



# Rectal microbicides, where are we?

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# Presentation objectives

- What microbicides?
- Why we need rectal microbicides
- Potential for rectal microbicides
- What products are currently being developed
- Campaigning and advocacy needs
- Introducing microbicides and effects on behaviour



# What are microbicides?

- Microbicides are substances that can reduce the transmission of HIV and other STD pathogens when applied vaginally and, possibly, rectally
- They could be produced in many forms, including: gels, lubes, films or suppositories
- Most 1st generation microbicides will be gels that lubricate, reducing discomfort and minor trauma



# Need for rectal microbicide for anal male-to-male sex

- 48.8% of all men who had sex with men had had unprotected anal intercourse in the last year (N=15,971)
- 34.5% of HIV+ men said they had definitely or probably had had unprotected anal sex a man they thought was HIV- in the last year (N=1,070)
- 14.59% of HIV- (at last test) or untested men said they definitely, or probably, had had unprotected anal sex with a man they thought was HIV+ in the last year (N=7,576)

*Source: Out and about. Findings from the United Kingdom Gay Men's Sex Survey 2002. Sigma Research*



# Need for rectal microbicide for anal male-to-male sex

- 2.6% of men who had sex with men in the last year (who were untested, or tested HIV- at their last test) said they had definitely, or probably been fucked by a man who they knew was HIV+, and 7.3% said that maybe they had (N=11488 men)

*Source: Personal Communication on analysis of the  
2003 Gay Men's Sex Survey data. Sigma Research.*



# Need for rectal microbicide for male-female rectal sex

- 6 - 13% of heterosexual women in the US had anal sex in the last year (Gross et al, 2000)
- In one US study, 32% of high-risk women participants reported anal sex in past six months (Gross et al 2000)
- In a Chinese study of 1300 people from 41 cities, nearly 70% of men and women reported engaging in anal intercourse (Burton 1990).



# When will microbicides be available?

	<b>1<sup>st</sup> Generation</b>	<b>2<sup>nd</sup> Generation</b>	<b>3<sup>rd</sup> Generation</b>
<b>Expected launch</b>	2007	2012	2017
<b>Formulation</b>	Vaginal only	Vaginal & rectal	Vaginal & rectal
<b>Indications</b>	HIV, possibly other STIs, possibly other Contraceptive	HIV, herpes, gonorrhoea, HPV, Chlamydia, choice of contraceptive or non-contraceptive	HIV, herpes, gonorrhoea, HPV, Chlamydia, choice of contraceptive or non-contraceptive
<b>HIV effectiveness</b>	50% - 60%	70% - 80%	85% - 97%
<b>Usages</b>	With condom/device	Used alone	Used alone
<b>Sales channel</b>			
<b>Developed countries</b>	Prescription only	Over the counter	Over the counter
<b>Developing countries</b>	Over the counter	Over the counter	Over the counter

Source: The Microbicides Initiative



# How would a microbicide work?

- Killing or inactivating pathogens
- Creating physical barriers
- Strengthening the body's normal defences
- Prohibiting viral entry
- Inhibiting viral replication
- Eventually, microbicide products will probably combine some of these approaches



# Rectal microbicide challenges

“The biggest challenges in developing a microbicide are, in understanding the physical and immunological mechanisms by which the virus crosses the [anal] mucosa, and which cells are the first to become infected, and hence must be protected.”

*Source: AMREF: Rectal Microbicides that Protect Against HIV Infection Report from the Workshop: Baltimore, Maryland, June 7-8, 2001*



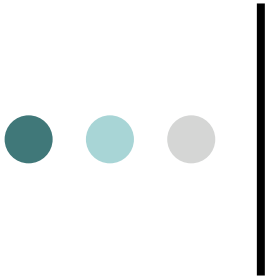
## Rectal microbicides; research questions

- Dosing: acceptability and how much for coverage
- Methods of application
- Dilution
- Assays: how to measure impact and conditions
- Role of rectal shedding of HIV: how does that impact on risk?



