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Analysis of HIV Microbicides in the Context of Equality Feminism vs. Difference Feminism

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Analysis of HIV Microbicides in the Context of Equality Feminism vs. Difference Feminism

Michelle Farinella



Readers: Professor Gray and Professor Fiss

2011-2012

**Thesis submitted in partial fulfillment of the requirements for a
major in the program in Science, Technology, and Society (STS).**

“We need tools that will allow women to protect themselves. This is true whether the woman is a faithful married mother of small children, or a sex worker trying to scrape out a living in a slum. No matter where she lives, who she is, or what she does – a woman should never need her partner’s permission to save her own life.”

Bill Gates, 16th International AIDS Conference, 2006

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Introduction

According to numerous public health experts, HIV microbicides are a potential new technology with the ability to revolutionize the way in which we as a global health community fight against the HIV/AIDS epidemic. According to the London School of Hygiene and Tropical Medicine, if microbicides are shown to be even 60% effective, and were used in just half of all sexual encounters, over a three-year period 2.5 million lives would be saved from HIV/AIDS.¹ The current HIV/AIDS situation in both the United States and in the rest of the world desperately calls for such a technology: there are currently 34 million people living with HIV worldwide and in 2010, 2.7 million people were newly infected with HIV. Additionally in 2010, 1.8 million people died from AIDS worldwide.² It is clear that the HIV/AIDS epidemic is out of control and that current prevention methods have not done enough to curb the spread of the disease.

Vaginal microbicides, more specifically, have the potential to protect millions of women from acquiring HIV through heterosexual sexual contact. Globally, women account for more than half of those currently living with HIV. However, this paper will focus on the HIV/AIDS epidemic in the United States and how HIV microbicides will function in this geographic location. In the United States, women account for one in four new HIV diagnoses and deaths caused by AIDS. Additionally, this proportion of AIDS diagnoses reported among women has nearly tripled since 1985. The vast majority of women that are diagnosed with HIV in the United States contracted the virus through heterosexual sex.³ Vaginal microbicides would be a

¹ "Microbicides: The Next Sexual Revolution?" EuropeanVoice.com, 20 April 2006, 23 Jan. 2012 <<http://www.europeanvoice.com/article/imported/microbicides-the-next-sexual-revolution-/54651.aspx>>.

² "Global Summary of the AIDS Epidemic: 2010," World Health Organization, Dec. 2010, World Health Organization, UNAIDS, 23 Jan. 2012 <http://www.who.int/hiv/data/2011_epi_core_en.png>.

³ "Statistics: Woman and HIV/AIDS" amfar: AIDS Research, Nov. 2011, The Foundation for AIDS Research, 23 Jan. 2012 <<http://www.amfar.org/about/hiv/article.aspx?id=3594>>.

way for women to protect themselves from HIV, even if their partner does not want to wear a condom.

As of now it is unclear what form a microbicide will take in terms of application. For example microbicides may come as (A) applicator-delivered gels or other semi-solids; (B) intravaginal rings; or (C) tablets, ovules, and films (Fig. 1).⁴

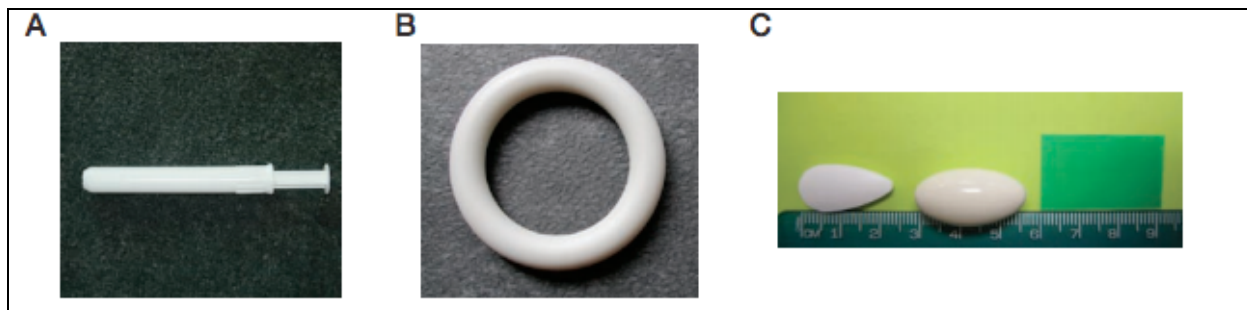


Figure 1: Possible forms of commercially available vaginal microbicides.

The drug would be inserted into the vagina in order to prevent the HIV virus from being able to infect the woman. Also, researchers are unsure of how often the microbicide would need to be used. Some options are daily use, pre-coital use, or in some other dosing regimen. Ideally, vaginal microbicides would be highly discreet and have no obvious visible signs that they are in use. It is also ideal that one's partner cannot detect the use of a microbicide. Therefore, vaginal microbicides may be an inconspicuous way for millions of women in the United States to decrease the likelihood that they will acquire HIV.

There is no argument that vaginal microbicides are a technology that is desperately needed to protect millions of women from acquiring HIV. One of the most important aspects of HIV microbicides is that they are a women-controlled technology; women can use HIV

⁴ Anita B Garg, Jeremy Nuttall and Joseph Romano, "The Future of HIV Microbicides: Challenges and Opportunities," *Antiviral Chemistry and Chemotherapy* 19 (2009) 145, 25 April 2012
<<http://www.intmedpress.com/serveFile.cfm?sUID=a04ed6be-7c85-4bc7-9f9d-b9f5e9290a52>>.

microbicides without the consent, cooperation or knowledge of the partner.⁵ However, does a women-controlled technology necessarily mean it is a feminist technology? Is this even a question we should be asking? I believe that HIV microbicides are in some ways a feminist technology but in other ways they are not; the issue much more complicated than to elicit a simple yes or no answer. Instead, I believe it is more valuable to discuss a rift within feminist discourse that HIV microbicides readily highlight.

One of the problems with classifying a technology as “feminist” is that there is no one definition of “feminism.” As Angela N. H. Creager, Elizabeth Lunbeck, and Londa Schiebinger point out: “Feminism, in our vision, is not rigid and static but flexible and innovative.”⁶ There are as many ways to be a feminist as there are ways to use feminism to critique various aspects of society. However for the purposes of this paper I will focus on two definitions of feminism that often come into conflict: difference feminism vs. equal-rights feminism. Pamela Mack gives a concise definition of these two types of feminism. She says: “Equal-rights feminists believe that the differences between men and women are not significant and that the goal should be equal treatment of men and women.”⁷ According to equal-rights feminism, if women can show that they are equal to men, asking for no special considerations, then they can prove themselves worthy of equal treatment. On the other hand, Mack states: “Difference feminists believe that women have something special to contribute because they are different from men, either essentially or because of their upbringing and/or cultural history.”⁸ By emphasizing an essential

⁵ “Microbicides,” HIV/AIDS, World Health Organization, (2012), 25 April 2012
<<http://www.who.int/hiv/topics/microbicides/microbicides/en/>>.

⁶ Angela N. H. Creager, Elizabeth Lunbeck, and Londa Schiebinger, “Introduction,” Feminism in Twentieth-Century Science, Technology, and Medicine, ed. Angela N. H. Creager, Elizabeth Lunbeck, and Londa Schiebinger (Chicago: University of Chicago Press, 2001) 16.

⁷ Pamela E. Mack, “What Difference has Feminism Made to Engineering in the Twentieth Century?” Feminism in Twentieth-Century Science, Technology, and Medicine, ed. Angela N. H. Creager, Elizabeth Lunbeck, and Londa Schiebinger (Chicago: University of Chicago Press, 2001) 150.

⁸Mack 150.

difference between males and females, difference feminists believe, women can begin to carve out a space for themselves in society that is different, but not inferior, from the space allocated to men.

Now that we have a definition of two difference types of feminism (difference feminism vs. equality feminism), how does this idea relate to technology and more specifically, vaginal microbicides? One thing that we can do is to analyze a technology based on whether or not it promotes the vision of one of these types of feminism vs. the other. Does the technology appear to focus on an “essential” difference between males and females or does the technology disregard these differences in favor of a more equal view of the needs of the sexes? In the case of HIV microbicides, I would argue that they work to further highlight the differences between males and females and work to promote a different sexual responsibility paradigm for both men and women. HIV microbicides highlight a female’s vulnerability to disease and inability to protect herself from HIV. This technology posits women as both the “victim” of disease and the one responsible for preventing themselves from acquiring it. I think that HIV microbicides, along with other female controlled technologies such as birth control pills, promote difference in an activity that should be promoted with equality: sexual intercourse. Sex should be an act between two equals and both parties should be held equally responsible for the act. By continually pointing out the fact that women require “special” technologies in order to protect their health in sexual situations, it further places women in a subordinate position to men. One of the reasons women need this technology in the first place is because many women are unable to negotiate condom use with their partners. HIV microbicides send the message that women should stop trying to get their partners to respect their health and should protect their own health instead. While this may seem like a positive message, instead it makes men blameless for

passing on a disease. While microbicides were developed with the idea that women are different from men and require a different kind of disease prevention technology, they do nothing to promote the equality women and men in a sexual responsibility paradigm. My challenge is to the idea of difference being emphasized over that of equality. I think this attitude is detrimental to women both on a mental and physical level. Therefore, while it is important that we continue to create technologies that allow women to protect their own health, it is also important that we create technologies to allow for greater equality between the sexes.

In the first chapter of this paper, I will discuss the history of the development of HIV microbicides. I will outline what factors pushed for research to be done into microbicides and the progress that has been made terms of development and clinical trials. This chapter will emphasize why microbicides needed to be developed and why they are still necessary in today's HIV/AIDS epidemic. I will also discuss how microbicides work. I will detail the science of how microbicides function in the body and the different parts of the HIV virus that can be targeted to prevent transmission of the disease. Finally, I will outline the major financial contributors to the development of HIV microbicides, as well as the researchers and study participants that have an interest in this technology as well.

In the second chapter I will outline what is meant by sexual responsibility. What are the different components of being sexually responsible? Who should be held sexually responsible? This definition is based on what I deem to be an equality feminist version of sexual responsibility. The sexual responsibility paradigm that is outlined will help to support the idea that HIV microbicides are pushing a difference feminist agenda rather than an agenda of equality.

In the third chapter I will show how HIV microbicides highlight the ongoing debate between difference and equality feminists. I will use the birth control pill, another female controlled technology, to show how HIV microbicides will continue to focus on the differences between males and females when they should instead be focusing on the equal goal sexual health for both sexes. First I will explain why vaginal microbicides can be considered a similar technology to the birth control pill. I will then begin to outline the current sexual responsibility paradigm that is supported by the use of oral contraceptives. This section illustrates why the promotion of difference, through birth control pills and HIV microbicides, is detrimental to women's health. This chapter will also show why the promotion of equality through sexual health technologies would help to raise the level of equality between men and women as it pertains to sexual responsibility.

