

Treatment leads to near-normal life expectancy for people with HIV in South Africa

April 9 2013

In South Africa, people with HIV who start treatment with anti-AIDS drugs (antiretroviral therapy) have life expectancies around 80% of that of the general population provided that they start treatment before their CD4 count drops below 200 (cells per microliter), according to a study by South African researchers published in this week's *PLOS Medicine*.

These findings are encouraging and show that with long-term [treatment](#), [HIV](#) can be managed as a [chronic illness](#) in middle- and low-income settings, and also suggest that the estimates used by life insurance companies and epidemiological modellers may need to be revised—these estimates typically assume that life expectancy after starting antiretroviral therapy is around 10 years.

The researchers, led by Leigh Johnson from the University of Cape Town, reached these conclusions by collecting information from six HIV treatment programs throughout South Africa between 2001 and 2010, which they then used in a survival model.

The authors found that – as in HIV-negative adults – the most significant factor determining the life expectancy of patients starting [HIV treatment](#) was their age when they started treatment: the [average life expectancy](#) (additional years of life) of men starting antiretroviral therapy varied between 27.6 years at age 20 and 10.1 years at age 60, while corresponding estimates in women were 36.8 and 14.4 years,

respectively.

They also found that life expectancies were significantly influenced by baseline CD4 counts (a measure of the strength of the [immune system](#) at the time of starting treatment): life expectancies in patients with baseline CD4 counts of 200 cells per microliter or more were between 70% and 86% of those of HIV negative adults of the same age and sex, while patients starting antiretroviral therapy with CD4 counts of less than 50 cells per microliter had life expectancies that were between 48% and 61% of those of HIV-negative adults.

The study also showed that the risk of death was highest during the first year after starting antiretroviral treatment, because of the delay between the start of treatment and the recovery of the immune system. Life expectancies were typically 15-20% higher two years after starting treatment than at the time of starting treatment. For example, in patients who started treatment with CD4 counts of more than 200 cells per microliter, life expectancies two years after starting therapy were between 87% and 96% of those in HIV-negative individuals (compared to a range of 70-86% at the time of starting treatment).

Although these results are encouraging, this study also highlights that many HIV patients are still starting treatment with very low CD4 counts, and health services must overcome major challenges, such as late diagnosis, low uptake of CD4 testing, loss from care, and delayed antiretroviral therapy initiation, if near-normal life expectancies are to be achieved for the majority of people with HIV in South Africa.

The authors also cautioned that their results were based on projections of the low mortality rates observed after patients had been on treatment for a few years, and that there was uncertainty about how mortality rates might change in future, particularly at longer treatment durations. The authors noted that although there was the promise of new drugs and new

patient management strategies, which might reduce mortality further, there was also the risk of rising levels of HIV drug resistance, which might compromise treatment effectiveness.

The authors say: "These results have important implications for the pricing models used by life insurance companies, as well as the demographic and epidemiological models that are used to forecast the impact and cost of [antiretroviral therapy] programmes in low- and middle-income countries."

They continue: "Assumptions of longer [life expectancy](#) would significantly reduce the forecasts of AIDS mortality, but would also significantly increase long-term projections of numbers of patients receiving [antiretroviral therapy]."

The authors add: "It is therefore critical that appropriate funding systems and innovative ways to reduce costs are put in place, to ensure the long-term sustainability of [[antiretroviral therapy](#)] delivery in low- and middle-income countries."

More information: Johnson LF, Mossong J, Dorrington RE, Schomaker M, Hoffmann CJ, et al. (2013) Life Expectancies of South African Adults Starting Antiretroviral Treatment: Collaborative Analysis of Cohort Studies. PLoS Med 10(4): e1001418.
[doi:10.1371/journal.pmed.1001418](https://doi.org/10.1371/journal.pmed.1001418)

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