

Chapter 2

Overview of Structural Interventions to Decrease Injection Drug-Use Risk

Rationale for Working with Injection Drug Users to Prevent the Spread of HIV

Injection drug equipment sharing continues to contribute dramatically to the worldwide spread of human immunodeficiency virus (HIV) and other blood-borne pathogens among injection drug users (IDUs). After acquiring a blood-borne infection through contaminated injection paraphernalia, IDUs may then pass it to their drug sharing and sexual partners as well as their future offspring (Taussig, Weinstein, Burris, & Jones, 2000). HIV often spreads rapidly among IDUs, in part because very few health and social services are available to them. Internationally, as many as 92 % of IDUs in low- and middle-income countries have no access to any type of HIV prevention (Fiellin, Green, & Heimer, 2008). Furthermore, on average IDUs engage in less safe sex practices than the general population, possibly due to decreased judgment when under the influence and/or unsafe sex in exchange for money or drugs.

Estimates reveal that there are approximately 16 million IDUs worldwide, with an estimated three million living with HIV; of those infected with HIV, 32 % live in Eastern Europe, and 22 % reside in East and Southeast Asia (UNAIDS, 2010). In Russia, Kazakhstan, and the Kyrgyz Republic, more than 70 % of cumulative HIV cases have occurred among IDUs. In Ukraine and Georgia, the rate is more than 60 %. Although IDUs represent the largest share of those infected with HIV in many Eastern European and Asian countries, the epidemiological patterns of HIV infection appear to be changing, with a higher percentage of HIV infections occurring due to sexual contact. These changes may reflect the spread of HIV from IDUs to their sexual partners, indicating that the epidemic is evolving in places from a concentrated one among vulnerable populations to a more diffuse epidemic spreading throughout the general population. Nevertheless, the cumulative number of IDUs living with HIV continues to grow due to longer life spans for people living with HIV/AIDS (PLWHA). Prevention and treatment for IDUs provide a critical

opportunity to contribute to HIV containment, meriting the allocation of scarce resources (Needle & Zhao, 2010).

Brady et al. (2008) estimated the IDU population in the United States to be roughly 1.5 million based on data from 1992 to 2002. “Since the epidemic began, injection drug use has directly and indirectly accounted for more than one-third (36 %) of AIDS cases in the United States” (Centers for Disease Control and Prevention [CDC], 2002, p. 1). In 2000, of the 42,156 new cases of AIDS reported, 11,635 (28 %) were IDU associated, continuing the trend (CDC). Later in 2008, however, the CDC released new estimates for HIV incidence among IDUs, which showed a decline in new infections among IDUs (6,600 drug-related infections in 2006) (Centers for Disease Control and Prevention [CDC], 2006), with a parallel but more modest decline in hepatitis C rates (Harm Reduction Coalition [HRC], 2008). Hall and colleagues (2008) estimated that the HIV incidence among IDUs had decreased approximately 80 % from the peak of the epidemic. By 2009, IDUs represented 9 % of new HIV infections in the USA; however, PLWHA in the USA live much longer than in the past, resulting in a high prevalence of HIV/AIDS cases among IDUs. Furthermore, “African Americans accounted for 48 % of new infections among IDUs, and Hispanics/Latinos accounted for 21 % (CDC, 2011, p. 3),” revealing the disproportionate effect of IDU-related HIV on communities of color.

In many countries, the problem has been framed as a moral and legal issue rather than a public health issue. As a result, IDUs face high levels of incarceration and compulsory detoxification, despite the fact that these approaches do not appear effective and may, in fact, be counterproductive. As such, the greatest obstacles to HIV prevention among IDUs consist of specific country laws, policies, programs, and practices that criminalize drug use and forms of treatment and prevention and the lack of knowledge about the effectiveness of treatment, care, and prevention (Needle & Zhao, 2010).

For countries to decrease the risk of HIV and other blood-borne pathogens among IDUs, they will need to invest in helping IDUs to practice harm reduction strategies, such as using new and clean needles and syringes for each injection and getting medically assisted treatment (MAT) and/or antiretroviral treatment (ART)—all of which appear to prevent the spread of HIV (Needle & Zhao, 2010). To achieve these goals, IDUs need accurate knowledge about HIV transmission and prevention, motivation to change, and access to resources and services that encourage and support safer practices. Many behavioral interventions target knowledge and motivation, while structural interventions have evolved primarily targeting access to resources and services. Structural barriers preventing access, availability, and acceptability of needed goods (e.g., sterile syringes, condoms, medications) and services (e.g., detoxification programs, referrals for social services and counseling) include but are not limited to the following:

- Laws and regulations against the use, possession, purchase, or sale of sterile injecting equipment
- Laws and regulations forbidding distribution of syringes in pharmacies and unwillingness of pharmacists or pharmaceutical boards to do so

- Laws and regulations specifically forbidding the presence of syringe access programs (SAPs) or MAT programs
- Laws and regulations forbidding the use of public funding for SAPs and MAT
- Police violence against IDUs
- Lack of societal support for the financial resources to invest in goods and services for IDUs (e.g., detoxification programs, SAPs, and MAT)
- Lack of collective and individual knowledge about how to prevent HIV transmission
- Marginalization from the general population due to fear of arrest or violent treatment, making IDUs a hard-to-reach target population

The vast literature in this area provides numerous examples of flourishing HIV prevention programs for IDUs, and this book focuses on successful structural interventions within this broader context. Specifically, interventions designed to reverse the prohibitive programs, policies, and practices can be described as structural interventions and vary widely in nature. Nevertheless, certain themes common to all emerge, and there is growing consensus in the public health community that several broad categories of effective prevention for IDUs stand out. This section of this book highlights the themes through an historical perspective, including case studies that illustrate many interrelated strategies used to achieve structural change.

History, Policy, and Examples of Structural Change to Reduce HIV Among IDUs

Early studies by Des Jarlais et al. (1996) in New York in the mid-1980s indicated that a growing number of IDUs were concerned about their risk of HIV transmission and were trying various strategies to avoid infection. In some areas, the demand for clean injection equipment became so high that an underground market developed. In 1984, the Amsterdam Junkiebond (a drug user's advocate group) began exchanging needles to prevent hepatitis B virus (HBV). News of the program spread, and activists concerned with HIV prevention in the USA widely considered the Amsterdam program as a model for HIV prevention (Lane, Stryker, & Smith, 1992).

In 1986 in New Haven, CT, the first operating syringe access program (SAP) in the USA began, followed in 1988 in Tacoma, WA, by the first SAP to receive support from its surrounding community (Lane et al., 1992). Currently 211 SAPs operate in 36 states and territories throughout the USA (Urban Coalition for HIV/AIDS Prevention Services, 2010). Syringe access programs include what others have referred to as syringe-exchange programs (SEPs) or needle and syringe programs (NSPs). Most, but not all such programs facilitate access, availability, and acceptability of clean injection equipment but also encourage and link IDUs to detoxification programs, MAT, and helpful social services. As early as the late 1980s, a few countries outside the USA also responded to the HIV epidemic outbreaks among

IDUs by allowing syringes and needles to be legally sold to IDUs in pharmacies (Taussig et al., 2000). Despite apparent national and international successes, however, in 1988, the U.S. Department of Health and Human Services prohibited the use of federal money for SAPs until the safety and effectiveness of these programs could be demonstrated (Martinez, 2007).

In the early 1990s, the state of Connecticut in the United States partially repealed laws regulating pharmacy sales of syringes and making possession of syringes without a prescription a crime (Groseclose et al., 1995). The first expert-selected study for this section of this book comes from Connecticut and illustrates the potential power of policy change. At the time of enactment of the new laws, Groseclose et al. conducted a study to determine whether the changes in Connecticut's laws affected syringe purchasing and usage by IDUs or police officers' risk of needlestick injuries. They found that the changes in Connecticut laws were associated with decreases in self-reported syringe sharing and increases in purchasing by IDUs of sterile syringes from reliable sources, suggesting that the simultaneous repeal of both prescription and paraphernalia laws served as a potentially important HIV prevention strategy. Further, needlestick injuries among police did not increase after the law. Groseclose et al. emphasized that simultaneous social marketing and peer education strategies contributed to the success of the legislation, as did the multi-sectoral involvement of the health department, pharmacists, and health educators, all working on different levels (individual, community, structural) to affect IDU practices.

Following suit, a number of other states then adopted this tactic and changed state legislation so that IDUs could legally purchase a limited number of syringes from a pharmacy (Gostin et al., 1998). Other legislative changes allowed exemptions from criminal penalties to needle-exchange programs (Centers for Disease Control and Prevention, 2005) or allowed physicians to prescribe needles and syringes to IDUs (Academy for Educational Development, 2002). For example, in 1992, the New York State Department of Health permitted the establishment of five SEPs in New York City, requiring that SEPs provide syringe exchange in the context of comprehensive harm reduction services, "such as outreach, distributing condoms and bleach kits, making referrals for HIV counseling and testing, and providing literature and instruction on HIV prevention and safer injection techniques" (Laufer, 2001). In 1993, Maine legislature passed a law that removed prescription requirements for syringe sales but found that pharmacists were still reluctant to sell syringes to IDUs because it was illegal to possess syringes. In response, in 1997 in Maine, a variety of stakeholders formed a collaborative to sponsor a bill removing criminal penalties for possession of syringes (Taussig et al., 2000).

As a result of these and other apparent successes of SAPs demonstrated by studies from 1995 to 1998, researchers and practitioners increasingly supported a consensus that SAPs prevent HIV. In 1997, both the U.S. Public Health Service and the American Medical Association came forward with statements encouraging IDUs (who cannot or will not cease to use drugs) to use clean equipment with each injection, as well as encouraging state medical associations to initiate policies modifying drug paraphernalia laws so that IDUs can purchase and possess syringes without a prescription. In the same year, the National Institutes of Health called for a

narrowing of “the gap between what scientific evidence clearly supports and the actions of policy makers to provide legislative and financial means” to promote SAPs (Laufer, 2001, p. 8).

Taking a different approach, Latkin (1998) demonstrated the success of a peer education intervention that decreased risk behaviors among IDUs. Peer educators (recovering drug users) received risk-reduction counseling and were encouraged to teach their new skills to other individuals in their personal networks and to promote HIV prevention with their peers. This networking strategy was a critical development in IDU HIV prevention, since it successfully engaged this typically difficult-to-reach population and changed community norms about the acceptability and practices of drug use. In combination with SAPs, networking formed an important new tool for HIV prevention. In 1998, Holtgrave, Pinkerton, Jones, Lurie, and Vlahov published a study in which they determined that the cost of providing sterile syringes and needles via a combination of strategies (e.g., SAPs, pharmacies, outreach, and networking) was far less than the lifetime costs of medical care for a person with HIV.

Around the same time, the evidence for the effectiveness of methadone-based maintenance therapy for HIV prevention was accumulating, although opioid agonist maintenance therapy had existed since the 1960s, when it was developed to last and cause minimal euphoric effect. (By binding to opioid receptors, these medications prevent withdrawal and craving.) Consequently, medication-assisted maintenance treatment reduces the desire to use heroin, thus decreasing the number of injections (Fiellin et al., 2008). A National Institutes of Health (NIH) Consensus Panel on HIV prevention convened in 1997 concluded that efforts to decrease the spread of HIV and its consequences must include the expansion of substance abuse treatment services for opioid-dependent IDUs. In reports from 1998 to 2001, WHO, UNAIDS, and the UN Office on Drugs and Crime (UNODC) documented the effectiveness of opioid agonist treatment as an HIV prevention intervention among IDUs (Needle and Zhao, 2010).

Meanwhile, despite unfavorable attitudes of individual pharmacists toward syringe sales (Taussig et al., 2000), in 1999, the American Pharmaceutical Association joined rank with the other national agencies to support a policy encouraging state legislatures and boards of pharmacy to revise laws and regulations in order to allow for unrestricted sales and distribution of sterile syringes. In 2000, Taussig and colleagues reviewed the current US state and local regulations governing syringe sales and found numerous legal restrictions remained. Taussig argued that syringe laws and pharmacy regulations form structural barriers to HIV prevention along with prescription and possession laws and regulations. They pointed out that all such restrictions on syringe access lead IDUs to share or reuse syringes due to a fear of arrest or harassment. They further contended that policies, programs, and practices that result in IDUs’ increased access to sterile syringes constitute good public health, and the removal of legal and moral barriers, therefore, should form the basis of HIV prevention interventions for IDUs.

International research into HIV prevention for IDUs followed the same trajectory, and the case study from *Bangladesh* reinforces the themes about working with

IDUs that were emerging in the USA. This book entry from Bangladesh presents findings from two cities, Dhaka and Rajshahi. Some baseline surveillance data from 1997 to 1998 and extensive follow-up data from 2000 demonstrated differences between IDUs “exposed” to the SHAKTI (Strengthening HIV/AIDS Knowledge through Training Initiative) intervention compared to IDUs not exposed. SHAKTI involved AIDS education for IDUs and a needle-syringe-exchange program (NEP), drop-in health centers to provide disposable needles and syringes, STI treatment, and condoms for safer sex practice. The program also supplied abscess treatment administered by trained IDUs and utilized active IDUs as peer outreach workers and equipment distributors who raised awareness about HIV/AIDS among IDUs (Jenkins et al., 2001). Although the SHAKTI project primarily demonstrated decreases in needle sharing associated with needle-exchange programs, it should be noted that the intervention employed multiple strategies, as well as education and demonstrations at the individual level and “condom distribution” (an HIV prevention strategy discussed in Section 2 and 3 of this book) by peer educators. In other words, it used several strategies on multiple levels to address behavioral and structural barriers simultaneously.

In 2001, Laufer described a detailed study of the cost-effectiveness of New York State-approved syringe-exchange programs (SEPs) in which he concluded that SEPs were demonstrated once again to be a cost-saving strategy from a societal perspective. Based on this and the growing body of evidence, in 2002, the Journal of the American Pharmaceutical Association dedicated an entire volume (November/December 2002 Issue) to the issues surrounding pharmacy distribution and sales of syringes. The collection of articles lead to several broad conclusions that are summarized by Jones and Coffin (2002) in the overview where they point out that (1) many of the state efforts to support syringe access involved multipronged, multiyear efforts; (2) pharmacists, IDUs, and communities need education about the efficacy of SAPs; and (3) syringe deregulation catalyzes safe community syringe disposal.

A well-known project, the Harlem ESAP (Expanded Syringe Access Demonstration Program) Intervention Project, operated between July 1, 2002, and June 30, 2003. Fully designed and implemented by a collaborative Intervention Work Group (Fuller et al., 2007), it consisted of 30 community-based organizations, four academic institutions, and the local health department. The work group represented a collective long-term coalition in Harlem and used a community-based participatory research (CBPR) model to develop an intervention operating at the individual, community, and structural levels by targeting IDUs, the community, and pharmacies. The comprehensive strategies employed included education on numerous topics for each of the target groups, one-on-one and small group counseling, presentations, community events, and dissemination of materials community-wide. Through evaluations on all three levels, Fuller and colleagues showed that by simultaneously targeting the individual and social environments, high-risk behavior, particularly among Black IDUs, appeared to decrease.