Finally I will conclude with an examination of how we could, perhaps, analyze whether or not HIV vaginal microbicides can be considered a "feminist" technology. Should we consider such a question under the current sexual responsibility paradigm? Or should we simply analyze the technology separate from the society in which it will be used? Can we truly separate microbicides from the societal issues that surround them?

On a final note it must be pointed out that this paper does not aim to diminish the importance of the development of safe and effective vaginal microbicides. I do not wish to argue against the necessity of microbicides to combat the devastating effects of the worldwide HIV/AIDS epidemic. My goal is not to dissuade anyone from using a technology that may potentially save his or her life. However, with this paper I simply look to examine critically the way in which we develop a technology in order to fix one of society's problems. I hope to make

the reader think critically about what we have deemed a “female controlled” technology and whether or not such a technology will be beneficial for women in the long run.

Chapter 1: Grounding of HIV Microbicides in a Historical and Biological Context

The Centers for Disease Control and Prevention (CDC) estimates that there are around 1.2 million people in the United States living with HIV. In 2009, it was also estimated by the CDC that 50,000 people were newly diagnosed with HIV.⁹ Although men who have sex with men are still the group with the highest incident rates in the United States, one of the groups that is being particularly hard hit by the disease are young women through heterosexual, sexual contact. Minority women are especially vulnerable to being infected with HIV.¹⁰ In today's toolbox of prevention strategies to curb the spread of HIV through sexual contact, the "ABC's" dominate: abstaining from sex, being faithful to one partner or having few partners, and using condoms. Condoms can include both male and female condoms, but they must be used consistently and effectively.¹¹ Although condoms are currently the most effective and efficient method of HIV prevention, other prevention methods, such as the discovery of a vaccine and the use of antiretroviral therapies as pre-exposure prophylactic treatment, have been in development for years. One of the most promising of these methods that target women specifically are vaginal microbicides.

This chapter will explore the history of the development of HIV microbicides, the biology of how HIV microbicides guard against HIV infection and the relevant players in microbicide development. The goal of the chapter is to explain where the idea for HIV microbicides originated and the historical context in which such a technology was deemed

⁹ "Basic Statistics," *HIV/AIDS Statistics and Surveillance*, 11 Aug 2011, Centers for Disease Control and Surveillance, 20 Nov. 2011 <<http://www.cdc.gov/hiv/topics/surveillance/basic.htm#incidence>>.

¹⁰ "HIV in the United States: An Overview," *HIV/AIDS Statistics and Surveillance*, August 2011, Centers for Disease Control and Surveillance, 20 Nov. 2011 <<http://www.cdc.gov/hiv/topics/surveillance/resources/factsheets/incidence-overview.htm>>.

¹¹ "Condoms and HIV Prevention," 2009, UNFPA, WHO, 20 Nov. 2011 <http://www.unaids.org/en/media/unaids/contentassets/dataimport/pub/basedocument/2009/20090318_position_paper_condoms_en.pdf>.

necessary. The chapter will also explain how microbicides work biologically in order to show the similarity between microbicides and antiretroviral treatment. We can remain optimistic that HIV microbicides will one day work if we continue to remind ourselves of the success of ARTs and the necessity for the technology. Additionally, this chapter will show the commitment of various players to developing safe, and effective HIV microbicides.

History of the Development of Vaginal Microbicides

Starting in the late 1980s workers in the field of HIV/AIDS noted the need for a female controlled form of HIV prevention. In 1989, Joan Kreiss released a study (conducted with researchers from the University of Washington, Seattle; the University of Nairobi, Kenya; the University of Manitoba, Winnipeg; and the Kenya Medical Research Institute) of the efficacy of nonoxynol-9 (N-9), a known spermicide, in preventing HIV transmission. Previous to this study, N-9 had been shown to disrupt the envelop of the HIV virus in-vitro, effectively deactivating the virus. In the study, 138 HIV seronegative prostitutes in Nairobi, Kenya were given either a contraceptive sponge containing 1,000 mg of N-9 or placebo vaginal suppositories. During the study the women using the N-9 contraceptive sponges developed genital ulcers and contracted HIV, chlamydia and gonorrhea at a higher rate than the women in the placebo group.¹² After the disappointing results of this study were released, an interest was sparked in the scientific community to continue research efforts to find a safe, effective vaginal microbicide.

At the time that these studies were being conducted, condoms, an inherently male controlled technology, were the only method being promoted to prevent HIV/AIDS transmission. Conversely, the only female controlled sexual technologies were used to prevent pregnancy

¹² Joan Kreiss, et al., "Efficacy of Nonoxynol 9 Contraceptive Sponge Use in Preventing Heterosexual Acquisition of HIV in Nairobi Prostitutes," *JAMA* 268.4 (1992) 477-482, 20 Nov. 2011 <http://jama.ama-assn.org/content/268/4/477?ijkey=ee9e0038b2ef3eb886cbf4c4cf50e09f686e0908&keytype2=tf_ipsecsha&linkType=ABST&journalCode=jama&resid=268/4/477>.

(birth control pills, the diaphragm, etc.).¹³ In 1990, in her foundational article, Zena Stein pointed out that the most effective measures of pregnancy prevention have always relied on women. She noted that the same attention, however, has not been paid to female control over HIV prevention. Stein called for immediate recognition of the barriers to condom use by many women and advocated for more money to be dedicated for research into women controlled HIV prevention technology, such as topical virucides and female condoms.¹⁴ For the first time in the history of the HIV epidemic, someone was advocating for women's health (related to HIV) to be controlled by women themselves. That same year, the first National Women and HIV Conference was held in Boston. At the conference delegates recommended that researchers study the "develop[ment] of better barrier/contraceptive methods and virucides which are effective, safe and acceptable to women." They also noted that these methods needed to be women controlled as well as possibly undetectable by their sexual partners.¹⁵

In 1993, the Women's Health Advocates on Microbicides was established as the first microbicide-specific advocates coalition. The group was made up of eleven women's health organizations from around the world whose goal was to shape the Population Council's microbicide research effort. The group worked to coordinate multi-country microbicide studies as well as facilitate discussions on how to best conduct microbicide clinical trials. In 1994 the International Working Group on Microbicides was established. The group was founded by the WHO Global Program on AIDS to facilitate collaboration between research groups all over the world working on microbicides. In 1998 at the XII International AIDS Conference in Geneva, the Global Campaign for Microbicides was founded. This group's goal was to focus the world's

¹³ Zena A. Stein, "HIV Prevention: The Need for Methods Women Can Use," American Journal of Public Health 80 (1990) 460-462, 20 Nov. 2011 <<http://ajph.aphapublications.org/cgi/reprint/80/4/460.pdf>>.

¹⁴ Stein 460.

¹⁵ "Timeline Advocacy and Research," (2009), Global Campaign for Microbicides, 20 Nov. 2011 <<http://www.global-campaign.org/timeline.htm>>.

attention on the need for new HIV prevention options, especially those for women. Using money from UNAIDS the group worked not only to generate political pressure for increased investment in microbicide research but also to protect the rights of participants in clinical trials for microbicides.¹⁶

From 1998-2002, additional phase III clinical trials of nonoxynol-9 were performed. The first trial was conducted with 1,292 HIV-negative female sex workers in Cameroon by researchers from Family Health International (Durham, N.C.) and the Cameroon Ministry of Public Health . This study was done using a film containing nonoxynol-9 rather than using a sponge, which had previously been shown to be ineffective against preventing HIV acquisition in HIV negative women (Kriess et al. 1989). The women were either given a film containing nonoxynol-9 to be inserted in the vagina or a placebo film, as well as latex condoms to use. The women using the nonoxynol-9 film contracted HIV , gonorrhea and chlamydia at the same rate as those who used the placebo film. The women using nonoxynol-9 also contracted genital lesions at a higher rate than those in the placebo group.¹⁷ The second experiment was done by researchers from Belgium, South Africa, Canada, Cote d'Ivoire, Thailand, Benin, the US, and UNAIDS on 892 female sex workers at four different sites in Africa. This experiment was testing the efficacy of the use of a nonoxynol-9 gel, rather than a sponge or film. In the trial, 449 of the women were given a nonoxynol-9 gel to use during intercourse while 443 of the women were given a placebo gel. The women using the nonoxynol-9 gel contracted HIV , gonorrhea and chlamydia at the same rates as those women using the placebo gel. Additionally, the women who used the gel more than 3-5 times per day contracted HIV at rates almost twice as high as those in the placebo

¹⁶ Global Campaign for Microbicides.

¹⁷ Ronald E. Roddy, et al., "A Controlled Trial of Nonoxynol 9 Film to Reduce Male-to-Female Transmission of Sexually Transmitted Diseases," *New England Journal of Medicine* 339 (20 Aug. 1998) 504-510, 20 Nov. 2011 <<http://www.nejm.org/doi/full/10.1056/NEJM199808203390803#t=abstract>>.

group.¹⁸ At this point, nonoxynol-9 was no longer considered for its use as HIV/STI microbicide, although it continued to be used as a spermicide (as it was still effective as a contraceptive). However, in 2007 the FDA release a statement warning that not only does nonoxynol-9 not protect against HIV and other STIs, it may in fact increase the risk of contracting these diseases as it irritates (causes sores) in the lining of both the vagina and the rectum.¹⁹

In 2000, the first ever large-scale international conference on microbicides was held in Washington DC. Microbicides 2000, as the conference was called, attracted over 600 participants from 40 different countries. In 2002, the International Partnership for Microbicides was founded to coordinate research and help progress the microbicide movement.

In 2004, five microbicides began large-scale clinical trials. These trials were expected to last from 4-5 years, and involve around 3,000-11,000 women (per study). In 2006, phase III clinical trials of SAVVY (a potential microbicide) in Ghana and Nigeria were ended, as there was no evidence that the microbicide prevents HIV infection.²⁰ In 2007 Family Health International and CONRAD closed trials of the use of cellulose sulfate as a microbicide in Nigeria, Benin, India, South Africa, and Uganda as early data suggested that drug increased a woman's risk of contracting HIV. Although none of the early trial results showed the increased risk, the researchers concluded it would be unethical to continue the trials without further investigation into the matter and because the drug was not shown to be effective at preventing

¹⁸ Lut Van Damme, et al., "Effectiveness of COL-1492, a Nonoxynol-9 Vaginal Gel, on HIV-1 Transmission in Female Sex Workers: a Randomised Controlled Trial," *The Lancet* 360 (28 Sept. 2002) 971-977, 20 Nov. 2011 <www.thelancet.com>.

