

“ . . . in the near future microbicides will stop the spread of the HIV virus, while at the same time giving women a chance to protect themselves from unwanted disease and premature death.”

MICROBICIDES

A New Frontier in HIV/AIDS Prevention

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SEXUALLY TRANSMITTED DISEASES HAVE LONG BEEN A TABOO SUBJECT AMONG MANY CULTURES AND CREEDS. ALTHOUGH THE STIGMA SURROUNDING THESE UNFORTUNATE ILLNESSES ARISES FROM THEIR SEXUAL NATURE, SHEER IGNORANCE MUST BE BLAMED FOR THE WAY PEOPLE PERCEIVE THEM. THE IDEA OF ACQUIRING THE HIV VIRUS AND POSSIBLY DEVELOPING AIDS HAS STRUCK FEAR IN THE LIVES OF THE SEXUALLY ACTIVE, ESPECIALLY THOSE INDIVIDUALS WHO CANNOT PROTECT THEMSELVES—THE POOR, POWERLESS WOMEN OF OUR WORLD. THOUGH MANY STRUCTURAL BARRIERS ACT TO OPPRESS THESE HUMAN BEINGS, THE LACK OF A VACCINE FOR HIV/AIDS PROVES TO BE THEIR GREATEST HARDSHIP. THE CURRENT DEVELOPMENT OF MICROBICIDES, HOWEVER, GIVES THEM HOPE. UTILIZING THE LATEST RESEARCH FROM EXPERTS IN THE AREA OF HIV/AIDS, THIS ESSAY ATTEMPTS TO INFORM OUR GREATER COMMUNITY OF THE ABILITY OF MICROBICIDES TO COMBAT BOTH A PHYSICAL AND SOCIAL DISEASE THAT HAS PLAGUED SOCIETY FOR TOO LONG.



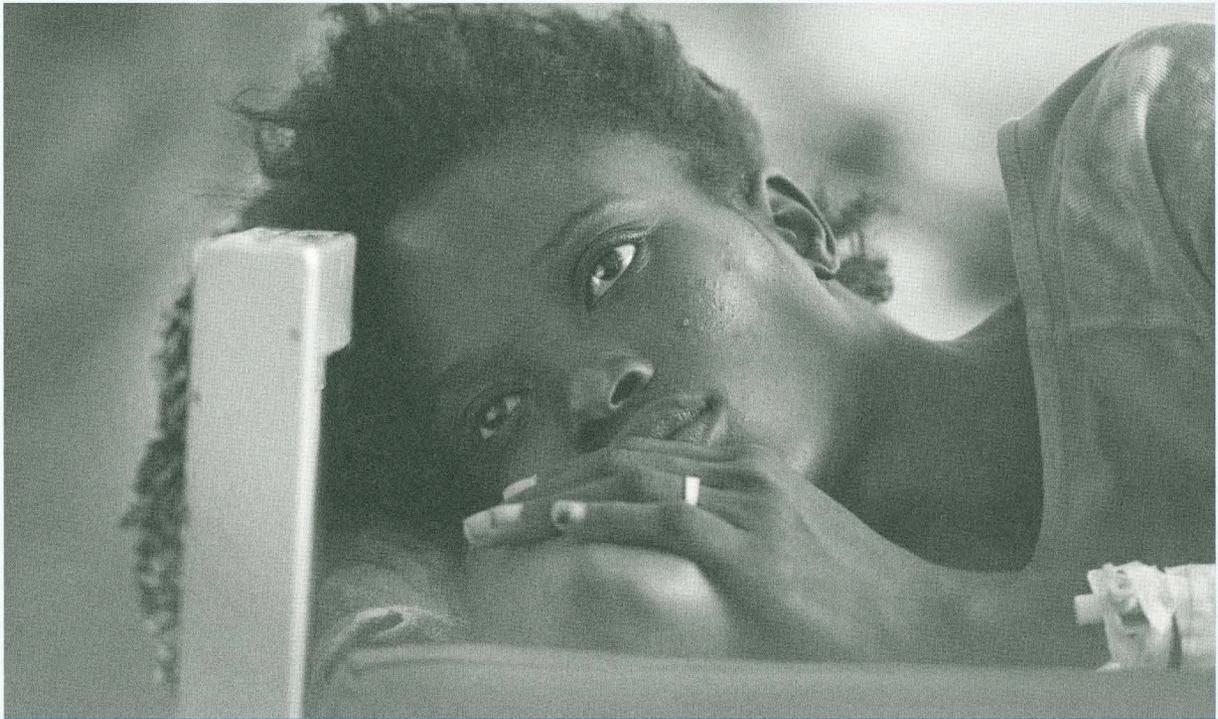
As the 21st century progresses, humanity faces a number of distinct challenges, including the HIV/AIDS epidemic, which has brought disease, death, and ultimately sorrow to the lives of many around the world. With no cure for the disease at present, there are currently only three options to choose from in order to remain HIV negative: abstinence, faithful monogamy, or use of a condom. These options, however, are not available to millions of women who lack the social and economic power to negotiate when and how sex occurs. Research is currently underway to create new forms of female protection from HIV and other sexually transmitted diseases. Called microbicides, these drugs come in the form of gels, foams, and creams that are applied topically to the female vagina before sex. Though not yet available or proven completely effective, microbicides promise to stop the spread of the HIV virus in the near future while at the same time giving women a chance to protect themselves from unwanted disease and premature death.

