Literature Review of Evidence for Effective Peer Education and Outreach Programs to Protect Sex Workers from HIV

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Acronyms

DMSC	Darbar Mahila Samanwaya Committee
FSW	Female sex worker
M&E	Monitoring and evaluation
MIS	Management information system
MSM	Men who have sex with men
MSW	Male sex worker
NGO	Nongovernmental organization
PEO	Peer education and outreach programs
PLHA	People living with HIV/AIDS
STI	Sexually transmitted infection
SW	Sex worker
TB	Tuberculosis
UNAIDS	Joint United Nations Programme on HIV/AIDS

Executive Summary

This document reviews current literature on peer education and outreach programs (PEO) that address behaviors placing male and female sex workers at risk of HIV infection. The review should inform the development of standards to improve the effectiveness and efficiency of PEOs. The findings of this review are organized by topic: peer educators, program management, and program strategies.

Peer educators are role models who influence the behavior of a population group. Good communication skills, willingness to be peer educators, ability to influence the population group's norms and attitudes, and degree of connectedness to the group are some of the qualifications that many programs emphasize.

A review of peer-educator training curricula found them to be specific to the goals of a particular HIV risk-reduction program and to the scope of peer educators' work. Training packages impart interpersonal and communication skills as well as technical competency: for example, size estimation and mapping, program monitoring, and counseling and referrals. The literature shows that careful selection of peer educators, clear roles and responsibilities, recognition, career progression systems, and remuneration are essential for programs to retain the peer educators they train.

The management of PEO interventions should adhere to three internationally recognized principles: 1) respect for sex workers as people, 2) reliance on their understandings and capabilities, and 3) recognition of their agency and their rights as human beings and citizens. The literature reveals that theory-based programs are more likely to succeed than programs that are not grounded in theory. Among many behavior-change theories, the "diffusion of innovation" theory has gained prominence in recent years. (This theory holds that behavior change in a population can occur if that population's opinion leaders adopt, support, and endorse the change.) To determine the optimum number of service sites and where sites should be located to minimize geographic and financial barriers to access, planners must know the size of the population that will be served and the geographic characteristics of the population's location. The set of monitoring indicators used by different projects varies according to program goals.

PEO strategies should cover contact with peers and effective referral processes. Literature that specifically reports on the optimum number of contacts with peers over a given period for impact to be measurable is scant. One report states that three to four contacts with a peer over a six-month period are effective. Robust information tracking and a follow-up system are reported to be vital for an effective referral process.

Literature published to date points to the need for a compendium of practices and experiences to guide organizations attempting to deliver a PEO intervention to sex workers.

BACKGROUND

Sex workers are people—male (MSW) and female (FSW)—who exchange sex for money or other material items with other men and/or women (Joint United Nations Programme on HIV/AIDS, or UNAIDS, 2009). Male sex workers are sometimes referred to as men who have sex with men (MSM), but these groups engage in slightly different, albeit overlapping behaviors. According to UNAIDS (2009), "Men who have sex with men describes males who have sex with other males, regardless of whether or not they have sex with women or have a personal or social identity associated with that behavior such as being 'gay', 'bisexual', or 'transgender'. Male sex workers are men or transgender (men who self-identify as female and/or exhibit a range of female characteristics but are biologically male) who exchange sex for money or other material items with men and/or women."

Factors that increase a sex worker's risk for contracting HIV and other sexually transmitted infections (STIs) include (UNAIDS, 2006; Pathfinder International, 2008):

- Frequency of high-risk sexual behaviors (e.g., unprotected vaginal and/or anal sex, dry sex, douching/drying practices)

- Multiple sexual partners

- Drug- and alcohol-related HIV risk behaviors (e.g., unprotected sex, sharing drug injection equipment)

- Existing symptomatic STIs (syphilis, herpes simplex virus-2)

- Limited access to health services

Structural factors that increase the vulnerability of sex workers (SWs) as a group to HIV and other STIs include (UNAIDS, 2006; Pathfinder International, 2008):

- Stigma and marginalization by health and program staff that create barriers to access by sex workers to health and social services

- Structural and policy barriers, which limit access to services for SWs

- Poverty and lack of economic opportunities, especially for young women

- Gender, economic, and power inequalities that limit the ability of SWs to negotiate sexual practices that reduce the risk of infection (for example, condom use) and encourage SWs to engage in unsafe sexual behaviors (for example, unprotected vaginal sex), either because unprotected sex is more lucrative or because clients wield more physical or economic power than the SWs

- Cultural norms that stigmatize certain behaviors (for example, MSM)

- High geographic mobility, which interrupts access to health services

To date, national HIV prevention programs have had limited impact on SWs. Researchers who conducted a study in Asia, for example, estimated that targeted HIV prevention programs reach only 19 percent of SWs (Gouws, et al., 2006). Peer education and outreach, as this literature review describes, stands out among the methods used to reach sex workers with HIV/STI services as one that has demonstrated success.

Peer education and outreach programs have been identified as a best practice to increase coverage of HIV prevention services for SWs (Action for West Africa Region, AWARE: Promising and Best Practices in HIV/AIDS Prevention and Care for West and Central Africa, 2006). Peer education and outreach programs involve the selection and training of peer educators, who share demographic characteristics or risk behaviors (for example, sex work) with the target population. Peer educators aim to modify the knowledge, attitudes, beliefs, or behaviors of their peers through small-group or one-on-one interactions in the community where peers congregate, work, and/or live. Their work includes referral to clinical and nonclinical components of an HIV/STI package of services (Medley, et al., 2009; Medlin, Blakus et al., 2008; UNAIDS, 1999).

The goals of PEO with SWs are (Medley, et al., 2009):

■ Reduce HIV/STI risk behaviors (unprotected anal, vaginal, and oral sex; harmful douching practices; and so forth)

■ Promote protective behaviors (for example, decreasing the number of partners and avoiding situations that increase vulnerability to violence)

■ Increase the number of people in a high-risk population who receive such necessary services as HIV counseling and testing, STI screening and treatment, and HIV care and treatment

An unanticipated benefit of many PEO programs for SWs is empowerment of the peer educator and peers to address their health needs, decrease risk, and minimize occupational violence, by creating a sense of solidarity and collective action within the community (Medley, et al, 2009).

Because peer educators are recruited from the population they serve, they have knowledge that enables them to engage hard-to-reach populations more easily, establish trust, and initiate discussion of sensitive topics. Through discussion, peer educators can influence a person's perception, attitude, and HIV risk behaviors (Kelly, 2004). Interventions often promote activities that have a direct impact on a person's risk of contracting HIV, such as effective condom use, reduced frequency of high-risk sex, and acceptance of screening for STIs. Interventions by peer educators have indirect impacts, as well—promoting more equitable gender norms and reducing violence and stigma (Avahan, 2008).

Ultimately, the coverage and effectiveness of peer educators depends on the quality of their training and of the programs that support their work. Peer education and outreach programs have achieved varying degrees of success; studying them can generate evidence on the factors that significantly affect their performance. For example, in India the Sonagachi project uses a bottom-up approach to improve the health status of SWs (DMSC-TAAH, 2008). The project's success is attributed to teaching SWs to break barriers and fight for their individual and collective rights. In contrast, the Summertown PEO project in South Africa had little impact on the health status of SWs (Cornish, Campbell, 2009). The reasons that have been cited are local suspicion of peer educators' motives, peers' lack of control over their own sexual encounters, and the inability of stakeholders to develop cohesive activities to sustain the project. For PEO programs to have greatest impact, they should be guided by the evidence-based practices generated by research studies and the best practices described in program-specific reports. Knowledge gleaned from these studies and reports provides a solid basis from which to develop standards for the design, implementation, and evaluation of PEO programs.

