

Reader,

For nearly two decades, Professors Quarraisha and Salim Abdool Karim felt they were only known for failure.

Every few years, they would stand before packed rooms at the International AIDS Conference to present another HIV prevention trial that hadn't worked. Until one day in 2010, when everything changed.

In the early years of the HIV epidemic, there was little reason for hope. As graduate students at Columbia University in Manhattan in the 1980s, Salim and Quarraisha Abdool Karim found themselves at the epicenter of the crisis. After starting their marriage long-distance, the young couple's converging fields of study finally brought them together in New York. Salim was pursuing epidemiology, and Quarraisha was studying immunology and public health. Meanwhile, scientists raced to understand whether HIV even caused AIDS.

Fear, stigma, and uncertainty shaped everyday life.

*It was 1988... Young men were dying
all the time. AIDS activism was all
around us.*

Prof. Salim Abdool Karim

**Director of the Centre for the AIDS Programme of Research in
South**

Africa (CAPRISA)

Based on previous studies of similar diseases, Quarraisha and Salim were convinced that the epidemic would affect South Africa badly, impacting both men and women in rapidly growing numbers. When they returned home to Durban in 1988, they decided to study HIV.

At the time, almost no one understood how widely the virus had spread in the local communities. In 1990, Quarraisha led one of South Africa's first community-based HIV surveys. This was before the digital age. Blood samples were being collected on blotting paper and stored in small pharmacy-style Ziploc bags. "So, yours truly had this idea," Quarraisha said. "I'm going to put my questionnaire on that Ziploc bag." The results stunned them.

Infection rates were dramatically higher among young women. When Quarraisha went into communities to better understand the numbers, the women she spoke to felt their options for HIV protection weren't realistic. What they wanted to know was why no one had given them a tool they could actually use — something that didn't require a partner's cooperation, or permission, or trust they couldn't always count on.

They said to me, 'You're so smart — why don't you come up with something we can use to protect ourselves?'

Prof. Quarraisha Abdool Karim

Associate Scientific Director of CAPRISA, President of The World Academy of Sciences

Starting in 1993 with a clinical trial of the first product they made — a vaginal film to prevent HIV — Salim and Quarraisha focused for the next 18 years on how to prevent HIV infection in young women.

Trial after trial failed.

Over time, the repeated setbacks became part of their professional identity. “At one point, people referred to us as the experts in failure,” Salim said. Still, they kept going. By the early 2000s, researchers had seen antiretroviral drugs help prevent HIV transmission from mothers to infants, raising a new question: could those same medicines stop infection before exposure?

Then, in 2010, at the International AIDS Conference in Vienna, Quarraisha presented results from a study showing that tenofovir gel — an antiretroviral medication applied vaginally — significantly reduced HIV infection risk in women. For the first time, researchers had proof that antiretroviral drugs could prevent HIV transmission before exposure. As Quarraisha presented the results, thousands of scientists in the audience rose spontaneously to their feet for a standing ovation — a rare sight at scientific meetings.

This trial was one of several studies that helped prove that antiretroviral medicines could prevent HIV before exposure. That finding became the scientific foundation for what the world now knows as PrEP, or pre-exposure prophylaxis, a highly effective prescription that prevents HIV in people who are at risk of exposure. Over the next several years, additional

trials, World Health Organization (WHO) guidance, national programs, and community delivery efforts helped turn that evidence into prevention options that are now used all over the world.

Today, PrEP is used in more than 100 countries worldwide. WHO reports that 3.5M+ people received PrEP at least once in 2023, a 35% increase from 2022. Through the Durbanbased research organization Salim and Quarraisha helped build — the Centre for the AIDS Programme of Research in South Africa (CAPRISA) — HIV prevention has evolved from gels and daily pills to long-acting injectables like lenacapavir that, in one trial, showed 100% efficacy.

But they're optimistic it can get even better. In Salim's words, "The HIV problem is too big. You can't turn your back on it." PrEP for example, is only used by 18% of the people who could benefit from it. And there are many more innovations to be developed. For both Salim and Quarraisha, science has always been about more than discovery. It's about persistence, community trust, and building something better for the next generation.

I love science because it's about the future. It's investments we make today to leave the world a better place.

Prof. Quarraisha Abdool Karim

**Associate Scientific Director of CAPRISA, President of The World
Academy of Sciences**

ARTICLE

New York Times: A Powerful H.I.V. Drug

Lands in Zambia. But Will It Reach Those Who Need It?

US government aid cuts are making lenacapavir vaccinations difficult to roll out, though the vaccines exist and young women need them.

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VIDEO

AIDS 2010: Results of the CAPRISA 004 Trial

Attendees applaud Professors Salim and Quarraisha Abdool Karim after they present the findings that eventually become the foundation of PrEP.

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