¹⁹ Miranda Hitti, "Spermicide Nonoxynol-9 Gets FDA Warning," *WebMD* (18 Dec. 2007), 25 April 2012 <<http://www.webmd.com/sex/news/20071218/spermicide-nonoxynol-9-gets-fda-warning>>.

²⁰ Beth Robinson, "FHI Letter Regarding Further Analysis of Savvy Results," *Family Health International* (18 Sept. 2007), 20 Nov. 2011 <<http://www.global-campaign.org/clientfiles/FHI-Savvy-Statement.pdf>>.

HIV acquisition (the purpose of the study was to determine just this).²¹ That same year, the Center for the AIDS Program of Research in South Africa (CAPRISA) 004 clinical trials began enrollment. This study tested the drug tenofovir, previously used as an antiretroviral, as a microbicide. In 2008, the phase III trial of Carraguard ended. Although the Carraguard microbicide gel was proven to be safe and acceptable to women, there was no evidence that it provided protection against HIV.²² However, in July of 2010, the results of the CAPRISA 004 trials were released. The study showed that tenofovir was effective at reducing a woman's risk of contracting HIV by 39%. These results have been the most promising so far. Although there is still a long way to go before microbicide use will be widespread and available to the general public, the history of microbicides is one filled with many dedicated groups of people that are determined to develop safe and effective microbicides in the future.

How Do Microbicides Work?

Microbicides work in similar ways to anti-retroviral drugs used to treat an HIV infection. However, HIV microbicides are topical in nature rather than oral and are a prophylactic, unlike ARTs that reduce the symptoms of HIV infection. The microbicide, in the form of a gel, cream, suppository, etc., would be inserted into a woman's vagina before sexual intercourse in order to create a barrier to HIV infection. The drugs can attack various components of the virus as well as attack at different times in the viral lifecycle. There are five broad classes of microbicides: surfactants/membrane disruptors, vaginal environment protectors, entry inhibitors (anionic

²¹“Final HIV Results of Ushercell Trials Presented at IAS Conference in Sydney—July 25, 2007,” FHI 360 (2011), 20 Nov. 2011 <<http://www.fhi.org/en/AboutFHI/Media/Releases/072507UshercellTrialResults.htm>>.

²² “Leading Advocates Call Microbicide Trial “Trail-Blazing” Despite Disappointing Results,” The African Microbicides Advocacy Group, Gender AIDS Forum, Global Campaign for Microbicides, (18 Feb. 2008), 20 Nov. 2011 <<http://www.global-campaign.org/carraguard.htm>>.

polymers, CCR5 Inhibitors and fusion inhibitors), reverse transcriptase inhibitors, and unknown mechanism agents.

Surfactants/Membrane Disruptors

These microbicides disrupt cellular and microbial membranes non-specifically. Therefore, they can offer both contraceptive properties as well as protection against a wide range of STIs. An example of this kind of microbicide is nonoxynol-9. Although early clinical trials of nonoxynol-9 showed promising results, later trials discredited the drug as a viable option for preventing HIV transmission as frequent use of the drug actually increased the chance of acquiring HIV. However, the experience with nonoxynol-9 not only increased interest in research on microbicides, it also led to greater scrutiny into the safety of large, clinical trials. Two other microbicides of this type, C31G and sodium lauryl sulfate, have shown promise in clinical trials in terms of safety and slight protection against HIV; however more clinical trials will be needed before these drugs can be released for widespread use.²³

Vaginal Environment Protectors

This type of microbicide works to maintain, restore, or enhance the body's natural defenses against HIV in the vaginal canal. Lactobacilli in the vagina help maintain an acidic pH of around 3.8-4.2. HIV has been shown to be inactivated between a pH of 4.0-5.8. However, certain situations can arise in which the acidity of the vagina can be neutralized; these include the presence of semen or bacterial infection (such as bacterial vaginosis). These types of microbicides work by either directly increasing the acidity of the vagina or by enhancing the production of lactobacilli. BufferGel is a microbicide currently undergoing clinical trials that

²³ Blayne Cutler and Jessica Justman, "Vaginal Microbicides and the Prevention of HIV Transmission," The Lancet Infectious Diseases 8.11 (Nov. 2008) 685-697, 20 Nov. 2011 <http://www.sciencedirect.com/science/article/pii/S1473309908702548#ref_bib38>.

can buffer twice its volume of semen to lower the pH of the vagina to 5 or less. This microbicide has also been shown to be spermicidal, virucidal in vitro to HIV, and inhibits human papillomavirus in animal models. Another form of microbicide that has been suggested is the creation of a lactobacilli microbicide, possibly in the form of a suppository.²⁴ Such a microbicide would increase the amount of lactobacilli present in the vaginal canal and therefore decrease the pH of the area. It has also been suggested (by studies done by Osel, Inc. in California) that genetically modified lactobacilli could be engineered to express proteins to bind to HIV and prevent viral entry into the host cells.²⁵

Entry Inhibitors

This type of microbicide either blocks the attachment of the HIV virus to host cells, prevents fusion of the virus to the host-cell membranes, or bars entry of HIV into host cells. The first type of entry inhibitor being studied by various researchers, are anionic polymers. Anionic polymers are negatively charged molecules that interact with HIV's viral envelope proteins. Through this interaction HIV is not able to attach to CD4+ cells. An example of this type of microbicide, Naphthalene Sulfonate, has been shown to have in-vitro activity against HIV, *C trachomatis*, gonorrhea and herpes simplex virus. Another such microbicide, Carrageenan, has been shown to not only prevent HIV transmission by binding to the viral envelope but to also prevent HIV infected cells from migrating across the vaginal cell wall and into the pelvic lymph nodes. Both of these drugs are currently undergoing clinical trials.²⁶

²⁴ Harold L. Martin Jr., et al., "Vaginal Lactobacilli, Microbial Flora, and Risk of Human Immunodeficiency Virus Type 1 and Sexually Transmitted Disease Acquisition," Journal of Infectious Diseases 180.6 (1999) 1863-1868, 25 April 2012 <<http://jid.oxfordjournals.org/content/180/6/1863.long>>.

²⁵ Chang TL, et al., "Inhibition of HIV Infectivity By a Natural Human Isolate of *Lactobacillus Jensenii* Engineered to Express Functional Two-Domain CD4," Proc Natl Acad Sci U S A 100.20 (30 Sep. 2003) 11672-11677, 25 April 2012 <[http://www.ncbi.nlm.nih.gov/sites/entrez?db=pubmed&cmd=Search&term=Proc%20Natl%20Acad%20Sci%20USA\[Jour\]+AND+100\[Volume\]+AND+11672\[page\]](http://www.ncbi.nlm.nih.gov/sites/entrez?db=pubmed&cmd=Search&term=Proc%20Natl%20Acad%20Sci%20USA[Jour]+AND+100[Volume]+AND+11672[page])>.

²⁶ Cutler and Justman 688.

The second type of entry inhibitor being looked at are CCR5 inhibitors. CCR5 is the most important co-receptor on the host cell and blocking it prevents HIV from properly attaching to the host cells. Two of these types of microbicides, PSC-RANTES and CMPD167 have been shown to provide full protection in macaques from Simian Human Immunodeficiency Virus. Currently research is being done to see how effective these drugs are against HIV but no clinical trials have been done yet. This type of microbicide has not been shown to be effective against any other types of STIs. Additionally, there is concern that by inhibiting the CCR5 entry pathway, the HIV pathogen may be forced to mutate to use other co-receptors or pathways to enter the cell, thereby negating the microbicide's purpose. Therefore, the most effective microbicide will block all receptor-mediated pathways, not just CCR5.²⁷

The third type of microbicides in the category of entry inhibitors are fusion inhibitors. These compounds prevent the virus from fusing with the host cell. One such compound is cyanovirin-N, a lectin molecule that comes from purified cyanobacterium. This compound binds to mannose rich glycans on the HIV virus and prevents interaction with CD4 and other co-receptors on the host cell. Although cyanovirin-N has been shown to block transmission of SHIV in macaques and has shown promise in human cervical explants, there are also many side effects associated with the drug and further research will need to be done to find a safer formulation.

Reverse Transcriptase Inhibitors

Reverse transcriptase inhibitors prevent replication of HIV. These compounds bind to the reverse transcriptase enzyme, effectively blocking the conversion of viral RNA into DNA. By blocking this step, HIV can no longer insert its DNA into the host cell's DNA in order to use the host cell machinery to replicate the virus. Tenofovir was the first drug in this group to be

²⁷ Cutler and Justman 690.

tested as a microbicide. Traditionally, tenofovir has been used successfully as post-exposure prophylactic as well as an antiretroviral drug against HIV in humans. After successful use as a pre-exposure prophylactic in macaques, tenofovir became the first antiretroviral drug to be tested as a vaginal microbicide in a clinical trial. Tenofovir has been tested as a vaginal gel and during the first clinical trial was found to be safe, well tolerated and acceptable to patients. The trial only showed low-level tenofovir resistant mutations and none of the more serious HIV mutations. Phase II of the clinical trials found the gel to be safe again when applied daily or before each act of sex over a 6-month period. Finally, phase IIb of the trial using 1% tenofovir gel was performed on women in South Africa by the Center for the AIDS Program of Research in South Africa (the CAPRISA 004 trial). On July 19, 2010 the results of the study were released and it was found that 1% tenofovir gel used vaginally prevented 39% of new HIV infections overall and 54% of new HIV infections in women with high gel adherence rates. Further trials are being done using the drug to assess the effectiveness when used orally as well as to see whether or not the drug is more effective when used pre-coitally or daily.²⁸ At the moment, tenofovir gel appears to be the most promising vaginal microbicide to be used in the near future.

Unknown Mechanism Agents

Currently there are a few microbicides in development whose mechanism of action is unknown but which have been shown to have anti-HIV capabilities. One such compound is Praneem. Praneem is made of a combination of extracts from the Indian neem tree, saponins from *Sapindus mukorossi* trees, and menthe citrate oil. Praneem was originally developed as a

²⁸ Quarraisha Abdool Karim, et al., "Effectiveness and Safety of Tenofovir Gel, an Antiretroviral Microbicide, for the Prevention of HIV Infection in Women," *Science* 329.5996 (3 Sept. 2010) 1168-1174, 20 Nov. 2011 <<http://www.sciencemag.org/content/329/5996/1168.full>>.

spermicide. Not only has Praneem been shown to have antiretroviral capabilities, it has also been shown to be effective against other STIs. The drug is currently in clinical trials.²⁹

Who is Funding HIV Microbicide Research?

