Recently, there has been encouraging news about the potential of microbicides to prevent HIV infection. While many questions are still unanswered, this is an incredibly exciting development for both women and men who have sex with men, because it means that they may one day have access to another prevention method that doesn’t require them to convince their partners to use condoms.

Microbicides are chemicals and drugs designed to kill or weaken microbes (like viruses or bacteria) that cause infection. The microbicides being developed to combat HIV come in the form of creams, gels, or suppositories that are meant to reduce the risk of HIV infection during vaginal or anal sex. Some of the products being tested contain an ingredient that blocks HIV activity, while others create a physical barrier at the mucosal lining of the vagina or rectum.

Microbicides are one of several kinds of biomedical HIV prevention methods. Others include pre- and post-exposure prophylaxis, known as “PrEP” and “PEP”; HIV vaccines; and surgical procedures like male circumcision. These techniques are being studied as alternatives to behavioral prevention approaches, such as changing sexual activities or reducing number of partners. Many biomedical prevention methods, including microbicides, are still in the midst of research and development, and are not yet available to the public.

Hoping to repeat the success of spermicides as a birth control technique, scientists have been searching for an effective microbicide treatment since the beginning of the epidemic. Until recently, results have been disappointing. But in 2010, the success of a South African microbicide study has brought renewed hope.

Effective microbicides would offer a prevention option that doesn’t require people to convince their partners to use condoms.

What’s the Latest Research?

There are nearly 25 clinical trials of experimental microbicides under way in 20 countries, with many concentrated in Eastern and Southern Africa. Three of the four most advanced trials either failed or were called off, deflating much of the hope around this intervention. However the recent South African trial of CAPRISA 004 changed that. The results, published in 2010 in the journal Science, showed that 1% tenofovir gel was able to reduce HIV incidence in a group of 889 South African women by 39 percent. Since this was the first successful, statistically significant
trial of microbicides, these results stole the spotlight at the latest International HIV/AIDS Conference in Vienna, representing a huge step for biomedical prevention. According to lead researcher Salim Abdool Karim, the gel, which is derived from the antiviral drug tenofovir (used to treat people with HIV) could prevent 1.3 million new HIV infections and 800,000 deaths in South Africa alone.

What Happens Next?

Of course, many questions remain, including when the gel will become widely available and at what cost. Before these questions can be answered, researchers must deal with other concerns, such as who can safely use the gel, what the side effects are, how to keep fake products off the market, and how to communicate to the public what the gel can and cannot do. While microbicides have the potential to make a huge difference in HIV prevention, their benefits could easily be diminished with improper use.

In addition, CAPRISA researchers are assessing how to maximize adherence in potential users: in the study, the group of high adherers (those who used the gel more than 80 percent of the time) achieved a 54 percent reduction in new HIV infections, while lower adherers (who used the gel less than 80 percent of the time) achieved only a 28 percent reduction in new infections. Adherence might be higher in the “real” world, since users would be sure that they were not getting the placebo. Other confirmatory trials are also under way, including VOICES—with more than 5,000 women in five African countries as participants—which will test the difference between using the gel vs. oral administration of tenofovir.

In the United States, small-scale studies have been mounted, and as of June 2010, 1,063 people were enrolled in these studies. Recently the FDA granted the tenofovir microbicide “fast-track” status, which will speed up the regulatory approval process as HIV-affected countries eagerly await proven microbicides. In the meantime, advocacy organizations continue to push for more money for further research, especially for products that can protect both sexual partners, and products that can be used for protection during anal sex. While these advancements are encouraging, it is important for HIV test counselors to remember that there are currently no microbicidal products available to the general public. Given the lengthy, complex approval process for such treatments, it is hard to accurately estimate when they will finally reach the market.

References