

By Betsy McKay Photographs by Miora Rajaonary for The Wall Street Journal March 16, 2018 10:23 a.m. ET

VULINDLELA, South Africa—Public-health leaders in the fight against HIV/AIDS have come to an ominous realization: Progress in cutting new infections has slowed, in part because of a persistent cycle of transmission among young women in sub-Saharan Africa. New HIV infections have been reduced around the world since the late 1990s by diligent efforts at education, the rollout of antiretroviral drugs and other factors. But declines have lost momentum, for the first time since infections began coming down. Today, the numbers are far from targets set by the United Nations, which call for them to fall to about a quarter of their current level by 2020.

Teenage girls and young women in parts of sub-Saharan Africa, a growing and vulnerable population, continue to be infected at high rates. At the same time, the rapid expansion of the continent's youth population means greater numbers of young women are at risk every year.

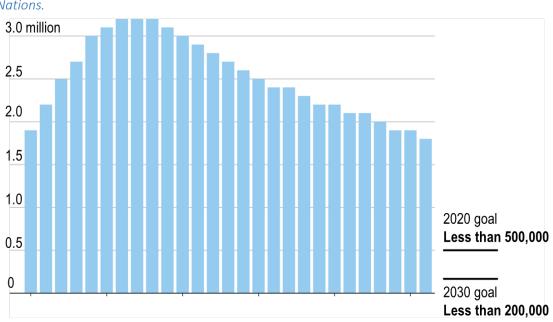


The Mkhwanazi sisters, from left, Slindile, 33, Ntombifuthi, 30, and Phumzile, 20, are all HIV positive.

The slowdown has alarmed public-health experts, who warn that infections could start rising again. A reversal would erase progress against one of the most significant infectious disease epidemics of modern times, costing lives, economic prosperity and billions more dollars than governments and organizations have already spent to fight it over decades.

More public-health officials and researchers say <u>breaking the cycle of infection for young</u> <u>women</u> is critical to keeping the virus in check. Successful prevention methods, including circumcision and condom use, have been geared mainly to men. Now, researchers are working to develop <u>new ways to protect women</u>, including education programs, drug regimens and other prevention tools.

"They are the key to global epidemic control of HIV," said Salim Abdool Karim, director of the Center for the AIDS Program of Research in South Africa, known as Caprisa, a consortium of South African and North American scientists that researches HIV in young women.



Slower Progress

Sizeni Soni said she wasn't surprised to learn at the age of 23 that she had HIV. Ms. Soni, who lives in Vulindlela, an impoverished community in the hills of South Africa's KwaZulu-Natal province with some of the highest HIV rates in the world, believes she contracted the virus from her former boyfriend, a migrant worker four years her senior.

"It has become normal—you test, you test positive," Ms. Soni said on a visit to her local health clinic for a refill of the antiretroviral drugs she takes daily.

Young women ages 15 to 24 accounted for 20% of the 1.8 million people globally who were newly infected in 2016, more than any other age group of men or women, according to the Joint United Nations Program on HIV/AIDS.

New HIV infections around the world have fallen but are still far from targets set by the United Nations.

Source: UNAIDS

In sub-Saharan Africa, where nearly two-thirds of all new HIV infections in 2016 occurred, more than twice as many young women were infected as young men. In the rest of the world, more young men were infected than young women.



Girls near Durban, South Africa, talk about sexuality and role-play relationship skills at a workshop designed to teach HIV prevention, part of the U.S.-funded Dreams program.

In a unique cycle of transmission, researchers say young women in parts of eastern and southern Africa are often infected by older men, whom many date because the men help them financially. When those women reach their late 20s and 30s, they become involved with men closer to their own ages, passing the virus onto them, according to Caprisa and other researchers. As those men date younger women, they can transmit HIV to the next wave. It is less common in other parts of the world for different generations to infect each other, which helps limit transmission.

"You've got this ongoing cycle" of transmission fed by a constant supply of girls reaching teenhood, said Quarraisha Abdool Karim, Caprisa's associate scientific director, who founded the consortium with her husband, Salim Abdool Karim, and other institutions in 2002.

In a 2016 study, she and other researchers at Caprisa found that women ages 15 to 24 in Vulindlela and a nearby community were infected by men an average of 8.7 years older. Researchers cite both consensual sex and rape as sources of infection. The dramatic results showed that 60% of the women in the next age group, from 25 to 40, were infected, revealing the area to be one of the most HIV infected in the world.

