

What do we currently know from modelling microbicide impact?

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Several previous modelling studies on microbicide impact and costs

- **Prevention equation*** – level of protection provided by a microbicide dependent upon multiple of efficacy & consistency of use
- **Migration from the condom*** – thresholds for reduction in condom use that could occur following microbicide introduction without increasing risk
Foss A., Vickerman P., Heise L., Watts CH (2003) *AIDS* 17(8):1227-1237.
- **Public health impact**** – estimates of cumulative number of infections averted over 3 years following widespread microbicide introduction
http://www.rockfound.org/Documents/488/rep7_publichealth.pdf
- **Site specific impact estimates*** – Hillbrow, Johannesburg and Cotonou, Benin, highlighting context specific nature of projected impact
Vickerman P., Watts C., Delany S., Alary M., Rees H., Heise L. (2006) *STD* 33 (6): 397-405
- **Resource needs for distribution***** – estimates of resources required for the widespread distribution of microbicides through existing delivery channels

*Funded by Global Campaign for Microbicides

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***Funded by IPM

Projections from site specific modelling in South Africa & Benin

- Estimate the potential impact of an efficacious microbicide in two contrasting settings:
 - Hillbrow, Johannesburg
 - Cotonou, Benin
- Compare the similarities and differences between the two settings for similar assumptions about microbicide use

Methods

- Available epidemiological, behavioural & intervention specific data compiled
- Cotonou: - 1995 – 1998, Hillbrow 2000 - 2004.

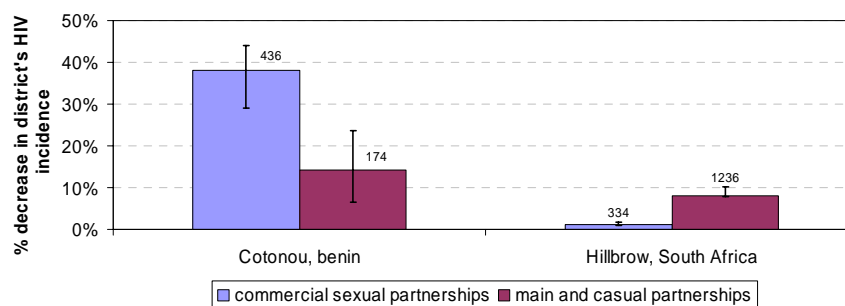
Main differences between settings:

- Nearly all men circumcised in Cotonou, few males circumcised in Hillbrow;
- About 12% of women are sex workers in Hillbrow, only 1% are sex workers in Cotonou;
- Prevalence of HIV adult women ~ 3% in Cotonou in 1998, ~ 29% amongst pregnant women in Hillbrow in 2000;
- The prevalence of *Neisseria gonorrhoea* & *Chlamydia trachomatis* (GC and CT) amongst the female general population ~ 2% in Cotonou in 1998, 24% in Hillbrow in 2000;

Baseline microbicide scenario

- Assume microbicide use reduced probability of HIV & STI transmission by 40%
- 75% of women have access to microbicides through same stockists as condoms (microbicide is widely available)
- Microbicide used 50% of time when condom is not used (moderate use)
- 5% decrease in condom use following microbicide introduction
- Assume condoms reduce probability of acquiring HIV & STI by 85%

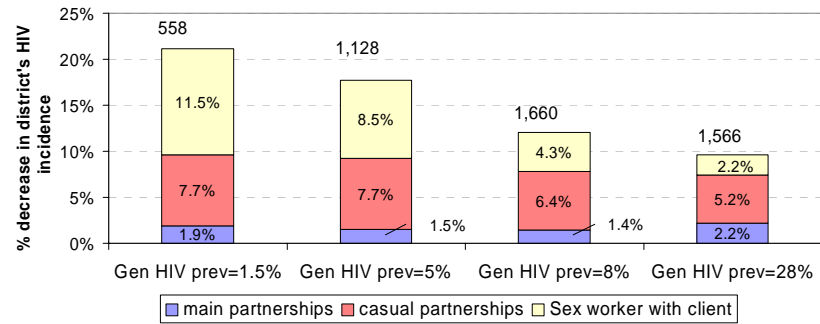
Impact on district HIV incidence*



*HIV infections per 100,000 population

Vickerman P., Watts C., Delany S., Alary M., Rees H., Heise L. (2006)
STD 33 (6): 397-405

The relative impact of using a microbicide in specific types of partnership for different initial sex worker HIV prevalences in Hillbrow

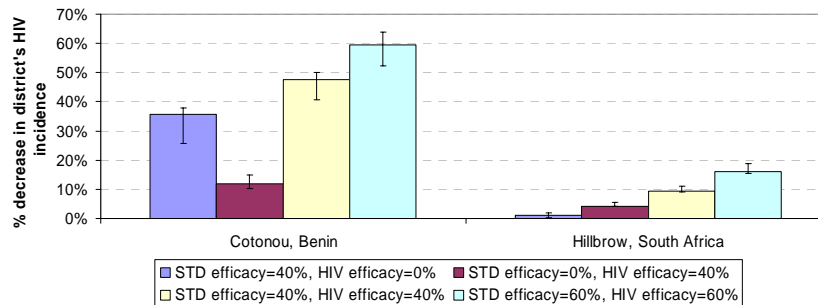


For a 40% HIV and STI efficacious microbicide

The numbers above each column are the HIV infections averted per 100,000 adults*

Vickerman P., Watts C., Delany S., Alary M., Rees H., Heise L. (2006) STD 33 (6): 397-405

Projected 4-year impact of the microbicide for different HIV and STI efficacies



*These projections assume 75% of the population use microbicides in 50% of non-condom protected sex acts, and microbicide use results in a 5% relative reduction in condom use.

Limitations of analysis

- Only compares two settings
- Current projections make broad assumptions about microbicide efficacy, distribution and use
- Assume microbicide use reduces risk of acquisition & transmission
- Projections can be refined with improved inputs about:
 - Effect of microbicide use on HIV & STI risk (per sex act efficacy)
 - Key target groups
 - Likely methods and scale of distribution
 - Consistency of microbicide use (from trials)

Conclusions (1)

- Even with the same patterns of use, the impact of a microbicide will vary in different settings
- Where STI prevalence is low, a microbicide's STI efficacy may be more important than its direct HIV efficacy.
- The relative impact of use in different types of partnership will depend upon the stage of the HIV epidemic
- Different microbicide products may have different advantages and limitations in different settings

Conclusions (2)

- Microbicide impact on HIV incidence will vary widely depending on setting & patterns of use:
 - Stage of HIV epidemic and patterns of HIV incidence
 - Degree to which HIV transmission driven by STI cofactors & microbicide impact on these STI
 - Levels of microbicides distribution and use
 - Forms of partnership in which microbicide is used
 - Impact of microbicide introduction on current patterns of condom use
- Highlights importance of developing context specific distribution strategies to optimise impact

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