According to the HIV Vaccines and Microbicides Resource Tracking Working Group, in 2010, US \$247 million was spent on research and development for HIV microbicides.³⁰ This has been the highest investment to date since 2008. In 2010, public sector funding accounted for 93% of the combined global funding for microbicide research, development and advocacy. The US government is the primary source of funding at US \$181.1 million, with the European national governments and European Commission providing another \$40.3 million of funding.³¹ In 2010 the philanthropic sector provided US \$15.9 million dollars for microbicide development. All philanthropic funding came from three organizations: the Bill and Melinda Gates Foundation, Wellcome Trust, and amfAR.³² The commercial sector invested another USD \$1.0 million, all of which came from the biotechnology industry. The most significant contribution from this sector came in the form of non-exclusive, royalty-free transfers of anti-retroviral treatments for use as active agents in microbicide development. The companies have also been extremely forthcoming with valuable product information, advice, data from clinical trials, legal support and other information in order to make the process of developing a microbicide easier for researchers.³³ The breakdown of funding for microbicide research and development from 2006-2010 can be seen in table 1.³⁴

²⁹ Cutler and Justman 693.

³⁰ “Capitalizing on Scientific Progress: Investment in HIV Prevention R&D in 2010,” HIV Vaccines and Microbicides Resource Tracking Working Group (July 2011) 17, 25 April 2012
<<http://www.hivresourcetracking.org/sites/default/files/Capitalizing%20on%20Scientific%20Progress.pdf>>.

³¹ HIV Vaccines and Microbicides Resource Tracking Working Group 19.

³² HIV Vaccines and Microbicides Resource Tracking Working Group 20.

³³ HIV Vaccines and Microbicides Resource Tracking Working Group 21.

³⁴ HIV Vaccines and Microbicides Resource Tracking Working Group 17.

Table 1

Annual Investments in Microbicide R&D for 2006–2010 (US\$ millions)					
	2006	2007	2008	2009	2010
PUBLIC SECTOR					
US	129.7	139.8	154.4	172.6	181.7
Europe	56.3	59.6	39.9	44.4	40.3
Rest of World	4.7	3.4	12.1	5.7	8.3
Multilaterals	1.4	0.2	0.2	0.2	0.1
Total public	192.1	203	206.6	222.9	230.4
PHILANTHROPIC SECTOR					
Total philanthropic	26.2	19	34.6	11.8	15.9
COMMERCIAL SECTOR					
Total commercial	4.5	4.5	2.5	1	1
Total global investment	222.8	226.5	243.7	235.7	247.3

Who is Performing HIV Microbicide Research and Who are Participating in Clinical Trials?

Some of the biggest names in supporting HIV microbicide research are the U.S. Agency for International Development (USAID), the CDC, the World Health Organization, the U.S. President’s Emergency Plan for AIDS Relief (PEPFAR), the CONRAD Program, Family Health International, the Global Campaign for Microbicides, the International Partnership for Microbicides, PATH, and the Population Council.³⁵ The Microbicide Trials Network (MTN), sponsored by the NIH and based in the United States, performs HIV microbicide research and development as well as coordinates the efforts of other research partners throughout the world. The MTN currently has 25 clinical research sights affiliated with it, in seven countries: Malawi, South Africa, Uganda, Zambia, Zimbabwe, India and the United States. Two more sites in Peru and Thailand are currently being developed. The goal of this network is to try to create a global, collaborative effort to share research information and clinical trial data in order to more quickly

³⁵ “HIV/AIDS: Microbicides” [HIV/AIDS](http://www.usaid.gov/our_work/global_health/aids/TechAreas/research/microbfactsheet.html), USAID (14 Sep. 2011), 25 April 2012 <http://www.usaid.gov/our_work/global_health/aids/TechAreas/research/microbfactsheet.html>.

and easily develop an effective HIV microbicide.³⁶ Clinical trials testing the effectiveness of HIV microbicides in preventing acquisition of HIV are most often performed in Sub-Saharan Africa. This is because there is a large population of people, especially women, that are frequently exposed to HIV in Sub-Saharan Africa, which is necessary in order to see if a microbicides is effective or not. Additionally, this part of Africa is one of the proposed locations where HIV microbicides will be the most effective and are currently the needed most. General safety trials of HIV microbicides can be performed in locations, such as the United States, where the trial does not depend on participants coming into contact with HIV. Table 2 shows the number of people that have participated HIV microbicide trials to date, by country.³⁷

Table 2

Trial Participants by Country		
Rank	Country	Number
1	Uganda	8101
2	Kenya	5723
3	South Africa	5416
4	Zimbabwe	4330
5	United States	2982
6	Thailand	2824
7	Malawi	2003
8	Botswana	1200
9	Tanzania	1006
10	Peru	529
11	Brazil	417
12	Ecuador	416
13	Zambia	233
14	Rwanda	120
15	China	80
16	Switzerland	80
17	Belgium	64
18	India	32
19	Sweden	24
20	Russia	15

³⁶ “MTN: Microbicide Trials Network,” Microbicide Trials Network, NIH (1 Feb. 2011), 25 April 2012 <<http://www.mtnstopshiv.org/node/84>>.

³⁷ “Trial Participants by Country,” Downloadable Graphics, HIV Vaccines and Microbicides Resource Tracking Working Group, 25 April 2012 <http://www.hivresourcetracking.org/sites/default/files/RTWG_trialPARTCPNTS.jpg>.

Where Do We Go From Here?

Many promising vaginal microbicides are still in the early and middle phases of clinical trials. Others, such as nonoxynl-9, have already been proven ineffective against preventing HIV acquisition. Future research is necessary to determine the safest, most cost-effective way to use microbicides to prevent HIV transmission. Still, there are some challenges that we need to overcome if microbicides are going to be a viable option for HIV prevention. Some of these challenges include having enough people participate in clinical trials; testing the product on women under the age of eighteen and while women are pregnant or breast feeding; finding a similar enough placebo gel to facilitate blind trials; and dealing with drug resistance that arises from the use of microbicides. Other challenges arise out of the cultural acceptance of the use of such a drug (i.e. the affect of religion on acceptance; the acceptance of placing a drug inside the vagina; the acceptance that HIV is passed through heterosexual, sexual contact). However, because of the similarity in the mechanisms of action between HIV microbicides and current antiretroviral treatments for HIV/AIDS, we currently have a large breadth of research for scientists to work from. ARTs have been extremely successful in keeping people with HIV from acquiring AIDS and there is a very good chance that with continued research, HIV microbicides will be just as successful at preventing HIV acquisition in the first place.

Additionally, there are many organizations and people throughout the world that are dedicated to the research and development of microbicides. Millions of dollars have been spent so far in order to develop the technology and it does not appear that the commitment to do so is waning. The US government as well as other governments throughout the world sees the potential in developing microbicides, even if the technology will have the greatest impact abroad. Private foundations committed to global health see the potential in microbicides as tools to be used to complement the HIV prevention methods they are currently supporting. Biotech

companies are also showing support in developing HIV microbicides, even though the fiscal returns on such a drug will be minimal as the populations that need them most lack the ability to pay. The thousands of men and women that have participate in clinical trials, serodiscordant couples, and at risk populations throughout the have an interest in the development of HIV microbicides because they have the most to gain from such a technology. If we can lower the rate of HIV acquisition even slightly, we have potential to save millions of lives. Therefore, despite the challenges researchers are currently facing in developing this technology, the too many people that have too much at stake to not believe that microbicides have a promising future as a tool for HIV prevention.

Chapter 2: Sexual Responsibility

“Sexual responsibility” has many different definitions depending on the context in which it is defined. Cultural factors as well as religious factors may determine the realm in which sexual responsibility lies. Therefore, for the purposes of this paper, sexual responsibility must be defined. The basis for this definition can be said to come out of an egalitarian mindset, in which both men and women are equal in terms of their responsibility for their actions. However, we live in a patriarchal society that often challenges this basic definition. Evidence of the patriarchy can be seen at all levels of society, but especially in the United States Congress. Figures 2 and 3 show the percentage of women that have served in Congress from 1789-2011 and the current gender composition of the 112th Congress.³⁸

Figure 2. Gender Composition in Congress, 1789-2011

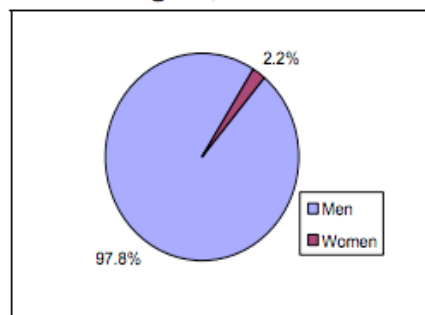
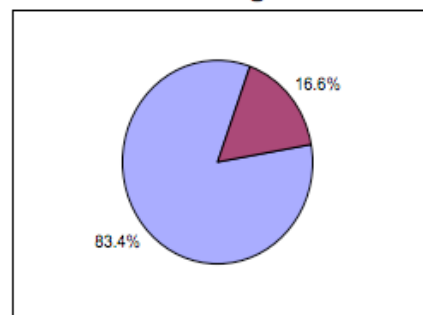


Figure 3. Gender Composition in the 112th Congress



Source: Center for American Women and Politics, Eagleton Institute of Politics, Rutgers University. Figures compiled by CRS.

Notes: Delegates are not included in the data. 112th Congress numbers are for the beginning of the Congress.

If men control the government then it is highly likely that their interests are being served over those of women. These interests come in the form of laws that have the ability to influence various other aspects of society, therefore creating a culture with patriarchal values. In the next chapter we will see that, in fact, HIV microbicides do not further the idea of sexual responsibility

³⁸ Jennifer E. Manning and Colleen J. Shogan, “Historical Overview of Women in Congress,” Women in the United States Congress: 1917-2012, Congressional Research Service (27 Jan. 2012) 3, 25 April 2012 <<http://www.fas.org/sgp/crs/misc/RL30261.pdf>>.

as defined in this chapter, in part because of the influence of the patriarchy. Instead, microbicides work within a difference feminist context that aims to promote the “special” needs of each gender separately. One will see that not only is this difference model of sexual responsibility unfair for women, but it is detrimental to their health and overall well being.

Equality Feminist Paradigm of Sexual Responsibility

According to an equality feminist version of sexual responsibility, men and women are equal and should be treated as such when dealing with situations surrounding sex.³⁹ However, before we begin to define what is meant by sexual responsibility some clarifications should be made. First of all, for the purposes of this paper, all sexual activity will be of the heterosexual variety. Although this definition applies to homosexual sexual activity as well, the context in which HIV microbicides will be addressed is in terms of sexual responsibility in heterosexual, sexual situations. Therefore sexual activity from this point on can be assumed to refer to heterosexual contact. Secondly, this definition is outlined in the context of the United States and today’s culture. Additionally, this definition is coming from secular humanist perspective, not a religious perspective. Whether or not persons should be engaging in sexual activity because of their age, marital status, sexual orientation, religion, etc. is not the concern of this paper. The only concern here is defining what is considered responsible behavior when engaging in a sexual act.