The addition of buprenorphine—in 2002 in the United States and in 2006 throughout Europe—increased the range of proven HIV treatment options in developed nations. That year in a bulletin, the CDC fully embraced the philosophy that

strategies for IDUs must be comprehensive because “access to sterile injection equipment is important, but is not enough.” The CDC (2002) website about IDU HIV prevention said that HIV prevention programs for IDUs should follow the principles of (1) ensuring coordination and collaboration; (2) ensuring coverage, access, and quality; (3) recognizing and overcoming stigma; and (4) tailoring services and programs to specific populations—all principles that are demonstrated by the selected case studies.

At that time, the CDC stated that strategies for addressing HIV among IDUs included the following categories: substance abuse treatment (MAT and detoxification), community outreach, access to sterile syringes, services in the criminal justice system, strategies to prevent sexual transmission, counseling and testing services, partner counseling and referral services, prevention case management, services for IDUs living with HIV/AIDS, and primary drug prevention (CDC, 2002). As with other attempts to categorize HIV prevention strategies, the interventions are not mutually exclusive and could be described according to alternative frameworks.

The case study from *Canada* details the activities of a safer injection facility (SIF), showing it to be comprehensive and to work on multiple levels. In response to an HIV and overdose epidemic, health officials in Vancouver opened InSite, North America’s first medically supervised SIF in September 2003. Under the supervision of medical staff, IDUs in the facility can access sterile injecting equipment, inject pre-obtained illicit drugs in injection stalls, and access nursing care, addiction counseling, and referrals to appropriate community resources (e.g., housing services, addiction treatment). Although similar facilities existed in several European settings and in Australia, few formal epidemiological analyses had assessed their effects on reported HIV risk behaviors such as syringe sharing. The Vancouver SIF was granted a legal exemption to operate on the condition that its impacts were rigorously evaluated.

Examination of data obtained before and after the SIF opened demonstrated wide acceptance of the facility within the local IDU community and showed that it attracted a high-risk population. For the surrounding community, all measures of public disorder showed decreases in the wake of the facility’s opening. In essence, the SIF concept embodies a combination of strategies to reduce the spread of HIV. Although primarily serving as a source of clean equipment (“needle access”), all the additional services and referrals contributed substantially to the success of InSite.

In 2004, the New York State Department of Health published an annotated bibliography of articles and resource materials related to syringe access programs. By this time, dozens of studies from the USA and abroad appeared to have demonstrated the need for and efficacy of SAPs, MAT, and ART although some questions remained. For example, research was still needed to substantiate the claims that SAPs do not increase IDU practices or encourage the initiation of IDU behaviors. “Alongside domestic findings, the World Health Organization reported in 2004 an ‘overwhelming’ conclusion drawn from several global studies that SEPs reduce the spread of HIV” (Martinez, 2007).

In March 2006, the World Health Organization (WHO) added the two primary drugs used in MAT—methadone and buprenorphine—to its list of essential

medicines. Then in September 2006, the U.S. Institute of Medicine released a report urging high-risk transitional and developing countries to take immediate steps to make HIV prevention techniques widely available to injection drug users (Fiellin et al., 2008). In the same year, the Global HIV Prevention Working Group also endorsed the expansion of SAPs to curb HIV transmission. A 2006 article synthesized the findings, concluding that there was compelling evidence of “effectiveness, safety, and cost-effectiveness” for SAPs (Wodak & Cooney, 2006). Subsequently, in 2007, Des Jarlais, Braine, and Friedman (2007) showed that unstable housing was a factor for increased injection risk among IDUs at the US SAPs. His findings spoke to the growing consensus that HIV prevention for IDUs should be comprehensive and should connect IDUs to medical and social services.

In 2007, the Harm Reduction Coalition (HRC) created a grid and narrative summary of the science-based literature on SAPs from 1996 to 2007 in which they concluded that the 27 studies reviewed answered the outstanding questions about SAPs. The HRC stated that the literature supports SAPs because it shows that they reduce HIV transmission, do not promote substance abuse, and do increase enrolment in drug treatment programs (Martinez, 2007). In 2008, the HRC posted an update to the literature review wherein they gave results from over 20 papers written about SAPs, reiterating that findings continued to support the effectiveness of syringe access programs. At the same time, Des Jarlais and Semaan (2008) wrote a seminal article in which they provided context for the decline in HIV transmission among IDUs in the USA.

Given that the fundamental questions about the effectiveness of SAPs in HIV prevention seemed resolved by the scientific and public health communities in the United States, researchers in the USA shifted focus to international settings (HRC, 2008). Political leaders in developing countries needed to be convinced of the value of large-scale HIV prevention programs for IDUs. Therefore, it was critical to develop evidence that such programming could bring HIV epidemics among IDUs under control, particularly in countries in Asia, Eastern Europe, and the former Soviet Union where explosive HIV/AIDS epidemics were driven by injection drug use (HRC). Two such studies from 2007 are also highlighted in this section of this book, the first from China and the second from the China-Vietnam border.

For most of the early AIDS epidemic, *China* banned harm reduction programs (Wu et al., 2007). Over time, and after lengthy negotiations, the Ministry of Health began promoting “needle social marketing” (promotion of safe injection norms) among IDUs. The case study from China evaluates the efficacy of such a strategy, implemented over 12 months in four comparable counties/townships located in Guangxi and Guangdong provinces. Activities included health education by health workers (handing out educational pamphlets, displaying educational posters, delivering lessons about drug abuse and HIV/AIDS, and showing a photo exhibition and education video) and new equipment distribution by peer educators. Wu et al. showed in their research that in a subset cohort of new injectors, the incidence of hepatitis C virus (HCV) was significantly lower in the intervention than in the control condition in both provinces, and although HIV incidence was only significantly lower in the intervention group located in Guangdong, Wu et al. concluded that

needle social marketing showed promise for decreasing the spread of HIV and HCV in China.

In a similar and related study, Des Jarlais and Kling et al. (2007) assessed an HIV prevention program for injecting drug users in the *cross-border area between China and Vietnam*. The project included peer educator outreach and the large-scale distribution of sterile injection equipment, following a peer outreach model developed in the United States. The researchers implemented it in five sites in Lang Son Province, Vietnam, and four sites in the Ning Ming County, Guangxi Province, China, beginning in 2002.

Employing several strategies, trained peer educators (former or current IDUs) regularly contacted other IDUs in the community and provided them with information on reducing drug use and sexual risk behaviors. They distributed sterile needles and syringes, ampoules of sterile water for injection, condoms, and no-cost vouchers that could be redeemed for sterile injection equipment and condoms in participating local pharmacies. In addition, the peer educators collected used needles/syringes directly from drug injectors at injecting sites in the community and safely disposed of them. Des Jarlais and colleagues (2007) conducted serial cross-sectional surveys and were able to show that the large-scale outreach and syringe access programs were followed by substantial reductions in HIV infection among new injectors, with no evidence of any increase in individuals beginning to inject drugs.

Studies annotated in the review mentioned earlier by the HRC in 2008 highlighted a coverage gap of SAP services even in cities in the USA with strong support for SAPs, due HRC suggests, to the federal funding ban on resources for SAPs. In 2010, Burris authored an article in which he reflected on the findings of a review panel that described SAPs as embodying a comprehensive approach to limiting the spread of HIV with an emphasis on access to sterile needles. His thorough discussion and review of the literature concludes that “Despite substantial evidence that expanded syringe access benefits public health without causing other harms, state laws on syringe distribution and possession, law enforcement practices, and actions by the U.S. Congress that limit federal funding for SEPs may be inhibiting the potential of syringe access programs to prevent HIV.”

In December 2009, the President of the USA signed the Consolidated Appropriations Act, 2010, which modified the ban on use of federal funds for syringe access programs (Urban Coalition for HIV/AIDS Prevention Services, 2010). Authorization for some DHHS programs contained partial or complete bans on the use of federal funds for syringe access programs, and therefore, HHS grantees were advised to contact their federal project officers for additional information and guidance. However, the modified provision prohibited the use of federal funds for any syringe access program in any location that local public health or law enforcement agencies determined to be inappropriate and that syringe access programs should adhere to state and local laws, regulations, and requirements.

The Consolidated Appropriations Act applied just to the 2010 fiscal year, and authorization to use federal funds for the 2011 and 2012 fiscal years was not forthcoming. Efforts to issue protocols and procedural guidance to federal grantees have been delayed since the 1-year window for use of federal dollars to support syringe

access has now closed, and there may be future Congressional action that will again ban the use of any federal funds for syringe access. In addition, recently, some researchers have begun to question the strength of the evidence for the consensus around SAPs (Palmateer et al., 2010). Given the political, financial restrictions and new questions about the strength of the research on SAPs, the CDC and World Health Organization (WHO) are increasingly emphasizing prevention of high-risk sexual behaviors among IDUs and provision of MAT.

As noted earlier and in many of the studies cited, IDUs are more likely to engage in high-risk sex than the general population due to either (1) decreased judgment when under the influence or (2) sex in exchange for drugs or money. Thus, interventions discussed in other sections of this book (e.g., “condom distribution”) are becoming increasingly important in HIV prevention among IDUs. Many behavioral programs, in the Sociometrics HAPPA (HIV/AIDS Prevention Program Archive) and the CDC’s DEBI (Diffusion of Effective Behavioral Interventions) collections (e.g., Project Smart: AIDS Education for Drug Users; STRIVE: Study to Reduce Intravenous Exposures; Modelo de Intervencion Psicomedica; and Safety Counts), provide excellent examples of behavioral programs focusing simultaneously on different modes of transmission for HIV.

Similarly, MAT has growing international support as an important part of HIV prevention (Fiellin et al., 2008) because MAT reduces drug use, decreases the frequency of sharing potentially HIV-contaminated syringes and needles, and therefore prevents HIV. The advantages of MAT include relieving cravings, blocking the effect of illicit opioids, preventing withdrawal, and reducing the frequency of injecting drug use and reuse of syringes and needles. MAT has the added advantage that it improves access to HIV treatment (e.g., ART) and primary care, referral to other services, and adherence to HIV medications. A country needs to establish supportive laws, policies, and regulations giving IDUs access to MAT services in order for it to succeed in preventing the spread of HIV. MAT services must be readily available, and the proportion of IDUs reached (coverage) must be scaled up to at least 20–40 %. In fact, some countries have reached 40 % coverage with well-established MAT programs (Needle & Zhao, 2010).

MAT works best when given along with psychosocial counseling, and some programs in the USA and abroad have started to combine MAT with SAPs and/or ART, finding that each can provide a link to the others for IDUs and that ART and MAT work better together than either one alone.

Since addiction is a chronic and relapsing condition, the integrated approach has the advantage that IDUs who relapse have ready access to clean equipment and then treatment (Fiellin et al., 2008). The USA has abundant experience with MAT and funds some pilot projects implementing it in developing countries through the President’s Emergency Plan for AIDS Relief (PEPFAR) program (Fiellin et al.). But in most of the developing world, MAT resources are scarce. Some countries have even limited access to MAT therapy such that only HIV-positive individuals receive services. This approach misses a critical opportunity for prevention among HIV-negative IDUs (Fiellin et al.).

Taken together, the studies selected for this book reaffirm the emerging themes in the literature with respect to HIV prevention for IDUs. That is, they support the

general consensus that SAPs are successful and cost-effective when they offer comprehensive and integrated services, including MAT and/or ART where possible. That is to say that SAPs must address multiple levels (individual, community, and structural); use multi-sectoral, multidisciplinary coalitions of community members, academics, policy makers, and IDUs; and employ several approaches simultaneously (e.g., behavioral and structural; counseling, referrals, provision of goods and services, and linkage to detoxification; and MAT and ART treatment). The selected examples also support the principles endorsed by the CDC in 2009 outlined earlier. By reviewing a few rigorously evaluated interventions, this book assesses how several interconnected strategies—changes in legislation, needle exchange, safer injecting facilities, social marketing, and peer education—have contributed to promoting safer injection behaviors among IDUs.

Case Study 1: Legalization of Needle and Syringe Sale and Possession: Effect on Connecticut Injection Drug Users' Injection Practices

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Abstract

Syringe and needle sharing among injection drug users (IDUs) has the potential to spread HIV in addition to other blood-borne pathogens. IDUs can prevent new HIV infections with the consistent use of sterile drug-injecting equipment or the cessation of injection drug use altogether. While many IDUs know how to avoid HIV infection through safer injection practices, the restricted availability of syringes contributes to the continued use of contaminated syringes and needles. For IDUs unwilling or unable to enter drug treatment, increased sterile syringe and needle availability decreases the likelihood of needle and syringe sharing.

In May 1992, the state of Connecticut passed two new laws permitting (1) pharmacists to sell up to 10 syringes to individuals without a prescription and (2) individuals without medical prescriptions to possess up to 10 syringes without drug residue. Both laws took effect on July 1, 1992.

Researchers conducted two surveys about behaviors before and after the new legislation among IDUs in four Connecticut towns. They conducted a baseline survey 1–4 months after the new laws were enacted (from August through November 1992) and asked 124 IDUs to describe their practices and behaviors during June 1992 (the 30-day period just before the laws were implemented and 2–4 months before the interview). Eight to 11 months after the new law went into effect, the researchers conducted a second survey with 134 IDUs to determine subsequent practices. In addition to demographic data, they collected information about needle and syringe sharing, ownership, and origination source.

At baseline, 52 % of IDUs who reported ever sharing a syringe had done so in the past 30 days compared to 31 % at the time of follow-up, reflecting a significant change. At baseline, more IDUs reported that they obtained syringes on the street, in a “shooting gallery,” and from other sources rather than from pharmacies and needle exchanges. Significantly more IDUs reported obtaining syringes from pharmacies and needle exchanges in the follow-up survey. In addition, Hartford, Connecticut, police officers reported having fewer needlestick injuries in the 6 months after the laws changed compared to the 6 months before. It took time for the IDU community to become aware of the Connecticut laws, with significantly more IDUs knowledgeable during the follow-up survey compared to the baseline survey.

The evaluation of injection practices among IDUs before and after the change in Connecticut laws revealed a significant improvement in both syringe practices and knowledge of the laws. Although the incidence of HIV infection was not measured directly during this study, the increased use of sterile needles and syringes may have translated into HIV transmission prevention.

Program at a Glance

Goal: To promote the use of sterile syringes among injection drug users (IDUs) in Connecticut, by making it legal for pharmacists to sell up to 10 syringes without a

prescription and by allowing individuals without prescriptions to legally possess up to 10 syringes without drug residue

Target Populations: Injection drug users

Geographic Location and Region: Connecticut, USA

Establishment and Duration: The legislation change occurred in May 1992 and went into effect in July 1992.

