

## Microbicides, PrEP and treatment as prevention

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### MICROBICIDES

The big news from AIDS 2010 was the successful results from the CAPRISA 004 vaginal microbicide trial.<sup>1</sup>

This study [recruited](#) [1]The act of signing up participants into a study. Generally this process involves evaluating a participant with respect to the eligibility criteria of the study and going through the informed consent process. 889 South African women who were randomly assigned to use either a gel containing 1% tenofovir, or a [placebo](#) [2]A dummy medical treatment, designed to have no pharmacological effect, administered to the control group of a clinical trial. gel, before and after sexual intercourse. After 2.5 years, the study found that women who used the gel were 39% less likely to become HIV positive, and 54% less likely to become infected with HSV-2, the [virus](#) [3]A small infective organism which is incapable of reproducing outside a host cell. that causes genital herpes.

While the results of this trial were modest, they do represent the first time a vaginal microbicide has been shown to be even partially effective against HIV, a feat that earned the researchers presenting the data a rare standing ovation. Further research will be needed before the findings could lead to a marketable product, hopefully with greater efficacy than that shown in this trial.

Studies are also underway to develop a rectal microbicide for gay men.

### PREP

Tenofovir is also being studied as a potential drug for pre-exposure prophylaxis (PrEP). The idea behind this approach is that by giving a dose of anti-HIV medicines to people who don't have HIV, you can reduce their risk of becoming HIV positive.

Results were presented in Vienna from a US trial looking at the safety of the approach rather than its efficacy.<sup>2</sup> The 400 gay male participants were [randomised](#) [4]A method based on chance by which study participants are assigned to a treatment group. Randomization minimizes the differences among groups by equally distributing people with particular characteristics among all the trial arms. The researchers do not know which treatment is better. From what is known at the time, any one of the treatments chosen could be of benefit to the participant into four groups: two groups started taking a daily pill immediately, (either tenofovir or placebo) and the other two delayed starting for nine months.

At the end of the trial, researchers found that the treatment was well tolerated with no serious side effects, and importantly, there was no significant change in sexual risk-taking behaviour in the trial. Seven participants tested HIV-positive, none of whom were on the tenofovir-containing regimens. However due to the small size of the study this result is statistically non-significant.

While condoms are likely to remain the mainstay, the development of other prevention methods is widely seen as crucial if the global epidemic is to be turned around.

A pair of much larger PrEP trials – one involving Thai drug users and one in South American gay men – will report in 2011.

The repeated failure of HIV vaccine trials has increased the focus on microbicides, pre-exposure prophylaxis, and treatment as prevention.

### TREATMENT AS PREVENTION

The use of treatments as prevention remains a hotly debated topic – the idea here is that people who are on treatment and who have undetectable [viral load](#) [5]A measurement of the quantity of HIV RNA in the blood. Viral load blood test results are expressed as the number of copies (of HIV) per milliliter of blood plasma. are much less

likely to transmit HIV, so increasing the number of people on treatment could reduce HIV infections.

Bernard Hirschel, one of the authors of the 2008 'Swiss Statement', told a plenary session that HIV prevention is "at an impasse", and that the use of [antiretroviral](#) [6]A medication or other substance which is active against retroviruses such as HIV. treatments as a prevention technology has the potential to be more efficacious than condoms, although the evidence for this is "circumstantial". [3](#)

US researcher Jeffrey Fisher explored some of the additional benefits of a treatments-as-prevention approach, arguing that positive people who are "in care" are more likely to reduce risk behaviours even if they aren't on treatments, and calling for increase HIV testing uptake to reduce the number of positive people who don't know their status.[4](#)

While the benefits of treatment as prevention are still unconfirmed, evidence from Denmark supports the [hypothesis](#) [7]A supposition or assumption advanced as a basis for reasoning or argument, or as a guide to experimental investigation.. Susan Cowan presented an analysis showing that while the number of people living with HIV has continued to rise, and the rate of unprotected sex has risen, the number of new transmissions has remained stable, indicating a falling transmission rate.[5](#)

1. [1](#). Karim, QA et al. [Effectiveness](#) [8](Of a drug or treatment). The maximum ability of a drug or treatment to produce a result regardless of dosage. A drug passes efficacy trials if it is effective at the dose tested and against the illness for which it is prescribed. In the standard procedure, Phase II clinical trials gauge efficacy, and Phase III trials confirm it. of 1% Tenofovir Vaginal Microbicide Gel in South African Women: Results of the CAPRISA 004 Trial. XVIII International AIDS Conference, Vienna; 20 July 2010; abstract no TUSS0502.
2. [2](#). Grohskopf L et al. Preliminary analysis of biomedical data from the phase II clinical safety trial of tenofovir disoproxil fumarate (TDF) for HIV-1 pre-exposure prophylaxis (PrEP) among U.S. men who have sex with men (MSM). XVIII International AIDS Conference, Vienna; 23 July 2010; abstract no FRLBC102.
3. [3](#). Hirschel, B. Anti-HIV Drugs for Prevention. XVIII International AIDS Conference, Vienna; 21 July 2010; abstract no WEPL0104.
4. [4](#). Fisher, JD. Overview of prevention for people living with HIV. XVIII International AIDS Conference, Vienna; 19 July 2010; abstract no MOAC0101.
5. [5](#). Cowan, S et al. New paradigm for positive prevention: "Test and treat" - testing for and treating HIV has lowered transmission rate in Denmark in spite of increased unsafe sex among MSM. XVIII International AIDS Conference, Vienna; 19 July 2010; abstract no MOAC0103.

- [conference reports](#)
- [HIV prevention](#)
- [International AIDS Conference](#)
- [microbicides](#)
- [positive in prevention](#)
- [Pre-exposure prophylaxis \(PrEP\)](#)

#### Links:

[1] <http://www.napwa.org.au/glossary/term/489>

[2] <http://www.napwa.org.au/glossary/term/106>

[3] <http://www.napwa.org.au/glossary/term/125>

[4] <http://www.napwa.org.au/glossary/term/513>

[5] <http://www.napwa.org.au/glossary/term/416>

[6] <http://www.napwa.org.au/glossary/term/122>

[7] <http://www.napwa.org.au/glossary/term/493>

[8] <http://www.napwa.org.au/glossary/term/486>