



# Systematic review of the impact of abstinence-based Interventions on risk behaviour in developing countries

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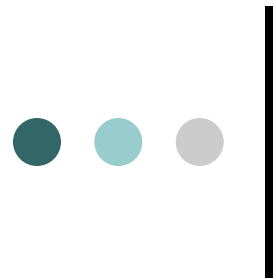
# Background

- Some donors have targeted funding for abstinence-based interventions
- Concern that promoting condoms will lead to increased net risk
- Strong calls for evidence on the benefits of abstinence-based interventions
- Question: what evidence of effectiveness for abstinence interventions in developing countries?



# Synthesizing Intervention Effectiveness Project

- Collaboration between the World Health Organization and Johns Hopkins Bloomberg School of Public Health
- Project goal:  
*to examine the strength of evidence of effectiveness of HIV interventions in developing countries by systematically reviewing the literature*



# What do we mean by “Systematic”?

- The project uses systematic methods, i.e.:
  - Written procedures are established for each step of the process
  - Quality assurance is attended to using predetermined QA procedures (e.g. double coding, resolution, etc.)
  - Detailed coding instructions and coding forms are used to systematically extract data from studies
  - Written search and inclusion criteria are pre-defined and utilized in searching, screening, and coding of studies
- The goal: Try to avoid bias & post-hoc analyses
  - Be explicit on decisions taken
  - Avoid opinion-based approaches
  - Have work be reproducible



# Differences between standard literature review and systematic review

Literature Review	Systematic Review
<p><b>Searching</b> is typically conducted rapidly and at the discretion of the reviewer.</p>	<p><b>Searching</b> is conducted using standardized &amp; written procedures, and typically with 2 searchers, resolution &amp; screening procedures.</p>
<p><b>Interpretation</b> of literature is based on the expert opinion of the reviewer.</p>	<p><b>Interpretation</b> of literature is based on systematic coding and analysis of the results. Coding is typically conducted by 2 coders, with a third person resolving differences.</p>
<p>The <b>strength of evidence across studies</b> is based on interpretation of the reviewer.</p>	<p>The <b>strength of evidence across studies</b> is often based on combining effect sizes using meta-analysis. Addresses issues of statistical power.</p>



# Definition and Inclusion Criteria

- **Definition:** Abstinence interventions are any programs or other planned efforts that are intended to increase rates of abstinence. These can include abstinence only interventions or interventions that encourage abstinence along with other risk reduction behaviors such as condoms.
- **Topic-specific inclusion criteria:**
  - Intervention encourages abstinence
  - The intervention is focused on HIV prevention not pregnancy prevention
  - Specific outcomes of interest are presented (i.e. abstinence, delay of sexual debut, incidence of HIV infection, etc.).
  - Published between Jan 1990 and Dec 2004