Resources Required and Goods and Services Provided: Not applicable

Strategies and Components: Change in state legislation

Key Partners: Connecticut State Legislature

Key Evaluation Findings

Statistically Significant

- Decreased needle sharing
- Location change where IDUs obtained syringes
 - Increased obtaining from pharmacists and needles exchanges
 - Decreased obtaining from street sources and “shooting galleries”
- Increased awareness of new laws among IDUs over time
- Decreased police officer reports of needle-stick injuries

No Effect

- No change in pharmacy prices of syringes
- No change in percent of IDUs reporting that they always carry a syringe with them

Program Information and Implementation

Background, History, and Public Health Relevance

Drug paraphernalia and syringe prescription laws create a serious impediment to the accessibility of sterile drug injection equipment for IDUs in the United States. In some states, it is illegal both to sell and possess needles and syringes without a medical prescription. Without easy access to sterile syringes and needles, IDUs resort to needle sharing with other IDUs, which increases the risk of HIV transmission.

Until 1992, the State of Connecticut had prohibitive syringe prescription and drug paraphernalia laws, and in the 1990s, the state was experiencing widespread

HIV transmissions associated with injection drug use. In 1992, one out of every 10,000 Connecticut residents was an HIV/AIDS positive injection drug user. Forty percent of all HIV/AIDS cases reported that year were among IDUs.

Theoretical Basis

The law changes were grounded in the principles of harm reduction, which focuses on reducing the negative effects from unsafe behaviors rather than the occurrence of unsafe behaviors.

Objectives

The law changes aimed to increase the use of new, sterile injection drug-use equipment by increasing the accessibility and availability of new needles and syringes to injection drug users.

Class and Type of Outcome or Behavior Change Targeted

- ☒ Decrease IDU risk
- ☐ Decrease noncommercial sex risk
- ☐ Decrease commercial sex risk
- ☐ Increase health services utilization (exams, testing, and treatment)

Target Population and Venue for HIV Prevention

The laws apply to injection drug users residing in the State of Connecticut.

Pathways for Structural Change

- ☐ Changes in programs
- ☐ Changes in practices
- ☒ Changes in policies and laws

The intervention operated through a change in laws regarding the availability and accessibility of sterile needles and syringes for injection drug users.

Strategies and Tactics for Structural Change

The intervention focused on the legal environment of the target population through changes in Connecticut state legislation. Local political organizing and coalition

building were key strategies employed to bring about the law changes. To legalize needle-exchange program activities, beginning in 1987, the New Haven AIDS activity community lobbied the state legislature to repeal the state law banning the purchase or possession of syringes without a prescription. In 1990, the community was able to negotiate an exception to syringe prohibition legislation, allowing state financial support for a demonstration needle-exchange program and evaluation. A needle-exchange program in New Haven was operated for a year, trading up to five needles and syringes per IDU at a time, with accurate records kept of all exchanges. The program was successful, with more than 200 different customers visiting the exchange site in the first 30 days.

A team of researchers at Yale University evaluated the demonstration program and released a report in July 1991 detailing the success of the program. The needle-exchange program may have reduced HIV transmission by a third, based on the drug use and HIV risk behaviors reported from 720 IDUs and 1370 syringe tests. The success of the demonstration program influenced the political agenda of the Connecticut state legislature in 1992. In addition to repealing laws prohibiting syringe possession without a prescription, Connecticut increased the number of sanctioned and funded needle-exchange programs and raised the number of syringes that could be exchanged at a time to ten.

Core Components

- Political organizing and coalition building
- AIDS activists lobbying state legislature
- Demonstrated public health benefit of needle exchange
- Prohibitive needle purchase and possession legislature repealed

Resources Required

Not applicable

Management Structure

Not applicable

Implementation Themes

Legalizing the sale of and possession of sterile needles and syringes helped to promote the use of new injection drug equipment by injection drug users.

Main Challenges Faced

The unwillingness of some pharmacists to sell syringes to IDUs may have decreased the efficacy of this intervention.

Program Continuity and Present-Day Status

The law changes remain in effect in Connecticut at the time of this publication, most states in the USA have adopted similar legislation allowing injection drug users legal access to new needles and syringes.

Other Locations and Regions that Have Implemented Similar Programs

All of the states in the USA except Delaware and New Jersey have passed similar legislation. Similar needle and syringe allowances are found in Western Europe, much of Central and Eastern Europe, Australia, New Zealand, and Oceania.

Original Program Evaluation

Study Design

Timeline and Duration

New laws regarding the sale and possession of sterile needles and syringes in Connecticut were passed in May 1992 and went into effect on July 1, 1992. A baseline survey was conducted from August through November 1992, with the researchers asking injection drug users about their behaviors in June 1992 (the 30-day period before the new laws were enacted). A follow-up survey was conducted in March through June 1993 and asked participants about their behaviors during the previous 30 days.

Cohorts

- ☒ Cross-sectional (snap shots in time)
- ☐ Longitudinal (same people followed over time)

Temporal Direction of Data Collection Relative to Intervention

- ☒ Prospective
- ☐ Retrospective

Researchers collected data prospectively. The nature of the data was based on subject recall of behavior in the last month and may be considered retrospective in that regard.

Assessment Time Points (Temporal Comparison)

- ☒ Before and after intervention (baseline and follow-up measures)
- ☐ After only
- ☐ Serial (more than two measures taken over time)

Implementation Level (Geographic Comparison)

- ☐ Countries
- ☒ Regions (state level)
- ☐ Counties
- ☐ Cities
- ☐ Towns
- ☐ Villages
- ☐ Households
- ☐ Couples, pairs, and dyads
- ☐ Individuals

Sampling Unit

- ☐ Countries
- ☐ Regions
- ☐ Counties
- ☐ Cities
- ☐ Towns
- ☐ Villages
- ☐ Households
- ☐ Couples, pairs, and dyads
- ☒ Individuals

Recruitment Techniques

Researchers recruited IDUs from three health department-based HIV counseling and testing programs, three correctional facilities, and two drug treatment centers in four Connecticut towns—Bridgeport, Hartford, Montville, and Waterbury.

Randomization

- ☒ No
- ☐ Yes
 - ☐ Random assignment
 - ☐ Random sampling

Randomization was not possible since the enacted laws applied statewide. Sampling was not random but was opportunistic in nature.

Study Type

Quasi-experimental

Methods

Data Collection

Data Sources

- ☒ Questionnaire or survey
- ☐ Chart information or surveillance
- ☐ Record of biological specimen (e.g., urine sample)

Interview

- ☒ Interviewer administered
- ☐ Self-administered

Instruments

- ☒ Paper and pencil (data entry after fieldwork)
- ☐ Computer (ACASI or direct data entry in the field)

Modality

- ☒ In-person
- ☐ Mail
- ☐ Phone
- ☐ Internet

Staff members enrolled participants consecutively and interviewed IDUs at three health department-based HIV counseling and testing programs, three correctional facilities, and two drug treatment centers in four Connecticut towns. Only male

IDUs were interviewed in correctional facilities and were interviewed within 7 days of being admitted or incarcerated.

Data Analysis

Outcome Variables Measured

- ☒ Knowledge, attitudes, and beliefs
- ☒ Behaviors and practices
- ☐ Biomarker and clinical data

Variables Included

1. Knowledge of new laws—percent aware of partially repealed needle prescription and drug paraphernalia possession laws at the time of the initial survey and then after the new Connecticut laws at follow-up survey
2. Needle and syringe sharing—percent who ever shared a needle and syringe and percent who owned their own needle and syringe
3. Source of needle and syringe—on the street, in a pharmacy, in a “shooting gallery,” or a needle exchange
4. Other drug injection practices—duration of injection drug use, number of injections in the past 30 days, number of syringes owned at one time, and number of times a syringe was reused
5. Needlestick injury rates among Hartford police officers

Other Variables Measured

- ☒ Demographics
- ☐ Risk groups
- ☐ Behaviors

Statistical Methods

The researchers compared sample means from the initial and follow-up surveys with independent two-sample t-tests. They used independent two-sample z-tests to compare rates and proportions between initial and follow-up surveys.

Strengths and Weaknesses of the Study Design and Methodology

- ☐ Cross contamination between intervention and comparison groups
- ☐ Concurrent interventions occurring in experimental or comparison areas
- ☒ Historical bias or trend due to historical factors

Due to the large-scale implementation of the law changes, it was not possible for the researchers to randomly assign one region to the law changes and another as a control. Any differences between the two time points may have been caused by some other factor than the law changes. The IDU samples were not randomly selected, and the researchers acknowledge that their representativeness of the population was uncertain. The samples may have overrepresented ethnic and racial minorities. The study also relied on self-report data from IDUs who were asked to recall information about the recent past, which may be affected by intentional or unintentional bias.

Results

Sample Size

Baseline	Follow-up	Total
124	134	258

During the initial survey, the researchers asked 187 people to participate; 124 (66 %) IDUs were qualified and accepted, 9 (5 %) refused to participate, and 54 (29 %) had never injected drugs or were no longer actively injecting drugs and were ineligible. The researchers asked 210 people to participate in the follow-up survey: 134 (64 %) qualified, 8 (4 %) refused to participate, and 68 (32 %) were ineligible.

Retention and Loss to Follow-Up (Cohort Studies Only)

Not applicable to this study

Sample Demographics

Age

The median age of both samples was 35 years (range 17–56 years).

Race or Ethnicity

	Baseline (%)	Follow-up (%)
Non-Hispanic White	43	47
Hispanic	40	34
African American	17	19

Gender

	Baseline (%)	Follow-up (%)
Male	79	83
Female	21	17

Sexual Orientation

Not reported

Outcome and Other Measures

Measure	Finding
Knowledge of new laws	Knowledge of the new laws increased among IDUs over time: Significantly more IDUs were aware of the new laws 8–11 months after they were enacted as compared to 2–5 months after they were enacted ($p=0.04$). During the follow-up survey, 7 % did not know about either new law as compared to 23 % during the initial survey ($p=0.001$)
Needle and syringe sharing	After the new laws were enacted, needle sharing decreased: The percent of IDUs who reported ever sharing a needle and syringe decreased from 68 % to 52 % ($p=0.03$). The percent of IDUs who reported ever owning their own needle and syringe increased from 92 % to 99 % ($p=0.004$)
Sources of needles and syringes	IDUs reported obtaining needles and syringes from safer sources after the new laws were enacted: On the follow-up survey, fewer IDUs reported purchasing needles and syringes from the street (74 % vs. 28 %; $p<0.0001$) or in shooting galleries (45 % vs. 16 %; $p<0.001$). In addition, more IDUs reported purchasing needles and syringes from pharmacies (47 % vs. 90 %; $p<0.0001$) and needle exchanges (6 % vs. 19 %; $p=0.01$) on the follow-up survey
Other injection drug practices	The duration of drug use and frequency of injection for IDUs in the initial and follow-up samples were similar: IDUs reported using drugs for a median of 14 years in the initial sample and 13 years in the follow-up sample ($p=0.61$). IDUs in the initial sample reported a mean number of 143 injections in the previous 30 days, while those in the follow-up sample reported 124 ($p=0.13$). The number of reported syringes owned at one time increased slightly, from 9 to 11 ($p=0.63$). The number of times a syringe was reused remained stable over time (8 vs. 7 times; $p=0.65$)
Needlestick injury rates	Needlestick injury rates among Hartford police officers decreased after the new laws were in effect (6 injuries in 1,007 drug-related arrests for the 6-month period before vs. 2 in 1,032 arrests for the 6-month period after)

The changes in Connecticut laws correlated with decreases in self-reported syringe sharing and increases in purchasing sterile syringes from reliable sources, suggesting that the simultaneous repeal of both prescription and paraphernalia laws worked as an HIV prevention strategy. The 39 % decrease in syringe sharing reported by IDUs in the follow-up sample represents a significant reduction in risk that may have led directly to a decrease in the transmission of HIV and other blood-borne pathogens.

Conclusions

The study suggests that new legislation in Connecticut had a positive impact on syringe-purchasing and syringe-sharing practices among IDUs. After the new laws went into effect, IDUs were more likely to purchase syringes in a pharmacy than to obtain them on the street or share them with another IDU. Furthermore, safer injection practices correlated with increased access to sterile syringes and knowledge of the new laws.

Implications and Lessons Learned

After Connecticut's legal syringe sale laws went into effect and were proven successful, other states changed their legislation in an attempt to decrease needle sharing by legalizing needle and syringe sales in pharmacies. As of May 2011, the State of Delaware remains as the single US state not to have adopted similar syringe sale provisions for IV drug users.

In January 2011, a Senate committee of the State of New Jersey approved legislation that would allow pharmacies to sell up to 10 syringes to users without a prescription. While the bill, S-958, must still be approved by the Assembly and the governor, proponents are hopeful that the new laws will help slow the spread of HIV, since at least 40 % of the state's HIV cases are linked to injection drug use.

Legalizing the nonprescription sale of needles and syringes is a cost-effective way for states to increase the availability of clean needles and syringes to IDUs. Although needle-exchange programs also increase the availability of new needles and syringes to this population, they are limited by funds and intolerant communities. Legalizing syringe sales in pharmacies is beneficial for IDUs in cities with limited or no needle exchanges or for IDUs who prefer to obtain syringes at pharmacies due to confidentiality issues.

Supplementary Materials Available

Connecticut General Statutes 21a-65(b)—Sale of hypodermic needles and syringes restricted

- http://www.lawserver.com/law/state/connecticut/ct-laws/connecticut_statutes_21a-65

A Comprehensive Approach: Preventing Blood-Borne Infections Among Injection Drug Users

- <http://www.cdc.gov/idu/pubs/ca/comprehensive-approach.pdf>

State and Local Policies Regarding IDUs' Access to Sterile Syringes

- http://www.cdc.gov/idu/facts/aed_idu_pol.pdf

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Case Study 2: The SHAKTI Intervention in Bangladesh: (Stopping HIV/AIDS through Knowledge and Training Initiatives) A Needle Exchange Program's Effect on Injection Drug Users' Injection

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- Abstract
- Program at a Glance
- Program Information and Implementation
- Original Program Evaluation
- Implications and Lessons Learned
- Supplementary Materials Available

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Abstract

Unsafe injection practices among injection drug users (IDUs) contribute significantly to the spread of HIV in Dhaka, Bangladesh. In August 1998, the National HIV Surveillance found that among a sample of 400 IDUs, 2.5 % were infected with HIV. IDUs in the Dhaka area averaged 20 injections per week, most of which were with shared needles and syringes. In order to curb the spread of HIV from IDUs to other high-risk groups (such as commercial sex workers [CSWs]) and to lower-risk groups (such as the partners of those who visit CSWs), CARE Bangladesh began to promote the use of safer injection practices among IDUs who were unable or unwilling to stop using injection drugs.

CARE Bangladesh established the *SHAKTI* (Stopping HIV/AIDS through Knowledge and Training Initiatives) project in 1995 with funding from the UK Department for International Development. The *SHAKTI* project's goals were to reduce the transmission of HIV/AIDS in Bangladesh by helping high-risk populations adopt safer behaviors. The *SHAKTI* project included interventions in the cities of Tangail and Dhaka for street and brothel CSWs and interventions targeting IDUs in the cities of Dhaka and Rajshahi.

In Rajshahi, the *SHAKTI* project established needle-exchange programs (NEPs) in private residences frequented by IDUs (*addas*). The *addas* received daily deliveries of needles and syringes, and educators and supervisors were present at the *addas* to provide information about HIV risk and prevention tactics. By late 1999, the *adda*-based NEP was reaching an estimated 10–20 % of local IDUs.

