Hard-Hit Swaziland Sees HIV Infection Rate Cut in Half

A massive national campaign to step up testing as well as viral suppression achieved phenomenal results in just five years.

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A huge push to increase testing and treatment of HIV in hard-hit Swaziland has apparently been a phenomenal success, doubling the proportion of the HIV population that has a fully suppressed virus while cutting in half the infection rate in only five years. This finding underscores the considerable power that expanding successful HIV treatment likely has on reducing new cases of the virus. It also likely reflects the success of the effort to circumcise men to reduce their risk of HIV.

With the highest annual HIV infection rate, or incidence, and the highest prevalence (percentage of people living with HIV) of the virus in the world, Swaziland has been in great need of a game changer. In recent years, the government of the Kingdom of Swaziland instigated a major campaign to combat the nation's epidemic, including increasing the annual number of HIV tests from 176,000 in 2011 to 367,000 in 2016 and the proportion of the nation's HIV population that has a fully suppressed virus thanks to antiretroviral (ARV) treatment from an estimated 37 percent to 74 percent during that time.

Swaziland joins hard-hit sub-Saharan nations—Zimbabwe, Malawi and Zambia—in wresting increasing, and impressive, control over their epidemics. With the Joint United Nations Programme on HIV/AIDS (UNAIDS) reporting overall progress in tackling global HIV—an estimated 19 million, or about half, of those living with HIV worldwide are now on ARVs—these four countries are leading the way.

Researchers from the 2016 to 2017 Swaziland HIV Incidence Measurement Survey (SHIMS2) conducted a household survey of a nationally representative sample of individuals who were provided rapid HIV testing between August 2016 and March 2017.

Velephi Okello, MD, MPH, of the Swaziland Ministry of Health, presented the findings of the study at the 9th International AIDS Society Conference on HIV Science in Paris (IAS 2017). Hailing Swaziland's "remarkable progress," Okello said, "It is everything to us that we expanded treatment, and other services have been affected in controlling new infections in the country."

According to Linda-Gail Bekker, PhD, of the Desmond Tutu HIV Centre and the IAS president and international scientific chair of IAS 2017, this study “is a highlight for the conference and shows that our efforts can pay off.” Referring to UNAIDS’s worldwide goals to dramatically increase viral suppression rates to 73 percent by 2020 in order to ultimately gain control of the epidemic, she added that Swaziland’s success “is a proof of concept, I think.”

This revolutionary surveillance method used in Swaziland study, one that researchers are employing in an increasing number of African nations, is known as the Public Health Impact Assessments (PHIA). Funded by the U.S. President’s Emergency Plan for AIDS Relief (PEPFAR), PHIA’s method of taking direct measurements is considered superior to surveillance methods that rely on mathematical modeling to make estimates of HIV epidemic–related statistics. The surveys are conducted by the U.S. Centers for Disease Control and Prevention (CDC) and the International Center for AIDS Care and Treatment Programs (ICAP) at Columbia University’s Mailman School of Public Health.

All samples that tested HIV positive received confirmatory testing as well as HIV RNA (viral load) and limited antigen (Lag) Avidity EIA testing. The results of these latter two tests were the basis of assessments as to which cases represented new infections.

The researchers compared the findings from this survey, which was conducted among those 15 to 64 years old, with the results of a prior SHIMS survey conducted in 2011 among those 18 to 48 years old.

The Swaziland survey included 10,934 adults who received HIV testing, 3,003 (27 percent) of whom tested positive for the virus. The researchers estimated that the national annual HIV infection rate was 1.37 percent—meaning that percentage of the overall population contracts the virus annually. The infection rate among those 18 to 49 years old was 1.39 percent, which reflected a 46 percent reduction in HIV incidence since the 2011 incidence estimate of 2.58 percent among that age bracket. In 2016, HIV incidence among women was 1.83 percent; among 18- to 49-year-old women it was 1.1 percent (compared with 2.56 percent in 2011 among that age bracket). The 2016 infection rate for men was 0.91 percent; the rate among 18- to 49-year-old men was 0.36 percent (compared with 1.45 percent among that age bracket in 2011). These figures reflected a decline in HIV incidence among 18- to 49-year-olds between 2011 and 2016 of 40 percent among women and 52 percent among men.

With more than 80 percent of adults living with HIV in Swaziland estimated to be on ARVs, an estimated 73.1 percent of the HIV population in 2016 had a fully suppressed viral load, as did an estimated 71.3 percent of those 18 to 49 years old. By comparison, only an estimated 35 percent of those living with HIV in 2011 were virally suppressed, meaning there was a twofold increase in the viral suppression rate in only five years. Swaziland’s soaring progress in this effort means they have hit the UNAIDS target for 2020 years ahead of schedule.

Between 2011 and 2016, the rate of men in Swaziland who had received voluntary medical male circumcision (VMMC) increased from 13 percent to 29 percent. A trio of randomized controlled

trials published in the mid-2000s demonstrated that VMMC is associated with an approximate 60 percent reduction in the risk of female-to-male transmission of HIV. Recently, research has begun to show evidence that the mass push to circumcise men in hard-hit African nations is indeed having an effect on infection rates.

In December 2016, PEPFAR-funded PHIA researchers announced that in Zimbabwe, Malawi and Zambia an estimated 60.4 percent, 67.6 percent and 59.8 percent of those living with HIV had a fully suppressed viral load, respectively.

“We now have clear evidence that four African countries are approaching control of their epidemics, Ambassador Deborah L. Birx, MD, the U.S. global AIDS coordinator and special representative for global health diplomacy, said in a press release. “These unprecedented findings demonstrated the remarkable impact of the U.S. government’s efforts, through PEPFAR and The Global Fund to Fight AIDS, Tuberculosis and Malaria in partnership with African countries. We now have a historic opportunity to change the very course of the HIV pandemic.”

Ambassador Deborah Birx, the US Global AIDS Coordinator and Director of PEPFAR at IAS 2017Benjamin Ryan

“While we do celebrate the success of these findings, we know that Swaziland is still facing a major HIV epidemic,” Okello said at the Paris conference. “But we are encouraged by these findings. We are going to build upon these successes. In the end, we would like to see a Swaziland that is free from AIDS.”

To read a press release about the study, click here.

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