Because <u>Africa's youth population is booming</u>—improvements in general health care now allow millions more to survive childhood—the at-risk population is expanding. Approximately 60% of the continent's population is under age 25.



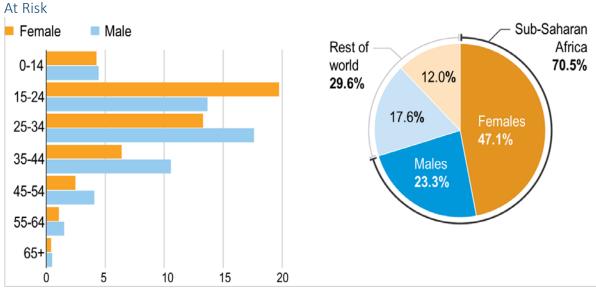
Siphile Madlola, 22, is HIV negative. She takes part in a research study at the Caprisa clinic in Vulindlela.

That population bubble has affected the fight against HIV infection. Globally, new HIV infections declined 15.6% between 2010 and 2016. The number of new infections would have dropped more, by 18.5%, if sub-Saharan Africa's 15- to 24-year-old population hadn't expanded during those years, according to a UNAIDS analysis.

"You have to really push down new infections at a much higher rate" to make up for the increasing population, said Deborah Birx, the U.S. global AIDS coordinator. HIV is prevalent in the general population in eastern and southern Africa, unlike most other parts of the world, and reaching everyone at risk with preventive tools or drug treatment is more challenging and costly.

Ms. Soni, the Vulindlela resident, learned her HIV status when she was offered a test on a visit with her son to a health clinic in her community of mostly Zulu-speaking people. "I was afraid because I thought I was still too young," the thin, soft-spoken young woman recalled, her close-cropped hair covered in a boyish gray hoodie.

She and her boyfriend had been together since she was 18. He is the father of her son and helps pay for care of the boy, who lives with him now because Ms. Soni's income from a two-day-a-week job isn't enough to support them.



Source: UNAIDS

Like many in Vulindlela, her boyfriend had to go far from home to find work—a job grading roads a four-hour drive away. He came home only every couple of months.

She was faithful to him, she said. The two didn't use condoms regularly, and she later learned he hadn't been monogamous when he brought home another woman who was pregnant with his child.

Now 29, Ms. Soni takes her medication daily, she said. She has a new boyfriend, who is 37 and is also HIV positive.

Another young woman who comes to the Caprisa clinic said she worries about contracting HIV. The 21-year-old dates two older men who help pay for her groceries, clothes and cellphone—a common pattern among many young women in South Africa, who become involved with "blessers," or older men who help them financially in exchange for sexual relationships. She lives with a sister and brother and doesn't have a regular job. She wants to pursue a teaching degree.



A woman, 21, who dates a 45-year-old man who helps her financially comes to the Vulindlela clinic for contraception and to socialize with other women.

Both men use condoms only sporadically, she said. The younger of the two, who is in his mid 20s, tested negative for HIV a few months ago, but she doesn't know the HIV status of the older man, who is married and in his 40s. "Because I give you money, you can't dictate whether I use a condom," she said he told her.

Dr. Birx, the U.S. global AIDS coordinator, launched an initiative in 2015 called Dreams that has spent \$523 million in U.S. and private money on HIV testing and counseling, subsidies to help girls stay in school and other programs for teenage girls and young women in South Africa and 14 other countries. South Africa's government introduced a similar program in 2016 called "She Conquers" to expand services to young women throughout the country. The U.S. President's Emergency Plan for AIDS Relief, which Dr. Birx oversees, said in December that new HIV diagnoses in women ages 15 to 24 have declined at least 25% since 2015 in 65% of the communities where its Dreams programs were initially implemented.



Schoolgirls in Vulindlela, an impoverished community with some of the highest HIV rates in the world.

Dr. Quarraisha Abdool Karim saw the first signs of the transmission cycle in 1989 when she conducted a study in KwaZulu-Natal that found HIV to be 3.2 times more common in women than in men. She also found that women were infected at younger ages than men. "It was very clear when you looked at the prevalence data that young boys were not infecting" the girls their own age, but rather older men were, she said.