This literature review identifies evidence and best practices to inform "Quality Assurance for Peer Education and Outreach Programs for Sex Workers in Kenya," a joint project of the United States

Centers for Disease Control and Prevention (CDC), PATH, and FHI. The review captures peer-reviewed studies as well as project reports. Peer-reviewed articles test hypotheses and use rigorous evaluation methods. Often, project reports ("grey literature") provide examples of best practices that have been identified (and modified) in the field but have not been rigorously evaluated. Both sources of information are helpful in shaping the application of PEO programs in the field.

Methods

A comprehensive strategy was used to search for peer-reviewed journal articles and "grey literature" relevant to this review. The intent was to locate all available materials relevant to the situation analysis, both in print and electronic form.[1] The following search terms were used:

■ (Asia OR Africa OR Kenya) AND (Sex Work) AND (peer OR outreach OR intervention)

■ (Male Sex Work) AND (Africa OR Asia)

■ (Female Sex Work) AND (Africa OR Asia)

■ (MSM)

■ (US/UK)

Reference lists and bibliographies culled from reviews and articles were examined for inclusion. Initial searches resulted in hundreds of abstracts that were examined for relevance. Approximately 200 articles emerged and then were screened to identify those most appropriate for this document. Three criteria determined inclusion:

■ Peer education and outreach was the focus of the intervention

■ The document was published after 1994

■ At least one of the following groups—FSWs, MSWs, and MSM—was the main population for the intervention

A total of 42 published peer-reviewed articles and eight unpublished project reports and guides were identified as appropriate for inclusion in this literature review. They are categorized in Table 1, on the next page.

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[1] The searches were conducted in the National Library of Medicine PubMed database (medical literature) and in Web of Science, JSTOR, and POPLINE (social science and development/reproductive health literature). We also conducted searches of Google, the USAID Development Experience Clearinghouse, and The Diffusion of Effective Behavioral Interventions (DEBI) project Web site to locate grey literature and project reports.

Table 1. Characteristics of reviewed literature on peer education and outreach programs

	Peer-Reviewed Literature	Guides, Reports and Other Unpublished Literature	Books	Total
Africa Focus	21	1		22
Asia Focus	10	3		13
U.S./U.K/Latin America Focus	5	2	1	8
Multi-Country or General Focus	9	9	3	21
Total	45	15	4	64

Results

The literature review results reported below are organized by topic: peer educators (characteristics; training; retention), program management (design; planning; and monitoring and evaluation), and program strategies (inputs; processes; and results).

Peer Educators: Characteristics, Training, and Retention

What characteristics of peer educators enhance their performance?

The success of PEO programs largely depends on the personal qualities, skills, and competency of the peer educators. Therefore, it is important to understand how to recruit, develop, and retain peer educators.

Peer educators are role models. Their endorsements have been found to be influential in changing sexual risk behaviors in the population groups where these educators are deployed. Based on a review and synthesis of meta-analytic evidence, Noar (Noar, 2008) identified three types of skills emphasized by different prevention interventions that are crucial to the promotion and maintenance of safe-sexual behaviors: personal and self-management skills, which enhance belief in one's ability to succeed ("self-efficacy") in adopting safe-sexual behavior (goal setting and self-reinforcement); communication skills (discussing and negotiating condom use); and technical skills (knowing how to use condoms). Peer educators who deliver prevention messages and make personal endorsements with reference to their own behavior-change efforts and successes are effective in changing the behavior of those around them. They can be trained to build on their personal experiences to develop communication skills and to discuss complex topics such as norms, attitudes, and self-efficacy (Kelly, 2004). Although personal adoption of the positive behavior (for example, correct and consistent condom use with all sexual partners) is important to the success of peer educators, that is not the only criterion necessary for a project's success.

Peer educators who enjoy local credibility have opportunities for social influence. Organizers of PEO programs and members of the populations these programs serve prefer peer educators who are trusted, well known, and respected people. Planners of the Popular Opinion Leader (POL) programs addressed to gay men, inner-city women, and MSWs in the United States sought to recruit people from these high-risk groups whom their peers identified as leaders (Kelly, 2004). The Sonagachi project, in India, recruited as peer educators people who were older and "high-spirited" (enthusiastic), and who had social connections with brothel owners, police, pimps, and other social power brokers (Evans, Lambert, 2008). Avahan (also known as the India AIDS Initiative) cited acquaintance with a significant number of people at high risk of contracting HIV as an important criterion for a peer educator (Avahan, 2009). Peer intervention programs in the United States, Kenya, and India have sought people with the highest numbers of network contacts for recruitment as peer educators (Avahan, 2009; Luchters, et al., 2008).

Peer educators should maintain local residency in the target area (Evans, Lambert, 2008; Luchters, et al., 2008) and have a working knowledge of local hotspots (places where people meet new sex partners and/or exchange sex for money). Knowledge of sexual risk behaviors has been an essential criterion in selection of peer educators in the Avahan project (Avahan, 2009). Other important attributes of peer educators include but are not limited to the willingness to be a peer, the willingness to learn and work during a typical eight-hour work day, commitment to program goals,

and the ability and willingness to contribute to estimating the population size (Avahan, 2009). Another contributor to the success of peer educators is the ease with which they can relay information about HIV and other STIs (Family Health International AIDS Control and Prevention—AIDSCAP—Project, 1996). Peer educators should understand the geographic and social dynamics of the communities where they live and work and be able to have open discussions with fellow members of those communities.

All of these characteristics can serve as criteria for the selection and recruitment of peer educators.

What types of training will best prepare peer educators?

It is important to understand the scope of activities that a particular intervention may ask of peer educators. Within the literature there were examples of several programs that extended the role of peer educators beyond simply delivering prevention messages. Other activities included hotspot mapping, formative program assessment, design, planning, monitoring, convening mass meetings, training other peer educators, and referral counseling and support (Avahan, 2009; Ngugi, Wilson, et al., 1996). When peer educators engage in these broader roles, they must not only be comfortable with interpersonal communication but also possess technical counseling and public speaking skills; social mobilization and group organization skills; leadership and management/supervision skills; and training, program planning, and analytical skills.

In the Sonagachi and Avahan projects in India and a PEO intervention in Bulawayo, Zimbabwe, peer educators engaged in program management and monitoring activities. They conducted formative assessments, helped with supervision, managed drop-in centers, developed weekly and monthly plans, and tracked performance indicators (Avahan, 2009; Evans, Möller, et al., 2005; Ngugi, Wilson, et al., 1996). Service-delivery activities conducted by peer educators included prevention education; risk-reduction counseling; referrals for tuberculosis (TB), STIs, and other health services; and condom promotion and distribution.

The standard outreach service package of the Avahan project assigns the following tasks to peer educators (Avahan, 2009):

1. Assessing people's risk of HIV infection by gathering information from them on the following topics:

    a. Use of condoms and access to HIV-related services

    b. Number of sexual partners

    c. History of STI symptoms

    d. Such other reported vulnerabilities as violence and stigma

2. Referring and accompanying people at high risk of infection to clinics or drop-in centers

3. Demonstrating condom use

4. Conducting group sessions to educate people about HIV and AIDS and practices that reduce risk

5. Screening for TB and STI symptoms and making sure that clients of TB and STI services receive treatment on schedule

6. Mapping hotspots and services

7. Program monitoring activities

The AIDSCAP project provided guidelines for PEO services, defined in terms of four activities: support for and motivation of behavior change; condom promotion (distribution and education); care and support for people living with HIV/AIDS (PLHA); and referrals and other services. The areas of responsibility for peer educators in the Pumwani project in Kenya were linking people to services; providing STI/AIDS education; condom promotion and distribution; and individual and group counseling on HIV and other STIs (Ngugi, Wilson, et al., 1996). The Songachi project asked peer educators to participate in mass campaigns to build awareness; to behave like agents of change and empowerment; and to distribute condoms (Cornish, Campbell, 2009; Evans, Lambert, 2008; Swendeman, et al., 2009). An HIV prevention program for MSWs in Mombasa trained 40 male peer educators to deliver health information and provide referrals for STI services (Okal, et al., 2009).