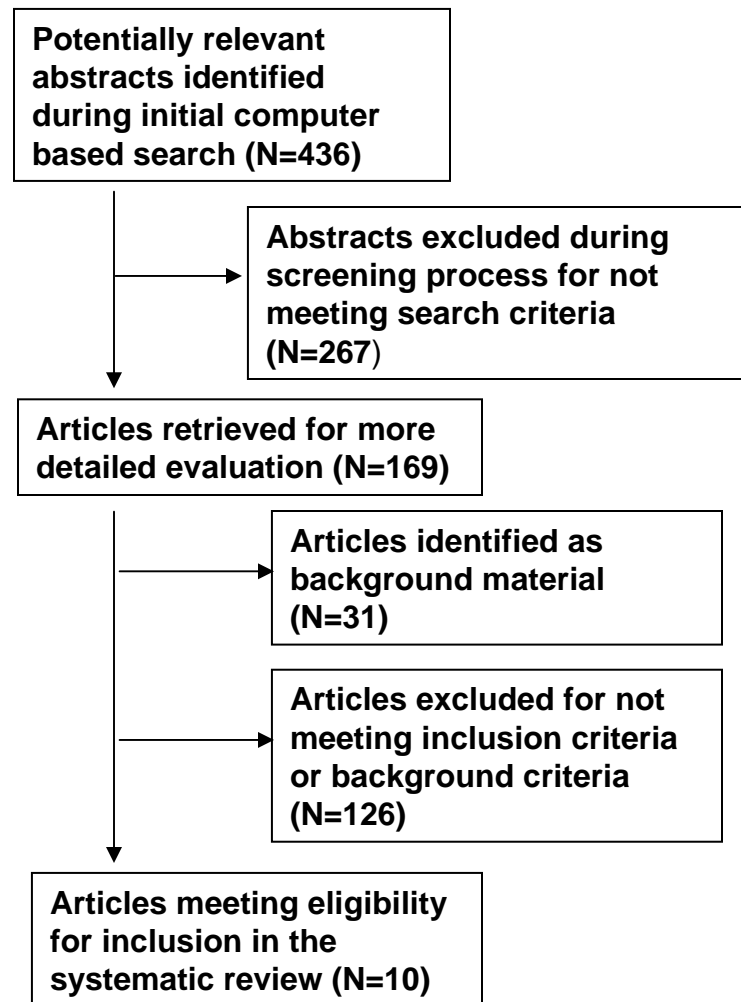


# Meta-analysis

- Meta-analysis is conducted when studies are judged to have sufficiently homogeneous interventions and outcome assessments
  - Choose specific outcome of interest
  - Harmonize effect-size estimates
    - Using standard statistical techniques (Cooper and Hedges, *Handbook of Research Synthesis*)
  - Meta-analyze across studies to generate a merged effect size estimate and confidence intervals
    - When multiple follow ups found used the longest assessment interval



# Flow chart of searching results



Selection of articles for systematic review



## Results - Studies

- 10 studies, mostly in Africa, met the inclusion criteria
  - Zambia (2), Namibia, Uganda (2), Tanzania, South Africa, Nigeria, India, & Philippines
- Design types used:
  - 9 Randomized Controlled
  - 2 Non-Randomized Controlled
  - 1 Pre/Post with no Control Group
- Outcomes: 6 studies measured actual behaviors
- Only 1 study tested an abstinence-only intervention
- All studies conducted on adolescents only



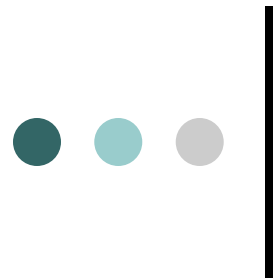
# Assess study rigor

- The rigor of each study design is assessed using an 8-point scale
- The scale is additive, with one point awarded for each item
- Items are:
  1. Prospective cohort
  2. Control or comparison group
  3. Pre/post intervention data
  4. Random assignment of participants to the intervention
  5. Random selection of subjects for assessment
  6. Follow-up rate of 80% or more
  7. Comparison groups equivalent on socio-demographic measures
  8. Comparison groups equivalent at baseline on outcome measures



# Rigor of studies was good

- On 8-point rigor scale (8 highest):
  - Score of 6 – 2 studies
  - Score of 5 – 6 studies
  - Score of 4 – 1 study
  - Score of 3 – 2 studies



# Results – Behavioral Outcomes

- Condom Use

- 3 Studies reported on changes in condom use
  - 1 had significant effects
  - Meta-analysis shows no effect across studies

- Abstinence


- 6 studies reported on changes in abstinence
  - 3 had significant effects
  - Meta-analysis shows significant impact across studies
    - Effect size minimal (odds 1.40, CI: 1.115-1.72)



# Meta-Analysis: Condom Use

(Measured in 3 studies: All Abstinence Plus)

Population	Odds Ratio	Lower Limit	Upper Limit	P-Value
Zambian In-School Youth	1.10	0.77	1.55	0.523
Namibian In-School Youth	1.02	0.63	1.65	0.937
Nigerian In-School Youth	1.05	0.61	1.82	0.881
<b>Merged (Fixed Effect Model)</b>				
	<b>1.23</b>	<b>0.96</b>	<b>1.59</b>	<b>0.106</b>
Q-Statistic for Heterogeneity: 2.78, DF=2, p=0.249				



# Meta-Analysis: Abstinence (Measured in 5 studies)

Population	Odds Ratio	Lower Limit	Upper Limit	P-Value
Zambian In-School Youth	1.21	0.79	1.60	0.523
Namibian In-School Youth	1.02	0.63	1.66	0.937
Nigerian In-School Youth	1.40	0.861	2.28	0.174
Ugandan In-School Youth	3.86	2.25	6.62	0.000
Tanzania In-School Youth*	1.35	0.862	2.106	0.191
* Only study assessing abstinence-only intervention				
<b>Merged (Fixed Effect Model)</b>	<b>1.406</b>	<b>1.115</b>	<b>1.72</b>	<b>0.001</b>
Q-Statistic for Heterogeneity: 21.84, DF=4, p=0.0000				



# Conclusions

- Rigor of studies good in general
- Few studies measured actual behaviors
- Only one study assessed abstinence-only
- All studies on in-school youth with behavioral outcomes
  - Makes it impossible to assess impact on adults
- No impacts on condom use
- Minimal, but significant, impact on abstinence