

Rectal Microbicides and the Search for the Magic Lube

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TOPICAL MICROBICIDES

- **Chemical barriers**
- **Applied topically to genital mucosal surfaces (anus, penis, and/or vagina)**
- **Inhibit HIV infection**
- **Could inhibit STD pathogens**
- **Could be a gel, a suppository, or ?**
- **Many trials of promising agents underway, none yet proven to work**

RATIONALE FOR TOPICAL MICROBICIDES

- **High rates of unprotected sex drive the epidemic**
- **Lubrication is often used for sex**
- **Reproductive desires often limit the effectiveness of barrier protection**
- **Complete protection by vaccines or other new technologies is a distant dream.**
- **If a lube works vaginally, they will be used rectally**

Risk factors for HIV seroconversion, The EXPLORE Study, 1999-2003 (N=4,295)

VARIABLE	<u>Multivariate</u>		Attributable risk %
	HR	95% CI	
Black	1.99	1.27, 3.11	5.0
Depression scale score of 13-17	1.48	1.12, 1.96	11.1
No. of male sex partners >4	1.58	1.06, 2.36	32.3
URA, HIV+ partners	3.40	2.25, 5.14	18.3
URA, HIV unknown status partners	2.85	2.12, 3.84	28.4
UIA, HIV+ partners	1.59	1.05, 2.40	8.7
Amphetamine use	1.96	1.44, 2.69	16.3
Moderate Alcohol use	1.97	1.32, 2.96	6.1
Heavy Alcohol use	1.58	1.09, 2.29	29.0
Gonorrhea	2.49	1.47, 4.72	4.3

Background and Significance

- Substantial proportions men and women practice anal sex
 - In the general population, a national survey of over 3,000 men and women found that 25% of those who were sexually active had anal sex at one point in their lives, and that 10% had done so at least once in the previous year.
 - A study of 3,257 gay men (HIVNET vaccine preparedness trial) found that 98% of the men reported anal sex in the past 6 months, with 75% reporting receptive anal sex (RAI).

Why Rectal Microbicides?

- **Condom usage for anal sex is inconsistent**
- **review of publications on anal sex practices among MSM showed that approximately 1/3 of HIV+ and - MSM report unprotected anal intercourse (UAI) within months of the interview.**
- **In a CDC-sponsored probability sample of 3,492 15-22 year old MSM recruited in urban areas, the overall prevalence of unprotected anal sex within the prior six months was 41%.**

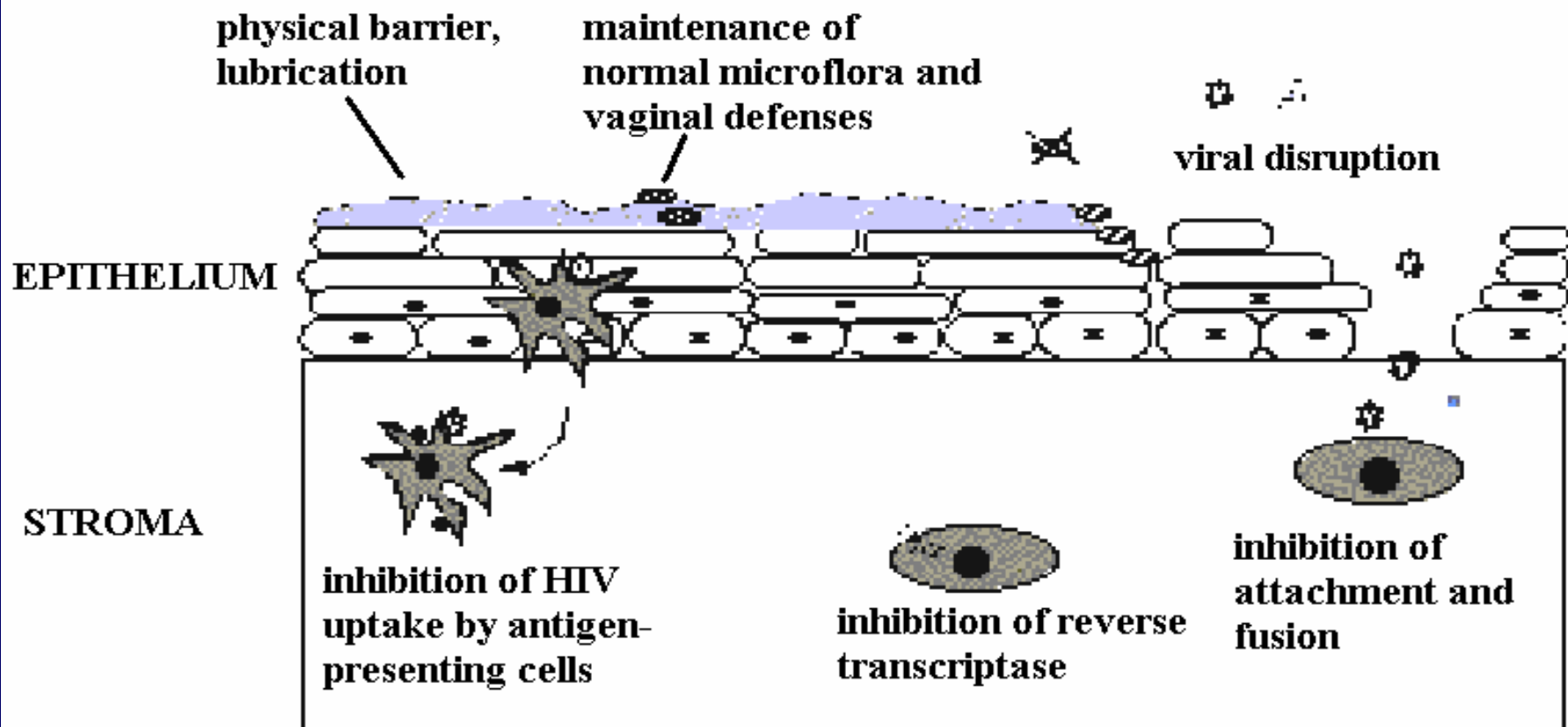
Rectal microbicides may be a tool for disease prevention beyond condoms