Currently, there are three classes of microbicides being developed by researchers. Referred to in the scientific community as non-specific, moderately specific, and highly HIV-specific, each class of microbicides possesses its own unique purpose.ⁱ Non-specific microbicides are active against sexually transmitted pathogens in order to prevent infections that would make it easier for HIV to enter the bloodstream such as gonorrhea, chlamydia, and genital herpes. Moderately specific microbicides are protectors against sexually transmitted pathogens, as well as active spermicidal lubricants. Finally, HIV-specific microbicides work solely against HIV, targeting cellular receptors and distinct parts of the invading virus. Different aspects of each class of microbicide are beneficial for the prevention of HIV/AIDS. Thus, complete “HIV prevention would probably need the use of a combination of several microbicide drugs in one formulation” in order to block HIV infection.ⁱⁱ This would be similar to current HAART treatments that utilize cocktails of multiple medications. If successful, groups of microbicides would repel various strains of HIV from entering the body, just as HAART treatments sup-

press HIV strains to undetectable levels in one’s blood. Though the function of these medications is the most important, there are other properties of microbicides that must be addressed as development continues.

In order to determine which characteristics of microbicides would prove advantageous for users, clinical trials composed of participants from every country, culture, and creed are currently being conducted. For example, a Phase I safety trial of the microbicide BufferGel was performed using feedback from ninety-eight women from four different countries (Malawi, Zimbabwe, India, and Thailand). This trial allowed respondents to discuss their likes and dislikes about the properties of the medication.ⁱⁱⁱ These women were quite fond of the substance’s ability to be odorless, colorless, and tasteless. Its compatibility with their bodies also proved satisfactory. Unfortunately, the microbicide’s texture brought mixed reviews. Some women liked the extra lubrication BufferGel provides, while others complained that the increased “wetness” ruined their clothing, made movements feel uncomfortable, and increased tension between themselves and their respective partners.^{iv} The research done at this and similar clinical trials allows for large meetings to discuss recent, important developments in the field. For instance, at the Microbicides 2006 Conference in South Africa researchers and scientists came up with a general idea of what properties the ideal anti-HIV microbicide should possess.^v Successful attacks against most sexually transmitted infections and HIV strains, maintenance of vaginal cells and natural bodily conditions, bi-directional ability (effective disabling of HIV in both vaginal secretions and semen), compatibility with latex, and stability at various temperatures and acidic levels were deemed the most important conditions to meet. Yet, these characteristics may prove difficult to establish due to structural, cultural, and economic factors that influence the women.

For some time now, sociologists have seen how gender inequality often dictates whether or not people use condoms in many cultures and countries. Though this is present in



WOMEN OFTEN BECOME AIDS VICTIMS BECAUSE THEY CANNOT ASK THEIR PARTNERS TO USE CONDOMS.

the United States and other wealthy nations, the overwhelming majority of examples can be found in developing countries.^{vi} Many women in poorer parts of the globe do not have access to education or ability to leave their home communities. As a result, they have no hope of moving on to brighter intellectual and economic opportunities. These women often become dependent on men for financial support, with little chance of escape; property and inheritance are largely left to male heirs. Furthermore, many of these women are taught to respect men and not to question men's desires or actions, especially with regard to fidelity. In India, women are led to believe that if their husbands fulfill their roles as economic providers and responsible fathers, they should not question their husband's decision not to use a condom.^{vii} Those who do question a partner's refusal to wear a condom potentially face severe backlash. These women are often scolded, sent to a relative's house, divorced, or met with violence immediately upon vocalizing their simple requests.^{viii} The latter proves the most se-

rious because many men use force to rape women who ask to use condoms.

