

*First in a series, this summary fact sheet presents existing evidence from rigorously evaluated interventions to prevent HIV transmission in developing countries. Results are presented here from the meta-analysis of peer-education studies published in leading scientific journals. In contrast to the many anecdotal reports of best practices, this series provides readers with the strongest evidence available in a user-friendly format. The evidence provides program planners, policy makers, and other stakeholders with information about “what works.”*

**Peer education** is a strategy whereby individuals from a target group provide information, training, or resources to their peers. These groups can be determined by social or demographic characteristics (e.g., age, education, type of work) or by risk-taking behavior (e.g., injection drug use, commercial sex work). Peer networks can increase the credibility and effectiveness of the message being presented as they convey information to often hard-to-reach populations.

Peer education is widely used and is generally a low-cost intervention. It is a good approach for conveying information in natural settings where target groups are located (e.g., schools, work sites, social gathering places such as parks or clubs), when group members are unlikely to receive services without such an approach, or when a peer is much more likely to appear credible than a non-group member (e.g., among stigmatized groups).

### Effectiveness of Peer Education Interventions

Results from the meta-analysis showed that peer education interventions in developing countries had the following effects on participants compared to those who were not exposed to the intervention:

#### Increased HIV Knowledge

- Participants were twice as likely to demonstrate increased knowledge about HIV.
- This result was true across multiple target groups: adolescents and young adults, IDU, CSW, heterosexual adults, prisoners, and miners.
- A significant effect on HIV knowledge was not seen in studies involving truck drivers, except in one study from the Philippines.

#### Reduced Injection Drug Equipment Sharing

- Participants were half as likely to share injection drug equipment.
- One of the four studies (conducted in China in a drug rehabilitation center) did not show a significant effect. The authors attributed this finding to high attrition among educators.

#### Increased Condom Use

- Participants were twice as likely to report increased condom use.
- This result was true across multiple target groups (IDU, CSW, transport workers, heterosexual adults, and miners)

#### Partner Type and Condom Use

##### *Increases in condom use*

- Heterosexual adults with both casual and regular partners
- CSW with regular partners
- Transport workers with casual partners
- Miners with casual partners (regular partners not analyzed).

##### *No significant increase*

- Youth (two of three studies showed non-significant results).

#### Sexually Transmitted Infection

- Exposure to peer education interventions showed no effect on self-reported STI.
- Weak study designs and differences in STI measurement may have affected the ability to detect an effect. Moreover, effects of behavioral outcomes such as increased condom use on STI infection may not be immediately evident without continued community follow up to see downstream effects of condom use on biological outcomes.

**Effectiveness of Peer Education Interventions: Summary Findings**

Outcome	Number of studies	Odds ratio	Confidence interval (95% confidence level)
Increased HIV knowledge	26	2.28	1.88-2.75
Reduced equipment sharing among IDU	6	0.37	0.20-0.67
Increased condom use – all partners	29	1.92	1.59-2.33

## How is the Effectiveness of a Peer Education Intervention Determined?

The findings presented in this fact sheet come from a recent meta-analysis of 30 peer-education studies. Although peer education is a broad topic, for the purposes of the analysis, the researchers defined peer education as “sharing HIV/AIDS information in small groups or one-to-one by a peer matched, either demographically or through risk behavior, with the target population.” The study looked at the following outcomes: HIV knowledge, drug equipment sharing (i.e., needles, syringes, water, and other drug preparation materials), condom use, and STI infection. Of the 30 studies, 13 were conducted in sub-Saharan Africa, 10 in East and Southeast Asia, 5 in Central Asia, and 2 in Latin America and the Caribbean.

## Selection Criteria and Rigor Criteria of Studies Included in the *Medley et al.*<sup>1</sup> Meta-analysis

A study had to meet three criteria to be included in the analysis:

1. present behavioral, psychological, or biological outcomes related to HIV prevention in developing countries
2. use either a pre-/post- or multi-arm design
3. appear in a peer-reviewed journal between January 1990 and November 2006.

Studies that did not meet these criteria were excluded.

The studies in the meta-analysis either report effect sizes for each outcome or provide sufficient information in tables or text to calculate an effect size. For the categorical outcomes typically presented in the studies, these data include sample size information for each outcome, and either percentages or frequencies for each response category.

## What’s New?

Since this meta-analysis was completed, there have been several additional studies reporting the efficacy of peer education in developing countries.

- Three evaluations of school-based peer education programs in China found significant increases in HIV knowledge among the intervention group.<sup>2,3,4</sup> One of

## Elements of Successful Peer Education Programs

### Recruitment of Peer Educators

Self-nomination, target audience nomination, and recruitment by others of peer educators (e.g., program staff or group leaders) all resulted in significant increases in HIV knowledge and reported condom use among participants.

### Training and Supervision

One-time training resulted in significant increases in HIV knowledge, while refresher training was not associated with a change in HIV knowledge among peer educators. Both one-time and refresher training result in significant increases in condom use. Studies using either ongoing supervision or no supervision beyond training demonstrate significant increases in HIV knowledge and condom use.

### Compensation

Providing compensation through incentives, course credit for students, or time/travel expense reimbursement is associated with increased knowledge, increased condom use, and reduced equipment sharing. However, because only studies that discussed compensation were meta-analyzed, it is difficult to attribute these results to the use of compensation per se.

these, a randomized controlled trial involving 1,950 students from 10 senior high schools in Shanghai, found that the increases in HIV knowledge and intention to use condoms were sustained at least one year following the 3-month intervention.<sup>2</sup>

- Consistent condom use with clients significantly increased (from 28.8% to 70.4%) among female sex workers in a peer-mediated intervention in Mombasa, Kenya.<sup>5</sup>

These studies support the findings from this meta-analysis<sup>1</sup> that peer education interventions can lead to increases in HIV knowledge and increases in condom use within various at-risk populations in developing countries.