- **Although condoms offer the best protection against HIV transmission, their effectiveness depends on consistent use.**
- **Microbicides have the potential to offer a second line of disease prevention for inconsistent- and non-condom users plus the advantage of being under the principal control of the receptive partner who is at greatest risk of exposure.**

Rectal Microbicide Challenges

- Open-ended channel that must be protected for length of 20-30 cms to prevent HIV-1 transmission
- Rectal mucosal epithelium consists of single layer of relatively fragile columnar epithelial cells
- CD4+ T cells are common, may → direct HIV-1 attachment & entry.
- Activated CCR5+ CD4+ T cells in intestinal mucosa are major targets for viral replication & amplification
- Atraumatic rectal inoculation of macaques results in infection

MICROBICIDES' POSSIBLE MECHANISMS OF ACTION



IDEAL CHARACTERISTICS

- **Active vs. multiple STI**
- **Not irritating to mucosal surfaces**
- **Spermicidal and non-spermicidal**
- **Acceptable (odor, color, taste, lubricity, portability, “stealth factor”)**
- **Biodiffusible ? Bioadhesive ?**
- **Absence of systemic absorption**
- **Long duration of effect; non-reversible**
- **Stable at high temperatures**
- **Maintains or enhances normal vaginal ecology**

Background and Significance

- microbicides need to be acceptable to consumers
 - Not much would be gained from a developing a product that people don't want to use
 - People's willingness to use a microbicide (acceptability) needs to be evaluated in parallel with the development of the product.

Studies of women who have anal sex are needed

- It is estimated that approximately 7 times more women than MSM engage in URAI in the U.S.
- Exploratory qualitative research is urgently needed to determine:
 - how gender affects the initiation and continuation of anal sex among women,
 - whether both partners find it pleasurable, and
 - how the occurrence of anal sex relates to that of vaginal sex.

Background and Significance

- It's important to assess the effect that negative news on N-9 trials had on people's opinions
 - **Results of a multinational trial of vaginal use of N-9 found that it increased rather than decreased HIV incidence, and warnings have been issued for MSM not to use anal lubricants containing N-9.**
 - **What effect this has had on people's opinions about microbicides is not known, especially among those who may use them rectally.**

Microbicide Acceptability Study

**The HIV Center for Clinical and Behavioral
Studies**

**at New York State Psychiatric Institute
and Columbia University, New York, NY**

Dr. Alex Carbello-Diequez, PI

**Fenway Community Health
Boston, MA**

Aims

Focusing on HIV negative **men** reporting recent unprotected receptive anal intercourse (RAI) with and HIV+ or status unknown partner, this study will:

1. Determine, through a rectal gel volume escalation trial, the Maximum Acceptable Volume (MAV) of gel for use during RAI (20)
2. Determine, through a formulation preference trial, which rectal microbicide delivery vehicle (gel or suppository) is preferred for RAI (100)

Aims

3. Assess through qualitative and quantitative research methods:
 - differences in attitudes and intentions to use rectal microbicide gels vs. suppositories
 - how these attitudes change from before to after product trial

Aims

Focusing on HIV negative **women** with recent history of unprotected AI with HIV+ or unknown partner, this study will:

1. Elicit, through qualitative in-depth interviews, the psychological, social, and cultural factors associated with anal sex
2. Assess, through qualitative and quantitative techniques, attitudes, intentions to use, and preferences concerning rectal microbicide gels and suppositories



WANT ADDITIONAL METHODS TO USING A CONDOM FOR HIV PREVENTION?

This is **YOUR** chance to help us find one.

Fenway Community Health is currently seeking men who have sex with men to participate in a research study that will hear opinions on what works well as a microbicide—an experimental gel for HIV prevention that is like a sexual lubricant. The lubricant used in the study does not offer HIV protection but this study will help in the development of a future rectal microbicide which would offer an alternative for protection against HIV.

Seeking men who:

- are 18 years or older
- are currently sexually active
- are HIV-negative
- have been a bottom in the last year

The study lasts up to three months and eligible participants will receive \$230 over the course of the study.

For more information or to determine if you are eligible,

call 617.927.6450

**Your participation could help stop HIV
transmission.**

FENWAY COMMUNITY HEALTH
 **Fenway**

CARE YOU CAN BELIEVE IN.
www.fenwayhealth.org



CALLING ALL LADIES!

CONDOMS ARE ONE WAY TO PROTECT YOURSELVES AND OTHERS FROM HIV.

Help us find some others.

Fenway Community Health is looking for women who regularly have anal sex for a one-time interview about their attitudes and beliefs. Currently, experimental vaginal gels called microbicides are being studied to prevent the future spread of HIV. Before studying these gels for use with anal sex, we want to hear your thoughts about them and whether you would want to use microbicides as a different way of protecting yourself against HIV during anal sex.

Seeking women who:

- are 18 years or older
- are HIV-negative
- have engaged in anal sex in the last year

Eligible participants will receive \$50 for one, in-depth confidential interview.

For more information or to determine if you are eligible,

call 617.927.6450

Your participation could help stop HIV transmission.

FENWAY COMMUNITY HEALTH
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Thank You

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Global Campaign for Microbicides