Responsibility is defined as being able to answer for one’s conduct and obligations. Sexual means having or involving sex. Therefore by definition sexual responsibility means being able to answer for one’s conduct and obligations while having or involving sex. Although this is a very simplistic answer to a more complex question, this definition at its heart sums up

³⁹ “Topics in Feminism,” Stanford Encyclopedia of Philosophy, 19 Apr. 2011, 23 Jan. 2012
<<http://plato.stanford.edu/entries/feminism-topics/#WhaFem>>.

the idea of sexual responsibility. However, the conduct and obligations involved with having sex involve a bit more elucidating. Four of the basic components of being sexually responsible include considering all the risks/outcomes involved in sexual activity, mutual respect between sexual partners, planning against STIs and unplanned pregnancy, and taking responsibility for negative or positive outcomes of a sexual act.⁴⁰ These four components come from the United States Navy's definition of being sexually responsible. I have taken this definition and elaborated each component to be more specific about what each term means and what should be expected of both males and females in sexual situations, and therefore, defined my own version of the "equality feminist sexual responsibility paradigm".

Consideration of Risks

Firstly, being sexually responsible means considering all of the risks and possible outcomes of a sexual encounter. Some of these risks/outcomes include pregnancy, acquiring an STI/HIV, or feeling an emotional connection to the other person. Not only should one be aware that these risks exist, but one should also be fully informed on said risks. This requires being properly educated about the nature of pregnancy, STIs and other emotional risks. The information needed to be sexually responsible should be taught in an unbiased manner and should be scientifically accurate. Not only should the risks of sex be taught, but the ways that one can protect themselves from these risks should be taught as well. Couples can weigh the risks all they want but without the proper information on how to combat these risks there is no way for them to make healthy sexual decisions.

⁴⁰ United States, Navy Environmental Health Center Directorate Population Health, Your Sexual Health (Portsmouth, VA: Sexual Health and Responsibility Program, 2004) PowerPoint.

Mutual Respect

Another component of sexual responsibility is having mutual respect between partners. This includes respect for their bodies, their feelings and their choices. This mutual respect also extends to the idea that before any sexual act consent must be obtained. If a person's body is to be respected, permission must be granted before anyone else is allowed to touch it. Partners' feelings must be respected; as for many people sex is a very emotional act. It must also be respected that people's feelings can change before and after a sexual act. A partner's choice of whether or not to have sex should also be respected. Even if someone has chosen to have sex on a previous occasion, this does not provide consent to any and all future sexual acts. Additionally, a partner's choice of which protection method to use against STIs and pregnancy should be respected but this decision should be undertaken together as partners.

Planning for Outcomes

A third component to being sexually responsible is planning against STIs and unplanned pregnancy. Both partners should be equally responsible for deciding what form of contraception and disease prevention technology should be used. The technologies chosen to prevent unplanned pregnancy and STIs should carry equal risks for both partners. These risks should either occur at the same time or be balanced out alternatively over time. For example, if partners decide to use a male condom, unless the male is allergic to latex, there are no medical side effects associated with its use.⁴¹ Therefore, the female partner could also be expected to use a barrier method that does not have any side effects, such as the female condom. However, a woman should not be expected to use a hormonal method of birth control as there are numerous health risks associated with such drugs and there is no male equivalent.

⁴¹ "Using Condoms, Condom Types and Sizes," AVERT: AVERTing HIV and AIDS, 2011, 19 Jan. 2012 <<http://www.avert.org/condom.htm>>.

Responsibility for Outcomes

Finally, both partners must take responsibility for the outcomes of a sexual act. The sexual acts we are referring to here involve two people and without both people, the outcome in question could not have occurred. Therefore both people are equally responsible for their actions (when the act is consensual). Whether the outcomes are positive, as in conceiving a child, or negative, as in the transmission of HIV from one partner to the other, both the man and the woman should be held responsible for their actions. Unless there is deception involved, for example lying about the use of a contraceptive device, both parties are equally to blame for these outcomes. One cannot say that, for example, the woman is more responsible for getting pregnant because she is physically having the baby. The pregnancy in question would not even exist without the man's sperm.

In an ideal world sexual responsibility would be completely equal between the male and female sex partners. All decisions would be made together with each party being fully informed of the risks associated with sex. There would be a complete mutual respect for both partners. The decision to use or not to use contraception and STI prevention methods would be a mutual decision for both partners, with equal risk accepted for both parties. Finally, both partners would take equal responsibility for the negative outcomes of a sexual act. However, we do not live in an ideal world or even ideal society. What does this mean then for sexual responsibility and women living in the United States? The next chapter will further explore sexual responsibility paradigm that is the reality in today's world. This current paradigm, it can be argued, is in part the result of the invention of the female birth control pill. By looking at what we have learned from the birth control pill and where it has left us in terms of sexual responsibility, we can better predict how HIV microbicides will fit into this paradigm.

A comparison between the birth control pill and microbicides will allow one to see that microbicides will contribute to furthering the inequality between men and women in terms of sexual responsibility. One will also be able to see some of the detrimental effects for women when they are made to bear the full responsibility for the outcomes of a sexual act.

Chapter 3: Promotion of Equality in Sexual Health Decisions

In chapter two we discussed the history of the development of microbicides as well as the science of how microbicides function. In chapter three sexual responsibility was defined in terms of an ideal in which male and female partners were held equally accountable for the different aspects of sexual interactions. How do microbicides and sexual responsibility relate to each other? The goal of this chapter is to examine just that.

Currently there are clinical trials underway to determine the efficacy and safety of vaginal microbicides. Although that there have recently been some positive trial outcomes (i.e. CAPRISA 004) there are no microbicides available on the market. As the general population is not currently using microbicides, one cannot simply observe the effects of microbicides on sexual responsibility. Therefore, knowledge we have gathered from the use of other technologies aimed at protecting the sexual health of women in the United States (and worldwide, although the focus of this paper is on the United States) will be used to predict the effects of microbicide use on the current sexual responsibility paradigm. More specifically, the current sexual responsibility paradigm that has been created as a result of the invention of the female birth control pill will be used to make predictions about microbicide use.

The female birth control pill is a good comparison for HIV microbicides for a number of reasons. Both technologies are pharmacological in nature and interact with a female's biological processes. Therefore, both technologies have the possibility of causing greater side effects for the woman as compared to, for example, a minor latex allergy from using a female condom. Another similarity is that both technologies are, in theory, female controlled. Both technologies allow a woman to protect her health without the help, permission, or even knowledge of her male

partner. An additional similarity is that both birth control pills and HIV microbicides aim to prevent women from acquiring an affliction that they otherwise would not have and cannot acquire, in the case of sexual transmission, on their own. Birth control pills aim to prevent a woman who is not pregnant from getting pregnant after a sexual interaction with a man. HIV microbicides aim to prevent an HIV negative female from becoming HIV positive after a sexual interaction with an HIV infected, or possibly infected, male. By using what we have learned about the female birth control pill we will be able to make predictions about HIV microbicide use. This comparison will also illustrate that both technologies are creating further inequalities between men and women in sexual situations. Rather than simply giving women more control over her own health, HIV microbicides will often make women the sole party responsible for the outcomes of a joint, sexual act.

Consideration of Risks

Knowledge About Microbicides and Acceptance of Risks

In order to understand the risks of using a microbicide, people will need to be educated about how microbicides work and how they should be properly used. Both men and women should be aware of the risks of using such a drug so that partners can make the decision together as to whether or not microbicides are the right choice for them. Women should know the risks of microbicides as they will be used directly in her body, whereas men should know how the drug would affect them through contact with the female. Trials are currently being done to test the safety of various microbicidal agents and we are therefore not fully aware of the risks involved in using such a technology.

However, if we have learned anything from the use of the birth control pill, probably neither men nor women will be made fully aware of how microbicides work, let alone the side

effects of using such drugs. The lack of comprehensive sex education in many American schools is partially to blame for this. In the United States only two-third of teenagers received any formal instruction about contraception, with only 62% of males and 70% of females receiving such instruction.⁴² Additionally when asked, 75% of teenagers aged 18-19 say they know little or nothing about the contraceptive pill.⁴³ While it is unfortunate for men not to know how birth control pills work, as many men are trusting such devices with their contraceptive needs, it can be life threatening for women to not understand the risks involved with taking birth control pills. While birth control can have many beneficial affects, such as decreasing the risk of certain cancers, decreasing acne, and of course preventing pregnancy, it also has some serious side effects such as increasing the risk of certain cancers (breast and cervical), increasing blood pressure, increased risk of cardiovascular disease and blood clotting (especially in women who are over the age of thirty-five and are smokers).⁴⁴ Consequently, women are expected by society to know all of the risks of birth control pills as they are the ones who will actually be taking the drug, even though not enough women are provided with such information. Just as with birth control pills, women will most likely not be made aware of how microbicides work or their complications. However, women will be expected by their partners and society to use them anyway as they are seen as new, modern technologies that are therefore an improvement on our old methods of pregnancy and disease prevention.

In a sexual relationship, women accept most of the inherent risk. When engaging in sexual activity, women accept the risk of getting pregnant and having to suffer from complications of both the pregnancy itself and the birth. While both women and men accept the

⁴² "Facts on American Teens' Sources of Information About Sex," Guttmacher Institute, Dec. 2011, 19 Jan. 2012, <<http://www.guttmacher.org/pubs/FB-Teen-Sex-Ed.html#11>>.

⁴³ "Facts on American Teens' Sources of Information About Sex," Guttmacher Institute.

⁴⁴ "Birth Control Pill FAQ: Benefits, Risks and Choices," Birth Control, 2012, Mayo Clinic, 23 Jan. 2012 <<http://www.mayoclinic.com/health/birth-control-pill/WO00098>>.

risk of contracting an STI, because of their biology, women contract STIs from men more easily than men from women.⁴⁵ With birth control pills women are exchanging one set of risks for another: a decreased risk of getting pregnant but an increased risk of negative side effects of the medication. Now, with microbicides, women are again trading one set of risks for another: decreased risk of contracting HIV but an increased risk of negative side effects from the drug. One of the current side effects being seen during microbicide tests is an increased risk of developing vaginal sores. These sores not only increase a woman's chance of acquiring an STI, they also increase her chance of contracting HIV, completely negating the purpose of the microbicide. While this side effect greatly undermines the safety and efficacy of the microbicide and will therefore hopefully be eliminated before the drug is approved for widespread use, there will still most likely be a trade off for other less "serious" side effects. However it must be noted that clinical trials are currently underway to assess whether or not microbicides will have any negative consequences for males (one such study is being done by researchers at the University of Pittsburgh and the University of Alabama at Birmingham in conjunction with the Microbicide Trials Network).⁴⁶ Although the results of this study have not been published yet, it is possible that males will have to accept some risk as well when their partner uses HIV microbicides. However, from what we currently know, by using microbicides, just as with birth control pills, women will continue to accept most of the risk of sexual activity as compared to their male partners.

