A systematic review of studies linking control of sexually transmitted infections to prevention of HIV transmission

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Outline

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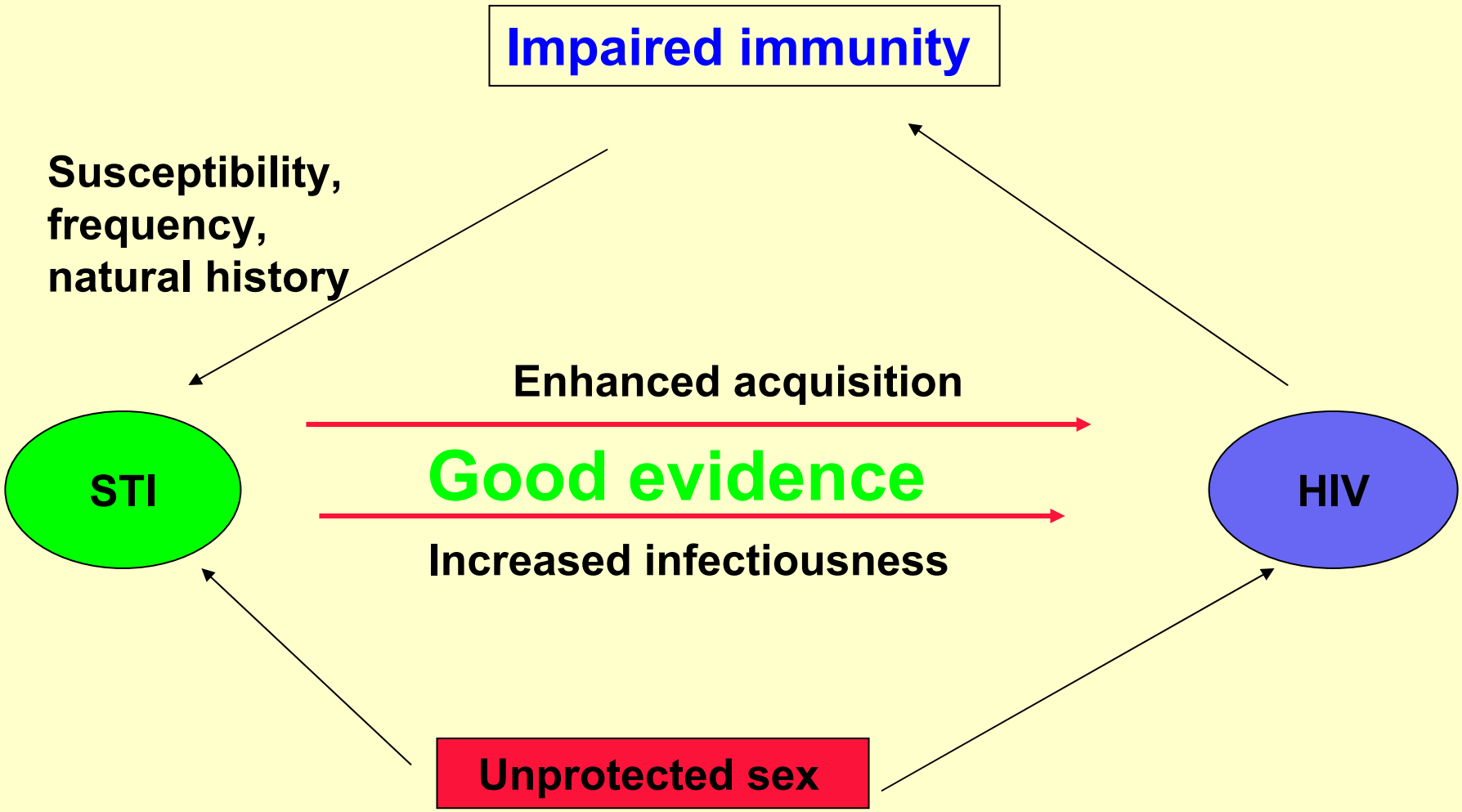
Background

- In 2005, 40.3 million people living with HIV and 4.9 million new infections
- Preventing new infections is critical
- Sexual transmission the predominant mode
  - Safer sexual behavior and use of condom remain central approaches
  - Tt. of other STIs potential component for prevention

Epidemiological Synergy



STI/HIV cofactor

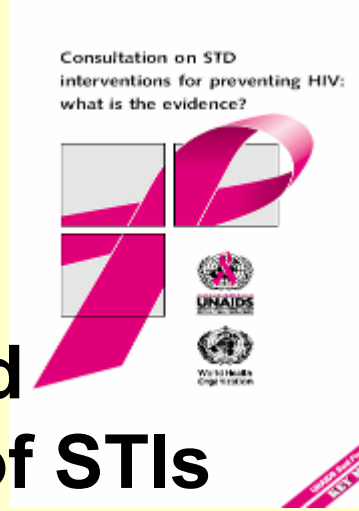
- ~340 million new cases of gonorrhea, chlamydia, syphilis, trichomonas in 1999
- High frequency of co-infection 29-46%
- Pooled estimates: with STI 2- to 3- times ↑ risk of HIV-1 acquisition
- ↑ genital shedding of HIV in coinfected
- Decreased after treatment

Control of STIs to prevent HIV

- 3 community based RCTs in East Africa
  - Mwanza in Tanzania: significant reduction in HIV incidence
  - Rakai and Masaka in Uganda: no impact
- Raised considerable interest and debate

(GrossKurth1995, Wawer1999, Kamali 2003)

Why the study is important?