The skill sets that peer educators need vary with each educator's scope of assigned work. Peer education and outreach programs may involve technical and social mobilization skills, as well as skills related to work on a particular program focus. Some technical activities assigned to peer educators may vary from one program to another in the degree of social interaction entailed. Promoting and distributing male and female condoms are an example. Peer educators may follow a script associated with prevention messages/education and provide limited amounts of counseling or guidance or refer people elsewhere for support (Avahan, 2009; Leonard, et al., 2000; Luchters, et al., 2008). Social mobilization and empowerment activities, as opposed to technical activities, may require more interaction between peer educators and peers. These interventions may require the peer educator to conduct individual or group counseling sessions that lead to referrals or enrollment in programs. Training peer educators for these interventions will be more intensive, and may require additional oversight and mentoring (Cornish, Campbell, 2009; Ngugi, Wilson, et al., 1996; Swendeman, et al., 2009). In its most challenging form, a peer education intervention may involve training peer educators to make referrals themselves to health services or to collect detailed data. These activities could require them to be able to describe the symptoms and treatment of HIV and other STIs, train others in interpersonal communication skills, and conduct mapping and monitoring tasks. In these situations, peer educators will have received targeted training that could tie into several levels of the local community in dynamic ways (Avahan, 2009; Luchters, et al., 2008; Ngugi, Wilson, et al., 1996).

In each intervention type, the program staff will have to identify the appropriate number of peer educators to implement the intervention effectively. An article by Kelly (Kelly, 2004) is the only reference that cites a specific figure for sizing a cadre of peer educators. In this paper, the author uses social diffusion theories to argue that the number of peer educators should be approximately 15 percent of the population to be served by an intervention.

Associated with the number of people who should be trained, the length of training depends on the type of services offered through PEO. Table 2 provides examples of references that demonstrate the variation in the length of training with the training's purpose.

Table 2: Examples of peer educator training length

Authors	Purpose	Days
Luchters, et al., 2008	Intervention for SWs in Mombasa	5
Murdock, et al., 2003	HIV prevention for women in South Africa	5
Ross, et al., 2006	HIV/AIDS peer education program implemented within the Texas prison system	5
Walden, et al., 1999	Behavior change intervention for commercial SWs in Malawi	4
K. Ford, et al., 2000	Program for FSWs in Bali	2
Leonard, et al., 2000	Program for FSWs in Senegal	2
Ziersch, et al., 2000	Program for MSWs in London	2
Kelly, 2004	POL model	10 hours
Geibel, et al., 2007	Program for MSWs in Mombasa	7 sessions

Training of peer educators ranged from 10 hours to five days. Kelly (Kelly, 2004) claims that one-time training sessions are not as effective as five-day training sessions in improving conversation skills. However, the reviewed literature does not provide a scientific analysis of the link between the duration of the training and the peer educator's performance. Seemingly, there is no common, tested curriculum for the training of peer educators. However, it is generally recommended that training be shaped by a needs assessment and that its duration be determined by the intervention's objectives and by the level of knowledge and skill required for effective implementation.

The provision of refresher trainings is suggested, but there is no universal agreement on how they should be timed. The literature implies that the schedule depends on the dynamics of the intervention and the frequency with which the peer educators are overseen by supervisors. The recommended intervals for booster training varied from weekly sessions (Leonard, et al., 2000; Ngugi, Wilson, et al., 1996) to a six-day advanced training course and a three-day refresher training midway in the project (Luchters, et al., 2008). Continued education is part of many programs described in the literature, but no standards for frequency or timing emerged in the review.

Peer education and outreach interventions use a combination of data collection and education activities. Often, people from the at-risk community are recruited and trained to carry out most of these tasks. Preparing peer educators to initiate a project requires program staff to articulate the intervention's goals and methods in detail. Training materials should be tailored to the intervention in accord with adult learning theory and the literacy level of the peer educators. Peer educators should be provided with initial and ongoing training based on program objectives and needs.

What can implementing organizations do to help retain peer educators?

Low retention of peer educators is a challenge in many PEO programs. Findings from a meta-analysis suggest that retention of peer educators/trainers was poor or mediocre (Medley, et al., 2009). One reason for low retention is that peer educators are frequently subjected to physical and verbal threats (C. Ford, et al., 2007). High mobility among peer educators was a major contributing factor to the high attrition rate in Bali, Indonesia (K. Ford, et al., 2000; Geibel, et al., 2008; Walden, et al., 1999) as well as in Malawi (Ford et al. 2000; Walden et al., 1999). In Mombasa, Kenya (Geibel, et al., 2008), attrition of peer educators was also linked to high mobility, which in turn was linked to stigma and violence among the MSW population there. Low peer-educator retention has also been attributed to a cycle of drug use and rehabilitation (Medley, et al., 2009).

Peer-educator attrition disrupts service delivery and repeatedly training new staff can burden already-stretched budgets. Peer educators may receive some personal benefits from delivering services through an intervention, but program planners should pay attention to the pressures (social dynamics, financial challenges, and work-related mobility) that discourage retention. Here are three examples of strategies implemented by PEO programs to retain peer educators:

■ Using consensus building and negotiating with local power brokers (pimps, brothel owners, and law-enforcement authorities), staff of the Songachi project addressed the unfavorable social dynamics experienced by peer educators (Ghose, et al., 2008). The project also paid peer educators a small salary for their part-time work, which appeared to motivate them to stay in place (Cornish, Campbell, 2009).

■ Avahan also remunerated peer educators. The project paid an honorarium ranging from USD$20 to USD$30 per month to compensate the peer educators for loss of income from sex work. This rate was equivalent to state government pay for work similar to peer education (Avahan, 2009). To retain peer educators, the Avahan project has adopted such strategies as acknowledging peers, instituting a peer progression system, holding peer reunion meetings, and inviting peers to serve on important committees (Avahan, 2009). A key to the success of Avahan and other PEO programs is clear definition of the peer educators' roles and responsibilities (Avahan, 2008; Kelly, 2004; Ngugi, et al., 1996). For example, the peer-mediated FSW intervention in Mombasa retained more than 91 percent (57 out of 62) of the peer educators who were trained at the start of the five-year project (Luchters, et al., 2008). For that intervention, peer educators with specific personal characteristics were carefully selected through consultation with bar maids and other informants. Those recruited received a five-day initial training followed by a six-day advanced training and a three-day refresher training. However, the article does not cite any evidence to show that the project's selection strategy and training model contributed to high retention of the peer educators.

■ Many SWs are highly mobile. This presents an added challenge for programs using SWs as peer educators. In Malawi, mobility was addressed by tracking SWs to their new places of employment (bars, lodges) and making it possible for the SWs to continue acting as peer educators (Walden, et al., 1999). Local perceptions of SWs and of peer educators who are also SWs may also affect retention. For example, the Summertown community in South Africa (Cornish, Campbell, 2009) viewed SWs as "conduits of disease" for the miners employed there. Contrastingly, in Sonagachi, the health risks faced by SWs were viewed and addressed as occupational hazards creating physical and economic insecurity for the SWs. While these descriptions were not tested, anecdotally they may have played a role in the higher peer-educator retention rates in Sonagachi than in Summertown (Cornish, Campbell, 2009).

Retaining peer educators is challenging. Program planners should develop procedures to foster relationships that can shield peer educators from violence and hostilities while supporting their peer outreach and education efforts. Clearly defined roles for peer educators should also be developed to help establish realistic expectations and set attainable goals. Also, given the mobility of SWs, methods should be implemented to support the retention of peer educators when they migrate.