In Dhaka, the *SHAKTI* project established drop-in centers to provide IDUs with general medical information, treatment for abscesses and STIs, a safe place to rest or socialize, and condoms. The condom distribution aspect of the drop-in centers was successful, and in mid-July 1999, approximately 16,000 condoms were being distributed every month across the wards of Dhaka. The *SHAKTI* project also established a NEP with peer outreach workers in Dhaka that in late 1999 was reaching approximately 3,500 IDUs with an average needle-exchange rate of 73 %.

The National HIV Surveillance has been monitoring the results of the *SHAKTI* program on HIV transmission and IDU behavior since the implementation of *SHAKTI* programs in Dhaka and Rajshahi. The first round of HIV surveillance, conducted in mid-1998, measured HIV and syphilis infection prevalence in Dhaka only and behavioral risk factors of injection drug use in both Dhaka and Rajshahi. The National HIV Surveillance also conducted a follow-up survey of behavioral risk factors in mid-1999, in Dhaka only.

A more recent study evaluated the results of the second round of surveys completed by the National HIV Surveillance between January 3 and March 25, 2000. Researchers conducted a full-scale mapping of both Dhaka and Rajshahi and identified sites where drugs were obtained or injected. In Dhaka, researchers interviewed 682 IDUs, and in Rajshahi, researchers interviewed 512 IDUs for the study. A private interview lasting approximately 25 min asked participants about injection behaviors and exposure to *SHAKTI* program interventions. After the interview,

participants received a short educational briefing on HIV and STIs, a condom demonstration, and five condoms.

While the researchers were unable to compare statistically the first and second round of surveillance data because of sampling differences, it appeared that injection sharing decreased over time in both Dhaka and Rajshahi. In Rajshahi especially, participation in HIV intervention programs such as NEPs had a significant effect on needle sharing. IDUs were much less likely to have shared and more likely to have used new equipment if they were intervention participants. In Dhaka, intervention nonparticipants were more likely to have shared equipment than intervention participants. Unlike Rajshahi, in Dhaka, intervention participation was not a reliable predictor of needle non-sharing. The intervention in Rajshahi had a greater impact on the smaller, less mobile group of IDUs who consistently used injection drugs in the *addas* than it did on IDUs in Dhaka.

Program at a Glance

Goal: To reduce the spread of HIV in Bangladesh by promoting safer drug injection practices and safer sex among injection drug users (IDUs)

Target Populations: Male Bangladeshi injection drug users

Geographic Location and Region: The cities of Dhaka and Rajshahi in North Bengal, Bangladesh

Establishment and Duration: CARE Bangladesh established the *SHAKTI* project in 1995. In 1998, intervention activities began, and the first round of HIV surveillance was conducted in mid-1998. The second round of surveys was completed between January 3 and March 25, 2000.

Resources Required and Goods and Services Provided: Condoms and sterile syringes and needles to distribute free of charge, funding to establish drop-in centers and to staff the centers

Strategies and Components

- Increased availability and accessibility of sterile needles and syringes and condoms
- Targeted IDUs by providing drop-in centers offering health information and resources

Key Partners: An evaluation study used data gathered by the CARE Bangladesh *SHAKTI* project and the Bangladesh National HIV Behavioral Surveillance, 1998–2000. The UK Department for International Development (DFID) and Family Health International/IMPACT (USAID) provided funding for the *SHAKTI* project.

Key Evaluation Findings

Statistically Significant

- There were a greater number of married, educated, and less mobile IDUs in Rajshahi compared to Dhaka.
- There was more “cocktailing” and IV injecting (rather than intramuscular injecting) in Rajshahi.
- A higher percent of IDUs never shared equipment in Rajshahi compared to Dhaka.
- A higher percent of injections where equipment was not passed on and where equipment was not shared in either direction existed among NEP participants (compared to nonparticipants) in Dhaka and Rajshahi.
- NEP participants were more likely to use new equipment only, never to pass on used equipment, and never to share in either direction than nonparticipants in Rajshahi.
- A higher percent of injections were with new equipment only among NEP participants in Rajshahi as compared to nonparticipants.

No Effect

- In Dhaka, NEP participants were no more likely than nonparticipants to use new equipment only, never to pass on used equipment, and to share in either direction.
- There were no significant differences between the mean percent of injections with new equipment only between non-NEP participants and NEP participants in Dhaka.

Program Information and Implementation

Background, History, and Public Health Relevance

In 1995, CARE Bangladesh began the *SHAKTI* (Stopping HIV/AIDS through Knowledge and Training Initiatives) Project in order to help prevent the spread of HIV/AIDS among injection drug users (IDUs) in Bangladesh. The HIV prevalence in Bangladesh was relatively low at the time when compared to India and other parts of Southeast Asia, even among such high-risk groups as IDUs and CSWs. The *SHAKTI* project targeted specific at-risk populations by providing them with information and resources on adopting HIV preventive behaviors. The *SHAKTI* program was composed of four separate interventions: a brothel CSW intervention in Tangail, a street CSW intervention in Dhaka, scaling up interventions among IDUs in Rajshahi and men who have sex with men (MSM) in Dhaka, and an IDU intervention in Dhaka.

In 1997, CARE Bangladesh administered an intervention baseline survey in Dhaka that estimated the size of the IDU population and the extent of HIV-1 infection. In 1998, CARE Bangladesh assessed another six cities in Bangladesh and determined that a large population of IDUs existed in Rajshahi. In order to monitor HIV transmission throughout Bangladesh and the effectiveness of intervention programs, the National HIV Surveillance began a first round of IDU surveys in Dhaka and Rajshahi in mid-1998. Since then, the National HIV Surveillance has measured IDU behavioral practices and IDU HIV rates on a consistent basis.

Previous evidence suggested that needle and syringe sharing were common practices among IDUs, and the *SHAKTI* intervention methods focused on accessible needle exchanges and teaching safer injection practices to IDUs.

Theoretical Basis

The program was grounded in the principles of harm reduction, which focus on reducing the negative effects from unsafe behaviors rather than the occurrence of unsafe behaviors themselves.

Objectives

The *SHAKTI* intervention aimed to decrease risky sexual and drug use risk-related behaviors in order to decrease HIV and STI transmission.

Class and Type of Outcome or Behavior Change Targeted

- ☒ Decrease IDU risk
- ☐ Decrease noncommercial sex risk
- ☒ Decrease commercial sex risk
- ☒ Increase health services utilization (exams, testing, and treatment)

Target Population and Venue for HIV Prevention

Injection drug users in Dhaka and Rajshahi cities are the focus of the evaluation

Pathways for Structural Change

- ☒ Changes in programs
- ☒ Changes in practices
- ☐ Changes in policies and laws

The intervention operated through changes to programs to increase the availability and accessibility of resources such as health care, needles and syringes, and condoms to IDUs. The *SHAKTI* project also operated through changes to the practices of NEPs to increase the reach of services to IDUs.

Strategies and Tactics for Structural Change

The intervention targeted physical and social environments in the following ways:

Changes to the physical environment	Description
Drop-in centers	In Dhaka, seven drop-in centers provided IDUs a safe place to find information, socialize, seek medical treatment, and obtain condoms. A doctor saw drop-in center clients once a week to treat abscesses and STIs and to provide medical advice
Condom distribution	Condoms were distributed on a large scale as part of the intervention in Dhaka. In 1999, the <i>SHAKTI</i> project distributed approximately 16,000 condoms every month across the wards of the city
Needle exchange	In Dhaka, the <i>SHAKTI</i> project established a needle-exchange program so IDUs could exchange and obtain sterile needles and syringes on a daily basis. Peer outreach workers (current drug users who agreed not to carry or inject drugs while working) passed out new needles and offered health services in places where IDUs gathered. In Rajshahi, a needle-exchange program operated through residential <i>addas</i> (private residences that IDUs used as injection facilities) where new needles and syringes were delivered on a daily basis
Changes to the social environment	Description
Peer outreach	In Dhaka, peer outreach workers staffed drop-in centers daily and worked with IDUs in the community. In Rajshahi, educators were present at <i>addas</i> to supervise injection practices and provide information about safer injecting behaviors

Core Components

The *SHAKTI* intervention components worked together to bring about safer behaviors. Needle exchanges operated in the larger community through the work of peer educators or in *addas* where IDUs congregated. Condoms and needles and syringes were distributed and made widely available. Peer educators and peer outreach workers spread information about safer sex, safer injecting practices, and STI or abscess treatment.

Resources Required

The program required condoms and sterile syringes and needles to distribute free of charge and funding to establish drop-in centers and to staff the centers.

For the first 3 years, the cost of the intervention in Dhaka totaled \$758,714 (US dollars). Forty-five percent of the costs went to local staff members, and 16 % went to international staff members. Thirteen percent of the total was allocated to needle and syringe costs. Approximately \$110 (US dollars) were spent for every HIV infection averted among IDUs and their partners, and overall, the intervention cost \$330 (US dollars) for every person reached.

Management Structure

Not reported

Implementation Themes

Employing the help of peer educators and peer outreach workers greatly expanded the reach of the *SHAKTI* program. In Dhaka, 26 peer outreach workers were trained on how to educate, offer health services, and distribute new needles to other IDUs. Peer outreach workers were current drug users who were asked not to carry or inject drugs during work hours or be involved in petty crime. They were provided with outreach ID cards to carry while at work. The *SHAKTI* program also trained 160 peer educators to distribute information to other IDUs. Those individuals were not on the *SHAKTI* project staff, but were encouraged to provide relevant information to peers when possible.

Main Challenges Faced

The researchers encountered difficulties in persuading IDUs to wait for and participate in interviews because of worry over potential police harassment. The researchers dealt with this by offering tea to potential interviewees, which helped to persuade them to wait for their interview. The strategy reduced the number of men who left the premises before they could be interviewed.

The *adda*-based NEP in Rajshahi had the unanticipated problem of attracting IDUs to the *addas* that participated in the program. The program operated in 10 *addas*, and IDUs who had not been using those particular *addas* before the *SHAKTI* program then began to come to them, causing some anger among *adda* owners.

Program Continuity and Present-Day Status

The *SHAKTI* project evolved to meet other HIV/AIDS-related needs in Bangladesh. It led to the RASTTA Bondor project, which aimed to reduce the spread of the HIV/AIDS virus among Bangladeshis with high-risk behaviors: truckers, sailors, and CSWs based in border and port areas. The RASTTA Bondor project lasted from 2000 to 2005 and promoted safer sexual practices, provided awareness training and messages, improved access to effective treatment for sexually transmitted diseases, and ensured easy access to condoms. The RASTTA Bondor project fell short of reaching its long-term sustainability goals, however, because of various technical problems and organizational capacity deficits.

Other Locations and Regions that Have Implemented Similar Programs

- The five cities project in India, launched by SHARAN in 1999, addressed the spread of HIV and hepatitis B and C among IDUs in five major cities in India: Delhi, Mumbai, Kolkata, Chennai, and Imphal. The project created needle and syringe-exchange programs in as many as nine locations in each city. It also provided resources such as drop-in centers to reduce criminal activities associated with injection drug use and improve treatment and care services for IDU physical and mental health.
- The drug-user advocacy group Junkie Union of Rotterdam in the Netherlands established an outreach and NEP in the early 1980s to help prevent the spread of HIV and hepatitis. Peer outreach workers brought injection equipment to IDUs to reduce the risks associated with shared equipment.
- The Porto Alegre Harm Reduction Program in Brazil was established in 1996 to provide resources to IDUs. IDUs were reached through fixed and mobile teams that distributed new needles and syringes, counseling, and basic health care. IDUs were also given prevention kits containing syringes, needles, swabs, condoms, distilled water, a pot for dilution, an information leaflet, and a card with NEP addresses and phone numbers.

Original Program Evaluation

Study Design

Timeline and Duration

CARE Bangladesh established the *SHAKTI* project in 1995 with funding from the UK Department for International Development. Intervention activities began in Dhaka and Rajshahi in 1998. The first round of HIV surveillance was conducted in mid-1998. Behavioral risk factors were measured in a follow-up survey in mid-1999

in Dhaka. A second round of surveys was completed between January 3 and March 25, 2000.

Cohorts

- ☒ Cross-sectional (snap shots in time)
- ☐ Longitudinal (same people followed over time)

Temporal Direction of Data Collection Relative to Intervention

- ☐ Prospective
- ☒ Retrospective

Researchers collected data about drug-use behaviors in the previous week. In addition, data were collected after the intervention activities had been running in the intervention cities for about 2 years.

Assessment Time Points (Temporal Comparison)

- ☐ Before and after intervention (baseline and follow-up measures)
- ☒ After only
- ☐ Serial (more than two measures taken over time)

Implementation Level (Geographic Comparison)

- ☐ Countries
- ☐ Regions
- ☐ Counties
- ☒ Cities
- ☐ Towns
- ☐ Villages
- ☐ Households
- ☐ Couples, pairs, and dyads
- ☐ Individuals

Sampling Unit

- ☐ Countries
- ☐ Regions
- ☐ Counties
- ☐ Cities

- ☐ Towns
- ☐ Villages
- ☐ Households
- ☐ Couples, pairs, and dyads
- ☒ Individuals
- ☒ Other (primary sampling units)

To develop an accurate sampling frame, all wards of Dhaka and Rajshahi were mapped to determine the locations where no less than five IDUs were present between 8 and 12 am or 2 and 6 pm. These locations and their associated 4-h times were assigned a number as a primary sampling unit (PSU), forming the basis for randomization. PSUs were randomly selected for sampling, and every IDU seen during the 4-h time was interviewed.

Recruitment Techniques

Researchers approached every IDU seen at each selected PSU for an interview. In Dhaka, a total of 53 PSUs were randomly selected, and in Rajshahi, a total of 25 PSUs were randomly selected. Fewer PSUs were selected in Rajshahi because duplication was highly likely, so the sample strategy was adjusted.

Randomization

- ☐ No
- ☒ Yes
 - ☐ Random assignment
 - ☒ Random sampling

Recruitment into the study was random since researchers randomly selected PSUs to sample.

Study Type

Quasi-experimental

Methods

Data Collection

Data Sources

- ☒ Questionnaire or survey

- ☐ Chart information or surveillance
- ☐ Record of biological specimen (e.g., urine sample)

Interview

- ☒ Interviewer administered
- ☐ Self-administered

Instruments

- ☐ Paper and pencil (data entry after fieldwork)
- ☐ Computer (ACASI or direct data entry in the field)
- ☒ Not reported

Modality

- ☒ In-person
- ☐ Mail
- ☐ Phone
- ☐ Internet

Staff member interviewers were trained to find private, out-of-the-way places to conduct the interviews.

Data Analysis

Exposure Variables Measured

Self-reported participation in an HIV prevention program

Predictor Variables Measured

Survey respondents self-reported their past exposure to and participation in HIV prevention programs. Of those who reported exposure and participation, most (100 % in Dhaka and 95 % in Rajshahi) reported their exposure and participation to be in NEPs.