## Current microbicides in development

- 60 product leads are under development
- 6 potential products about to enter stage III trials in the next few years
- Average time for a product lead to go through required testing and registration is 10.5 years
- 45 additional products that are still in pre-clinical testing

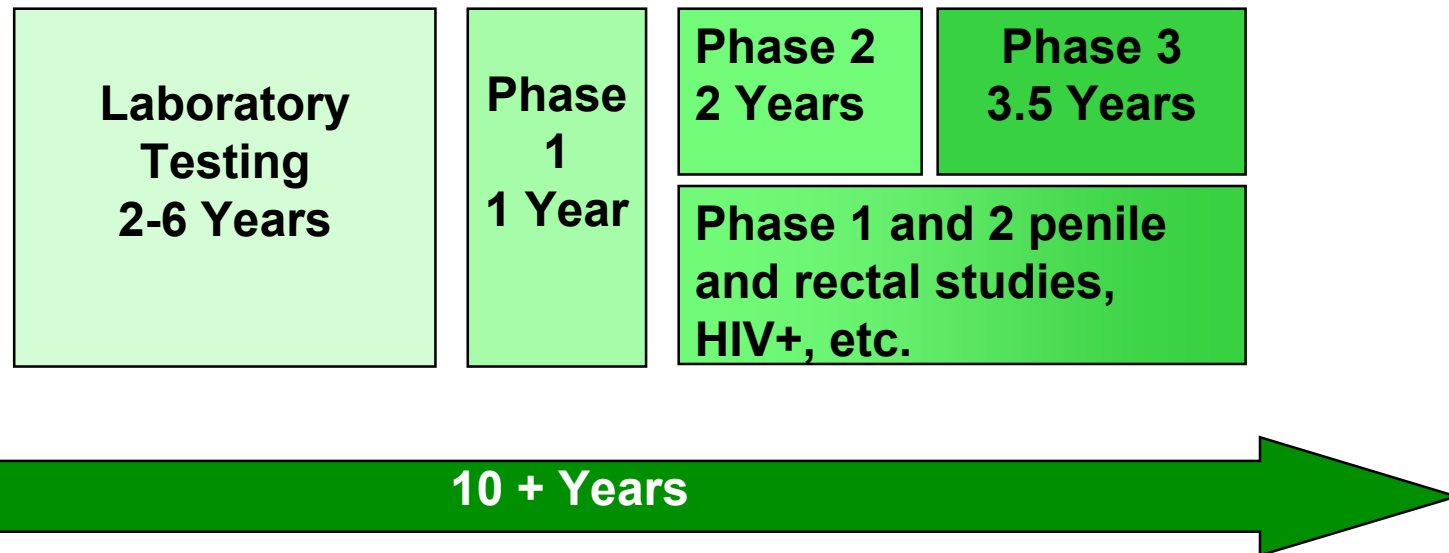


## Rectal microbicides: Current research

- Baseline studies on the impact of rectal intercourse
- “Male tolerance” studies (impact of candidate microbicides on the penis and urethra)
- In vitro testing to examine the effects on rectal flora
- Rectal safety studies being designed



# Current microbicide development times



Source: Tufts Center for the Study of Drug Development



# Barriers to microbicide development?

- Large pharmaceutical companies have relatively little interest in pursuing microbicides
  - perceived low profitability
  - liability concerns
  - lack of in-house expertise
  - uncertain regulatory environment
- For the last 20 years, almost all funding for contraceptive development and related research has come from governments and foundations.



# Funding shortfall

- Discovery through Phase II costs about US\$10,000,000
- Phase III trials can cost an additional US\$46-50,000,000
- If existing portfolio were owned by a single Pharmco, it would need to invest roughly \$775 million over the next five years to ensure success
- BUT, at 2002 levels, only \$230 million available from governmental and philanthropic grants
- Therefore, \$500 million shortfall at least !



# Global Campaign for Microbicides



- A worldwide effort co-sponsored by organisations involved in:
  - HIV/AIDS
  - reproductive health
  - gay health
  - women's empowerment
- Working to educate, raise awareness and generate collective advocacy for increased political and public investment in microbicide development.

[www.global-campaign.org](http://www.global-campaign.org)



# **UK/Ireland Campaign for Microbicides objectives**

- Increasing Awareness and Advocacy
- Accelerating Scientific Research and Development
- Ensuring Effective Access and Use



# What do we want for anal sex?

- Products that are:
  - inexpensive
  - easily accessible
  - easy to use
  - safe, non-irritating
  - available in various formulations (in lubes, suppositories, on condoms)
  - effective -- how effective?
- consultation and involvement