Program Management : Design, Planning, and Monitoring & Evaluation

PEO programs are built around a fundamental set of principles. These principles affirm that SWs deserve and should receive appropriate and beneficial services. Links between people and health services are supported by behavior-change interventions and are challenged by such obstacles as violence, stigma, and geographic distance. Evaluating service delivery for SWs requires staff to use creative and methodologically sound approaches. What are the principles and values accepted as best practice to design peer education and outreach projects?

What principles and values are accepted as best practices for the design of peer education and outreach projects?

Peer education and outreach interventions for SWs are often built around a core set of principles or values. The WHO Toolkit for Targeted HIV/AIDS Prevention and Care in Sex Work Settings (Evans, et al., 2005) outlines a set of 10 principles to guide interventions for SWs. These principles are summarized in the three guiding values (value-based model) put forth by the Sexually Transmitted Diseases (STD/HIV) Intervention Project (SHIP), which was conducted as a sub-project of the Sonagachi project (DMSC-TAAH, 2008):

- Respect (for SWs as people who have the same rights as other citizens, and for sex work as a means of livelihood rather than as a moral condition)

- Reliance (on SWs own understanding and capabilities)

- Recognition (of the agency of SWs, their rights as human beings and citizens, and their rights as workers)

Appendix A provides a systematic representation of how these values have been incorporated into programmatic activities of the Sonagachi project (DMSC-TAAH, 2008).

The values-based model sets standards for accessibility according to which the services provided in public health facilities can be characterized. Meeting these standards can require the site staff to work with hard-to-reach groups to create nonstigmatizing access to services (Coleman, Ford, 1996). Tailoring services to the specific needs of the population to be served can have a dramatic effect on the services' impact. For example, PEO interventions in Kenya, Zimbabwe, and India (Ghose, et al., 2008; Luchters, et al., 2008; Ngugi, et al., 1996) reported customizing clinics to suit local needs (for example, mobile clinics). The Avahan project (Steen, Dallabetta, 2003; Steen, et al., 2006) integrated health needs in addition to HIV and other STIs in its service package. Each of these interventions linked PEO services with the health system. Programs can also address the need for additional services by means of referrals, but the literature does not provide detailed information about this. Other examples of links with public health systems follow.

- Peer-mediated interventions in Zimbabwe provided free STI treatment cards to the peer educators for their own use and to give away. These STI cards allowed the SWs access to free STI treatment in any clinic within the area (Ngugi, et al., 2007).

- Peer-intervention programs in Nicaragua provided SWs with an STI treatment voucher redeemable at any approved clinic (Shahmanesh, et al., 2008).

- Male SWs and health care providers in Mombasa, Kenya were trained in harm reduction and male SWs were trained in health needs. This training included how to recognize anal STI symptoms and how to tailor HIV prevention counseling for male SWs (Okal, et al., 2009).

The Sonagachi project in India, an evidence-based model embracing an empowerment approach, has gained worldwide recognition as a successful peer intervention program for STI/HIV prevention among FSWs. Started as a community intervention, this project evolved into a structural intervention positively influencing the socio-economic and political environment for SWs. This occurred by building awareness and solidarity, providing safe access to health and educational services (such as protection against stigma, violence, and threat), and devoting attention to negotiation skills. The Sonagachi project instituted the Darbar Mahila Samanwaya Committee (DMSC) in each community (Swendeman, et al., 2009). The DMSC, based on a traditional trade-union model with membership fees, provides SWs with many forms of support. It gives them ration cards for government subsidies and food, helps the children of SWs gain admission to schools, and sometimes posts bail to get SWs out of jail (Cornish, Campbell, 2009). The DMSC model has been successfully applied to other social and political sectors and could also be applied to public health systems. HIV prevalence among SWs in the Songachi area is less than 10 percent, compared to more than 50 percent in similar settings in India (Evans, Lambert, 2008; Ghose, et al., 2008).

The literature suggests that linking PEO programs with the public health system is inconsistent across programs. However, some common strategies are to base intervention efforts on humanitarian values (respect, reliance, and recognition), develop an understanding of the at-risk population in order to tailor services to it, and educate service providers about the health needs and risk for HIV infection of SWs so they can care for SWs appropriately.

Providing a holistic approach to program implementation requires planners to establish collaborative linkages not only with SWs but also with other stakeholders. The Pumwani, Zimbabwe (Ngugi, et al., 1996), Avahan (Steen, et al., 2006), and Songachi projects (Swendeman, et al., 2009) offer rich examples of ways to foster relationships with community stakeholder groups. All three projects have partnered with state and local nongovernmental organizations (NGOs) to provide essential services, conduct formative assessments, identify the network of key informants, organize community meetings, engage local community and advocacy groups, and undertake advocacy and negotiation with powerbrokers to keep the projects robust. An example of the impact that this inclusive approach can have appears in a study (Morris, et al., 2009) that found that owners of bars, lodges, hotels, and other hotspots can play a significant role in promoting and distributing condoms.

Developing PEO programs for SWs may pose unique challenges for program planners. Working through the framework of basic humanitarian values (respect, reliance, and recognition) and embracing a host community's special dynamics should enhance programmatic outcomes.

What behavior-change theories support the processes of most peer education and outreach programs?

Evidence shows that theory-based behavioral-change interventions are far more effective than purely information-sharing approaches (Coleman, Ford, 1996; Noar, 2008). An increasing number of behavioral interventions are theory-based. Many behavioral theories are available to guide behavior-change interventions among SWs—for example, cognitive theory, the health belief model, the theory of reasoned action, diffusion of innovation theory, and stages of change

theory (Glanz, 2002). Traditionally, HIV prevention has been based on cognitive-behavioral theories to induce positive change in a person's knowledge, attitude, and behavior (Coleman, Ford, 1996; Morisky, Stein, et al., 2006).

Commonly, modified versions of the diffusion of innovations theory (Rogers, 1983) are used as the theoretical foundation of PEO interventions. The POL model, originally developed for white MSM in the United States (Kelly, 2004), is an example of diffusion innovations theory. The POL model's premise (Kelly, 2004) is that behavior change in a population can occur if enough opinion leaders within the population adopt, support, and endorse innovative behavior. Personal endorsements of safe-sexual behavior by trusted and popular people will likely be adopted by members of their group, because the group perceives such behavior to be beneficial and fashionable (Kelly, 2004). With contextual modifications, the POL model has been replicated in programs focusing on Latino MSM (Somerville, et al., 2006), HIV/AIDS service providers in China (Li, et al., 2007), and inner-city women and MSWs in the United States (Godin, et al., 2008; Kelly, 2004). In several studies conducted over decades, POL-based interventions reduced the frequency and prevalence of high-risk sexual behavior by approximately 30 percent (Godin, et al., 2008; Kelly, 2004). Notable behavior-change interventions with SWs—for example, the Avahan project (Avahan, 2008), in India, and the Pumwani project (Ngugi, Wilson, et al., 1996), in Kenya—were based on social diffusion theory. They used social networks of peer educators who implemented communication- based activities, such as role play, storytelling, conversation, and counseling.

Examples of programs that have been guided by other theoretical models follow.

- A modified version of cognitive behavioral theory has been used to influence perceptions, attitudes, and behavior of individuals and social influence theory has been the basis for interventions to influence structural-level factors—for example, working conditions and the perceptions and attitudes of employers and other powerbrokers (Morisky, et al., 2006).

- A 100-percent condom-use program in Thailand and the Sonagachi project are examples of interventions based on social influence theory (Morisky, et al., 2006).

- The Sonagachi project used ecological theory to posit that the health risks of sex work create economic and physical insecurity for SWs, and that interventions should focus on sex work from the perspective of occupational health rather than morality (Cornish, Campbell, 2009). Project staff worked with the SW community through problem-solving committees to address social factors that disempowered the community (poverty; conflict) and enhance the effectiveness of interventions.