Researchers also used city (Dhaka and Rajshahi) as predictor variables.

Outcome Variables Measured

- ☐ Knowledge, attitudes, and beliefs
- ☒ Behaviors and practices
- ☐ Biomarker and clinical data

Sharing behaviors of injection drug use, such as using only new equipment or not passing on equipment, were measured.

Other Variables Measured

- ☒ Demographics
- ☐ Risk groups
- ☐ Behaviors

Statistical Methods

Data were cleaned and analyzed with the software program Stata 6. Comparisons between groups were made with Pearson's chi-square tests for proportions and t-tests for means. Significant variables were entered into a multiple logistic regression to test their importance in explaining variation in the injection safety variable. All tests used Stata's cluster adjustments to account for design effects.

Strengths and Weaknesses of the Study Design and Methodology

- ☐ Cross contamination between intervention and comparison groups
- ☐ Concurrent interventions occurring in experimental and comparison areas
- ☐ Historical bias or trend due to historical factors

To evaluate the effects of the program components, the researchers relied on self-report from IDUs to indicate if they had been exposed to elements of the intervention. Because random assignment to intervention exposure was not possible with this program, the possibility exists that self-selection bias applies.

Results

Sample Size

Dhaka	Rajshahi	Total
679	508	1,187

Retention and Loss to Follow-Up (Cohort Studies Only)

Not applicable to this study

Sample Demographics

Age

	Dhaka	Rajshahi
Mean age	35	35

Race or Ethnicity

Not reported

Gender

	Dhaka (%)	Rajshahi (%)
Male	100	100

Sexual Orientation

Not reported

Outcome and Other Measures

Measure	Finding
Demographic characteristics	Significantly more IDUs in Rajshahi were married and educated than in Dhaka. Dhaka had twice the proportion of homelessness and more rickshaw pullers than Rajshahi indicating that the IDU population in Dhaka was more mobile than the IDU population in Rajshahi
Drug-use factors	The duration of drug use as well as the duration of injecting were greater in Dhaka than in Rajshahi. "Cocktailing" (mixing less-expensive drugs such as diazepam and chlorpheniramine in order to reduce monetary costs and effects of withdrawal) more frequently occurred in Rajshahi. There was a higher proportion of intravenous injecting (rather than intramuscular injecting) in Rajshahi, since professionals were available in the <i>addas</i> to administer injections to IDUs
Equipment sharing	A significantly higher percentage of men in Rajshahi had never shared injection equipment (44.7 %) than in Dhaka (25.2 %; $p < 0.05$) in the last week. In Dhaka, the percent of injections after which equipment was not passed on to another IDU and where equipment was not shared in either direction was significantly higher for NEP participants than non-NEP participants. This was also true in Rajshahi, in addition to four additional measures of safer injecting practices. NEP participants were more likely to use only new equipment, never pass on used equipment, never share in either direction, and have a higher percent of injections with only new equipment
Equipment sharing over time	It was not possible for researchers to statistically compare data from the first and second rounds of HIV surveillance due to different sampling strategies. They concluded that the differences suggested a positive change, however. Sharing behaviors were reduced in both Dhaka and Rajshahi in 2000 as compared to 1998

Conclusions

The implementation of the NEP and HIV intervention programs of the *SHAKTI* project reduced the sharing behaviors of IDUs likely to transmit HIV. The researchers noted that consistent results from several surveys at different times suggested that the proportion of men who never share injection equipment had increased, although this observation was difficult to support with the cross-sectional comparison the researchers employed. The intervention seemed to have been most effective in Rajshahi, and the researchers offered a compelling explanation for the finding. The nature of the NEP in Rajshahi, with needles and syringes delivered daily to cooperative *adda* owners at private residences serving a specific group of men under the supervision of an educator, encouraged greater consistency of safe injecting. The researchers found significant differences in sharing practices among men who reported participating in *addas* and those who did not, which suggested that intervention tactics were successfully changing injection practices. The difference between Dhaka and Rajshahi suggested that providing a stable, safe environment to IDUs reduces the harm associated with injecting where there are high levels of homelessness and mobility.

Implications and Lessons Learned

The early needle-exchange intervention efforts in Bangladesh helped to delay an HIV epidemic that had been predicted for the country. Since adjacent countries (Myanmar and India) had a high HIV prevalence, the fact that Bangladesh has remained a low-prevalence nation points to the success of the early implementation of the NEPs in the 1990s.

The intervention may have delayed an HIV epidemic because of the high number of needles and syringes that were distributed per IDU over time. It was estimated that IDUs received 24–29 needles and syringes per month, many more than typically received by IDUs during needle-exchange programs. The exchange rate was also very high (72–83 %), indicating that needles and syringes were taken out of circulation, reducing the possibility that they would be used repeatedly.

While the overall HIV prevalence has remained low for the country (<1 % in 1995), the high concentration of IDUs in the capital city of Dhaka has contributed to a recent rise in new HIV infections. From a serological surveillance conducted in 2006, the HIV prevalence in Dhaka was 7 %, a significant increase from surveillance rounds conducted in previous years. The rise in HIV prevalence signifies the conversion of Bangladesh from a low-prevalence country to one with a concentrated epidemic. Although the epidemic appears to be localized to one specific neighborhood in Dhaka, the continued needle sharing practices of IDUs will likely contribute to an expanding epidemic across the nation.

Supplementary Materials Available

Bangladesh Country Advocacy Brief: Injecting Drug Use and HIV

- <http://www.icddrb.org/what-we-do/health-programmes/hiv-aids/icddrb-and-unodc-country-brief-on-idu-and-hiv>

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Case Study 3: Providing a Safer Injection Facility to Injection Drug Users: InSite: A Safer Injection Facility in Vancouver, British Columbia

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Case Study Contents

- Abstract
- Program at a Glance
- Program Information and Implementation
- Original Program Evaluation
- Implications and Lessons Learned
- Supplementary Materials Available

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Abstract

In September 2003, Vancouver, British Columbia, opened a safer injecting facility (SIF) in the Downtown Eastside neighborhood, in the heart of the city's injection drug-user (IDU) population. The facility, InSite, was the first SIF to be opened in North America, and its opening was not without significant controversy. While other SIFs had been opened and were operating in European cities (e.g., in Germany, Switzerland, and Amsterdam), the effects of these facilities on IDUs and the surrounding communities had not been rigorously evaluated. InSite was granted legal immunity by the Canadian federal government for 3 years of operation on the condition that its effects be closely evaluated.

InSite has remained in operation up to the time of this publication. It offers IDUs a safe place to inject pre-obtained drugs: 12 injection stalls, nurses to treat over-doses and abscesses, and sterile drug-injecting equipment. In addition, IDUs are offered referrals to addiction treatments and detoxification centers.

Several research studies evaluated the effects of the SIF on IDU clients and the surrounding community. Researchers compared drug-use behavior of IDUs using the facility with IDUs not using the facility by using previously collected data (such as the Vancouver Injection Drug Users Study). They used a prospective cohort design with longitudinal measurements of risk behaviors and drug-use behaviors with a selected InSite population (the SEOSI—Scientific Evaluation of Supervised Injecting cohort). Participants were randomly selected into the sample, but participation in selected research activities was voluntary, and by September 1, 2004, more than 900 InSite users were enrolled into SEOSI.

One concern at the start of the project was that InSite would not attract its target population. It was immediately evident that this would not be a concern; during an evaluation from March 2004 to April 2005, 5,000 IDUs used the facility, and 45 % of a sample of community-recruited IDUs reported that they had used the facility before. Factors that were found to make individuals more likely to use the facility on a daily basis included daily heroin or cocaine injection, homelessness, and not receiving methadone treatment.

Concerns about the facility's potential negative effects were also identified and studied. There was no evidence that crime or drug dealing increased in the neighborhood after InSite's opening. The presence of discarded syringes, public injection drug use, and injection litter all decreased in a 10-block radius around InSite after its opening.

There were also concerns that InSite would lead to an increase in injection drug use among IDUs in the area and more new recruits to injection drug use. Neither of these occurred; in fact, the facility increased the uptake of addiction treatment of IDUs interested in detoxification. Safer injecting practices were evident in the IDU population after the facility's opening. There was less equipment sharing associated with InSite users compared to those IDUs who did not come to InSite. There were approximately 1.3 overdoses per 1,000 injections, and no overdose-related deaths occurred.

Program at a Glance

Goal: To establish a SIF in Vancouver, British Columbia, Canada, where IDUs could inject drugs in a medically supervised environment. Goals included reducing public drug use, reducing fatal and nonfatal overdoses, reducing the spread of infectious diseases, improving contact between IDUs and the health-care system, and improving IDUs' ability to access addiction treatment.

Target Populations: IDUs of any age, gender, and race or ethnicity

Geographic Location and Region: Downtown Eastside neighborhood of Vancouver, British Columbia, Canada

Establishment and Duration: Established September 2003 and still operating (2012)

Resources Required and Goods and Services Provided: The operational budget was \$2,946,610 for 2008–2009. Funding provided a comprehensive support network for IDUs, including a team of nurses, counselors, mental health workers, and peer support workers. It also supported injection supplies (such as syringes, cookers, filters, water, and tourniquets) and health-care supplies (for wound care and immunizations) in addition to funding needed for the facility in general.

Strategies and Components

- Targeted IDUs in a central drug-using neighborhood
- Provided a safe, clean injection facility for IDUs to use for injecting drugs
- Provided sterile injection equipment, emergency overdose care, and other health services
- Provided supervised injecting by medical staff and advice on safer injecting practices
- Encouraged and provided resources for addiction recovery

Key Partners: Vancouver Coastal Health Authority, Portland Hotel Society, Health Canada, and the British Columbia Ministry of Health

Key Evaluation Findings

Statistically Significant

- Decreased public disorder and public drug use
- Decreased needle and syringe sharing and reuse
- Increased sterile water use and injecting in a clean environment
- Increased entry into detox programs, with weekly use and contact with an addiction counselor

No Effect

- Did not change incidence of overdose
- Did not increase the number of drug trafficking incidents, assaults, robberies, or vehicle break-ins and thefts in the neighborhood

Program Information and Implementation

Background, History, and Public Health Relevance

In September 2003, Vancouver, British Columbia, with the support of the Canadian federal government, opened the first SIF in North America. The facility, InSite, opened in the Downtown Eastside neighborhood of Vancouver, one of the poorest neighborhoods in Canada. The neighborhood was considered to be the center of an injection drug epidemic. With the amenities provided by InSite, the Vancouver Coastal Health Authority and the British Columbia Ministry of Health Services hoped to reduce the harm faced by IDUs from injection-related risks, such as the transmission of HIV and other infectious diseases.

Anecdotal evidence pointing to the benefits of such an SIF was provided by similar centers across Europe, including those in Germany, Switzerland, and Amsterdam. However, none of the European facilities had undergone rigorous evaluation. The opening of InSite raised controversy in the community, especially since North America has always penalized illicit drug use. InSite was opened with a special exemption from Section 56 of the Controlled Drugs and Substances Act via Health Canada. The legal exemption was granted for 3 years with the provision that an external 3-year scientific evaluation be conducted on the SIF's effects.

Theoretical Basis

InSite operated on a harm-reduction model, aiming to decrease the adverse health, social, and economic consequences of drug use without requiring abstinence from drug use.

Objectives

The establishment of a SIF aimed to reduce drug use in public, reduce overdoses, reduce the risk of infectious disease, improve IDU population contact with the health-care system, and increase uptake of addiction treatment by IDUs.

Class and Type of Outcome or Behavior Change Targeted

- ☒ Decrease IDU risk
- ☐ Decrease noncommercial sex risk
- ☐ Decrease commercial sex risk
- ☒ Increase health services utilization (exams, testing, and treatment)

Target Population and Venue for HIV Prevention

InSite targeted injection drug users in the Downtown Eastside neighborhood of Vancouver.

Pathways for Structural Change

- ☒ Changes in programs
- ☒ Changes in practices
- ☒ Changes in policies and laws

The establishment of InSite required a change in government policy and law through a special exemption from the Controlled Drugs and Substances Act. Program and practice changes concerning the operation of InSite involved increasing the availability, accessibility, and acceptability of resources such as sterile drug injection equipment; addiction, detoxification, and overdose treatment; and care for abscesses.

Strategies and Tactics for Structural Change

The InSite facility had 12 injection stalls, and IDUs were provided with sterile syringes, needles, bandages, and alcohol swabs. IDUs were not provided with drugs at the facility, and drugs could not be bought or sold on the premises. Nurses were available to treat overdoses and abscesses, but they were not allowed to help with injections. In addition, IDUs could get primary care services at InSite and could be referred to addiction treatment services when requested.

Core Components

The creation of the injection facility first required a legal exemption from current law in order for InSite to allow supervised drug injections. Once the exemption was granted, the facility provided key services and resources to IDUs, including clean and sterile injection stalls, new injection equipment, medical staff for the facility, an addiction counselor, and health services and referral information.

Resources Required

InSite's operational budget was \$2,969,440 for 2010–2011. Funding provided a comprehensive support network for IDUs, including a team of nurses, counselors, mental health workers, and peer support workers. The funding also supported injection supplies (such as syringes, cookers, filters, water, and tourniquets) and health-care supplies (for wound care and immunizations), in addition to the support needed for the facility in general.

Management Structure

InSite staff included an addiction counselor, five to six program workers who assisted and supervised IDUs in a waiting room, two staff nurses, two peers who oversaw a “chill-out room”, and one supervisor.

Implementation Themes

The British Columbia Ministry of Health Services had to overcome the concerns of the local community with respect to hosting a SIF.

Main Challenges Faced

InSite opened with a constitutional exception to the Controlled Drugs and Substances Act and operated for 3 years under this exception and then for a further 22 months when an extension was granted. The Health Minister refused to allow the site's legal exemption to continue past July 2008, but the British Columbia Supreme Court struck down the provisions of the Controlled Drugs and Substances Act dealing with possession and trafficking, allowing InSite to continue operating. The Attorney General of Canada appealed this decision, but in January 2010 the British Columbia Court of Appeals dismissed the appeal, allowing InSite to continue operations. The Attorney General filed a further appeal with the Supreme Court of Canada, and the case was heard in May 2011. On September 30, 2011, the Supreme Court of Canada

denied the appeal by the Attorney General of Canada, allowing InSite to continue operations yet again.

InSite faced an additional challenge resulting from its overwhelming popularity among the local IDU population, which placed a significant strain on InSite's ability to serve all who needed or wanted to use its services (W. Small, personal communication, June 3, 2011).

Since InSite was supposed to be available to all IDUs interested in attending, it was not possible (nor ethically desirable) to attempt to randomize IDUs into groups allowed to receive services versus groups not allowed for the purposes of a randomized, controlled study.

Program Continuity and Present-Day Status

InSite operates legally at the time of this publication under a constitutional exception to the Controlled Drugs and Substances Act. Since the opening of the facility, Vancouver Coastal Health and the PHS Community Services Society have worked together to increase outreach services to IDUs by creating OnSite, a detoxification center and transitional housing unit in the same location as InSite. In September 2007, OnSite began serving clients traditionally overlooked by more expensive drug treatment programs. OnSite frequently serves homeless drug users suffering from mental health issues who have been referred from the InSite facility downstairs.

