

# A passion for research leadership

**With 2.1 million new HIV infections in the world every year, most of these in South and East Africa, and no decline in new infections for the past three years, Professor Salim Abdool Karim, who is at the forefront of HIV treatment and prevention, says the tide has not turned in the fight to eradicate the virus**

**A**bdool Karim, director and co-founder of the Centre for the Aids Programme of Research in South Africa (CAPRISA), says while there has been significant successes in the battle against the spread of HIV, the perception that the epidemic was under control was not true.

“To us, no corner has been turned. Since the late 1990s the number of new HIV infections in the global HIV epidemic has been steadily going down but that steady decline has now

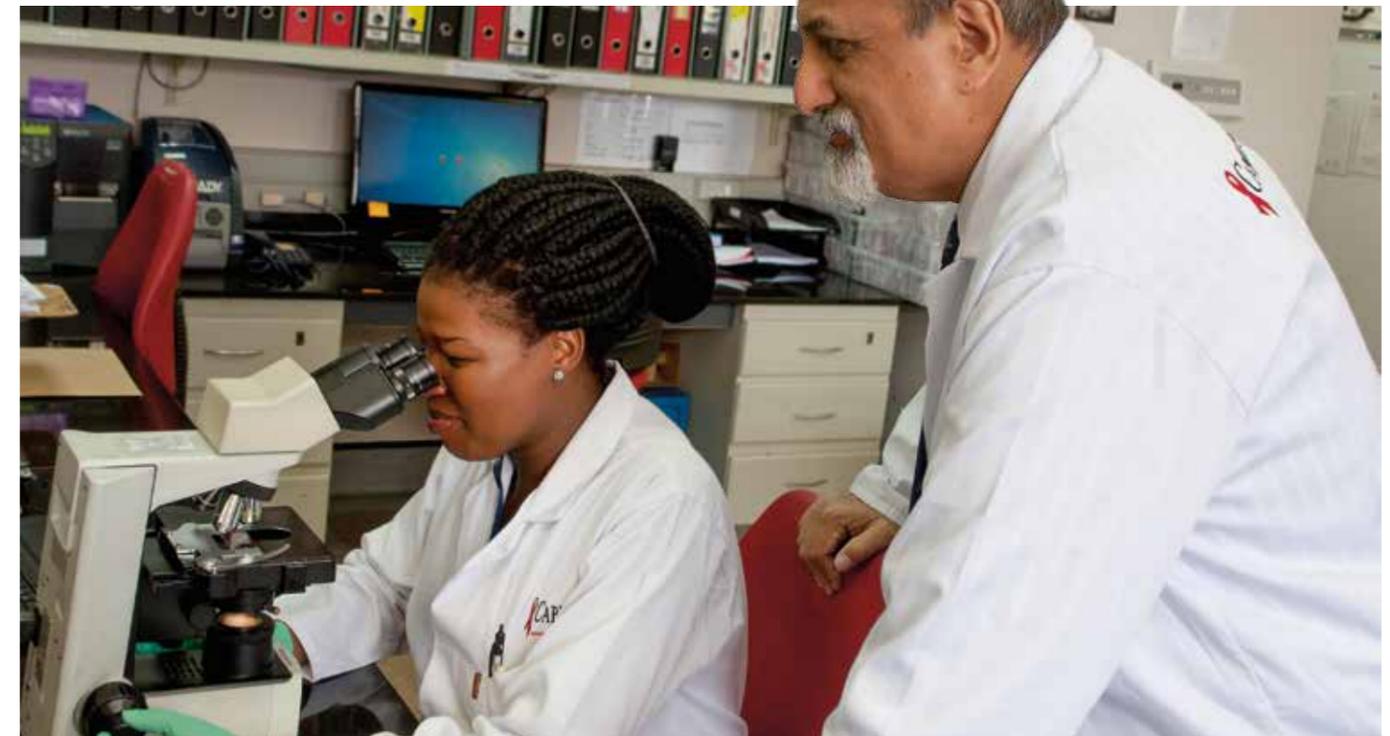
slowed to the point where we have seen no decline over the past three years.”

CAPRISA, which was officially established in 2002 and is based at the University of KwaZulu-Natal’s Nelson R Mandela medical school, has found, in recent research, an important source of new infections in South Africa which is driving the rapid spread of the virus in the country.