## What More Do We Need to Know about Peer Education Effectiveness?

Peer education interventions can be effective in several important areas:

- increasing HIV knowledge and condom use
- reducing injection drug equipment sharing

We do not have enough evidence to determine whether they affect STI incidence or other important outcomes, such as number of partners and HIV incidence. The current data do not provide sufficient information regarding specific program features that might be helpful when developing or selecting a program (e.g., use of group discussion format or a didactic approach).

Effectiveness of Peer Education Interventions among Different Populations			
TOPIC	Number of studies	Odds ratio	Confidence interval (95% confidence level)
<b>Increased HIV knowledge</b>	26	2.28	1.88-2.75
AMONG:			
-Youth	7	2.52	1.62-3.92
-IDU	2	1.52	1.31-1.76
-CSW	5	1.66	1.19-2.33
-Transport workers	3	1.28	0.62-2.66
-Heterosexual adults	7	3.46	2.10-5.69
-Prisoners	1	8.27	5.00-13.68
-Miners	1	2.49	2.06-3.02
<b>Reduced equipment sharing among IDU</b>	6	0.37	0.20-0.67
<b>Increased condom use – all partners</b>	29	1.92	1.59-2.33
AMONG:			
-Youth	4	1.12	0.85-1.48
-IDU	3	1.49	1.05-2.10
-CSW	11	2.31	1.66-3.23
-Transport workers	3	2.43	1.68-3.52
-Heterosexual adults	7	1.84	1.34-2.53
-Prisoners	N/A		
-Miners	1	1.97	1.31-2.97
<b>Sexually transmitted infections</b>	11	1.22	0.88-1.71
AMONG:			
-Youth	N/A		
-IDU	N/A		
-CSW	5	1.15	0.64-2.04
-Transport workers	1	1.95	1.45-2.62
-Heterosexual adults	3	0.94	0.59-1.49
-Prisoners	1	1.40	0.81-2.43
-Miners	1	1.90	0.89-4.07

Program developers should know that several methods of recruitment, training, and supervision have been used to successfully implement peer education interventions. Peer education also appears to work in many settings with multiple target groups in developing countries. This suggests that the strategy itself (using peers to communicate important information regarding HIV prevention) generalizes well in different contexts.

Many of the studies included in the peer education intervention meta-analysis were conducted in challenging real-world settings using sampling methods that may have decreased the likelihood of seeing changes in individual behavior over time. Therefore, it is important to distinguish between lack of intervention effect and lack of evidence of effect. That is, lack of evidence of an effect does not imply that an intervention failed; it means that we do not have enough evidence to judge its effectiveness. For this reason, additional research using rigorous study designs (e.g., randomized-controlled studies) with sufficient follow-up is crucial to increasing confidence in the above results and to gathering enough evidence to answer complex questions (e.g., the effect of a behavioral intervention on HIV and STI incidence).

Finally, findings from this review must be seen in light of its limitations. Results may be subject to publication bias, where studies showing positive results are more likely to be published than studies showing negative results. In addition, there is the possibility that some articles that should have been included in the review were not identified by the search methods used.

### Additional Websites and Resources:

Population Council. Peer Education and HIV/AIDS: Past Experience, Future Directions. 2002. Available at: [http://www.popcouncil.org/pdfs/peer\\_ed.pdf](http://www.popcouncil.org/pdfs/peer_ed.pdf). Accessed on: April 2, 2008.

Rutanang Peer Education Training Materials and Standards of Practice: <http://www.comminit.com/en/node/183654/38>

### References

1. Medley A, Kennedy C, O'Reilly K, Sweat M. Effectiveness of peer education interventions for HIV prevention in developing countries: A systematic review and meta-analysis. *AIDS Educ Prev*. 2009;21(3):181-206.

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## Terminology and Acronyms

### Confidence interval

The range of values within which the "true value" can be expected to fall.

### Confidence level

The likelihood that the "true value" will fall within the confidence interval.

### CSW

Commercial sex worker

### Effect size

A measurement of the magnitude of change (e.g., the average point increase in a qualifying examination score from taking a test preparation course)

### IDU

Injection drug user

### Meta-analysis

Analytic method that gathers information from multiple studies and combines them statistically to determine whether an intervention is effective.

### Odds ratio

The ratio of the probability of an event occurring in one group to the probability of the same event occurring in a referent group; for example, an odds ratio of 2.0 for a condom promotion means that those in the treatment group were twice as likely as those in the control group to use condoms in last casual sexual encounter.

### STI

Sexually transmitted infection

2. Cai Y, Hong H, Shi R, et al. Long-term follow-up study on peer-led school-based HIV/AIDS prevention among youths in Shanghai. *Int J STD AIDS*. 2008;19(12):848-50.

3. Li S, Huang H, Cai Y, et al. Evaluation of a school-based HIV/AIDS peer-led prevention programme: the first intervention trial for children of migrant workers in China. *Int J STD AIDS*. 2010;21(2):82-6.

4. Huang H, Ye X, Cai Y, et al. Study on peer-led school-based HIV/AIDS prevention among youths in a medium-sized city in China. *Int J STD AIDS*. 2008;19(5):342-6.

5. Luchters S, Chersich MF, Rinyiru A, et al. Impact of five years of peer-mediated interventions on sexual behavior and sexually transmitted infections among female sex workers in Mombasa, Kenya. *BMC Public Health*. 2008 Apr 29;8:143.