Theory-based interventions benefit from a structure that guides intervention activities and the selection of appropriate outcome indicators. Although diffusion of innovations and stages of change theories are most commonly identified in the literature, field expertise related to the dynamics of specific sites may require program planners to construct their interventions on different, modified, or new theoretical bases.

What methods have been used to address physical/geographical barriers to services?

The degree to which service sites (clinics, hospitals, or mobile units) are accessible is an important factor in their use by clients. Geographic remoteness, expensive transportation, and stigma associated with HIV/AIDS depress the uptake of HIV/AIDS services. Building patronage requires establishing an adequate number of service sites close to the population at risk and removing financial and social barriers to site visits. Identifying the appropriate number of service sites makes meeting the needs of potential clients still more complex.

This literature review did not reveal a precise estimate of the optimum ratio of the number of clinics per thousand people. However, examining the experiences of the Avahan and Sankalp projects yields some guidance for estimating the number of sites needed to serve SWs. For 187,000 SWs dispersed in 77 districts, the Avahan project established clinics in 274 settings (Steen, et al., 2006). The Sankalp project had 530 drop-in clinics, program-run clinics, and outreach clinics for 48,913 SWs across 1,551 locations (Blanchard, et al., 2008).

Planners of the Avahan and Sankalp projects decided the location of service sites using several systems: size estimation, urban mapping, hotspot profiling, and programmatic monitoring processes (Avahan, 2008). Size estimation and mapping exercises point to areas within a geographic region that would most benefit from intervention activities and the necessary social-tailoring of activities. For example, the Avahan project identified 100 towns with hotspots where more than 65 percent of the FSWs in residence congregated. There the Avahan project adds extra activities to reinforce condom use. Furthermore, information generated from these activities will be used to develop scale-up efforts as the project evolves.

Size estimation and community mapping require a certain degree of community engagement (Shattuck, et al., 2009). These efforts will provide program staff with information about the social barriers to services within the community they want to reach. In Mysore, India, recruiting women to help estimate the size of the population to be served (SWs), map hotspots, and develop outreach plans was reported to increase rates of clinic use (Steen, et al., 2006). Prompted by information gleaned from mapping activities, the Avahan project addressed issues associated with stigma and violence, by establishing a campaign to educate SWs about the legal system and by advocating for SWs with local police. Also as a result of the mapping activities, the Avahan project identified the need to provide child care, arrange mobile clinics, and develop contracts with private-sector facilities to address barriers to services (Avahan, 2008). Estimating the size of the SW population is a major challenge in most settings. Estimates of HIV prevalence among SWs exist in many countries, but the reliability of these figures is often compromised by difficulty in enumerating the actual size of SW communities. The literature review turned up an article (Vandepitte, et al., 2010) that provides insight on this problem.

The literature shows that programs with the following characteristics were successful in improving the accessibility of drop-in centers/clinics:

■ Multiple service delivery models (mobile clinics, public facilities, contracts with private clinics)

■ A population-appropriate number of service sites

■ Services customized to overcome prevailing social and financial barriers

Size estimation and mapping can engage community members in an outreach program and foster their sense of ownership. These activities yield information to shape a program's implementation and identify hotspots to increase impact.

What are some of the monitoring and evaluation methodologies used in peer education and outreach programs?

During the development phase, program staff should design an appropriate monitoring and evaluation (M&E) plan. Scaling the M&E plan appropriately depends on budget and staff capacity. Some examples of M&E approaches follow. Specifically, we describe minimum indicators of performance, supervisory overview, and tools to measure knowledge and behavior change and to measure program effectiveness and efficiency.

In the literature, the sets of indicators that PEO projects used varied with each project's goals. Local projects documented the number of condoms or pamphlets shared and the number of people in the population served. Programs focused on scaling up interventions tracked the number of people reached and changes in the uptake of services.

Indicators appropriate for a project must be congruent with the project's goals. Therefore, familiarizing staff with relevant literature and establishing a theoretical foundation for project goals will guide the staff's choice of indicators. Some examples of performance indicators follow.

■ The Sankalp project, an FSW PEO program in Karnataka, India, monitored performance using five output indicators: FSWs contacted at least once, FSWs regularly contacted at least twice a month, FSWs who ever visited the clinic, FSWs who visited the clinic in the past month, and a condom gap (the difference between the number of condoms distributed and the number estimated to be necessary given the number of FSWs and the client volume). This information was aggregated at the town and district level to optimize program tactics and service configurations (Blanchard, et al., 2008).

■ The Avahan project tracked three scale-up indicators for SWs: first-time contact or registration, first-time attendance at clinic, and repeat visits (Avahan, 2008, 2009).

■ In Zimbabwe, a PEO program for SWs recorded the number of community meetings, the number of men (truck drivers, migrant workers, SW clients, and bar patrons) and FSWs reached, and the number of condoms/brochures/STI treatment cards distributed (Ngugi, Wilson, et al., 1996).

PEO programs sponsored by the United States Centers for Disease Control and Prevention (CDC) are based on the POL model. They measure such development and outreach activities as the number of peers identified, recruited, and trained and the number of complete training cycles delivered. CDC-sponsored programs measure how an intervention is diffused and sustained across a community, by gathering information on the number of newly recruited opinion leaders who bring two or more friends to the next scheduled opinion-leaders training, the number of reunion sessions held, and the number of recruited POL who have at least 14 risk-reduction conversations with friends. Another CDC PEO intervention, Peers Reaching Out and Modeling Intervention Strategies, or PROMISE (CDC, 2010a), tracks indicators such as the number of printed stories, the number of behavior-change messages, and the number of people who received role-model stories. PROMISE is a rich resource of information for project development efforts.

As mentioned above, peer educators are often asked to complete a variety of tasks, including data collection. This may be challenging, given the low literacy of many SWs. In the literature, there are examples of using color-, picture-, or symbol-coded tools to track day-to-day activities. The Sankalp project (Blanchard, et al., 2008) and the Avahan project (Avahan, 2008, 2009) used tracking cards, daily tracking sheets, and monthly calendars—referred to as micro-planning tools. Each field contact by the peer educators is logged on a tracking card. Counseling or educational services provided to each FSW are entered on a monthly calendar. Data from the tracking cards, monthly calendar, and clinic records are entered in a central management information system (MIS) housed at the district level. Micro-planning tools such as these can be modified to suit intervention objectives.

Whether peer educators are collecting data, providing educational messages, or counseling peers, supervision is essential to assure quality. Intensity of supervision depends on the educators' activities and the amount of training they have received. Supervisors can implement several methods to oversee performance: for example, meetings (one-to-one, group), formal performance reviews, observation, reviewing client evaluations, or asking peer educators to provide oral and written reports monthly. The following projects provide examples of well-structured supervision systems:

- The Avahan project supervision system is structured around small clusters. Program managers, field coordinators, and staff outreach workers each supervised five to seven peers (Avahan, 2009). Staff outreach workers meet with peers once a week to complete and review the past week's reports and develop plans for the following week.

- Supervision of the Sonagachi project was hierarchical, with daily communication between the project office and field staff. In the clinics, peer educators were supervised by field workers, who reported daily activities to program coordinators, who reported to the project director (Cornish, Campbell, 2009).

- In Zimbabwe, peer educators were spread across seven geographic and demographic zones. Their supervision and monitoring was conducted by a senior peer educator/group leader, who worked with the program coordinator to plan activities and weekly training sessions (Morris, et al., 2009; Ngugi, et al., 1996).

In these examples, a program coordinator either supervises the peer educators directly or indirectly, through senior peer educators. Having senior peer educators supervise other peer educators is useful when geographic locations are widely dispersed, as they were in Zimbabwe (Ngugi, et al., 1996). Of note, the literature reporting these examples does not cite outcomes, such as a change in retention of the peer educators or an impact on the intervention's effectiveness.