While in transitional housing or in the detoxification program, IDUs can participate in a variety of programs, including counseling, yoga, meditation, acupuncture, relapse prevention, and 12-step programs. OnSite staff strive to maintain personal relationships with clients and to create a comfortable, easy-to-access community to facilitate drug abuse recovery.

Other Locations and Regions that Have Implemented Similar Programs

- In Switzerland, the first supervised injection center opened in 1986. Currently, SIFs operate in Basel, Bern, Olten, Schaffhausen, Wattil, Wil, Solothurn, St. Gallen, Winterthur, Chur, and Zurich. The centers typically include a café, a counseling room, and a clinic for medical care. Sterile injection rooms provide resources such as needles and syringes, sterile water, paper towels, cotton pads, and bandages. Physicians are available during limited hours, and staff are trained on overdose recovery procedures.
- In Germany, the first SIF opened in 1994, with facilities now operating in Hamburg, Frankfurt, Hanover, and Saarbrücken. These hygienic, accessible, and anonymous facilities accept IDUs with little registration or assessment procedures. Facility staff commonly refer clients to detoxification and other health services in addition to providing oversight of injection practices and care in the case of overdose.

Original Program Evaluation

Study Design

Timeline and Duration

In this section, details are presented for only one InSite study focused on risk factors associated with syringe sharing among IDUs. Researchers evaluated a sample of InSite users (from the SEOSI cohort—Scientific Evaluation of Supervised Injecting) who had been randomly selected according to enrolment dates and times. For the study, SEOSI participants seen between December 1, 2003, and June 1, 2004 were included in the sample.

Cohorts

- ☒ Cross-sectional (snap shots in time)
- ☒ Longitudinal (same people followed over time)

Although the SEOSI sample was followed longitudinally, the majority of the findings presented here come from a one-time cross-section of the longitudinal data, supplemented with information gathered in the baseline wave of SEOSI.

Temporal Direction of Data Collection Relative to Intervention

- ☒ Prospective
- ☒ Retrospective

Data were collected prospectively, although participants were asked to report retrospectively about syringe sharing during the past 6 months.

Assessment Time Points (Temporal Comparison)

- ☒ Before and after intervention (baseline and follow-up measures)
- ☐ After only
- ☐ Serial (more than two measures taken over time)

Implementation Level (Geographic Comparison)

- ☐ Countries
- ☐ Regions
- ☐ Counties

- ☒ Cities
- ☐ Towns
- ☐ Villages
- ☐ Households
- ☐ Couples, pairs, and dyads
- ☐ Individuals

Sampling Unit

- ☐ Countries
- ☐ Regions
- ☐ Counties
- ☐ Cities
- ☐ Towns
- ☐ Villages
- ☐ Households
- ☐ Couples, pairs, and dyads
- ☒ Individuals

Recruitment Techniques

Researchers recruited the SEOSI cohort by attending the facility at randomly selected times during the day and inviting all users who visited the site during that time to participate in the study.

Randomization

- ☐ No
- ☒ Yes
 - ☐ Random assignment
 - ☒ Random sampling

Participants in the study were not randomly assigned to a particular condition because the InSite facility was open for any IDU to use. Researchers did randomly sample InSite clients for the evaluation.

Study Type

Quasi-experimental

Methods

Data Collection

Data Sources

- ☒ Questionnaire or survey
- ☐ Chart information or surveillance
- ☒ Record of biological specimen (e.g., urine sample)

IDUs volunteered to provide a blood sample and answer an interviewer-administered questionnaire, which asked about risk behaviors, public drug use, satisfaction with InSite, and access to medical care and addiction treatment services. SEOSI participants provided informed consent, so that their administrative health records in the community and at InSite could be tracked.

Interview

- ☒ Interviewer administered
- ☐ Self-administered

Instruments

- ☐ Paper and pencil (data entry after fieldwork)
- ☐ Computer (ACASI or direct data entry in the field)
- ☒ Not reported

Modality

- ☒ In-person
- ☐ Mail
- ☐ Phone
- ☐ Internet

Interviewers conducted in-person interviews at the facility.

Data Analysis

Exposure Variables Measured

Number of injections undertaken at the facility (none or few vs. some, most, or all)

Outcome Variables Measured

- ☐ Knowledge, attitudes, and beliefs
- ☒ Behaviors and practices
- ☐ Biomarker and clinical data

The outcome variable was syringe sharing—borrowing or lending a used syringe in the past 6 months.

Other Variables Measured

- ☒ Demographics
- ☒ Risk groups
- ☒ Behaviors

The researchers accounted for age, HIV serostatus, previous access to sterile syringes, need for help with injections, binge drug use, frequent cocaine injecting, frequent heroine injecting, and methadone maintenance treatment.

Statistical Methods

The researchers used univariate and multivariate statistics to determine factors associated with syringe sharing. The associations between predictor and outcome variables were assessed by univariate logistic regression. To adjust for potential confounding between the use of InSite and syringe sharing, variables significantly associated with syringe sharing were then considered in a fixed logistic regression model. The researchers conducted all statistical analyses using SAS software version 8.0.

Strengths and Weaknesses of the Study Design and Methodology

- ☐ Cross contamination between intervention and comparison groups
- ☐ Concurrent interventions occurring in experimental and comparison areas
- ☒ Historical bias or trend due to historical factors

The intervention condition was not randomly assigned to participants, presenting the possibility of a confounding factor influencing the syringe-sharing differences between InSite users and nonusers. To test if InSite users were inherently at a lower risk of syringe sharing, the researchers calculated the rate of syringe sharing before the site opened for those who used the facility and those who did not use the facility. The rates of sharing were similar in those populations. This prospective data implied that differences in the rate of syringe sharing emerged after the facility opened.

Results

Sample Size

431 active IDUs

Retention and Loss to Follow-Up (Cohort Studies Only)

Not applicable to this study

Sample Demographics

Not reported

Outcome and Other Measures

Measure	Finding
Syringe sharing	Use of InSite was independently associated with reduced syringe sharing ($p=0.02$). Needing injection help, binge drug use, and frequent heroin or cocaine use were all associated with syringe sharing ($p=0.01$, $p=0.03$, $p=0.07$, $p=0.08$, respectively)
Characteristics of InSite users (from other studies of InSite)	45 % of community-recruited IDUs had used InSite. Characteristics that predicted InSite use: younger age, public injection drug use, homelessness or unstable housing, daily heroin or cocaine injection, and recent nonfatal overdose. Requiring help with injections was negatively associated with daily use of the facility
Public order (from other studies of InSite)	After InSite's opening, measures of public disorder including discarded syringes, public injection drug use, injection-related litter, and presence of suspected drug dealers declined in the surrounding neighborhood
Crime (from other studies of InSite)	Crime rates remained stable in the neighborhood after InSite opened. There were not any increases in police charges for drug dealing, assaults, robbery, or vehicle break-ins
Use of education services (from other studies of InSite)	30 % of a random sample of InSite users reported receiving safer injecting education from InSite nurses. IDUs who first received help with injections were less likely to need assistance because of education from InSite nurses
Safer injecting behaviors (from other studies of InSite)	Use of InSite was independently associated with safer injection practices, including decreased reuse of syringes, increased use of sterile water, and increased use of alcohol swabs on the injection site
Addiction treatment (from other studies of InSite)	As many as 320 referrals were made per quarter to community addiction treatment resources. Weekly use of InSite and contact with the facility's addiction counselor were associated with a more rapid entry into a detoxification program
Overdoses (from other studies of InSite)	The rate of overdose was approximately 1.3 per 1000 injections. 60 % of overdoses were successfully managed by facility support and 40 % required an ambulance call

Conclusions

Providing an injection facility for IDUs in an area with a concentrated population of IDUs led to improved personal health and community benefits. Public drug injections decreased resulting in less-dangerous injection-related litter being left in public areas. There were benefits to the IDUs, such as abscess and overdose treatment, and adoption of safer injecting practices as a result of consistently visiting the facility.

Implications and Lessons Learned

The success of InSite's operation indicates the utility of such an intervention in neighborhoods where injection drug use is common and raises the question of whether such a facility could be successful in other settings. In addition to improving the health of the local IDU population, SIFs appear to provide a number of community benefits, including addressing public order issues such as injection litter and public injection practices. There has not been any evidence of community or health-related harm caused by the operation of a drug injection facility.

Supplementary Materials Available

Safe Injection Facilities: A Proposal for a Vancouver Pilot Project

- <http://www.cfdp.ca/safei.pdf>

Additional References

Wood, E., Tyndall, M. W., Montaner, J., & Kerr, T. (2006). Summary of findings from the evaluation of a pilot medically supervised safer injecting facility. *CMAJ*, 175(11), 1399–1404.
<http://supervisedinjection.vch.ca/>.

Case Study 4: Needle Social Marketing Strategy in China: Effect on Chinese Injection Drug Users' Injection Practices

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Abstract

China was experiencing a severe injection drug-use problem in 2005, with 1.16 million individuals registered as injection drug users (IDUs). Needle sharing among IDUs was common, and unsafe injection practices were contributing to a generalized HIV epidemic occurring in regions of China where up to 25 % of IDUs were thought to be living with HIV. Although China's official stance was that harm reduction strategies promote drug use and should be illegal, the Ministry of Health had begun promoting needle social marketing strategies in 1998, in lieu of IDU health education, to reduce the transmission of HIV among the IDU community.

In two provinces (Guangdong and Guangxi), needle social marketing activities used local resources such as pharmacies, hospitals, and clinics to reach IDUs. Health workers handed out educational pamphlets, displayed educational posters,

and delivered lessons about drug abuse and HIV/AIDS in detoxification centers and other health centers. In the community, health workers conducted face-to-face health education sessions and needle exchanges in IDU homes and places where they gathered.

Researchers conducted an evaluation of the needle social marketing strategy that aimed to reduce needle sharing, hepatitis C virus (HCV), and HIV transmission among IDUs in Guangdong and Guangxi provinces. They used a two-armed, prospective, community-randomized prevention trial. In each province, researchers randomized one county to the intervention condition and another to the control condition. Cross-sectional surveys at baseline and follow-up compared changes in drug using behaviors as well as HIV and HCV infection rates in the intervention and control communities. Needle sharing behaviors were similar in the two groups at baseline (68.4 % vs. 67.8 %), but dropped significantly to 35.3 % in the intervention community, while remaining relatively stable in the control community (62.3 %, $P<0.001$). In a subset cohort of new injectors, the incidence of HCV was significantly lower in the intervention than in the control condition in both provinces individually ($P<0.001$, $P=0.014$) and collectively ($P<0.001$), but HIV incidence was significantly lower only in the intervention group in Guangdong ($P=0.011$).

The study demonstrated that needle social marketing effectively reduced some risky injection and sexual practices (i.e., needle sharing, not using a condom). In addition, it was effective in reducing HIV and HCV infection rates among IDUs who began injecting drugs during the trial. Despite the study's limitations, it supports the efficacy of the intervention among injection drug users in China and provides evidence for potential benefits of expanding the program.

Program at a Glance

Goal: To reduce the spread of HIV/AIDS and HCV among IDUs by making sterile needles and syringes widely available to IDUs and promoting their use through needle social marketing

Target Populations: Injection drug users in China, typically men between the ages of 15 and 29

Geographic Location and Region: Guangxi and Guangdong provinces in China

Establishment and Duration: The intervention began in September 2002; China began scaling up needle exchange programs in 2006, and needle social marketing programs were still in effect at the time of this publication.

Resources Required and Goods and Services Provided: Educational pamphlets, posters, photos, videos, and lessons about drug abuse and HIV/AIDS and HCV; health workers and peer educators to provide counseling and mentoring in clinics and the community; clean needles and syringes to distribute

Strategies and Components

- Utilized social marketing techniques to educate IDUs about HIV/AIDS and HCV risk
- Targeted IDUs through needle-exchange programs
- Increased availability of new needles and syringes

Key Partners: The Chinese Ministry of Health; the World AIDS Foundation funded the trial

Key Evaluation Findings

Statistically Significant

- Reduced needle sharing
- Increased condom use
- Decreased HCV incidence among new injectors
- Decreased overall HCV incidence rate in Guangdong
- Decreased HIV incidence

No Effect

- No change in the number of needle sharing partners
- No change in the percent of IDUs sharing water
- No significant change in overall HCV infection rate in Guangxi

Program Information and Implementation

Background, History, and Public Health Relevance

Researchers estimated that approximately 288,000 IDUs in China were infected with HIV by 2005, accounting for 44.3 % of all HIV infections nationwide. Needle sharing among China's IDUs was a common practice, and reports estimated that 50–70 % of drug injections were with shared needles and syringes. The risk of IDUs acquiring HIV was acute, as Chinese drug users were more likely to engage in pre- and extramarital sex than those not using drugs and many female drug users exchanged sex for drugs or money.

Harm reduction programs, either needle-exchange or methadone maintenance programs, combined with health education and promotion activities, have demonstrated some effectiveness in reducing HIV transmission among IDU populations. Yet the Chinese government and population historically has viewed harm reduction programs as assisting drug users and promoting the use of prohibited drugs, and therefore such programs were illegal. However, health education, the only HIV prevention option available targeting IDUs, was ineffective in reducing HIV

transmission among Chinese IDUs. China began focusing on needle social marketing, a harm reduction strategy that promotes the use of new needles and syringes to IDU social networks to discourage the practice of sharing used needles and syringes. As it wasn't known how effective the strategy would be for reducing HIV transmission among IDUs in China, a community intervention trial was conducted to evaluate the efficacy of needle social marketing.

Theoretical Basis

The needle social marketing strategy was grounded in the principles of harm reduction, which focus on reducing the negative effects from unsafe behaviors rather than reducing the occurrence of unsafe behaviors.

Objectives

The strategy aimed to reduce the spread of HIV and HCV among IDUs through needle social marketing. It promoted the use of new needles and syringes and discouraged the use of shared injection equipment by making new needles and syringes widely available to IDUs.

Class and Type of Outcome or Behavior Change Targeted

- ☒ Decrease IDU risk
- ☐ Decrease noncommercial sex risk
- ☐ Decrease commercial sex risk
- ☐ Increase health services utilization (exams, testing, and treatment)

Target Population and Venue for HIV Prevention

The needle social marketing strategies targeted IDUs in the Chinese provinces of Guangdong and Guangxi who were typically men between the ages of 15 and 29. Intervention activities occurred in detoxification centers and in the wider community.

Pathways for Structural Change

- ☒ Changes in programs
- ☒ Changes in practices
- ☒ Changes in policies and laws

The needle social marketing strategy promoted changes in programs to increase the availability, accessibility, and acceptability of new needles and syringes to IDUs and to direct the activities of peer educators. In addition, changes in practices encouraged detoxification centers and other community organizations to accommodate intervention activities such as health education.

