Aging with HIV in Africa: the challenges of living longer

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The global response to the HIV epidemic represents one of the greatest public health achievements of this century. The successful scale-up of antiretroviral therapy (ART) coverage in developing countries from negligible levels in 2003 to more than 7.9 million in 2012 demonstrates that with political commitment, substantial economic support, and concerted community and medical efforts, global epidemics can be slowed and, perhaps one day, halted. Including national governments, bilateral donors (such as the US Presidential Emergency Fund for AIDS Relief) and multilateral donors (such as the Global Fund to Fight AIDS, Tuberculosis and Malaria), and international organizations [such as Joint United Nations Programme on HIV/AIDS (UNAIDS)] the total available funds for HIV-related activities in developing countries increased from US$1.6 billion in 2001 – spent primarily on prevention efforts – to US$15.9 billion in 2009, invested mostly in the delivery of ART [1].

The HIV response was initially defined by a focus on mothers and children [2], motivated in part by the view that these two groups were particularly vulnerable, innocent and deserving of protection [3], and in part by the fact that single-dose nevirapine for the prevention of mother-to-child transmission (PMTCT) was the first preventive treatment that was considered feasible for widespread implementation in developing countries based on delivery capacity and costs. As treatment expanded and resources increased globally, other groups received particular attention, such as sex workers, drug users and migrants.

One group that has so far received very little attention in the HIV response in developing countries has been older adults. The indicators used by the United Nations General Assembly Special Session on HIV/AIDS are focused on children and adults younger than 50 years of age [4], and the HIV-related indicators for the Millennium Development Goals require reporting only on those aged 15–24 [5]. The Demographic and Health Surveys, which serve as the basis for much health-related evidence in developing countries, generally only interview women up to age 49 and men up to ages 54 or 59 [6].

In 2006, UNAIDS began reporting on total global and national numbers of HIV-positive adults 15 years and older (as opposed to adults aged between 15 and 49) in the Global Reports on the Global AIDS Epidemic [7]. UNAIDS explained this change with the recognition that ‘it is now evident that a substantial proportion of people living with HIV are 50 years and older’ estimating that there were around 2.8 million HIV-infected adults in this age group [7]. However, beyond this number, hardly any mention has been made in UNAIDS and WHO reports on the aging of the HIV epidemic. For instance, in the 2011...

Other opportunities to highlight the emerging trend of the aging of the HIV epidemic and the potential impact of this trend on the HIV response have been missed as well. In June 2011, the UN held a High Level Meeting on AIDS in New York, 10 years after the historic 2001 United Nations Special Session on HIV/AIDS. The purpose of the meeting was to ‘take stock of the progress and challenges of the last 30 years and shape the future AIDS response’ [11]. Despite the explicit forward-looking goal of the meeting, the resolutions failed to acknowledge the aging of the epidemic and its implications, mentioning the relationship between the HIV and noncommunicable disease epidemics only in the context of a long list of conditions with programmatic overlaps with HIV [12]. Aids2031, the group established by UNAIDS to chart the actions needed to address the trajectory of the HIV epidemic over the coming decades has emphasized the need for a shift in the response from ‘crisis management to sustained strategic response [13].’ Despite its mandate, in their recent publication [13] the group does not discuss the substantial changes to the HIV response that will likely become necessary, as the large-scale delivery of ART will change the age composition of HIV-infected populations over the coming decades.

The widespread provision of ART has reduced worldwide mortality from AIDS-related causes down from a peak of 2.2 million in the mid–2000s to 1.8 million in 2010 [9] and has transformed HIV into a chronic disease that affects the lives of millions but no longer necessarily cuts short their life expectancies if continued access to ART is possible. Studies in several African countries have shown steep declines in HIV-related death following the scale-up of ART coverage [14,15]. Using Ugandan data, Mills et al. [16] recently estimated that individuals who start ART at age 20 are likely to live an additional 26.7 years; at age 35, life expectancy was an additional 27.9 years and at age 50, an additional 24 years; and a mathematical model using South African data has recently predicted substantial increases in HIV prevalence in older age groups [17]. These findings suggest that as ART coverage expands and as individuals initiate the treatment in earlier stages of the disease, HIV-infected populations in sub-Saharan Africa, where the vast majority of all HIV-infected people live, are likely to live well past the age of 50, leading to an aging of the HIV epidemic in the region.

