Life Expectancy in Africa: Back to the Future?

From 1950 to 1990, life expectancy in sub-Saharan Africa steadily rose. It then abruptly plateaued and began to rapidly decline; AIDS accounted for most of this reversal of fortune (1). That a single disease could lead to such a rapid and dramatic setback was shocking.

Moreover, because AIDS is transmitted primarily through sex, young adults were being affected disproportionately, tearing at the very fabric of African societies by decimating the ranks of essential workers, including teachers, laborers, engineers, nurses, and doctors. By killing their parents, the epidemic also created a generation of orphans, many destined to die of HIV themselves. Africa’s future looked bleak (2).

Contemporaneously, the rapid dissemination of highly effective combination HIV antiviral therapies was resulting in precipitous declines in short-term mortality from AIDS in the developed world (3), but there was uncertainty about the feasibility of using these drug regimens in Africa. Some experts argued that the cost of such expensive drugs was prohibitive in countries with a total per capita health expenditure of only a few dollars a year, and that even if introduced, would divert precious resources from more cost-effective prevention efforts (4, 5). Further, African systems of care were said to be substandard, health care workers in short supply, and patients unsophisticated. All of these factors, it was argued, would make it impossible to ensure adherence to the complicated drug dispensing and monitoring that these regimens require, and thus use could even be detrimental owing to transmission of drug-resistant virus. By the turn of this century, it seemed that there would be 2 AIDS realities going forward: a chronic but increasingly manageable disease in the developed world, and an unstoppable, unspeakable tragedy in Africa and other resource-constrained countries.

Although it is somewhat of an oversimplification, many clinicians consider the XIII International AIDS Conference, held in Durban, South Africa, in July 2000 to be the pivotal event that altered their mindset regarding AIDS in Africa. Whether out of curiosity or commitment, international attendees traveled far from Durban to visit clinics and communities, many for the first time. They came away overwhelmed by the degree of devastation but also deeply inspired by the sight of communities mobilizing their limited resources to care for the sick, bury the dead, and raise the orphans left behind. These health care professionals could no longer accept the status quo, no matter how rational and facile the arguments. They knew that they possessed the tools and knowledge to effectively treat AIDS. Somehow, the work had to be done.

What happened in Africa and other resource-constrained countries in the ensuing decade was a triumph of medicine and public health. Governments, nongovernmental organizations, foundations, and committed individuals challenged global trade rules and regulations, ultimately procuring and distributing low-cost generic versions of patented medicines on a massive scale (6). Persons courageously self-identified as being HIV-positive and created the sorts of advocacy and educational organizations that had been pivotal in advancing treatment elsewhere. Large numbers of HIV nurses, doctors, and public health workers, many still in training, went to work in Africa. Along with African colleagues, they scaled up programs of antiretroviral treatment, abandoning professional hierarchies and crossing cultural divides to create teams that leveraged complementary skills, and shifted tasks. Bilateral training programs were set up between African universities and those in the developed world to begin to address workforce shortages.

A decade later, more than a third of the 10 million HIV-infected persons in Africa who need antiretroviral therapy as defined by current guidelines are receiving it (7). Adherence to treatment regimens has been shown to be similar to that in developed countries (8, 9). Programs to identify and treat HIV-infected patients in difficult-to-reach rural areas are increasing. Although enormous challenges remain, few if any would have predicted this degree of success a mere decade ago.

In this issue, Mills and colleagues (10), using models based on patient-level data obtained in Uganda, conclude that life expectancy for young HIV-infected adults initiating combination antiretroviral therapy now approaches overall life expectancy for all young Ugandan adults, mirroring earlier findings in developed countries (11). It is important to note that this study was conducted in a comprehensive public sector health system that encompassed both urban and rural areas and used an intensive, coordinated approach to follow-up and treatment. However, projected life expectancy gains were not uniform, differing among various groups of patients in important ways. Adolescents and men had significantly fewer years of life expectancy gained than adult women, suggesting the need to ensure that systems of care are appropriately tailored to facilitate access and retention for all. In addition, patients starting therapy at low CD4 counts had less increase in life expectancy than if therapy was initiated sooner in the disease course, but until recently HIV treatment in Africa has generally been started only when CD4 counts fall below 250 cells/mm$^3$. Finally, patients were almost all treated with older regimens that are more complicated and toxic than those currently in use in developed countries. While evolving therapeutic strategies and guidelines raise both new options and new questions about the most appropriate, cost-effective approaches going forward (12), it is almost certain that life expectancy for persons with HIV infection in Africa will continue to increase in coming years.
In the past few months, 2 pivotal clinical trials convincingly demonstrated that some of the same antiretroviral drugs used for HIV treatment were highly effective in preventing infection when taken by HIV-negative men who have sex with men (13) and dramatically decrease viral load and risk for transmission to others when taken by the HIV-positive partner in serodiscordant couples (14). Most recently, on 13 July 2011, it was announced that in a large clinical trial in Kenya and Uganda (15) and Botswana (16), the HIV-negative partner in serodiscordant couples, whether male or female, was also dramatically protected against infection with HIV by these antiretroviral therapies. With stunning swiftness, the era of HIV “treatment as prevention”—long imagined—has arrived.

Already, there is discussion regarding how much money should be spent on these new drug prevention strategies compared with other older approaches, such as male circumcision, microbicides, condoms, and expanded testing. Political debate centers on whether, especially given the current global economic downturn, money designated for HIV treatment in Africa would be better spent in areas for which there is more perceived “bang for the buck,” such as malaria prevention, childhood immunization, and addressing neglected tropical diseases (17). But often forgotten in these debates is the unique nature of AIDS as a killer of young adults, of those on whom the very survival of societies depends (18).

Given this reality of AIDS epidemiology, coupled with its high prevalence in Africa, enabling HIV-infected young adults—its workers and parents—to live a normal lifespan is fundamental to returning Africa to its positive health trajectory of a few decades ago. Stunningly, a mere 30 years after one of the worst pandemics in history suddenly appeared, and although still without a vaccine or cure, we now possess the tools not only to treat but to comprehensively control AIDS in Africa. Despite the challenges, and amid stark, painful choices, somehow the work must be finished.

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This article was published at www.annals.org on 19 July 2011.


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