- A WHO consultation (2000) recommended further research on operational aspects of STIs interventions and role of asymptomatic STIs.
- Felt need to review data after WHO consultation
- Cochrane review 2004 restricted to RCTs
- Evidence from a large number of other studies not available
- May help update recommendations on control of STI to prevent HIV transmission as a public health policy.

Objectives

Primary

- To study evidence for STI control as a component for prevention of HIV transmission

Secondary

- To determine the types of STIs and population groups for which STI control intervention would have a marked impact on HIV transmission.
- To identify research needs in STI control as a key component for prevention of HIV transmission

Methodology

Selection criteria

- All published studies showing a link between STI control and HIV prevention
- No language restriction
- Period 2000-2006

strategies

- Electronic database- Medline, POPLINE, Cochrane, WHO Regional databases, Google.
- Additional references from reviews and primary studies
- Hand search of journals for full text, if not available online.

Methods of review

- **First stage**: screening by titles/abstracts
- **Second stage**: assess the link between STI control and HIV prevention by full text

Dummy Summary Table

ID/First author/ year	Study design	Population Setting / Country	Sample Size/ Age group/ Gender	Type of intervention	STD addressed	Outcome
Chronological order by year						

Preliminary search results

- **Key words** for Medline (retrieved on 7.3.06)
- **Limits** 2000-2006, humans

1. sexually transmitted diseases (MESH term)=16643
2. HIV infections (MESH term) = 3365
3. #1 AND #2 = 2640
4. #1 AND #2 AND control= 1354 articles

- 112 selected from screening title /abstract
- 31 need full text for screening
  - 14 had no abstract
  - 17 had no data in abstract

Summary of reviews

Study/ No. of authors	Studies included	Abstract/ full text	Methodology search strategy	Reviewers' conclusion on STI control as HIV prevention strategy
Mayoud 2001 Narrative Two	first community based RCT and other studies	Not structured	Not mentioned	Good evidence
Dallabetta 2004 Narrative Two	3 community based RCTs	Not structured	Not mentioned	Overwhelming compelling evidence
Risbud 2005 Narrative Single	3 community based RCTs and other studies	Text structured by issues	Not mentioned	Results of three studies divergent, more studies needed.
Sangani 2004 Cochrane Three	3 community based and 2 other RCTs	structured	Detailed	Limited evidence

Problems in reviews

- None of reviews looked at all possible approaches of interventions of STI control
- Many have different conclusions based on same studies
- Cochrane systematic review
  - more rigorous and better reported than narrative
  - Regularly updated
  - Includes only RCT, data from other studies?

Issue of duplicate publication

Same study with published in 3 journals with different results

Kehinde AO, Lawoyin TO, Bakare RA	STI Lab diag (n =210)	STD with HIV+ (%) Co-infection
Risk factors for HIV infection in special treatment clinics, Ibadan, Nigeria. Afr J Med Sci. 2004 Sep;33(3):229-34	180	46 (19.5%)
STI/HIV co-infections in UCH, Ibadan, Nigeria. Afr J Reprod Health. 2005 Apr; 9(1):42-8.	20	6 (30%)
Prevalence of STI/HIV co-infections in special treatment clinics, Ibadan, Nigeria. J R Soc Health. 2005 Jul;125(4):186-90	180	41 (22.5%)

Int. Comm of Med J Eds: Redundant if substantial overlap

Results in double counting and inappropriate weighting of results, which distorts evidence.

Determining link
STI control and HIV prevention

- Adjustment for confounding factors not mentioned
- Examining several STIs at the same time
- Bias: not reporting some STIs having little impact
- Misclassification of STI based on clinical diagnosis
- Infrequent follow up: some STIs are transient, temporal sequence not established
- Infrequent Intervention: recurrent infections missed
- Outcome measure: biological measure not used

Lessons learnt
Care in screening

- **Misleading titles**
- **Non availability of abstract/structured**
- **Duplication:**
  - **redundant/ most recent data if ongoing study,**
  - **confusion author's surname and name**
- **Several studies on same population: choose most recent study**
- **Review articles: biased opinion, limited studies**

Summary

- Good evidence on STI as a risk factor for HIV transmission
- Only 3 major community trials but variable results
- Need to look at strength of evidence in studies after 2000
- Control of STI for preventing HIV transmission as a public health policy?
- Approaches for maximum impact
  - role of controlling specific STIs or a combination of specific STIs among key populations ?

Thank you