Rape may not appear to be as prevalent in the United States as it is in developing African or Asian nations, but sexual coercion of the same or similar form occurs regularly against battered women who fear aggressive and forceful partners. Anna Forbes, the deputy director of the Global Campaign for Microbicides, points out, "biologically, a woman is at least twice as likely as a man to contract HIV from a single act of unprotected vaginal intercourse" because semen carries more HIV than vaginal secretions.^{ix} Exposed wounds open the gates for HIV and other sexually transmitted diseases to enter the body relatively easily. By applying microbicides on a daily basis to her body, a woman will have a much greater chance of protecting herself against infection when condom usage is difficult or impossible to negotiate. Besides living with promiscuous partners who refuse or are reluctant to use condoms, many of

these women cannot afford treatments for sexually transmitted infections. They are left without options because female condoms and other cervical barriers are noticeable to men. And, unfortunately, there is still no vaccine for HIV. Microbicides present the only feasible form of prevention that can help these women protect themselves. Though microbicides can help greatly, there still needs to be much more work done in the field in order to guarantee that they are fully effective.

The initial set of medications produced for general public use will be known as first generation microbicides. According to Dr. Asheber Gaym of Addis Ababa University, Ethiopia, nearly 60 potential microbicides are in development with six presently in the last Phase III trials that precede drug licensing.^x The first microbicides are expected to be released in the next five to seven years. They will likely

aid in order to help women who are hesitant to use them.^{xiii} These women include those who face abusive partners, as well as those whose cultures look at new technology with fear and suspicion. As mentioned above in the review of the BufferGel trial, many of these microbicides are noticeable by partners due to their extra lubrication. This is problematic for women who belong to African cultures that practice dry sex.^{xiv} It also may lead to increased violence against women of certain cultures where men equate increased wetness prior to intercourse with promiscuity.^{xv} These women are placed in a precarious situation. Either they admit to using microbicides, a direct attack against a man's refusal to use a condom, or they appear as if they have been unfaithful to a significant other. Circumstances like this lead to the conclusion that more research on the medications must be undertaken along with policies and interventions to promote gender equality.

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reduce the risk of HIV transmission by 40 to 60 percent.^{xi} While these numbers seem quite low when compared with the high enthusiasm of researchers and scientists, they truly will make a dramatic impact on the fight against HIV/AIDS. In fact, a mathematical model referenced by many in the field of microbicides predicts that usage of a 60 percent effective microbicide by a small proportion of women (in low-income countries) for half the sexual encounters in which condoms are not used could avert two and a half million HIV infections over the course of three years.^{xii} However, more must be done to make their usage fully effective. While safety trials are eliminating those drugs that prove hazardous to the bodies of women due to side effects, some researchers have begun to look into molding the attributes of potentially successful microbi-

There are various ways to make the use of microbicides accepted in places where they initially will not be well-received. In order to combat those male partners that do not want their significant others using microbicides, researchers have several options. First, they can work to reduce the amount of lubrication microbicides like BufferGel utilize for adhesiveness. This will allow women to use the medications without fear that their partners will notice. Next, the apparatus used to apply many of these microbicides should be replaced by another more sanitary, less noticeable device. Many poor women in African nations and in India do not have access to running water and thus risk infection from repeated use of these unclean instruments.^{xvi} In addition, many of these women utilize communal taps and are embarrassed to expose such an in-

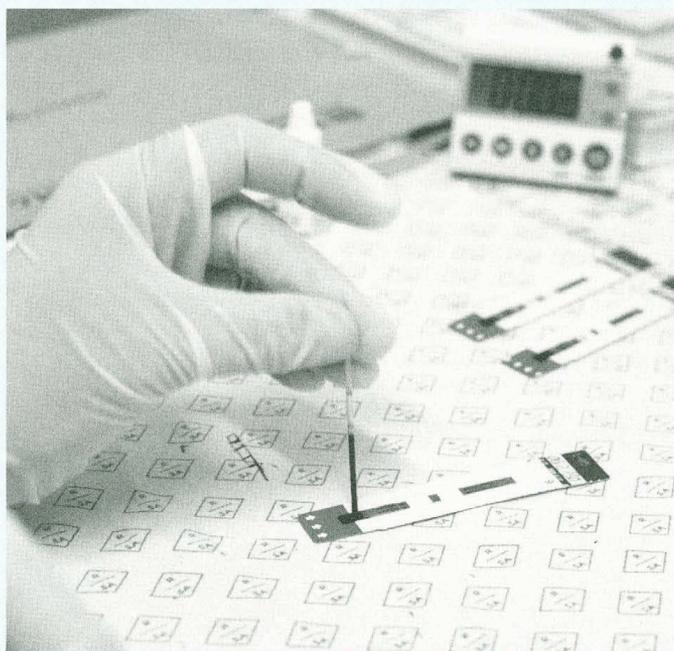
timate part of their lives to surrounding community members. Another option scientists are coming very close to making a reality is a vaginal ring that discharges certain microbicides inside the user for up to a month, enabling women to use it discretely.^{xvii} All together, these options are only necessary to help women who cannot persuade their partners to be realistic and responsible. Many women, including large portions of those in developing nations, *do* believe that their husbands will be receptive to their pleas.^{xviii}

Desperation caused by a lack of low-cost, safe, and efficient protection has entered their lives. Now that such protection is about to arrive, the speed at which research and production occur must increase. At the same time, the world must be prepared for the advent of new medication.

