

Can barrier methods help in HIV prevention?

Why barrier methods?

Barrier methods are a relatively low-cost, accessible and important part of the pregnancy and sexually transmitted disease (STD) prevention landscape. Barrier methods can be physical or chemical substances which prevent pregnancy and/or block the spread of STDs including HIV. They do not include hormonal contraceptive methods. People have successfully used contraceptive physical barriers for centuries.¹

Since the beginning of the HIV epidemic, the latex male condom has been the exclusive prevention tool. After two decades, there is a call to create a greater selection of barrier methods to combat HIV. Because HIV rates continue to increase among women and among men who have sex with men (MSM),^{2,3} it is time to strengthen both current condom use programs and develop other barrier methods that optimize usage and choice in prevention.

What methods are available?

Currently, the male and female condoms are used for the prevention of HIV, STDs and unintended pregnancy.^{4,5} The female condom, made of polyurethane plastic, is also used for receptive anal sex, but it was not designed for that purpose.⁶ The diaphragm, cervical cap and sponge are often used with a spermicide and block the cervix to prevent conception. Although studies have shown that these cervical blocking methods may also prevent certain STDs⁷, research has not been conducted to show that they prevent HIV. Dental dams are latex sheets used to provide a barrier in oral/anal and oral/vaginal sex.

Spermicides (gels, creams, foams, or films that can be inserted into the vagina) are available for preventing pregnancy. One of the most widely used spermicides, Nonoxynol 9 (N-9), was recently tested for its ability to prevent HIV. The study of female sex workers in Thailand, South Africa, Cote d'Ivoire and Benin, randomly assigned women to use either a gel containing 52.5 mg of N-9 or a placebo, a vaginal moisturizer known as Replens. Preliminary results showed that there were more new HIV infections among the N-9 group than in the Replens group.⁸ In August, 2000, the CDC recommended against N-9 as a sole barrier method for HIV prevention.⁹

This study documented the harmful effects of a relatively large dose of N-9 on HIV infection. N-9 is commonly used in much smaller amounts as part of a condom lubricant. The impact of small doses of N-9 is not clear.

Why do we need alternatives to male condoms?

Male condoms are an extremely effective means of HIV, STD and pregnancy prevention. What most often limits condoms' effectiveness is user failure rather than product failure. For example, users may fail to either put on a condom before genital contact or completely unroll the condom. In addition, some people fail to use a condom with every act of sexual intercourse. Some don't use condoms because they reduce sexual sensation. For others, using condoms is seen as a barrier to intimacy.

Male condom use requires male participation or negotiation. Female-controlled and receptive-partner-controlled options (such as female condoms or future microbicides) may be used without the participation or consent of the insertive partner. These methods are still detectable by sexual partners and partners can still refuse to use them.

Female- and receptive-partner-controlled options can be used in situations where it is difficult to negotiate condom use such as in an abusive relationship, where there is economic disincentive to use a condom¹⁰ or where the insertive partner refuses to use a condom.⁵ Female-controlled HIV/STD prevention methods can be empowering¹¹ and are vital in an HIV epidemic that is increasingly infecting women, especially in developing countries.

Finally, there is no barrier method that allows women to protect themselves from HIV and still get pregnant. Hopefully, a barrier method can be developed that separates the control of fertility from the prevention of STDs. This is an important consideration for many women.²

Says who?

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what are the drawbacks?

Barrier methods can provide protection against HIV and STDs, yet they are not an option for everyone. Although some methods are low-cost, others, such as the female condom, may have limited accessibility because of their cost. Most barrier methods require application before each act of sexual intercourse, making consistent use more difficult. Barrier methods may not protect against STDs that are transmitted via skin-to-skin contact such as herpes and human papilloma virus (HPV). Products may be messy or may require adequate cleaning and storage, which may not be available to some people. Some barrier methods are inserted into the vagina which requires comfort and familiarity with one's body. Diaphragms and cervical caps require a health care worker to fit the devices. Further, individuals may have sensitivities to products' chemicals or materials, such as latex allergies.¹ Barrier methods under development are addressing some of these limitations.

what about microbicides?

Microbicides are topically-applied chemical barriers that prevent HIV and/or STD transmission. They are not currently available, but are under development and being tested for efficacy as an alternative to current methods. Microbicides may come in the form of gels, creams, foams or films that can be inserted into the vagina or rectum. Development is currently focused on creating products which destroy or immobilize germs or viruses through a variety of mechanisms: breaking down the outer cell membranes of pathogens, enhancing normal vaginal defenses, providing a physical coating to the vagina or the rectum, inhibiting HIV from entering cells or preventing HIV replication if HIV does enter a cell.¹² Studies show that there is large potential demand for microbicides from women in the US and internationally.¹³ People are also willing to participate in efficacy trials, as studies in women and MSM have shown.^{14,15}

what's being done?

Male condoms are currently the best comprehensive prevention method. Education and prevention campaigns must be continued to optimize condom usage while also searching for alternatives. HIV prevention efforts may be more effective among certain populations if condom use and HIV are addressed together with STD and unintended pregnancy prevention. Some STD and family planning clinics are encouraging condom use for both STDs and HIV prevention with great success.¹⁶

New physical barrier methods currently being researched include the disposable diaphragm, alternative types of cervical shields, caps and sponges and alternative types of condoms, both male and female. New materials are also under development, including various plastics and silicone rubber.² It is also important to examine the potential for adapting current products and testing existing products for HIV prevention. As these products are already FDA approved, the testing process is not as lengthy.

what are the next steps?

The development of alternative barrier methods must be a priority among private and public researchers alike. With over 50 microbicides in the research pipeline, one should be on the market by the year 2005. Advocacy groups have played a large role in increasing awareness and attention to microbicides and should continue advocating for accessible barrier methods.¹⁶ Although US government funding for microbicides has increased, in the 1998 fiscal year, microbicide-related research received only 1% of the National Institutes of Health AIDS research budget.¹⁷

There is no single solution to HIV and STD prevention. Prevention requires continued work on many levels, including increasing access to products, advocating for social change to eliminate unsafe situations that many people are in, and developing stronger prevention and treatment alternatives. Barrier methods are an integral part of these prevention alternatives and must be developed to their fullest potential to enhance health and prevent disease.

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