



MICROBICIDES

WHAT ARE MICROBICIDES?

Microbicides are anti-HIV substances. They could reduce the risk of HIV infection during vaginal or rectal intercourse. No microbicides are available yet.

They could be a very important part of global HIV prevention efforts. Currently, male and female condoms are the only tools we have for HIV prevention. However, many men object to wearing condoms. Many women do not feel they can demand, or even ask their male partners to use a condom. Currently, over 50% of new HIV infections worldwide occur in women.

The use of microbicides could be controlled by women. They could be applied before sex. They won't require male cooperation to use, the way male and female condoms do. Some might be products women can use without their partners' knowledge.

They will come in gels, foams, and creams. Some may take the form of a sponge or thin film that can be inserted with the fingers. Rings or diaphragms may also be inserted into the vagina to deliver microbicides. Microbicides can also be put in suppositories, small plugs of medication designed to melt at body temperature when placed in the vagina or rectum.

One study estimated that microbicide use could prevent about 2.5 million HIV infections within 3 years. This is based on a microbicide that only worked 60% of the time and was used by only 20% of women, in 73 low income countries. Microbicides may also protect women against some other sexually transmitted diseases, in addition to HIV.

Condoms are still the most effective method of preventing infection. Ideally, microbicides would be used along with condoms for added protection. But, for people whose partners won't use condoms, microbicides could offer a way of reducing HIV risk that can be used without a partner's participation.

MICROBICIDES AND VACCINES

Vaccines against HIV have gotten much more attention than microbicides in recent years. An effective vaccine would offer important advantages:

- It could be given to a large segment of the population at risk
- It would be effective for several years
- It would not depend on people remembering to use it

Microbicides, on the other hand, depend on people remembering to use them correctly each time they have sex. Once developed, microbicides and vaccines would work together. Microbicides will put the power of prevention directly in women's hands.

After a period of optimism about the development of an HIV vaccine, research has slowed. The virus presents several obstacles to vaccine development. At this point it is not clear when a vaccine might become available. However, it is unlikely to be within the next 10 years.

Microbicide research is further along. But microbicide research has also encountered setbacks. Nonoxynol-9 (N-9) is a spermicide that was tested as a microbicide. Research showed that frequent use of N-9 may actually increase the risk of HIV infection. It can damage the lining of the vagina or rectum, making it easier for HIV to get past the body's defenses. N-9 had to be discarded from the list of potential microbicides.

HOW DO MICROBICIDES WORK?

Microbicides could work in various ways:

- They could **immobilize** the virus.
- They could **create a barrier** between the virus and the cells of the vagina or rectum to block infection.
- They could **prevent HIV from reproducing and establishing an infection** after it has entered the body.

Some potential microbicides work in just one of the ways above and some combine two or more methods, to increase effectiveness. Most microbicides now being developed include an antiretroviral drug.

HOW MANY MICROBICIDES ARE NEAR APPROVAL?

No anti-HIV microbicides are currently approved as safe and effective. However, many are being tested. These tests are going on around the world. Large-scale tests are going on mainly in Africa where the HIV rates are highest.

In 2010, preliminary results from the CAPRISA trial of a microbicide gel were very good. The gel contains the antiviral drug tenofovir (see fact sheet 419.)

THE BOTTOM LINE

Microbicides are anti-HIV substances designed in various forms to provide additional protection against HIV. They are intended to be used as an additional prevention measure or in cases where a partner is not using condoms.

Dozens of potential microbicides are in various stages of research. Once available, they could help women and men protect themselves. Microbicides may be especially important for women in developing nations who are not always empowered to require partners to wear condoms.

FOR MORE INFORMATION

The Alliance for Microbicide Development (www.microbicide.org) keeps updated listings on microbicides in various stages of development and information on global clinical trials.

The Global Campaign for Microbicides (www.global-campaign.org) provides information about global microbicide advocacy efforts. It explains how people can become involved in making microbicides a reality as soon as possible.

The FDA has created a [web page](#) on topical microbicides. The page has links to FDA presentations on microbicides and other resources.

A Project of the International Association of Providers of AIDS Care. Fact Sheets can be downloaded from the Internet at <http://www.aidsinfonet.org>

Reviewed, July 23, 2014