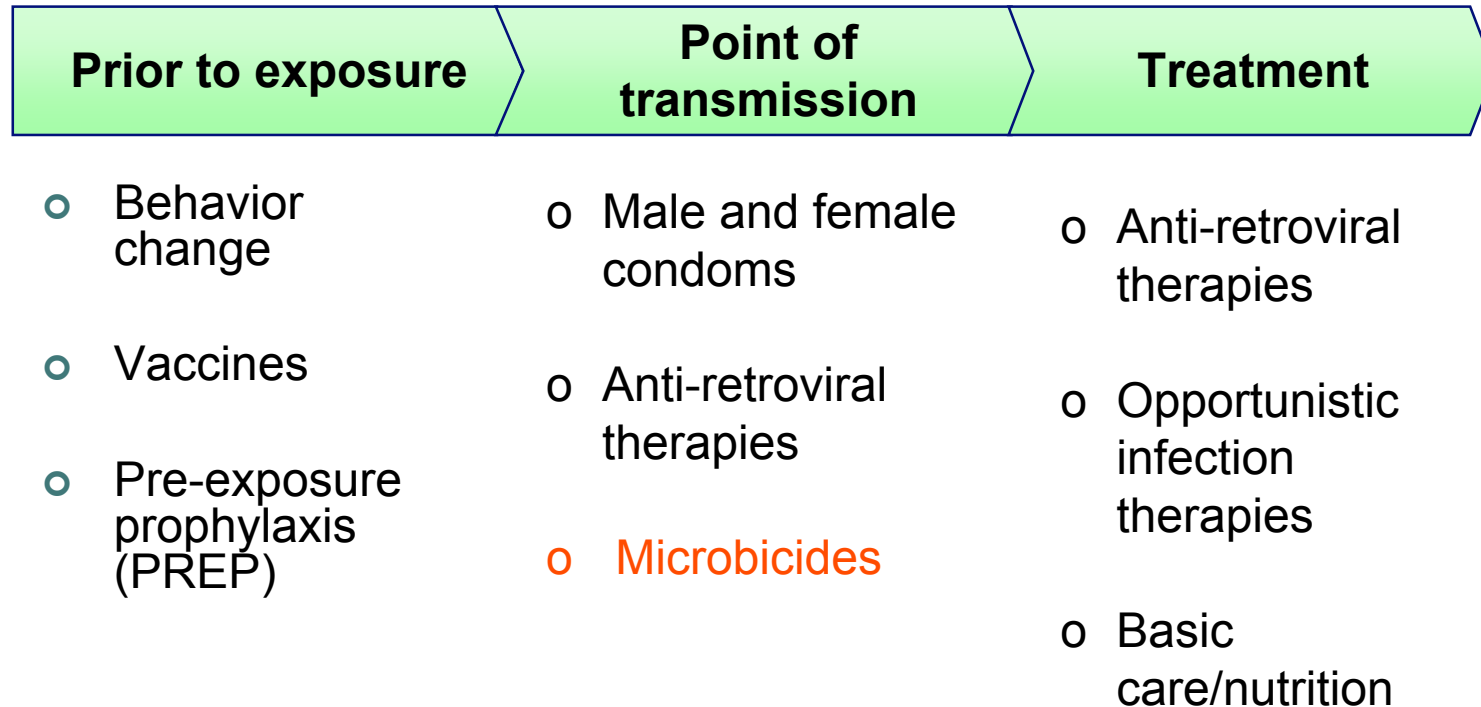


## What can you do now?

- Get your organisation sign up to the Global Campaign
- Get more information and stay up to date with new developments; sign up for email updates from Global Campaign ([www.global-campaign.org](http://www.global-campaign.org))
- Join the UK/Ireland Campaign



# Positioning microbicides in the prevention spectrum





# Behavioural change

- On average, gel to be 84% effective in preventing HIV infection before used as the only means of protection during anal intercourse; 53% of the men wanted the gel to be at least 95% effective.
- 37% of the men who always used a condom during anal sex in the past year said they would be more likely to use a microbicide gel than a condom in the future; however, 85% of this subgroup wanted the gel to offer protection comparable to a condom before they would use it alone.

*CDC study 1996-98*



# Condom migration

Reductions in condom consistency that could be tolerated without increasing risk.

*(Assumes microbicide HIV/STI efficacy is 50% and is used in 50% of acts not protected by condoms)*

<b><i>Condom Consistency <u>BEFORE</u></i></b>	<b><i>Condom Consistency <u>AFTER</u></i></b>
30%	5%
50%	32%
70%	59%
90%	86%



# Condom migration

If consistency of microbicide use can be increased to 100% of sex acts not protected by condoms, then:

- Low consistency condom users (30%) could migrate entirely
- Middle consistency condom users (50%) could migrate entirely
- Condom use among high consistency users (70%) could drop to 37% of acts
- Condom use among very high users (90%) could drop to 79% of acts



# Conclusions

- Rectal microbicides will be another HIV prevention tool
- We will have to campaign though for appropriate research and development of rectal microbicides
- We will have to ensure that products that we will be accessible to all who need them



# Thanks

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