In order for microbicides to reach all in need of HIV prevention, more funding must be placed in the hands of researchers and policymakers. Presently, 140 million dollars have been put into the field of microbicides.^{xix} In order for these medications to be distributed on schedule, twice the current amount is needed. More funds will not only allow for further clinical trials, but also help solve any remaining problems facing researchers. For instance, some of the compounds found in certain trial microbicides are not capable of reaching their site of virus interaction once administered to the vagina.^{xx} This needs to be investigated, as do other concerns, such as the realistic worry that the use of certain

microbicides by HIV positive women may lead to drug resistance. Furthermore, research must be done in the area of dual-action microbicides, which prevent pregnancy and infection, in order to give women the ability to choose whether or not they want to have children while protecting themselves. None of this can be done until the need for microbicides is made known around the globe. So far, studies and testing have been done only by academics, non-profit organizations, and small biotechnological companies.^{xxi}

Large pharmaceutical companies need to invest in the development of these drugs in order to speed up research. Subjects like gender inequality and vaginal lubrication are real and must no longer be viewed as taboo. Government grants and charitable foundations can only do so much. Healthcare professionals must continue to discuss the topic of microbicides with colleagues, patients, and the general public. Luckily, the future is bright.



AN HIV TESTER CONDUCTS SCREENINGS ON SIX BLOOD SAMPLES

Despite a lack of adequate funding, progress continues to be made. Due to the need for large sample sizes when testing microbicides, clinical trials must cover multiple nations. As a result, social and cultural barriers are constantly being knocked down. National ethics committees, institutional ethics boards, government committees, and community advisory boards have been formed in a number of nations in order to deal with the understanding of foreign languages and practices.^{xxii} Being able to speak and write

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in native tongue and also understand specific values and belief systems is essential for communication. Only then will people administering clinical trials truly receive the queries and suggestions of respondents. For instance, many African women want microbicides to be available to all ages so that young girls will be able to protect themselves from abusive males that are older and stronger than them.^{xxiii} These women also demand that policymakers and providers realize the importance of a sustainable supply of low-cost microbicides prior to creating demand for the medications. More than 90 percent of HIV-infected people in developing countries have little or no access to treatment because of a serious lack of substantial economic income.^{xxiv} The remarks of these individuals are beneficial to the cause since they help embed the needs of those at highest risk of infection in the minds of the men and women behind drug development and distribution. Moreover, established communication can help to remind those same respondents of the unfortunate realities surrounding prevention, such as condom substitution. Healthcare professionals need to tell women in clinical trials that condoms must continue to be used with microbicides, if possible, because the drugs are not 100 percent effective. All together, every factor regarding HIV prevention must be analyzed and discussed with the very people that will soon utilize microbicides.

Presently, the road to developing and issuing microbicides to the general public is being paved correctly. However, the pace must be quickened in order for these drugs to save the lives of men and women who constantly face the risk of infection. This can only be done through the collection of

funds, which in turn requires mass promotion by those involved in the area of HIV/AIDS studies. While this fact may diminish hope, it is necessary to remind the public that prevention is much cheaper than treatment through the use of antiretroviral drugs. An open dialogue between healthcare professionals and communities will replace ignorance with trust and reasonable hope. Stigma will always be present in areas affected by the HIV/AIDS epidemic, but social networks can and have fought discrimination through the power of understanding. Once people become open to new ideas and allow individuals to help them, further strides forward can be taken. Increased funding will allow for further research not only on microbicides, but also on potential vaccines for HIV/AIDS. All that stands in the way is a struggle that we have fought before and can win again.

ENDNOTES

- i. Balzarini (2007)
- ii. Balzarini (2007)
- iii. Bentley (2004)
- iv. Bentley (2004)
- v. Stone (2006)
- vi. Global Campaign for Microbicides (2007)
- vii. Severy (2005)
- viii. Bentley (2004)
- ix. Forbes (2006)
- x. Gaym (2006)
- xi. Forbes (2006)
- xii. Balzarini (2007)
- xiii. Bentley (2004)
- xiv. Severy (2005)
- xv. Orner (2006)
- xvi. Bentley (2004)
- xvii. Balzarini (2007)
- xviii. Orner (2006)
- xix. Stone (2006)

- xx. Balzarini (2007)
- xxi. Forbes (2006)
- xxii. Balzarini (2007)
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- xxiv. Balzarini (2007)

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