⁴⁵ "The Gender Dimensions of the AIDS Epidemic," Promoting Gender Equality, 2004, UNFPA, 23 Jan. 2012 <<http://www.unfpa.org/gender/aids.htm>>.

⁴⁶ Ross Cranston, "MTN-012/IPM 010," Microbicide Trials Network, NIH, 25 April 2012 <<http://www.mtnstopshiv.org/studies/2045>>.

Misperception of Effectiveness

Just as many people do not understand the side effects of drugs they also do not understand their effectiveness. Up to now, the most successful clinical trial has only shown microbicides to be, on average, 39% effective when used correctly. If we have learned anything from the birth control pill, it is that many people are not aware of how effective these drugs are and are not always aware of how to use them correctly. Studies done by the Guttmacher Institute show that only thirteen states require that the information presented in sexual education classes be medically accurate and factual. Additionally, a review of the thirteen most commonly used abstinence-only curricula found that eleven of the thirteen had incorrect, misleading or distorted information.⁴⁷ Much of this incorrect information was surrounding contraceptive methods, one method being the birth control pill. As sex education classes in the United States become less and less comprehensive, more and more young people will have to rely on their parents or the Internet for sexual health information. However, even parents do not have accurate information when it comes to sexual health and especially in reference to the effectiveness of the birth control pill. In a recent survey, only 52% of parents thought that the pill was effective at preventing pregnancy almost all of the time. In reality, however, the pill prevents pregnancy 99.9% of the time when used consistently and correctly.⁴⁸ In addition, many sexual health websites have inaccurate information as well. In a recent study, of the 177 most common sexual health websites that teens turn to, 46% of the sites inaccurately addressed contraception.⁴⁹ If young people are expected to learn about the effectiveness and proper use of the birth control pill through sex education classes, their parents and the internet, and all three of these information

⁴⁷ "Facts on American Teens' Sources of Information About Sex," Guttmacher Institute.

⁴⁸ Marla Eisenberg, et al., "Parents' Beliefs About Condoms and Oral Contraceptives: Are They Medically Accurate?" Perspectives on Sexual and Reproductive Health, 2004, 36(2): 50-57, Guttmacher Institute, 23 Jan. 2012 <<http://www.guttmacher.org/pubs/journals/3605004.html>>.

⁴⁹ "Facts on American Teens' Sources of Information About Sex," Guttmacher Institute.

sources are often inaccurate, how can we expect anyone to correctly use birth control pills or be fully confident in their contraceptive abilities?

How have the misperceptions of the effectiveness of the birth control pill altered their use? In some cases, partners may decide not to use a birth control pill because they think they are not effective at preventing pregnancy. Often these same people have little knowledge about the effectiveness of condoms in preventing pregnancy as well (97% effective). Instead of using either a birth control pill or a condom, these partners often take their chances and have unprotected sex as they don't believe these methods work.⁵⁰ This puts many women at risk of having an unplanned pregnancy. Male partners especially are unaware of the effectiveness of birth control pills and often do not trust that their partner's are taking them correctly. Additionally, male partners are especially uninformed on alternative female birth control methods, such as the contraceptive patch or the contraceptive ring, and doubted their contraceptive abilities at all. This lack of information makes it hard for males to support their partners in contraceptive decisions.⁵¹ The overall lack of information about birth control pills for both men and women often eliminates this method of contraception as a safe and effective choice in family planning.⁵²

In terms of microbicides, just as with birth control pills, if Americans are told that they are less effective than they actually are they won't use them. People won't bother wasting their time or money with a microbicide if they are told it doesn't work. However, contrary to being told microbicides are not effective is the danger of telling people that they are more effective

⁵⁰ Eisenberg.

⁵¹ Rebecca D. Merkh, et al., "Young Unmarried Men's Understanding of Female Hormonal Contraception," Contraception, Mar. 2009, 79(3): 228-235, 23 Jan. 2012
<<http://www.sciencedirect.com/science/article/pii/S0010782408004885>>.

⁵² Tina R. Raine, et al., "Contraceptive Decision-Making in Sexual Relationships: Young Men's Experiences, Attitudes and Values," Culture, Health and Sexuality, May 2010, 12(4): 373-386, 23 Jan. 2012
<<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2854868/>>.

than they are. In current studies microbicides have not been shown to be nearly as effective as condoms at preventing HIV transmission (39% vs. 80%-95%).^{[53][54]} Microbicides will be most effective when used in conjunction with condoms. Microbicides will be able give a woman additional protection when a condom is used incorrectly, if it breaks, or slips off. The danger here is that since many women have trouble negotiating condom use with their partners, if the effectiveness of microbicides is not taught correctly, they may appear to be a way to avoid using condoms all together. Women may decide to take a birth control pill and use a microbicide rather than trying to convince their partner to use a condom. Many women who would have successfully negotiated condom use may be putting themselves at greater risk of contracting HIV since microbicides are not nearly as effective as condoms at preventing transmission of the virus and there is less of an incentive to use a condom or convince a partner to do so.

Mutual Respect

Gender Power Imbalance

Microbicides may allow women to have sex without having to negotiate condom use. If for the time being we neglect the fact that microbicides are not nearly as effective at preventing the transmission of HIV as condoms are and the technologies will most likely need to be used together, we can imagine that one technology, microbicides, has the ability to potentially replace the other, condoms, as the best method for disease prevention. For many women, getting their partner to agree to wear a condom is very difficult and because of this, they often must risk their own health for the sake of their partner's desires.

⁵³ 80% effective when condoms are used consistently (SC Weller and K Davis-Beaty, "Condom Effectiveness in Reducing Heterosexual HIV Transmission," Cochrane Review, 2007, 4, 23 Jan. 2012 <http://apps.who.int/rhl/hiv_aids/cd003255/en/index.html>).

⁵⁴ 95% effective when condoms are used consistently and correctly (SD Pinkerton and PR Abramson, "Effectiveness of Condoms in Preventing HIV Transmission," Social Science and Medicine, May 1997, 44(9): 1303-1312, 23 Jan. 2012 <<http://www.ncbi.nlm.nih.gov/pubmed/9141163>>).

When the birth control pill was invented, it allowed many partners to have sex without having to wear a condom. In fact since 1955, condom use has decreased from 25% to 18%.⁵⁵ For many partners, not having to wear a condom was a welcome change. Due to improper or inconsistent use condoms only have marginal contraceptive efficacy: pregnancy rates for typical condom use is 15% while the rate for perfect use is 2%. Additionally, condoms often break or slip off (in 2-8% of cases), which also decrease their contraceptive efficacy.⁵⁶ However, for other women the choice to not use a condom is not under their complete control. Oral contraceptives do not protect against STIs and condoms are currently the best way to protect oneself against disease, but many men still refuse to wear them. When men in the United States are asked why they do not want to wear condoms, many men argue it diminishes their sexual pleasure or that condoms are uncomfortable. Other men in the United States argue that wearing a condom means one's partner does not trust them or believes that they have diseases.⁵⁷ Other men believe that, especially in a committed relationship, it is the woman's responsibility to be on the birth control pill and that they should not have to wear a condom. Some men, especially younger men, feel that family planning is not their responsibility as women are the one's who get pregnant.⁵⁸ Studies show that in relationships in which women have a high level of sexual power, condom use is more consistent. In relationships in which women have little sexual power, condom negotiation is much harder or non-existent.⁵⁹ Other studies have shown that women

⁵⁵ Jacqueline E. Darroch, "Male Fertility Control—Where Are the Men?" *Contraception*, Oct. 2008, 78 (4): S7-S17, Guttmacher Institute, 23 Jan. 2012 <<http://www.sciencedirect.com/science/article/pii/S0010782408002813>>.

⁵⁶ Stephanie T. Page, et al., "Advances in Male Contraception," *Endocrine Review*, 1 June 2008, 29(4): 465-493, 23 Jan. 2012 <<http://edrv.endojournals.org/content/29/4/465.full>>.

⁵⁷ William R. Grady, et al., "Condom Characteristics: The Perceptions and Preferences of Men in the United States," *Family Planning Perspectives*, Mar.-Apr. 1993, 25(2): 67-73, 23 Jan. 2012 <<http://www.jstor.org/stable/2136208>>.

⁵⁸ Jennifer L. Smith, et al., "Young Male's Perspectives on Pregnancy, Fatherhood and Condom Use: Where Does Responsibility for Birth Control Lie?" *Sexual and Reproductive Healthcare*, Jan. 2011, 2(1): 37-42, 23 Jan. 2012 <<http://www.sciencedirect.com/science/article/pii/S1877575610000753>>.

⁵⁹ J Pulerwitz, et al., "Relationship Power, Condom Use and HIV Risk Among Women in the USA," *AIDS Care*, Dec. 2002, 14(6): 789-800, 23 Jan. 2012 <<http://www.ncbi.nlm.nih.gov/pubmed/12511212>>.

with higher self-esteem and women who say or act the way they feel or think are more likely to successfully negotiate condom use than women who say or act in a way that is inconsistent with what they think or feel. Many of these women often cite not wanting to upset their partner or have them break up with them as a reason to not push for condom use.⁶⁰ The invention of the birth control pill provides an easy out for men who do not want to wear a condom.

While it must be acknowledged that many women need protection from HIV as this very moment, and condom negotiation is impossible, it does not change the fact that there is a problem in the United States that some men will not wear condoms. Does the invention of both the birth control pill and the vaginal microbicide allow women to protect their own sexual health? Yes. However, do these inventions also allow society to ignore the reasons that these technologies are necessary in the first place? Yes, they do. The idea that women should protect themselves from HIV by using microbicides instead of society fixing the greater issue of sexual power imbalances is not revolutionary. In fact microbicides only perpetuate the issue that birth control pills inadvertently set in motion. Throughout the world many women are not empowered enough to demand their partners use condoms. However, in the United States, I believe we do have the ability to empower women to demand condom use and convince men that they should be wearing condoms. The solution in the United States is not only to develop an HIV microbicide, but instead to teach men to respect women's bodies and choices. There is a need to address the issue of some men not wanting to wear condoms and their willingness to risk their partner's health for their own pleasure. We also need to address the fact that some women do not feel that they are important enough to ask for something that will protect their own health at the risk of upsetting their partner. These issue need to be confronted directly rather than be

⁶⁰ Emily A. Impett, et al., "Keeping it Real: Young Adult Women's Authenticity in Relationships and Daily Condom Use," *Personal Relationships*, 2010, 1-12, 23 Jan. 2012, <<http://impettrelationships-lab.com/wp-content/uploads/downloads/2010/11/2010-PR-Impett-Breines-Strachman.pdf>>.

covered up by the invention of new technologies. Additionally, by creating such technologies perhaps we are also short-changing men out of their desire to be more involved in family planning decisions. Perhaps we are also not providing young men with the information and tools that they need to protect the health of their partners (i.e. the decreasing instance of comprehensive sex education in schools) and by creating microbicides, less and less men will be provided with such information. Also, by acting as if men will never change and condom use will continue to decline, we neglect to give any credit to the male gender as a whole and its ability to learn from its mistakes.