What are some examples of peer education and outreach data collection tools and strategies?

Using appropriate, culturally validated measurements provides additional credibility to the measured outcomes of any intervention. Unfortunately, many of the public health metrics implemented in the field are not statistically validated. Instead, field staff routinely generate scales, based on their experience with and knowledge of the culture and topic area. Although this practice is not ideal, these tools are useful when appropriate translation and pilot-testing procedures are conducted prior to implementation (Guest, MacQueen, 2008).

- Morisky, Ang, et al. (2004) provide an example of implementing a longitudinal, multi-follow-up, quasi-experimental design to compare intervention phases across four groups of high-risk heterosexual males receiving interventions. The researchers measured knowledge, by asking participants 20 factual questions about HIV transmission (for example, do you think HIV is transmitted through blood transfusion, drug use, and sharing needles?) and about risk behaviors (for example, how risky is sexual intercourse with strangers without a condom; sexual intercourse with multiple partners; sharing needles; injecting drugs?). Significant increases in knowledge were observed over the course of the intervention, but the researchers neglected to report statistical test results of the comparative change in knowledge over time between intervention and control groups.

- Swendenman, Basu et al. (2009) also used a quasi-experimental design replicating the Sonagachi model of intervention at clinics in two rural towns of Kalkota that had had no prior exposure to Sonagachi. The researchers measured knowledge, by asking SWs to identify STI symptoms and HIV and STI prevention methods. If the participants could identify at least one, they were coded as having knowledge. The researchers found that, compared to standard care, the intervention increased knowledge of STIs.

Methods to assess knowledge of HIV/AIDS and STIs can vary from project to project. Program planners have their choice of several scales. Of particular note are the 13-item scale (K. Ford, et al., 2000) and the 12-item scale (Appendix B of this review) assessing AIDS knowledge and STI knowledge, and the nine-item HIV/STI-transmission-and- prevention knowledge scale that

was administered to a population of prison inmates in South Africa (Sifunda, et al., 2008). Other scales that may be relevant for interventions focusing on SWs are the Gender Equity Norms Scale (Pulerwitz, Barker, 2008; Pulerwitz, Gortmaker, et al., 2000) and the Sexual Relationship Power Scale (Pulerwitz, Gortmaker, et al., 2000).

Anticipated changes in behaviors are usually articulated when an intervention is designed. Appropriate scales and indexes can then be identified and implemented. Generally in the literature, two key behavior-change indicators for SWs are reported as having been used: reduction in risky sexual behavior and reduction of STIs. Below are several examples of ways to measure these outcomes.

Condom use at last intercourse is the variable of behavior change cited most frequently in the literature (Foss, et al., 2007; Godin, et al., 2008; Morris, et al., 2009; Reza-Paul, et al., 2008; Voeten, et al., 2006; Walden, et al., 1999; Wang, et al., 2007). In studies that used this outcome, correlations with other variables, such as HIV risk perception and condom use with partner type (occasional clients, regular clients, and regular partners) were hypothesized and often tested. While many behavioral interventions reported increases in condom use, the magnitude of the use varies by partner type. Following a community-led HIV prevention intervention in Mysore, India, condom use by FSWs at last sex with occasional clients increased from 65 percent to 90 percent; with repeat clients from 53 percent to 63 percent; and with regular partners from 7 percent to 30 percent (Reza-Paul, et al., 2008). Findings from studies in Uganda, Ghana, Kenya, Senegal, Benin, and Guinea are consistent with these findings, in that the partner type is related both to risk perception and condom use among FSWs (Foss, et al., 2007; Godin, et al., 2008; Morris, et al., 2009; Voeten, et al., 2006; Wang, et al., 2007). FSWs perceive sex with regular partners to be less risky, and thus they are less likely to use condoms. A systematic review of the literature on interventions targeting condom use (1998 and 2006) suggests that these interventions are effective in increasing condom use by primary partners if the partners perceive their risk of contracting HIV to be high (Foss, et al., 2007). This relationship has also been identified among MSWs (Sanders, et al., 2007).

It should be noted that a large concern exists within the peer-reviewed literature about the validity of self-reported data (Guest, Bunce, et al., 2005; Stuart, 2009). Program planners and M&E specialists should consider the vulnerability of the target population and work to assuage feelings of fear and distrust (Guest, Bunce, et al., 2005). Also, efforts should be made to triangulate data with alternative research methodologies, such as sampling a small percentage of participants for in-depth interviews or randomly selecting a small number of the participants' sexual partners or peers to validate reported behavior change.

The number of sex partners, number of sexual contacts within a finite period (a week or a month), and type of sex (anal, oral, vaginal) were also considered key outcomes for interventions with male and female sex workers (Geibel, et al., 2008; Ngugi, et al., 2007; Ngugi, et al., 1996; Okal, et al., 2009; Ziersch, et al., 2000), as well as interventions with people living in informal settlements (Murdock, et al., 2003), male clients of FSWs and truck drivers in Senegal (Leonard, et al., 2000), and working women in Botswana (Norr, Tlou, et al., 2004).

STI and HIV transmission rates have been key outcomes for many interventions. Not every intervention setting (site or budget) will provide the opportunity to measure disease outcomes, but when this measurement is possible, it is strong evidence of an intervention's effectiveness (Ngugi, et al., 1996; Shahmanesh, et al., 2008; Steen, et al., 2006). As described in the examples above, knowledge about STI and HIV transmission and the adoption of prevention behaviors are often used to measure change. Decline in STI incidence has been one of the key outcomes of behavioral interventions reported by several studies. Shahmanesh (Shahmanesh, et al., 2008) provides a systematic overview of the literature on STI prevention interventions for SWs in resource-poor

settings. This review found that combining sexual risk reduction, condom promotion, and improved access to STI treatment will result in reductions in HIV and STI acquisition.

The identification and development of appropriate indicators of outcomes are critical to ensuring that the outcomes are meaningful to local policy makers. An intervention's theoretical underpinnings and the clarity of the intervention's anticipated goals lay the foundation for robust outcome indicators. Indicators vary greatly in quality. Attention should be paid to finding indicators that best fit the setting and intervention, ensuring that time and resources are budgeted for appropriate translation, and piloting well before administration.

Program Strategies

In the literature, we identified three aspects of PEO program strategies of note to PEO program planners:

- The type of contact between a peer educator and members of the community designated for intervention
- Establishing and maintaining contacts with peers
- The referral process for peers

What are some effective ways for the peer educator to have contact with members of the intervention community?

Kelly (2004) describes the relationship of diffusion of innovation theory (Rogers, 1983) and the implementation of POL interventions within a community of homosexual men in London to the development of a new trend—in this case, decreasing risky sexual behavior in that community. Kelly suggested that 15 percent of a population designated for attention should receive some sort of intervention by a peer educator (Elford, 2001). Repetition and diversity of messaging from peers was found to have greatest impact in changing HIV risk behaviors. Based on the findings of Luchters (Luchters, et al., 2008), an effective intensity would be three or four contacts between a peer educator and a community member over six months, but this may change according to the length of the project. A peer educator with a large caseload could have trouble finding time for effective interactions. In the Avahan project, each peer educator served 25 to 50 community members; in the Pumwani project, the peer educator served 20 community members (Ngugi, Wilson, et al., 1996).

Of the 50 articles reviewed here, only one (Ngugi, Wilson, et al., 2007) makes specific suggestions about the optimal number of counseling sessions for behavior change. The intervention provided monthly clinic-based counseling sessions—a frequency in accord with the sex workers' reported sexual-risk behavior and perceived needs. HIV counseling and testing was provided every three months, and the researchers suggested this service had multiple effects. First, condom use increased and the number of sexual partners decreased among participants. Second, this change in risk behaviors also contributed to reductions in STI and HIV in this cohort of women. In another study, FSWs who received peer interventions used condoms more consistently (86.2 percent of their sexual encounters) than FSWs who did not receive the intervention (64 percent of their sexual encounters). Anecdotally, FSWs exposed to peer educators four or more times reported fewer sexual partners and a higher rate of protected sex than did FSWs who received fewer visits (Luchters, et al., 2008).