"What that told us was if we were going to slow the HIV epidemic we needed to find some way to lower the incidence rate in young girls," said Dr. Salim Abdool Karim.

AIDS deaths began to decline across Africa in the mid-2000s, after international donors and local governments began providing antiretroviral drugs, which allow infected people to live nearly normal lives by beating the virus back to a level at which it doesn't damage the body. HIV/AIDS attracts more donations from governments and organizations than any other infectious disease. UNAIDS said \$19.1 billion was dedicated to HIV/AIDS in 2016 and that \$26.2 billion will be needed by 2020. The funds include paying for drugs as well as for prevention tools.

Scientists are developing and testing new prevention methods that women can control and that they hope will be easy to use. Caprisa researchers are also studying possible biological factors, such as the makeup of the vaginal microbiome, that may affect a woman's risk of HIV infection.



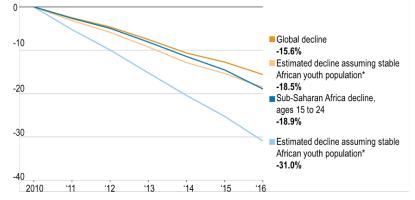
Salim Abdool Karim and Quarraisha Abdool Karim founded Caprisa, a consortium of South African and North American scientists that researches HIV in young women.

Researchers are working at the same time on ways to reduce the number of infections in men in their 20s and early 30s and to get more HIV-positive men tested and in drug treatment. A landmark 2010 study, which included women from Vulindlela, showed that <u>a vaginal gel</u> <u>made with the drug tenofovir could protect women</u>. But subsequent trials showed that women didn't use it regularly.

"We learned it is really difficult to get women to use this gel," Dr. Salim Abdool Karim said. The gel had to be applied before and after sex, which involved planning. Persuading healthy people to use any preventive drug is a challenge, he said.

Prevention Hurdle

A youth boom in Africa means the at-risk population for HIV infection is expanding rapidly. An analysis shows the decline in new HIV infections would have been stronger without the effect of population growth.



*Decline assuming no growth in sub-Saharan population age 15 to 24 Source: UNAIDS

The National Institute of Allergy and Infectious Diseases in the U.S. is funding research and several clinical trials in eastern and southern Africa, including at Caprisa, to test long-acting drugs and HIV antibodies that could involve getting injections just a few times a year. "If that's the case, wow—that to me is something that is going to have a major impact," said Anthony Fauci, the institute's director. "We really have to address this cycle of infection because we're never going to turn around the epidemic in South Africa unless we do that." Researchers are also studying the use of a vaginal ring that gradually releases an antiretroviral drug, and the use of daily drug regimens to prevent infection. Nomonde Langa enrolled in a trial last year of oral pre-exposure prophylaxis, which is available in the U.S. for people who are at high risk of HIV infection. The 20-year-old, who lives in the Durban area and is HIV negative, is supposed to take an antiretroviral drug daily.

Her longtime boyfriend, who is six years older than she is, doesn't use a condom every time they have sex, she said. She also caught him cheating on her with another woman. "I decided to get involved to protect myself," said Ms. Langa, who is studying to be a primary-school teacher.



Nomonde Langa, 20, who is HIV negative, takes an antiretroviral drug daily to prevent infection as part of a study at Caprisa.

But Ms. Langa sometimes forgets to take her daily pill—a risky omission. "I try my best not to forget," she said. "It's hard."

Mbali Yonela Peter is also taking a drug to prevent HIV infection. The 19-year-old travels an hour and a half each way from her home in Soweto to a research clinic in the center of Johannesburg for her three months' supply of medication. She worries that workers at her local clinic would spread a rumor that she has HIV—stigma about the virus persists in South Africa, particularly for women, who can be at risk of abuse and blame if they are infected. "The people who work at the clinic live in the area," she said.

Ms. Peter had to dispel doubts that her boyfriend at the time had when he wondered if she was taking the drug because she was HIV positive. "I got an HIV test in front of him," she said. "He didn't trust me."

Yet the boyfriend wouldn't take the drug himself, she said. And getting men to use condoms all the time isn't easy, she said.

She now dates two other men, one of whom is 29. "They're more mature than the guys my age," she said. She doesn't know their HIV status.

She lost both parents and a grandmother to HIV when she was young. "HIV was in my family and I'm really afraid I might get it," she said.



Gravestones near homes in Vulindlela.