Microbicides for HIV Prevention

An Introductory Factsheet

March 2015

This fact sheet provides basic information on microbicides, a category of products that could be additional tools to reduce the risk of getting HIV. For more basic fact sheets in this series on emerging HIV prevention strategies visit www.avac.org/intro.

What is a microbicide?

The term "microbicides" refers to substances being studied that could be used in the vagina and/or rectum to reduce the risk of HIV infection via sexual exposure. There are no licensed microbicides available today. Microbicides could come in a number of forms, including vaginal rings that release the active ingredient over a few weeks or months (slow-release), creams, gels, films, suppositories that could be used vaginally or rectally, as well as rectal enemas.

What is the status of current and recent efficacy trials?

- There are two ongoing efficacy trials of a vaginal ring containing the antiretroviral drug dapivirine that is designed to be inserted for four weeks at a time. These trials are known as The Ring Study and ASPIRE, and they are expected to have data over the next year: ASPIRE (MTN 020) was launched by the Microbicide Trials Network (MTN) and has enrolled 2,629 women in Malawi, South Africa, Uganda and Zimbabwe, with results are expected in late 2015 or early 2016; and the Ring Study (IPM 027) is sponsored by the International Partnership for Microbicides (IPM) and is enrolling 1,950 women at sites in Uganda and South Africa. Results are expected in late 2016.

- The vaginal microbicide 1% tenofovir gel is the antiretroviral drug tenofovir (TFV) formulated in gel form. There have been three efficacy trials of this gel. The first, CAPRISA 004, found evidence of modest benefit. Two subsequent trials, VOICE and FACTS 001, found no overall evidence of protection. However, in both trials there was evidence that in a small subset of women who were able to use the product correctly and consistently (the two trials had different dosing regimens), the gel did reduce the risk of HIV acquisition. But the overall finding from two out of three trials was that this product wasn't one that women could use enough of the time to achieve the potential benefits. The results of these trials underscore the need to ensure that "the healthy choice is the easy choice" and that women-initiated HIV prevention includes strategies that can fit into the lives of women at greatest risk of HIV.

- An ongoing open-label study in South Africa, CAPRISA 008, is designed to provide access to tenofovir gel to HIV-negative CAPRISA 004 study participants, collect additional safety data, and to explore how tenofovir gel—if approved—could be provided through family planning services. Results from this study will be available in mid-2015. Given the recent VOICE and FACTS results, though, it is not clear that this product will move forward.

Resources and links

AVAC (www.avac.org)

CONRAD (www.conrad.org)

International Partnership for Microbicides (www.IPMglobal.org)

International Rectal Microbicide Advocates (www.rectalmicrobicides.org)

Microbicide Trials Network (www.mtnstopshiv.org)

Population Council (www.popcouncil.org)

AVAC
Global Advocacy for HIV Prevention

One trial of a rectal formulation of tenofovir gel is ongoing

- MTN 017 is the first-ever expanded safety study (Phase II trial) of a rectal microbicide candidate, a reformulated version of tenofovir gel. It began in late-2013. It enrolled 186 men who have sex with men at sites in Peru, South Africa, Thailand and the United States. Results are expected in mid-2016.

If they work, then what? Planning for potential rollout

Within the next twelve to 18 months, there will be results from the dapivirine ring studies. There are already data showing that daily oral PrEP using TDF/FTC (brand name Truvada) can reduce women's (and men's) risk of HIV acquisition if taken as consistently as prescribed. For oral PrEP today and for future products like the ring, there is much to do to incorporate these strategies into comprehensive HIV prevention for women. For any product, there are a number of actions needed to prepare for product introduction and rollout.

First, the product needs to be approved by the national regulatory authorities before being introduced. (Many developing countries also look to the World Health Organization and other international bodies for regulatory input.) There needs to be national leadership in deciding whether a device should be introduced into public health programs and, where applicable, implementing plans that lead to introduction. National bodies or specially-convened task forces can also work on developing these plans—this work can begin even before the results of a trial are known. It is also key to develop global and national budgets for possible introduction. Other activities include exploring how best to deliver the product—what types of clinics or providers will offer the product; how the product might be marketed; and how providers would be trained to deliver it.

It is vital to engage the women and men who will be the users of these products in all of these activities. There is growing momentum around demanding daily oral PrEP for women, and the results from a range of demonstration projects and advocacy efforts will help clarify where and how to introduce this strategy in the near-term. In the meantime, other work is ongoing to plan for product introduction, exploring health systems needed for delivery of the vaginal ring.

What other candidate microbicides are under study?

There are several other candidates in early phases of development. Regardless of the outcomes of the trials currently underway, there will still be a need to for additional options. The majority of microbicide candidates currently in clinical trials are formulated with antiretroviral (ARVs) drugs and many current and past microbicide products have been gels. It may be useful to develop non-ARV-based candidates and candidates delivered in other ways (e.g., a film or fast-dissolving tablet). *For more information on other microbicide candidates see www.avac.org/trials/microbicides.*

- ***New Delivery Mechanisms:*** Basic and preclinical work is underway with film and fast-dissolve vaginal tablets. Fast-dissolve vaginal tablets of TFV alone and TFV plus emtricitabine (FTC) (the drug combination known as Truvada) are in the final stages of development before entering human clinical trials by CONRAD. IPM, in collaboration with Magee-Womens Research Institute, has also developed combination vaginal films containing dapivirine and maraviroc, and maraviroc and tenofovir. These are still in early stages of preclinical research.
- ***Non-ARV-based Options:*** There is also research into non-ARV-based candidate microbicides. MTN is working on Griffithsin, which has entered a Phase I safety and acceptability trial. Griffithsin is a protein from red algae that has been shown to be a highly potent HIV entry inhibitor. Other non-ARV-based research looks at the potency of zinc as a microbicide.

See also the fact sheet on Multipurpose Prevention Technologies (MPTs) for more information about development of additional, dual-purpose HIV prevention options. For related ARV-based prevention research, see AVAC's resources on long-acting injectable ARVs and pre-exposure prophylaxis at www.avac.org/prep.

About AVAC | AVAC is a non-profit organization that uses education, policy analysis, advocacy and a network of global collaborations to accelerate the ethical development and global delivery of new HIV prevention options as part of a comprehensive response to the pandemic. This fact sheet is part of the Women's HIV Prevention series, created to address HIV prevention strategies and the advocacy needed to bring them to reality.