In the literature, condom promotion and distribution were closely linked with the communication component of many PEO programs. Successful PEO programs such as Punwami and Avahan

(Avahan, 2008) described strong education and counseling components in their condom promotion and distribution packages that focused on building skills to negotiate condom use (Avahan, 2009; Ngugi, Wilson, et al., 1996).

Shahmanesh, et al. (2008) found that adding clinic-based risk-reduction counseling to community-based peer-counseling in Madagascar increased self-reported condom use and reduced the incidence of STI. This same strategy may not work where the links between a community and clinics are weak or where peer educators are not trained in clinical counseling. The proper proportion of group versus individual counseling cam be determined based on the assessment of local needs, capacity, and readiness.

Kelly (2004) suggested that popular opinion leaders not only teach HIV/AIDS information but also endorse positive behavior. By telling their own stories of behavior change, peer educators can influence, motivate, and empower their communities to change behavior. Building skills to negotiate with the clients, the pimps, the brothel owners, and providers of health and other services has been the central component of the Sonagachi project (Ghose, et al., 2008).

Interventions that offer a mix of program content to address the different types of sexual partners SWs have (boyfriend, client) and the setting of sex work contracts (brothel or street) were found to be effective. The mix of program content includes condom promotions and distribution, STI/HIV education, STI treatment, and individual HIV- prevention skill development (Luchters, et al., 2008; Norr, et al., 2004; Shahmanesh, et al., 2008). The 100-percent condom-use program in Thailand and the Sonagachi project in India found success with a combination of targeted communication, condom promotion, and STI management and care (Blanchard, et al., 2008; Cornish, Campbell, 2009; Ngugi, Chakkalackal, et al., 2007; Swendeman, et al., 2009).

What are some methods used to maintain meaningful contact with peers?

Maintaining contact with SWs requires a robust system of information tracking. The Sankalp and Avahan projects maintained contact with SWs by constantly monitoring who had not been visited and developing weekly and monthly visit schedules (Blanchard, et al., 2008; Steen, et al., 2006). Continuous contact with SW community members depends on retention of peer educators. In Bali, Indonesia (K. Ford, et al., 2000), a 50-percent attrition rate for peer educators led to discontinuation of contact with peers.

Where local social dynamics permit, public gatherings and mass meetings can be organized to maintain continuity of contact with peers. The Pumwani program held public meetings with all SWs every two weeks in addition to scheduled visits by the peer educators for individual and group counseling sessions (Ngugi, Wilson, et al., 1996). During a randomized trial among FSWs in the Kibera district of Nairobi, Kenya, community meetings with FSWs were held every three months and district meetings with FSWs were held every six months to address risk-reduction and consistent condom use (Ngugi, Chakkalackal, et al., 2007).

Another method used by program developers is to place peer educators strategically in geographic locations where they can develop local rapport with SWs and the community leaders. Peer-mediated interventions in Zimbabwe divided the location into seven zones, with one senior peer educator motivating, organizing, and supervising the interactions of peer educators with their networks in each zone (Ngugi, Wilson, et al., 1996). The Avahan and Sankalp projects (Blanchard, et al., 2008; Steen, et al., 2006) had a similar strategy, in that every peer educator was assigned to a particular hotspot. In Bali, program areas were divided into 30 geographic hotspot clusters, with one peer educator assigned to each cluster (Blanchard, et al., 2008; Steen, et al., 2006). Establishing

a local presence enables a peer educator to build on existing social networks to reach peers and get wind of new dynamics that could be barriers to services for SWs.

Both the Pumwani project and a project in Bulawayo City, Zimbabwe provide examples of the sustainable impact that can be achieved through PEO efforts.

The Pumwani project in Kenya was able to prevent 10,000 new HIV infections per year (assuming an 80-percent rate of condom use and a one-percent transmission efficiency over the life of the project). After the start of the Pumwani project, the rate of STIs among men from the Pumwani area attending the Nairobi Special Treatment Clinic (the main STD treatment and referral center in the city) declined; among men from areas other than Pumwani who visited that clinic, a similar decline was not observed. In four cities of Kenya with STI and HIV control programs modeled after Pumwani, FSWs were able to significantly increase condom use, reduce risky sexual intercourse (anal, penetrative sex) and increase rejection of clients who refused condom use (Ngugi, Wilson, et al., 1996).

A peer-mediated intervention in Bulawayo City, Zimbabwe (Ngugi, Wilson, et al., 1996) led to an increase in condom use from 18 percent to 66 percent over two years. In addition, quarterly attendance at the STI clinic declined from 4,960 over the five quarters before the intervention started to 3,368 for five quarters after the intervention started.

What methods of referral have been most effective?

The effectiveness of a referral process is measured by the use of the services by the SWs who receive the referrals. A systematic information tracking and follow-up system is vital to the effectiveness of a referral process. Referral tracking forms, referral coupons, and daily and weekly information tracking sheets were the key tools identified in the literature review (Avahan, 2008).The Avahan program found that symbol-, picture-, and color-coded tracking sheets (daily and weekly) effectively tracked referrals to STI and other health services. This method captured additional information from people at high risk about condom acquisition, attending counseling sessions, and the number of peers contacted. Documents offering guidance for the development of referral systems exist and are freely available: Sister to Sister Users Guide (CDC, 2010b), Establishing Comprehensive Referral Networks for HIV Care in Low Resource Settings (Family Health International, 2005), and Partnering for Care (MacQueen, May, 2008).

Sex workers are at increased risk not only for HIV but also other STIs. Therefore, including STI treatment has been found to reduce HIV infection and increase the effectiveness of PEO projects (Steen, Dallabetta, 2003). Two STI-related strategies proven to be effective are regular screening and presumptive treatment (Steen, Dallabetta, 2003). Several PEO projects have incorporated both clinical STI services and presumptive STI treatment into programs (Avahan, 2008, 2009; Cornish, Campbell, 2009; Evans, Lambert, 2008; Ghose, et al., 2008; Ngugi, Wilson, et al., 1996; Steen, et al., 2006; Swendeman, et al., 2009).

Referral to STI clinics and other health services is an essential part of a package of HIV/STI services for SWs. Well-known, peer-focused behavioral interventions (for example, Punwami and Avahan) all include referrals in their packages (Avahan, 2009).