Strategies and Tactics for Structural Change

HIV was first discovered in China in 1985, and the Chinese government dictated the country's response to the growing epidemic. For over a decade, harm reduction strategies were not promoted for fear that they would be viewed as promoting illegal drug use. HIV transmission from prostitution and injection drug use contributed substantially to the growing epidemic. Changes in policies related to government prohibitions of needle exchange and other harm reduction strategies were critical components of a needle social marketing strategy. In 1997, the Chinese Academy of Preventive Medicine organized a conference and included international AIDS organizations in a discussion of how to target high-risk groups in China. As a result, governmental agencies in China began to realize the potential benefits of new evidence-based prevention strategies. Strategic documents such as the Medium- and Long-Term Strategic Plan for HIV/AIDS (1998–2010) defined the framework for a new Chinese response to the HIV epidemic.

A needle social marketing strategy emerged as a way for China to emphasize the positive aspects of needle exchanges and health education. Beginning in 2001, the State Council officially promoted needle social marketing as an HIV prevention strategy, due to evidence from needle-exchange programs in other countries. The Ministry of Health with the World AIDS Foundation helped to support an intervention in China, which eventually contributed to new national policy guidelines about needle-exchange programs in China and a scale-up of programs across the country.

Core Components

- Political and governmental support of program activities
- Peer education activities in the community targeting IDUs
- Community support for program activities
- Education of IDUs through one-on-one lessons and educational materials
- Needle exchange

Resources Required

Educational pamphlets, posters, photos, videos, and lessons about drug abuse and HIV/AIDS; health workers and peer educators to provide counseling and mentoring in clinics and the community; and clean needles and syringes to distribute

Management Structure

Not reported

Implementation Themes

With the support of new government policies emphasizing the benefit of harm reduction strategies to curb the spread of HIV among target groups, the Chinese Ministry of Health and the World AIDS Foundation designed a needle social marketing strategy for Guangxi and Guangdong provinces that was amendable to health and police officials.

The program implementers conducted the needle social marketing in detoxification centers and in the wider community. In detoxification centers, health workers handed out educational pamphlets, displayed educational posters, delivered lessons about drug abuse and HIV/AIDS, and showed photo exhibitions and educational videos.

The intervention program also used local resources such as pharmacies, hospitals, and clinics to reach IDUs in the community. Intervention staff handed out educational pamphlets and hung educational posters, facilitated face-to-face health education sessions between health workers and drug users, facilitated peer education, and dispensed and recalled needles and syringes. Health workers visited drug users' homes or gathering places. Local hospitals and detoxification centers dispensed clean needles and injection drug materials. Peer educators also visited IDUs' homes and places where they gathered to distribute clean needles and syringes—usually between three and ten needles at a time.

Main Challenges Faced

The researchers originally designed a longitudinal study, intending to recruit IDUs at the beginning of the study and to follow-up with them a year later. They gave IDUs an identification card at baseline and a card that promised them 30 Chinese yuan if they returned for a follow-up interview in a year. However, the researchers successfully followed up with only 12.4 % (102 participants) a year later, and more than half of them (60 participants) had lost their ID cards so their records could not be linked to the original baseline records. Because of the low follow-up rate, the researchers implemented a cross-sectional design and surveyed a new set of 750 drug users for the follow-up survey.

Program Continuity and Present-Day Status

The benefits of needle-exchange programs and needle social marketing revealed by the evaluation led the Ministry of Health to develop national guidelines on needle exchange, including the *Regulations for the Prevention and Treatment of AIDS*

(March 2006) and the *Action Plan for Reducing and Preventing the Spread of HIV/AIDS* (2006–2010). Needle-exchange programs have expanded from 93 sites to 729 sites since 2006, with emphasis on rural areas. The original needle social marketing strategy has evolved since its initial implementation and the strategies are still in use in China at the time of this publication. They are often combined with additional services to IDUs, such as HIV counseling and testing, antiretroviral therapy, and condom distribution.

Other Locations and Regions that Have Implemented Similar Programs

- The needle and syringe-exchange program of the Western Australia AIDS Council provided free or low-cost drug injection equipment to IDUs in addition to disposing safely of used injection equipment. The program also provided other services to IDUs, including advice, information, and referral services. The Australian government estimated that 25,000 HIV infections had been prevented in 2002 through needle and syringe programs in the country.

<http://www.waaid.com/>

- STOP AIDS was established in Switzerland in 1987 by the Swiss AIDS Foundation and the Swiss Federal Office for Public Health. It began as a national, multimedia campaign targeting gay men to promote condom use, but has expanded to include information about injection drug use, needle sharing, and the spread of HIV.

Original Program Evaluation

Study Design

Timeline and Duration

The intervention began in September 2002 in Dagou (Guangdong Province) and in Luzhai (Guangxi Zhuang Autonomous Region) in November 2002. Baseline assessments in both regions were conducted in September 2002, and final assessments were conducted in June 2003 in Guangdong and in July 2003 in Guangxi.

Cohorts

- ☒ Cross-sectional (snap shots in time)
- ☐ Longitudinal (same people followed over time)

Temporal Direction of Data Collection Relative to Intervention

- ☒ Prospective
- ☐ Retrospective

Researchers collected data prospectively; however, the data were based on subject recall of behavior in the last month, 3 months, or 6 months and may be considered retrospective in that regard.

Assessment Time Points (Temporal Comparison)

- ☒ Before and after intervention (baseline and follow-up measures)
- ☐ After only
- ☐ Serial (more than two measures taken over time)

Implementation Level (Geographic Comparison)

- ☐ Countries
- ☒ Regions (state level)
- ☐ Counties
- ☐ Cities
- ☐ Towns
- ☐ Villages
- ☐ Households
- ☐ Couples, pairs, and dyads
- ☐ Individuals

Sampling Unit

- ☐ Countries
- ☐ Regions
- ☐ Counties
- ☐ Cities
- ☐ Towns
- ☐ Villages
- ☐ Households
- ☐ Couples, pairs, and dyads
- ☒ Individuals

Recruitment Techniques

Researchers recruited IDUs from detoxification centers (if they had injected in the last 3 months) and in the community through key informants, peer educators, and mailings.

Randomization

- ☐ No
- ☒ Yes
 - ☒ Random assignment
 - ☐ Random sampling

Once potential counties were identified for the intervention in Guangdong and Guangxi, two counties in each province were randomly assigned to the intervention or control condition. Sampling was not random and was opportunistic.

Study Type

Quasi-experimental

Methods

Data Collection

Data Sources

- ☒ Questionnaire or survey
- ☐ Chart information or surveillance
- ☒ Record of biological specimen (e.g., urine sample)

Interview

- ☐ Interviewer administered
- ☐ Self-administered
- ☒ Unknown

Instruments

- ☐ Paper and pencil (data entry after fieldwork)
- ☐ Computer (ACASI or direct data entry in the field)
- ☒ Unknown

Modality

- ☒ In-person
- ☐ Mail
- ☐ Phone
- ☐ Internet

Data Analysis

Exposure Variables Measured

Self-reported exposure to components of the intervention program (received needles, exposed to peer outreach, saw educational posters or pamphlets, participated in face-to-face counseling session)

Predictor Variables Measured

Control versus intervention communities

Outcome Variables Measured

- ☐ Knowledge, attitudes, and beliefs
 - ☒ Behaviors and practices
 - ☒ Biomarker and clinical data
1. Change in high-risk drug use and sexual behaviors—the number of IDUs who had shared needles in the previous month, the number of needle sharing partners, and consistent condom use
 2. Change in HIV prevalence and incidence
 3. Change in HCV prevalence and incidence

Other Variables Measured

- ☒ Demographics
- ☐ Risk groups
- ☐ Behaviors

Statistical Methods

The researchers compared categorical variables between intervention and control groups at baseline and follow-up with chi-squared tests and continuous variables

with t-tests using SAS version 8.12. They calculated HIV and HCV incidences based on a subset of a retrospective cohort of drug injectors who initiated injection after the intervention began.

Strengths and Weaknesses of the Study Design and Methodology

- ☐ Cross contamination between intervention and comparison groups
- ☐ Concurrent interventions occurring in experimental and comparison areas
- ☐ Historical bias or trend due to historical factors
- ☒ Other

Originally meant to be a longitudinal study in which a group of IDUs were followed for the length of the trial, logistical barriers prevented the researchers from being able to implement that study design. Few baseline participants were successfully recruited for the follow-up study, so staff had to sample other IDUs opportunistically for the final survey.

The control and intervention arms were not comparable on measures of demographic variables and key outcome measures at baseline, meaning that intervention effects may have been hidden or exaggerated in some samples. It was not possible for the researchers to match communities on key outcome measures as it was difficult to find communities willing to implement the controversial program.

Results

Sample Size

	Baseline	Follow-up
Guangdong		
Intervention	235	226
Control	193	204
Guangxi		
Intervention	194	219
Control	201	203

A total of 823 DUs participated in the baseline survey, but only 102 returned for a follow-up visit. Of these, only 42 could be linked to their records because the rest had lost their ID cards, so the researchers switched to a cross-sectional study design. An additional 750 IDUs were recruited for the follow-up survey bringing the total to 852.

Retention and Loss to Follow-Up (Cohort Studies Only)

Not applicable to the cross-sectional study

Sample Demographics

Age

Baseline

	Guangdong		Guangxi	
	Intervention	Control	Intervention	Control
11–19	3	6	1	5
20–29	107	110	124	135
30–39	107	68	65	55
40+	18	9	4	6

Follow-up

	Guangdong		Guangxi	
	Intervention	Control	Intervention	Control
11–19	1	12	13	19
20–29	94	95	112	142
30–39	111	68	85	37
3740+	20	15	6	4

Race or Ethnicity

Baseline

	Guangdong		Guangxi	
	Intervention	Control	Intervention	Control
Han	235	192	134	45
Zhuang	0	1	58	152
Other	0	0	2	4

Follow-up

	Guangdong		Guangxi	
	Intervention	Control	Intervention	Control
Han	224	204	152	18
Zhuang	2	0	62	184
Other	0	0	4	0

Gender

Baseline

	Guangdong		Guangxi	
	Intervention	Control	Intervention	Control
Male	234	182	178	200
Female	1	11	16	1

Follow-up

	Guangdong		Guangxi	
	Intervention	Control	Intervention	Control
Male	221	190	194	197
Female	5	14	25	6

Sexual Orientation

Not reported

Outcome and Other Measures

Measure	Finding
Needle distribution and collection	In Dagou (Guangdong Province), 47,000 syringes were dispensed and 24,780 were returned (53 % return rate). In Luzhai (Guangxi), 57,209 syringes were dispensed and 52,930 were returned (92 % return rate)
Exposure to intervention	69.5 % of IDUs in Guangdong and 46.8 % in Guangxi reported receiving needles from the intervention program. Many IDUs in Guangxi participated in a face-to-face counseling session with a health worker (52.7 %) or peer educator (55.2 %), and the figures were similar for Guangdong (61.7 % and 66.0 %, respectively)
Change in high-risk drug use and sexual behaviors	In both Guangdong and Guangxi, baseline numbers of needles shared in the past month were similar for the intervention and control groups. At follow-up, the number of needles shared in the past month was significantly less for the intervention communities than the control communities ($p < 0.0001$ in Guangdong and $p < 0.009$ in Guangxi). The number of IDUs who reported always using a condom in the final survey was higher in the intervention community in both provinces, but only statistically significant in Guangdong ($p = 0.015$)
Change in HIV incidence	The HIV infection rate decreased in the intervention communities—by 6.4 % in Dagou ($p = 0.16$) and 3 % in Luzhai ($p = 0.54$). Among individuals who started injecting during the trial, there were fewer individuals with HIV in the intervention communities than in the control communities ($p = 0.011$ in Guangdong and $p = 0.285$ in Guangxi)
Change in HCV incidence	Among individuals who started injecting during the program, the HCV incidence rate was 51 % in the intervention communities and 83.6 % in the control communities ($p < 0.001$). The lower incidence in the intervention communities was significant in both Guangdong ($p = 0.001$) and Guangxi ($p < 0.014$)

Conclusions

The study demonstrated that needle social marketing effectively reduced some risky injection and sexual practices (i.e., needle sharing, not using a condom) and may have reduced the incidence of HIV and HCV infection among Chinese IDUs. In

addition, needle social marketing markedly reduced HIV and HCV infection rates among IDUs who began injecting drugs during the trial. Despite the methodological problems the researchers encountered during the study, it provided evidence in support of needle social marketing programs.

Implications and Lessons Learned

The results of the evaluation demonstrated the feasibility of needle social marketing strategies in reducing HIV and HCV risky behaviors among IDUs in China and significantly contributed to China's confidence in and support of future needle-exchange programs. Needle exchange was included among the strategies outlined in the *Regulations for the Prevention and Treatment of AIDS*, issued in March 2006. Needle exchange was also included in China's *Action Plan for Reducing and Preventing the Spread of HIV/AIDS (2006–2010)*. China has been increasing needle-exchange programs since 2006.

Supplementary Materials Available

The integration of multiple HIV/AIDS projects into a coordinated national programme in China

- <http://www.who.int/bulletin/volumes/89/3/10-082552/en/index.html>.

Case Study 5: The Vietnam and China Cross-Border Project: Effect on HIV Risk Behaviors of Injection Drug Users

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Case Study Contents

- Abstract
- Program at a Glance

- Program Information and Implementation
- Original Program Evaluation
- Implications and Lessons Learned
- Supplementary Materials Available

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Abstract

To target injection drug users (IDUs) on both sides of an international border, along a well-known heroin transshipment route, the Cross-Border Project implemented an HIV prevention project in five sites in Vietnam and four sites in China. In these intervention sites along the border, peer educators worked to reach IDUs in the community on a regular basis. Peer educators provided IDUs with information on HIV risk reduction and distributed needles and syringes, distilled water for injection, and condoms. Peer educators also collected used and discarded injection equipment and disposed of these materials properly to reduce the public health risk. Eventually, funding was obtained to expand the intervention to target women at risk (commercial sex workers [CSWs] and sexual partners of IDUs) in light of emerging evidence that the HIV epidemic in the region was moving into the general population. This was the first cross-border HIV prevention project targeting IDUs in which the same interventions were implemented on both sides of an international border. In both Lang Son and Ning Ming, there was significant improvement on all of the drug-related risk behaviors of IDUs. In addition, HIV prevalence and estimated incidence fell by approximately half at the 24-month survey and by approximately three-quarters at the 36-month survey in both areas.

Program at a Glance

Goal: To reduce HIV risk behaviors among IDUs in order to stabilize HIV prevalence and reduce HIV incidence on both sides of an international border and to prevent cross-border HIV transmission

Target Populations: The project first targeted IDUs and expanded to include women at risk.

Geographic Location and Region: The intervention was implemented in five sites in Lang Son Province, Vietnam, and four sites in the Ning Ming County, Guangxi Province, China.

Establishment and Duration: Program implementation began in July 2002 in Lang Son and in October 2002 in Ning Ming. The 4-year intervention concluded in 2006.