Planning for Outcomes

Payment for Microbicides

Payment for a technology often indicates who has a stake in its success. As microbicides are not yet available on the market, it is unknown who will pay the costs for the drugs or for how much they will be sold. If we look at birth control, until recently women either had to pay for birth control on their own or their insurance covered the cost with women paying co-payments. According to Planned Parenthood, co-payments can range anywhere from about \$15-\$50 a month. However, some places, like Planned Parenthood, may offer women a birth control pill for free or at a minimal cost.⁶¹ In this model, it appeared that only women and their insurance companies had any responsibility in success of birth control pills. A woman's insurance, not her partner's, covered the costs of paying for the medication. Also, women were responsible for paying the copayments on the pills as well. One of the problems in this model is that the women who needed birth control pills the most often had little access to the technology. According to a recent Gallup Poll, these included both low-income women (especially those of color) and young

⁶¹ "Birth Control Pills" Planned Parenthood, 2012, 23 Jan. 2012 <<http://www.plannedparenthood.org/health-topics/birth-control/birth-control-pill-4228.htm>>.

women age 18-25.⁶² These women are more likely to not be insured or underinsured as compared to the rest of the population. These women are also more likely to not be able to support an unplanned pregnancy, in terms of both the burdens of childcare and the costs of medical care surrounding pregnancy.

However, the responsibility for paying for birth control pills has recently changed. On March 23, 2010, President Obama signed into law the Affordable Care Act. Under this act many preventative services for women, such as mammograms and cervical cancer screenings, would be provided for women with no cost sharing. On August 1, 2011 the Department of Health and Human Services adopted additional guidelines for preventative care for women that would provide, among other things, FDA approved contraception for women with no cost sharing starting August 2012.⁶³ This act expresses that a woman's health is important and allowing a woman to control her fertility is part of her overall health. This act also says that it is not solely up to the woman to protect her own health but it is more of a communal effort. Many outcomes that affect a woman's health, including pregnancy and STIs, are the result of an act between two people and therefore the woman does not have full control over these outcomes. However, by allowing women to have greater access to preventative care, women can begin to protect their own health more fully but with less of the responsibility being placed solely on themselves.

In terms of microbicides, in order for the drugs to be most effective they would have to be provided to women for free, with no co-payments. Even small co-payments, as with birth control, would prevent many women from having access to the technology, especially since

⁶² Elizabeth Mendes, "More Americans Uninsured in 2011: However, More Adults Aged 18 to 26 Now Covered," Gallup Wellbeing, Gallup (24 Jan. 2012), 25 April 2012 <<http://www.gallup.com/poll/152162/americans-uninsured-2011.aspx>>.

⁶³ "Affordable Care Act Expands Prevention Coverage for Women's Health and Well-Being," HealthCare.gov: Take Health Care into Your Own Hands, 1 Aug. 2011, U.S. Department of Health and Human Services, 23 Jan. 2012 <<http://www.healthcare.gov/law/resources/regulations/womensprevention.html>>.

women that cannot afford microbicides are at the highest risk of contracting HIV (low-income, women of color). If the women who need the technology the most do not have access to it, microbicides would fit into the previous model for birth control payment, where many women are responsible for their own health but do not have the means properly take care of themselves. However, just as with birth control, the change to a no cost sharing option for microbicides would be a very positive, and progressive move on the part of the United States Government. If the government passes a bill saying women have unrestricted access to microbicides and all costs must be covered by insurance, it speaks volumes about a woman's own responsibility to protect herself from HIV. This would instead say that not only is a woman responsible for her own health, but the government has a stake her in health as well. If women do not have to pay the full cost of microbicides, the technology would be more accessible to those who need protection from HIV the most and allow women to act in a sexually responsible way. Additionally, paying for preventative care for women promotes gender equality. By forcing insurance companies to cover preventative care, no matter for whom or for which procedures, the US government is saying that it values healthy citizens. Although insurance coverage for birth control, as well as presumably coverage for HIV prevention technologies that prevent acquisition of the disease through sexual contact, are controversial issues we must, as a country, get past our personal convictions and biases in order to allow women to protect their own sexual health.

Inequality of Technology

Currently, there are no attempts to develop an equivalent biomedical technology for men. An equal biomedical technology would be a topical microbicide that a male would use to kill off some of the virus before transmitting it to the female. While trials are being done to test the tolerance of a vaginal microbicide when applied topically to the penis, these trials are not being

done to determine if the microbicide prevents HIV transmission but only to see if it causes a reaction on the skin.⁶⁴ Ideally, a microbicide would be developed for men that would either be used in conjunction with the female microbicide or male and female partners could alternate the use of the two microbicides. Perhaps because of the biological nature of males and females there is no possible way to develop a topical male microbicide that would be effective in protecting female partners. However, maybe more importantly, would such a technology be tolerated or even marketable to men? For example, there is no male equivalent to the birth control pill currently on the market. Although scientists have been developing a male version of a birth control pill for the last 30 years, there is currently no such pill available.⁶⁵ In fact not only is there not a male birth control pill, but no new, reversible, male-based contraceptive technology has been introduced since the invention of the condom more than 300 years ago. The only other male controlled contraceptive method is the non-reversible vasectomy.⁶⁶ Therefore if scientists have the ability to make the technology available why does no such technology actually exist?

First, studies show that a male birth control pill does not fail to exist for lack of public interest in such a technology. Many women increasingly demand that men share in the risks and responsibilities of family planning and contraceptive use. Men have also expressed a desire to be more involved in family planning in order to regain some of the reproductive power that they lost to women with the advent of female contraceptive technologies such as the birth control pill.⁶⁷ Additionally in a recent worldwide survey, 50% of American men said they would be interested

⁶⁴ “Studies,” MTN: Microbicide Trials Network, 2011, 23 Jan. 2012 < <http://www.mtnstopshiv.org/studies>>.

⁶⁵ Eberhard Nieschlag, “Male Hormonal Contraception: Love’s Labour’s Lost?” The Journal of Clinical Endocrinology and Metabolism, 1 June 2009, 94(6): 1890-1892, 23 Jan. 2012 <<http://jcem.endojournals.org/content/94/6/1890.full>>.

⁶⁶ Page.

⁶⁷ Eberhard Nieschlag.

in using a reversible pharmacological birth control method.⁶⁸ If both men and women desire men to have more say in family planning, why has the male birth control pill not been developed?

One of the reasons is the lack of pharmaceutical interest in developing a male birth control pill. While there is some interest from non-profit organizations in developing a male birth control pill, the pharmaceutical industry has all but abandoned the cause. Since 2003, three major international pharmaceutical companies have cancelled their programs aimed at developing male contraceptive technologies.⁶⁹ This lack of interest by the pharmaceutical companies reflects a common societal assumption that males should not have to have a say in family planning or that they have no desire to do so. These companies are also under the perceived notion that men will not be interested in using a male birth control pill. As previously stated, 50% of American men said they would in fact be interested in some form of reversible, male controlled contraception. Another reason then, comes down to money. The pharmaceutical industry knows that in order for a male birth control pill to be approved, it must have a high rate of efficacy and safety. Therefore, it would require many additional studies of great numbers and length so that it would be financially inconceivable, especially since there is a perceived lack of public interest in such a technology. In truth, even if 50% of American men truly did use a birth control pill, it still would not come close to the 82% of women who at some point in their life will use a birth control pill or the 10.7 million women currently using a birth control pill.⁷⁰

Another reason that male birth control pills do not exist is that, as previously stated, such a pill would only be accepted with a very low instance of side effects. As with female birth

⁶⁸ Klaas Heinemann, et al., "Attitudes Toward Male Fertility Control: Results of a Multinational Survey on Four Continents," Human Reproduction, Feb. 2005, 20(2): 549-556, 23 Jan. 2012
<<http://humrep.oxfordjournals.org/content/20/2/549.full>>.

⁶⁹ Page.

⁷⁰ "Use of Contraception in the United States: 1982-2008," Centers for Disease Control and Prevention, Aug. 2010, U.S. Department of Health and Human Services, 23 Jan. 2012
<http://www.cdc.gov/nchs/data/series/sr_23/sr23_029.pdf>.

control pills, the male birth control pill would be used for an extended period of time, by an otherwise healthy individual. A hormonal based male contraceptive pill could potentially have many of the same side effects as the hormonal based female contraceptive pills: increased incidence of cancer, hypertension, weight gain, and blood clots.⁷¹ While many women are forced to accept these side effects in order to control their fertility, men are not as willing to accept such side effects or even potential side effects.⁷² This begs the question, why are these side effects deemed acceptable for women but not for men? In 1990 in the annual FDA Consumer Report, the birth control pill was finally deemed “safe” and effective for women by the government, medical establishment and public, with side effects and all.⁷³ Is the definition of “safe” different for men? Historically, biomedical researchers have been much more willing to experiment with women’s bodies than with men’s, especially when it comes to reproductive technology; when the hormonal birth control pill was first developed, it was given to many patients without their consent under the guise of “fertility research”.⁷⁴ Although the benefits of taking a birth control pill are more tangible for women (as they are the ones who would actually be pregnant), men should still have to take on some of the risk of having sex. If a woman is on birth control and participating in sexual acts, she is risking both the side effects of the drug and the risks of getting pregnant. Why shouldn’t men have to shoulder some of the risks by taking a male birth control pill and being more responsible for a couple’s contraceptive needs?

⁷¹ Dolores D. Mruk, “New Perspectives in Non-Hormonal Male Contraception,” Trends in Endocrinology and Metabolism, 3 Mar. 2008, 19(2):57-64, 23 Jan. 2012
<<http://www.sciencedirect.com/science/article/pii/S1043276008000039>>.

⁷² Page.

⁷³ “Timeline: The Pill” The Pill, 2002, PBS, 23 Jan. 2012,
<<http://www.pbs.org/wgbh/amex/pill/timeline/timeline2.html>>.