Conclusion

Our goal with this document is to provide a systematic description of information found in the literature on PEO programs for populations at high risk of HIV, specifically SWs. We drew articles from both peer-reviewed literature and "grey literature." We identified several areas of overlap, and these can be useful guidance for new programs: the central importance of the peer educator, developing theoretically sound programs tailored to local contexts, and managing the implementation of programs according to evidence-based standards.
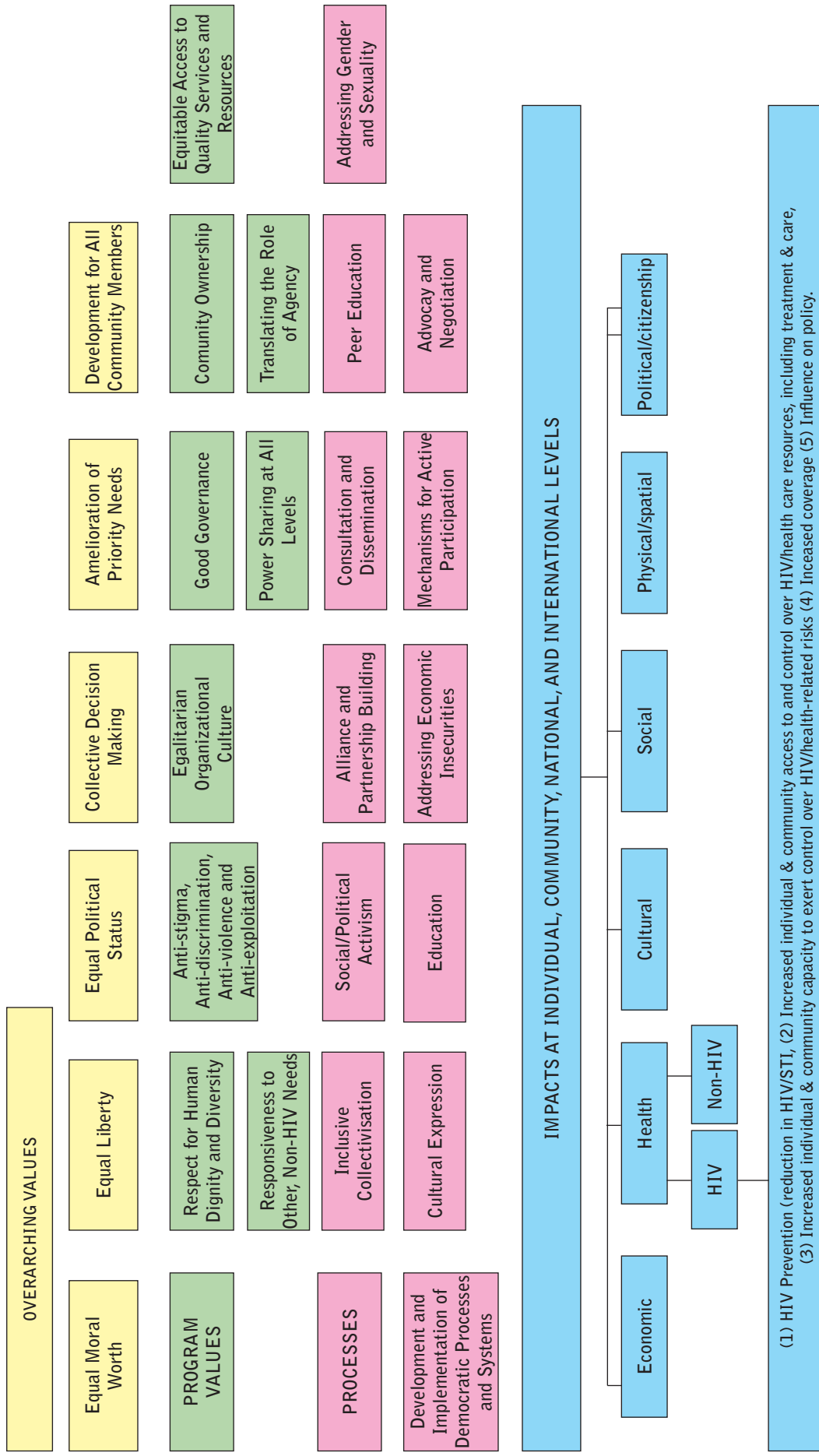
Peer educators are at the center of all programmatic activities. Identifying people who possess appropriate skills and strong ties to their communities enables a program to be effective. Training will help to develop an educator's skills, but this review suggests that equally important are native communication skills and residence within the community where the intervention will take place. This review also identified processes to retain and refresh peer educators that have a positive impact on a program's performance.

The literature reviewed here identified specific values and theoretical frameworks on which PEO interventions should rest. At the heart of this information is the need to respect and engage SWs, rely on their knowledge of what works for them, and recognize that they are citizens with rights and the ability to represent their rights effectively. Building from this foundation, behavior-change theories can guide a program's design and the process of evaluating the design in a methodologically sound manner. Implementation and evaluation will challenge program staff to tailor and improve interventions around a core set of flexible standards.

As anticipated, the papers reviewed for this document focused more on outcomes than processes, with some limitations in outcome measurement. A compendium of practices and experiences can be built from the findings of this work to guide organizations attempting to deliver a PEO intervention. Refinement of the standards is needed to improve staff retention, develop interventions for specific health problems, and improve health outcomes. Current knowledge gathered here and derived both from research studies and from experience in implementing best practices can point the way to standards that will improve the design and implementation of PEO programs for SWs, now and in the future.

Appendix A

Figure 1: Values-based dynamic model of the Sonagachi Project

OVERARCHING VALUES

| Equal Moral Worth | Equal Liberty | Equal Political Status | Collective Decision Making | Amelioration of Priority Needs | Development for All Community Members | Equitable Access to Quality Services and Resources |

PROGRAM VALUES

- Respect for Human Dignity and Diversity
- Responsiveness to Other, Non-HIV Needs
- Anti-stigma, Anti-discrimination, Anti-violence and Anti-exploitation
- Egalitarian Organizational Culture
- Good Governance
- Power Sharing at All Levels
- Community Ownership
- Translating the Role of Agency

PROCESSES

- Development and Implementation of Democratic Processes and Systems
- Inclusive Collectivisation
- Cultural Expression
- Social/Political Activism
- Alliance and Partnership Building
- Addressing Economic Insecurities
- Consultation and Dissemination
- Mechanisms for Active Participation
- Peer Education
- Advocay and Negotiation
- Addressing Gender and Sexuality

IMPACTS AT INDIVIDUAL, COMMUNITY, NATIONAL, AND INTERNATIONAL LEVELS

Economic — Health (HIV, Non-HIV) — Cultural — Social — Physical/spatial — Political/citizenship

(1) HIV Prevention (reduction in HIV/STI, (2) Increased individual & community access to and control over HIV/health care resources, including treatment & care, (3) Increased individual & community capacity to exert control over HIV/health-related risks (4) Inceased coverage (5) Influence on policy.

(DMSC-TAAH, 2008)

Appendix B

AIDS knowledge (Ford, 2000)

Can a person who is already infected with the AIDS virus appear to be healthy?

Can a person who is already infected with the AIDS virus but still appears healthy spread the disease to other people?

Can people catch AIDS by exchanging clothes, eating from the same dish, or shaking hands with a person who is already infected with the virus?

Can an infected woman who is pregnant spread the AIDS virus to her unborn baby?

Can a person catch AIDS by urinating in the same place as a person infected with AIDS?

Do some Indonesians already have AIDS?

Can women who work like you become infected with AIDS?

Can AIDS be prevented by taking medicine/ getting injections regularly?

If a condom is used during sex, can it be used to prevent AIDS, as long as it does not break?

Can a person who gets AIDS be cured?

Is AIDS spread through:

> (a) body sweat, (b) body contact, (c) kissing on the mouth, (d) intercourse without using a condom, (e) injection drug use, (f) having abortions (equipment), (g) blood transfusion, (h) injection using used needles, (i) eating contaminated food, (j) mosquito bites?

Is AIDS always a fatal disease?

Is there any medication that can prolong the life of someone with AIDS?

STD knowledge (Ford, 2000)

Can a person who is infected with a sexually transmitted disease look healthy (without symptoms)?

If all of your clients wear condoms, can you be protected against catching these diseases?

Can these diseases be prevented by taking antibiotics, such as tetracycline, before or after having sex?

Can sexually transmitted diseases be prevented or treated by drinking jamu (traditional medicine)?

Can these diseases be prevented by cleaning the genitals after sex?

Can these diseases be prevented by eating a lot of vegetables?

Can these diseases be prevented by using a net when sleeping?

Can these diseases be prevented by not drinking from the same glass as someone who has an STD?

Can these diseases be prevented by not changing sexual partners?

Can these diseases cause sterility/inability to get pregnant/have children?

If a doctor gives medicine for a sexually transmitted disease, do you have to continue the medicine until it is finished, even if symptoms are gone beforehand?

Can some of these diseases lead to death?

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