

# Trial results finally show potential for microbicidal HIV gel

Salim and Quarraisha Abdool Karim, husband and wife, and co-principle researchers on the Centre for AIDS Programme of Research in South Africa (CAPRISA) trial, received a standing ovation at the recent International AIDS Society Conference in Vienna when they announced their results, which showed—for the first time—that the use of an antiretroviral microbicidal gel can protect against HIV transmission. Mathematical modelling suggests that, in South Africa alone, this gel can prevent up to 1.3 million new infections and 8000 HIV-related deaths during the next 20 years.

The randomised, double blind, placebo-controlled trial followed 889 women without HIV infection in KwaZulu-Natal, South Africa, for 30 months. Women who used the 1% tenofovir vaginal gel, applied no more than 12 h before vaginal sex and as soon as possible, but no later than 12 h after, had a 39% lower rate of HIV infection than did those who used an unmedicated placebo gel. In those participants who used the tenofovir gel more consistently, protection rose to 54%. Additionally, the trial showed that use of the microbicide reduced the risk of herpes simplex virus 2 infection—an infection that doubles an individual's chance of contracting HIV—by 51%.

WHO estimates that 60% of the African HIV burden is borne by women. Accordingly, there has been much effort to offer HIV prevention to women who cannot always negotiate mutual monogamy or condom use—in the past 20 years there have been 11 unsuccessful trials with six candidate microbicide gels. The CAPRISA researchers caution that this is just a proof-of-concept trial, and urge the need for further trials to confirm these findings and to explore ways of improving effectiveness without compromising safety—the only side-effect in the CAPRISA trial was mild diarrhoea.

“It is a game changer—a huge step forward and a tremendous scientific achievement”, said Mitchell Warren, executive director of AVAC, a non-governmental organisation involved in global advocacy for HIV prevention. “We now have proof-of-concept for microbicides and that is a fundamental building block for the future.” He stresses the need to begin attempts, even at this early stage, to ensure that this successful clinical trial can translate into successful public health interventions: “no biomedical strategy, however effective, will have a lasting impact unless we also address stigma by using an evidence-based, human-rights focused approach. The proof-of-concept is actually the beginning and not the end of the road”.

“The important issue is to make sure that vaginal microbicides do not acquire the negative connotations, such as promiscuity, disease prevention, and unfaithfulness, that make condoms so unacceptable in relationships defined as regular”, Robert Pool (Barcelona Centre for International Health Research and the Microbicides Development Programme, Barcelona, Spain) told *TLID*. “Men argue against condom use by saying that it implies that their partner does not trust them.”

Pool cites evidence from other trials that the lubrication offered by vaginal gels can lead to increased sexual enjoyment for both partners, and that “there needs to be an effort to get the partners of vulnerable women to want their women to use the microbicide”. He argues that promoting the positive connotations of vaginal gels, such as increased pleasure and intimacy, and not just their ability to protect women against demonised promiscuous partners, will lead to more consistent use, and that the resulting improved communication about sex may



Salim Abdool Karim at the International AIDS Society Conference

also empower women to negotiate condom use.

“Of course there are also many women who may want to use a microbicide covertly”, notes Pool, “there needs to be a whole range of products available for different tastes and scenarios.” Another trial, the Vaginal and Oral Interventions to Control the Epidemic (VOICE) study, results for which are due in 2013, is assessing the use of a daily applied tenofovir-based gel and pre-exposure prophylaxis tablets. In addition to providing additional supportive data on the effectiveness of vaginal microbicides, results from this trial are eagerly anticipated because the alternative dosing regimens may permit greater privacy and convenience of use than does the tenofovir gel formulation used in the CAPRISA trial.

Nonetheless, this landmark CAPRISA trial is certainly cause for excitement. “Tenofovir gel potentially adds a new approach to HIV prevention as the first that can be used and controlled by women. It can help empower women to take control of their own risk of HIV infection”, Salim Abdool Karim announced. “Once confirmed and implemented, tenofovir gel has the potential to alter the course of the HIV epidemic.”

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For the **CAPRISA tenofovir study** see *Science* 2010; DOI:10.1126/science.1193748  
For more on **AVAC** see <http://www.avac.org/>  
For more on the **Microbicides Development Programme** see <http://www.mdp.mrc.ac.uk/>