While it has been known for more than two decades that young women and adolescent

girls bear the brunt of the epidemic in southern Africa, research led by CAPRISA analysed the gene sequences of the viruses in a study group of about 10 000 people in KZN.

“Based on the sequence, we can tell who got infected with the same or similar virus. What we discovered based on the sequences was that there were clusters of individuals, and we had several clusters with an older woman, younger woman and a man in his 30s,” Abdool Karim said.





Explaining the pattern of HIV transmission, Abdool Karim says the key component is young girls who have relationships with older men. "When young girls sleep with men who are, on average, about 8 years older and have high rates of HIV, they have a high risk of getting the virus. When these young girls who have high HIV rates grow up into their thirties, they sleep with men mostly of their own age and are the main source of the virus for men in their thirties. These men then sleep with the

next generation of young girls and the cycle continues. So the key focus of our research is to find new ways to break the cycle of HIV transmission."

But there is also a biological aspect of the cycle related to bacteria and inflammation in the vagina that enhance the risk of young women contracting HIV during sex with an HIV positive man.

"In South Africa, a combination of social, behavioural, political and biological factors has

come together like a perfect storm and have created the conditions for HIV to spread rapidly."

Abdool Karim says he and his wife, Professor Quarraisha Abdool Karim (associate scientific director of CAPRISA), have dedicated their lives to breaking the cycle of HIV transmission by protecting young women, but it has been a struggle.

The couple were the first to reveal, through a study in 2010, that antiretroviral drugs can prevent the sexual transmission of HIV. They

effective in preventing HIV infection. Taken altogether, the research led to the World Health Organisation recommending tenofovir for the prevention of HIV in young women, gay men and others at high risk of HIV infection."

But excitement around the gel form of tenofovir has since waned as the results from subsequent studies, the most recent of which was released last year, failed to replicate the positive results of the CAPRISA study due to the inconsistent use of the gel by women who participated in those trials.

"While we showed it works, the subsequent studies did not show that because the women didn't use tenofovir gel as prescribed. Drug level information showed that a large number of the women in the follow-on studies never used the gel. When we saw those results we realised that asking a woman to use a gel or to take a tablet is not going to work for everyone. We have to find another solution."

Abdool Karim and his team at CAPRISA are now looking at an antibody that was found in a KwaZulu-Natal woman - her body produced this antibody in response to the virus, and this could be a major advance for HIV prevention.

Fourteen years after CAPRISA was established - and numerous prizes and awards later - Abdool Karim still has a palpable enthusiasm for his work. He says he is driven by a passion to leave the world a better place.

"When young researchers ask me what is the most important thing to become a successful researcher, I say that in all of my 37 years of doing research, the one thing that has always been central is 'passion'. I am passionate and excited about creating new solutions to the HIV epidemic."

CAPRISA is also working on vaccines and a cure, but Abdool Karim says the research process is a long road and their antibody work is several steps forward on the path to eventually making a vaccine.

"If this antibody that we are making can prevent HIV prevention, then we at least know what immune response we need to protect people from getting HIV. The next step would be to make a vaccine that elicits a similar immune response but this research will take several years."

However, research funding at universities is in jeopardy. Valuable university resources are now being directed to offset the additional security costs and millions of rands in damages

due to violent student protests as part of the #FeesMustFall movement.

"There is no question that protest action has had a negative effect on research at universities. With the current fiscal problems, research takes a knock because this year there is no funding at the University of KwaZulu-Natal for research equipment."

Despite being the leader of an award-winning research centre and a world-renowned scientist, the humble epidemiologist says accolades do not belong to him alone but to a large team of dedicated researchers at CAPRISA.

"None of our research is done in isolation. The studies are conducted by large teams and their outcomes belong to everybody. My role is to lead the team. To lead in a research organisation is both an art and a science. You have to inspire people to focus on the goals that have been set but also to give them freedom to think differently and innovatively."

His message to young scientists is that there are no shortcuts to becoming a success in research.

"You have to persevere even when obstacles litter your path. But hard work is easily done when you are passionate about your goals. Ultimately it is about saving millions of lives." 🙏

*Kamini Padayachee*