The aging of the HIV epidemic due to access to ART has several important implications for the health of HIV-positive populations [18–21]. Age, independent of HIV infection, is linked to a decline in the production of naive T cells and diminished T cell functionality; both declines are exacerbated by HIV infection [22]. As a result, older adults have steeper declines in CD4 progression [23] and slower immune system reconstitution than younger adults following treatment [24] suggesting that ART provision may need to be specifically tailored to older patients. Moreover, ART implies important risks for noncommunicable diseases (NCDs) [25], including ischaemic heart disease [26], diabetes [27,28], cancers [29], intracranial haemorrhage [30] and osteoporosis [31]. First, many drugs included in the standard ART regimens increase the risk for NCDs [28]; second, individuals on ART increasingly live into ages when NCDs burdens increase due to aging and lifestyle, an ‘inevitable price of success’ [32]; third, untreated HIV infection leads to impaired immune function, which is a risk factor for NCDs. This evidence led Jules Levin, the founder and executive director of the New York-based National AIDS Treatment Advocacy Project, to state in 2009 that ‘aging is the No. 1 problem in HIV today’ [33].

One explanation for the neglect of older adults in the HIV response to date is that it has been commonly assumed that older adults are not at risk of acquiring HIV because they are no longer sexually active. As far back as the early 1990s, clinicians in the United States were observing that healthcare providers failed to pay attention to HIV disease in older adults because they did not expect the disease to occur in this age group [34–36]. For example, el-Sadr and Gettler [37] stated that providers were less likely to attribute HIV-related symptoms to the disease in older than in younger people and Whipple and Scura [38] outlined specific tips to support nurses in identifying HIV among the elderly. Another consequence of the mistaken belief that older adults are not at risk of acquiring HIV is that HIV incidence in this age group has rarely been measured, in particular in developing countries. Where it has, however, it was found to be high, such as in study by Wallrauch et al. [39] in rural South Africa. Data from developed countries confirm that it is likely that substantial numbers of people acquire HIV in old age. Older adults accounted for 15% of new cases of HIV in the United States in 2005 [40]. Another study estimated that in the United Kingdom 48% of adults diagnosed with HIV at an age above 50 between 2000 and 2007 had acquired their infection after turning 50 [41]. This study also reported a higher risk among older HIV-positive persons of presenting late for care emphasizing that HIV testing strategies are insufficiently developed for this segment of the population.

A substantial incidence of HIV in older populations is not surprising, as the ‘agist assumptions’ that older adults no longer engage in risky sex [42] are unlikely to hold true; behavior surveys have consistently found substantial sexual activity in old age [43,44]. There is substantial evidence that people remain sexually active past the age of 50 and well into their 70s. Data from the United States
[45,46], Europe [47,48] and Asia [49,50] all highlight that a considerable proportion of the elderly are sexually active, especially men. In a Swiss study, the 46–65 age group showed the highest number of occasional sexual contacts per person compared to younger age groups [47]. Rates of condom use in particular are less frequent among older adults [51], and studies in developed countries have reported that older people are less knowledgeable about HIV than younger people [47]. In a recent analysis from Uganda, among 750 patients aged 50 and above, 40% remained sexually active after their HIV diagnosis. Older patients also had a significantly higher rate of sexually transmitted infections than younger patients [odds ratio: 2.38 (95% confidence interval: 1.85–3.09)] [52]. These findings show that the current neglect of the elderly in HIV prevention efforts is unwarranted and that HIV prevention interventions targeted at the specific needs of older adults are needed.