⁷⁴ “People and Events: The Boston Pill Trials” The Pill, 2002, PBS, 23 Jan. 2012,
<http://www.pbs.org/wgbh/amex/pill/peopleevents/e_boston.html>.

In the case of microbicides, just as with the birth control pill, unless there is a demand for a male version of the technology one will most likely not be developed. Unless pharmaceutical companies see a financial benefit to developing such a technology or perceive that men would use such a technology, they will have no incentive to develop one. However, it must be noted that there are microbicides currently in development that can be used rectally. While these microbicides are being targeted towards homosexual men, female partners can use them during heterosexual sexual activities as well. However, in specifically heterosexual vaginal intercourse rectal microbicides would not equate to an equal technology for men. Additionally, it should be noted that the development of rectal microbicides has faced much more resistance than the development of vaginal microbicides because of the target user population and because of the location of where the microbicide will be used.⁷⁵

Responsibility for Outcomes

Women's Responsibility for all Outcomes

Microbicides will increase a woman's responsibility for the outcomes of sexual acts. The ease with which microbicides can be used (potentially) will increase the likelihood that a woman will use them. Conversely, if microbicides are perceived as an easier and more effective way to prevent HIV transmission than condoms, men will not use condoms. While this may be a conscious decision made between two partners, this does not change the fact that women will be increasingly responsible for the results of sexual acts. If condoms are the best way we have currently to prevent male to female transmission of HIV and men no longer have to use them, what does this say about male responsibility to not transmit the disease? It would also logically follow that if a woman is expected to use a microbicides to protect herself against HIV, it would

⁷⁵ "Microbicides and Men," Global Campaign for Microbicides, 23 Jan. 2012 <<http://www.global-campaign.org/men.htm>>.

also be her fault if she does in fact acquire the disease. Similar arguments have recently been used to blame victims of rape. Some people in the United States believe that because of the way a woman is dressed, she can be blamed for her own rape; if only the woman had dressed more modestly she would not have been sexually assaulted. This “victim blaming” takes all responsibility away from the rapist and instead puts an innocent woman at fault.⁷⁶ In the case of microbicides, if only a woman had been using them she would not have gotten HIV. The responsibility of the male to not give the woman HIV is completely ignored, as if he cannot help himself.

The invention of the birth control pill was the first time in history that the responsibility to prevent pregnancy could more easily rely on the female partner and not on the male. In 1955, before the invention of the birth control pill, male involvement in birth control accounted for 53% of all birth control methods: 25% condom use, 7% withdrawal, and 21% periodic abstinence. In 2002, males were only involved in 32% of birth control methods: 9% vasectomy, 18% condoms, 4% withdrawal and 1% periodic abstinence (See Figure 4).⁷⁷

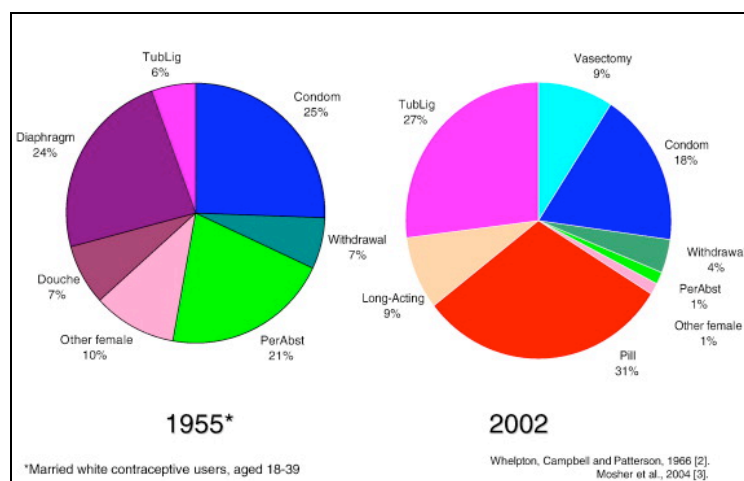


Figure 4: Male and female contraceptive use in the US in 1955 as compared to 2002.

⁷⁶ Eliana Suarez and Tahany M. Gadalla, “Stop Blaming the Victim: A Meta-Analysis on Rape Myths,” *Journal of Interpersonal Violence*, 11 Jan. 2010, 25(11): 2010-2011, 23 Jan. 2012
<http://474miranairresearchpaper.wmwikis.net/file/view/metaanalysisstopblamingvictim.pdf>.

⁷⁷ Darroch.

However, perhaps more important than the decline of male involvement in birth control is the increase in solely female controlled birth control methods and the decline in joint birth control methods. Females went from controlling 47% of all birth control to 67%. Additionally, the methods of female controlled birth control went from being less risky for the female body, such as 24% of women using a diaphragm, to a majority of the birth control methods for women being very serious for the female body: 27% tubal ligation, 9% long-acting methods, and 31% the birth control pill. Also concerning is the fact that periodic abstinence, the only truly joint birth control method, declined from 21% to 1%.⁷⁸ This data shows that now more than ever couples are relying on the female to provide for all of their contraceptive needs. Although this data does not reflect the fact that many men may want more control over family planning, it does show how the birth control pill, along with other female centered contraceptive methods, have altered the responsibility for preventing pregnancy. An argument could also be made that since women have so many more options for birth control and they are the ones that have the most to lose by not using birth control, they can only blame themselves if they get pregnant. This argument completely removes men from the pregnancy equation, even though they are equally accountable in the act.

If women have a microbicide available to them in addition to a birth control pill, they can now be responsible for preventing both pregnancy and preventing themselves from getting HIV. This means that women now, in effect, are responsible for all of the most serious negative outcomes of sexual activity. If a woman takes on all the responsibility it would logically only be fair to blame her for anything that goes wrong. This would allow men to engage in any sexual act that they want and not be held responsible for anything that goes wrong. As sex is an

⁷⁸ Darroch.

interaction between two people, why should one party be held more accountable for their actions than the other? Just because women now have various ways to protect themselves against unwanted pregnancy and HIV does not mean that they should bear all the blame if they do in fact end up with either outcome. Additionally, just because men are the ones that can potentially get a woman pregnant or give her HIV does not mean he should be fully responsible for causing either outcome as well. Both male and female partners should be equally responsible in preventing unplanned pregnancy and transmission of HIV, and both partners should be held equally responsible if either unwanted result occurs.

Conclusion

The previous chapters have allowed me to elucidate on and defend my argument: HIV microbicides continue to promote differences between men and women in sexual situations, causing women to be the only party required to act in a sexually responsible way. Rather, we should be promoting equality between men and women in sexual interactions in order to protect the health and well being of both sexes. The development and the potential use of microbicides fits into the sexual responsibility paradigm created with the invention of the oral contraceptive. These technologies continue to make women play the victim: the victim of unplanned pregnancies and the victims of life-threatening HIV. The language surrounding the technologies make women the receivers of and the men givers of unwanted things. However, both birth control pills and microbicides reflect the punishing of the receiver not the giver. What about a technology to prevent the unwanted act in the first place? Although it is more important to look at the way in which HIV microbicides highlight a schism within feminist scholarship than to decide whether or not HIV microbicides are a “feminist” technology, perhaps there is a way in which we can make this distinction. A novel way that we can look at this technology is in two ways: within the current paradigm in which the technology is meant to act or independent of the society in which the technology is meant to function.

If we are to consider HIV microbicides as a technology that acts within a certain cultural paradigm and it cannot be separated from the society in which it functions, then I do not believe they can be considered a feminist technology. Rather than making women equal to men in terms of family planning abilities, the birth control pill has instead very often made women the sole actor. Microbicides will only further increase a woman’s responsibility to protect against the negative

outcomes of a sexual act. In many cases women will now be taking on the full risk of engaging in sex rather than equal risk being accepted by both partners. Perhaps also, because the society we live in is inherently patriarchal, microbicides have been created in such a way as to remove a male's responsibility to protect his partners health, as it is so often said "men cannot help themselves" when it comes to sex.⁷⁹ At the core of both the development of the oral contraceptive and the vaginal microbicide, is the male's desire to do whatever he pleases without being held responsible for his actions. Maybe this explains the discrepancy between the statistics that say that men want more say in family planning and the actual technology available for men to do so. The push for the ability of women to have control over own sexual health, with both the birth control pill and the vaginal microbicide, has perhaps pushed the pendulum to far in the opposite direction; instead of allowing women to have more say in family planning they actually have the only say. While giving women more control over the outcomes of sexual acts is a good thing, we must remembered that these acts are done between two consenting adults and therefore both should have a say in how they turn out.

Perhaps though if we are to consider microbicides independent of the society in which they function they can be considered a feminist technology. Microbicides are truly a "woman centered" technology in that they can be used by a woman, without the permission of her male partner. Microbicides allow women to control their own sexual health without having to rely on their male partner to do so. Women can use microbicides in all different types of sexual encounters, which can be especially important for encounters that involve little commitment or emotional attachment. In these relationships men are often not as concerned about his female partner's health. Microbicides can even be used without the male partner's knowledge as to not

⁷⁹ Susan Rose, "Going Too Far? Sex, Sin and Social Policy," Social Force, Dec. 2005, 84(2): 1215, University of North Carolina Press, 23 Jan. 2012, <http://www.thedogdidit.net/docs/2312_week7_reading2.pdf>.

incite violence or anger at the request of using such a technology. Even if microbicides are not 100% effective at preventing the acquisition of HIV, they will allow women to level the playing field, as women are at least twice as likely to acquire HIV from a man through sexual intercourse than vice versa.⁸⁰ Women who are not able to negotiate condom use for various reasons, such as those experiencing intimate partner violence or for religious reasons, will finally have a technology that will allow them to protect themselves from disease without having to drastically change their current relationship situation.

As one can see, I do not have a simple answer for the question of whether or not microbicides can be considered to be a feminist technology. In fact, I am not sure if this is a question we can or should even be asking. Feminism is not a simple term and not all feminist are the same. Microbicides promote a difference feminist agenda but not an equality feminist agenda; maybe this notion alone would for the most part qualify the technology as feminist. However, what is more important is that we critically look at how HIV microbicides help or hurt the women that are meant to use them. Since microbicides are not available for use yet, perhaps we will have to wait to see how they are used before we can definitively answer such a question. Additionally, because microbicides have not even been fully developed yet, there are still many avenues that the research can take. Perhaps there will be a microbicide developed for males that can be used to prevent HIV transmission. Perhaps both partners will need to use the microbicide in order for it to be most effective. Perhaps vaginal microbicides will prevent HIV transmission as well as acquisition. These are all questions that will need to be addressed further in the future as more progress is made in the development of safe and effective HIV microbicides.

⁸⁰ "Statistics: Woman and HIV/AIDS" [amfAR: AIDS Research](#).