor, and Don Operario is the Behavioural Editor, for the Cochrane HIV/AIDS Review Group. Both authors are employed in work which is dependent on the conduct of systematic reviews.

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