The need for more evidence

The broader context of the lack of attention to HIV among older adults in Africa is that the global research and policy community has in general neglected the disease burdens and healthcare needs of this age group on the continent. The little work that has been done has found poor health and high rates of undernutrition [53,54]. The neglect has occurred despite the fact that the number of older adults in Africa is increasing rapidly. The United Nations has estimated that the percentage rise of the population aged 50 and above in Africa will be the greatest of any region in the world [55].

To date, little data has been published about older HIV adults in Africa. A few older studies from African settings examined HIV among older adults specifically in medical wards [56,57] or small communities [58] and other research has extracted small amounts of data on older adults from among larger HIV cohorts [59].

Using 2007 UNAIDS data, Negin and Cumming [60] estimated that there are 3 million people aged 50 years and older living with HIV in sub-Saharan Africa, 14% of the all HIV-infected adults. A South African national HIV survey in 2008 found high rates of HIV infection among older people. Men, older than 50, had an HIV prevalence of 6% leading to their inclusion in the national list of most-at-risk populations [61]. Studies using data from ART cohorts in from South Africa [62], Malawi [63] and Uganda [64] have described treatment outcomes among older adults showing excess mortality in this age group. However, other studies have shown higher levels of adherence among older adults [61] and lower levels of loss to follow-up [65].

A recent study by Hontelez et al. [66] takes a longer term view of this aging of the epidemic. They use a mathematical model to estimate the impact of HIV over the next 30 years, finding that in South Africa HIV prevalence in people aged 50 and older will nearly double from 2010 to 2040, from 9 to 17%. These predictions reinforce the importance of understanding HIV among older adults over the coming years.

This supplement

To address the shortage of information on the interplay between aging and the HIV epidemic in Africa, this supplement brings together manuscripts from academics and practitioners, covering epidemiology and future trends, ART outcomes and adherence, the emerging issue of comorbidity between HIV and NCDs, and the most appropriate response to this emerging challenge.

Justice and Braithwaite set the scene by extracting lessons learned from developed countries’ experiences with HIV and aging and assessing their applicability to the African context [67].

Hontelez et al. use data from 43 countries in sub-Saharan Africa to estimate the national effects of the ART scale-up on the age composition of the HIV epidemic [68]. They predict that if ART coverage continues to increase at present rates, the total number of HIV-infected patients aged 50 or above will nearly triple over the coming three decades – from 3.1 million in 2011 to 9.1 million in 2040 – whereas the total number of HIV-infected younger adults will dramatically decrease. These findings herald a new era in the HIV response, when the needs and demands of older populations can no longer be ignored.

In the largest study of patients receiving ART to date, Greig and colleagues from Médecins Sans Frontières present convincing evidence from 17 programs in nine countries in Africa that aging is associated with heightened mortality, even in the short term [69].

Nachega and colleagues discuss the importance of ensuring high levels of adherence to ART in older adults and the need for vigilance in monitoring potential drug–drug interactions in this age group [70].

Negin et al. use a national survey on the health of older adults in South Africa to provide a national picture of HIV infection among various groups along with the prevalence of various chronic NCDs among both HIV-positive and HIV-negative individuals [71].

Hirschhorn and colleagues review the evidence from resource-poor settings on relationships between HIV and a range of NCDs, including malignancies, osteoporosis and mental, renal and chronic respiratory diseases [72].
Rabkin and colleagues focus on the delivery of health services in Africa through a ‘continuity of care’ model that integrates HIV and NCD treatment and care [73]. They argue that such integration will lead to significant synergies.

Finally, Bendavid and colleagues review the complexities of aging with HIV in Africa and discuss the idea of a polypill that could reduce the risks of cardiovascular mortality and cancer mortality [74].

We hope that this special issue on HIV among older adults in Africa marks the beginning of an important shift in the global HIV response with regard to research, funding and policy. As the evidence on the HIV-related disease burdens and healthcare needs in Africa grows, we anticipate that older adults will become a focus of HIV health policy and interventions.

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