Resources Required and Goods and Services Provided: Brochures for peer educators on reducing HIV risks from drug use and sexual activities, new needles and syringes, sterile injection water, condoms, and pharmacy vouchers for peer educators to distribute. Over the course of the project, 10,000–12,000 new needles and syringes were provided in each country to IDUs. Funding supported mass media messages on billboards, radio, and television ads and the salaries of peer educators. In the original intervention, peer educators received monthly stipends based on the acceptance of their weekly reports. In Lang Son, the monthly stipend was about \$30, and in Ning Ming, peer educators received a stipend of \$117 per month, while in Ha Giang it was \$46.

Strategies and Components

- Utilized a peer education model and elements of social marketing
- Incorporated risk-reduction practices into IDU education and resource provision
- Implemented across the border of two countries that were heavily affected by injection drug-use HIV transmission

Key Partners: The Ford Foundation; the U.S. National Institute on Drug Abuse (NIDA); Global Fund to Fight AIDS, Tuberculosis and Malaria; the United Kingdom Department for International Development; and an anonymous donor in New York City. The members of the project team were Abt Associates, Inc.; Beth Israel Medical Center; Lang Son Provincial Health Services, Provincial HIV/AIDS Center; Ha Giang Provincial Health Services; Guangxi Center for HIV/AIDS Prevention and Control, Guangxi CDC; and Ning Ming County Health Department.

Key Evaluation Findings

Statistically Significant

- Decreased sharing of needles and syringes, drug solution, and other injection equipment
- Decreased percent of IDUs from across the border (Vietnam to China) injecting drugs
- Decreased HIV prevalence (Vietnam only)

No Effect

- Did not decrease sex-related HIV risk behaviors
- Did not significantly decrease the frequency per month of buying drugs across the border
- Did not significantly decrease the percent of IDUs from across the border (China to Vietnam) injecting drugs
- Did not significantly decrease HIV prevalence in China

Program Information and Implementation

Background, History, and Public Health Relevance

Injection drug users who share with other IDUs injection needles, syringes, and other injection equipment are at great risk of becoming infected with HIV, as the prevalence of HIV among IDUs in developing countries has been found to be as high as 40–90 %. Along the heroin transshipment route that includes northern Vietnam and southern China, the majority of IDUs are poor and thus more likely to share needles and syringes. Many IDUs become infected with HIV and then infect their sexual partners, causing the virus to spread into the general population. In areas of southern China and northern Vietnam, an estimated 70 % of people with HIV were infected through needle-related behavior. Vietnam is estimated to have about 150,000 IDUs total, with an overall HIV prevalence among IDUs of about 32 % and as high as 75 % in some northern parts of the country. China has at least two million IDUs, with an overall HIV prevalence of about 12 % and a prevalence as high as 75 % in some areas.

The drug trade traffic across the border between dealers and users contributes to the flourishing HIV epidemic along the northern Vietnam and southern China border. The essentially open border, which many people cross on a daily basis for both legitimate and illegal reasons, makes it difficult to monitor, control, and prevent the spread of HIV in either country without intervention in the other. Understanding of HIV transmission across international borders is particularly important, and few HIV prevention programs have been coordinated in such a manner.

Theoretical Basis

The project was based on a behavioral-ecological model, providing a way to conceptualize structural interventions that operate at multiple levels in communities. This model integrates learning theories that focus on individual behaviors with ecological influences at social, cultural, community, and local levels.

Objectives

The specific aims of the project were to:

1. Show control of HIV transmission on both sides of the border through stable HIV prevalence rates among IDUs
2. Show control of HIV transmission on both sides of the border by low HIV incidence (targeting 1/100 person-years at risk) among IDUs
3. Show very large reductions in HIV injection risk behavior, from the estimated 60 % of IDUs engaging in receptive sharing of needles and syringes to a stable level of 30 %
4. Show large reductions in HIV transmission behavior, from the estimated 60 % of IDUs engaging in distributive sharing to a stable level of 30 %
5. Show statistically significant reductions in unsafe sexual behavior among IDUs
6. Demonstrate very large-scale safe disposal of used injection equipment, with a target safe disposal of 150,000 used syringes per year
7. Achieve significant increases in HIV knowledge and in expressed support for the project interventions among samples of residents in the target communities

The intervention also sought to improve cross-border collaboration and in-country capacity for prevention interventions, positive policy development, and behavioral and epidemiological research.

Class and Type of Outcome or Behavior Change Targeted

- ☒ Decrease IDU risk
- ☒ Decrease noncommercial sex risk
- ☒ Decrease commercial sex risk
- ☐ Increase health services utilization (exams, testing, and treatment)

Target Population and Venue for HIV Prevention

The project targeted IDUs on both sides of the border between Lang Son Province in northern Vietnam and Guangxi Province in southern China. The program also expanded to include women at risk (such as CSWs and sex partners of IDUs).

Pathways for Structural Change

- ☒ Changes in programs
- ☒ Changes in practices
- ☒ Changes in policies and laws

The intervention operated through changes to (1) programs (by increasing the availability and accessibility of drug injection equipment and condoms to IDUs),

(2) practices of peer educators (who disseminated information about safer behaviors and performed needle exchanges), and (3) policies through peer educator engagement with local governmental bodies.

Strategies and Tactics for Structural Change

Implementation of the Cross-Border Project began in July 2002 in Lang Son Province, Vietnam, and in October 2002 in Ning Ming County, Guangxi Province, China. Trained peer educators regularly contacted other IDUs in the communities and provided them with information on reducing drug use and sexual risk behaviors. They distributed sterile needles and syringes, ampoules of sterile water for injection, condoms, and no-cost vouchers that could be redeemed for sterile injection equipment and condoms in participating local pharmacies. Over the course of the new project, an average of 10,000–15,000 new needles and syringes were provided per month in each country. The peer educators also collected and safely disposed of used needles and syringes directly from drug injectors at injecting sites in the communities. Project staff also worked with law enforcement and various community members to create understanding of and support for the project.

The initial groups of peer educator recruits received training from the Centre for Harm Reduction of the McFarlane Burnet Institute in Melbourne, Australia. The training content included:

- Basic information on HIV/AIDS and HIV transmission routes
- Extensive coverage, including role-plays and other exercises, of strategies for preventing HIV transmission and acquisition both with regard to drug injection and sexual behaviors
- Sessions on reaching and contacting IDUs in the community, conveying HIV risk-reduction information, and answering participants' questions about HIV and risk factors
- Information regarding peer educators as representatives of the project and ways that they could help gain and maintain support for the project in the general community, explaining the true objectives of the interventions and seeking to counter misinformation and misunderstanding

After the initial training, the local health departments provided ongoing training for the peer educators as well as initial training for new peer educators joining the project. Periodic refresher training sessions were held, and the peer educators' weekly meetings often included training on special topics such as overdose prevention and strategies for reaching women IDUs.

The health departments selected the peer educators based on their performance during the initial training and assurances that their families would support their work with the project. Most of the peer educators were young men, but in each country several women were recruited in an effort to reach women IDUs and CSWs in the communities. The peer educators were supervised locally by health department staff. For a variety of reasons, mostly but not exclusively associated with the

peer educators' ongoing drug use, there was substantial turnover among them. Local health department staff recruited and trained replacements as needed.

Core Components

The intervention components for the Cross-Border Project included:

1. Peer-based education of IDUs
2. Regular contact with IDUs in the community to provide information on reducing drug-use-related and sexual HIV risks, orally and through distribution of brochures
3. Social marketing, including pharmacy and clinic vouchers (China and Vietnam), direct exchange (Vietnam), peer educators distributing new injection equipment, and condoms and vouchers redeemable for those items in participating pharmacies
4. Public health infection control through peer educators collecting and disposing of used needles and syringes
5. Community education, including regular meetings and community workshops, and letters of support from police and other agencies
6. Job training for peer educators
7. Support for drug-use cessation
8. Cross-border collaboration

Resources Required

The program required brochures on reducing drug-use-related and sexual HIV risks for peer educators to distribute, new needles and syringes, sterile injection water, condoms, and pharmacy vouchers for peer educators to distribute. Over the course of the project, 10,000–12,000 new needles and syringes were provided in each country to IDUs. Funding supported mass media messages on billboards, radio, and television ads and the salaries of peer educators.

Management Structure

In Vietnam, the National AIDS Standing Bureau (part of the Ministry of Health) initially provided central-level leadership and technical oversight. Later, the Lang Son and Ha Giang Provincial Health Departments provided the leadership, with technical support from central-level consultants who traveled to sites regularly to provide technical oversight and support. In China, the central-level leadership was always situated at the provincial level, with little or no involvement of national agencies.

At the local level, the project director was the leader of the local health department and was in charge of project implementation and coordination with police and other relevant agencies. The project manager oversaw and managed the project work to ensure it complied with local rules and regulations and the project design. The community-level team leader provided oversight for the day-to-day work of peer educators.

Implementation Themes

The idea for the Cross-Border Project evolved during a Ford Foundation-sponsored workshop on HIV prevention for IDUs in Kunming, China, in September of 1997. It took 4 years for researchers from the USA, China, and Vietnam to develop the necessary partnerships and secure funding for the project. Funding was partially from the Ford Foundation offices in Beijing, China, and Hanoi, Vietnam, through grants to the Guangxi Center for HIV/AIDS Prevention and Control and Vietnam's National AIDS Standing Bureau. Funding from the National Institute on Drug Abuse, through a grant to Abt Associates Inc., provided initial support for the project in 2001.

Main Challenges Faced

In Vietnam and China, drug use was seen as a social evil. Drug users and people living with HIV were highly stigmatized and suffered from serious discrimination. Drug users were often sent to compulsory detoxification labor camps in China or rehabilitation centers in Vietnam. The behavior of law enforcement officials had a crucial impact on the success of the cross-border interventions. For example, individual police crackdowns on drug users caused reductions in IDU participation.

Misinformation and misunderstanding were seemingly endemic. At 18 months, one-third of Chinese respondents did not believe that the interventions would reduce the numbers of used needles and syringes littering the communities, and more than 30 % of community respondents in China and 18 % in Vietnam continued to believe the interventions would increase drug use.

Most peer educators were active drug users and many were HIV positive, and problems such as mobility, misbehavior, arrest, illness, and death arose. It was necessary for local project staff to keep a close eye on the activities of peer educators.

In Ning Ming, the pharmacy vouchers were initially popular among the IDU population, but after a few months IDUs stopped using them and the developers eventually discontinued this aspect of the intervention. They speculated that their drop in popularity was because there was little incentive for pharmacies to participate in the program.

Program Continuity and Present-Day Status

Program implementation began in July 2002 in Lang Son and in October 2002 in Ning Ming. The Cross-Border Project has been in continuous existence since then and has added additional sites in Ha Giang Province, Vietnam, and Guigang City, Guangxi.

Other Locations and Regions that Have Implemented Similar Programs

The Cross-Border Project was the first of its kind to target populations across country borders. Since the project proved its success with IDU populations in Vietnam and China, other similar cross-border projects have been established. One example is the HIV/AIDS Asia Regional Program (HAARP) Cross-Border Project for the Yunnan Provincial HIV/AIDS Prevention and Control Bureau (YNAB), located in an area of southwest China that shares a border with Myanmar, Laos, and Vietnam.

- <http://www.haarp-online.org/RegionalProgram/CrossBorderProgram/YunnanCrossBorderProject.aspx>

Original Program Evaluation

Study Design

Timeline and Duration

Researchers in the USA, Vietnam, and China began planning the project in 1997 and worked for the next 4 years to complete the plan and secure funding for the project. Full implementation of the program began in Vietnam (Lang Son sites) in July 2002 and in China (Ning Ming sites) in October 2002. After baseline surveys were conducted in 2002, assessments were also conducted at 6, 12, 18, 24, 36, and 48 months post-baseline. Findings from the first 24 months of the project are reported here.

Cohorts

- ☒ Cross-sectional (snap shots in time)
- ☐ Longitudinal (same people followed over time)

Cross-sectional surveys were conducted at baseline (before any implementation), 6 months (while the project was still in start-up), 12 months (by which time the project had reached full implementation), 18 months, 24 months, 36 months, and

48 months post-baseline. Individual subjects were permitted to participate in multiple survey waves.

Temporal Direction of Data Collection Relative to Intervention

- ☒ Prospective
- ☐ Retrospective

Assessment Time Points (Temporal Comparison)

- ☐ Before and after intervention (baseline and follow-up measures)
- ☐ After only
- ☒ Serial (more than two measures taken over time)

Implementation Level (Geographic Comparison)

- ☐ Countries
- ☐ Regions
- ☒ Counties
- ☐ Cities
- ☐ Towns
- ☐ Villages
- ☐ Households
- ☐ Couples, pairs, and dyads
- ☐ Individuals

Sampling Unit

- ☐ Countries
- ☐ Regions
- ☐ Counties
- ☐ Cities
- ☐ Towns
- ☐ Villages
- ☐ Households
- ☐ Couples, pairs, and dyads
- ☒ Individuals

Recruitment Techniques

In Ning Ming County, China, researchers had project peer educators send letters to IDUs they knew personally, inviting them to participate in the project. The IDUs who came to project centers for interviews were encouraged to recruit two to three additional participants. The research participants received 20 Chinese yuan (approximately US \$2.50) for the interview, 5 yuan for each additional male respondent recruited, and 10 yuan for each additional woman respondent recruited.

In Vietnam, approximately half of the sample was picked randomly using probability proportionate to size from lists of IDUs registered with the government. The other half was randomly recruited from IDUs present at drug-injecting sites mapped by the study team. The Vietnamese participants were paid 30,000 dong (approximately US \$2.00) for participating.

Randomization

- ☐ No
- ☒ Yes
 - ☐ Random assignment
 - ☒ Random sampling

In studies of IDU populations, it is standard practice to treat targeted or snowball samples as if they were random samples because very rarely do detailed sampling frames exist for this population.

Study Type

Quasi-experimental

Methods

Data Collection

Data Sources

- ☒ Questionnaire or survey
- ☐ Chart information or surveillance
- ☒ Record of biological specimen (HIV testing)

Interview

- ☒ Interviewer administered
- ☐ Self-administered

Instruments

- ☐ Paper and pencil (data entry after fieldwork)
- ☐ Computer (ACASI or direct data entry in the field)
- ☒ Not reported

Modality

- ☒ In-person
- ☐ Mail
- ☐ Phone
- ☐ Internet

Data Analysis*Exposure Variables Measured*

Exposure to the intervention was assessed based on self-reported measures of receiving aspects of the intervention. For example, across all of Ning Ming County sites, 82 % of 24-month survey participants said that they had received either new needles and syringes (directly) or pharmacy vouchers from the project in the last 6 months. In the Lang Son sites, 68 % reported receiving pharmacy vouchers for new needles and syringes.

Outcome Variables Measured

- ☐ Knowledge, attitudes, and beliefs
- ☒ Behaviors and practices
- ☒ Biomarker and clinical data

In the cross-sectional surveys, participants were asked a series of questions about drug using and sexual risk behaviors for HIV and were tested for HIV. The prevalence of the behaviors and of the virus served as outcome indicators.

Other Variables Measured

- ☒ Demographics
- ☐ Risk groups
- ☒ Behaviors

Standard demographic questions assessed gender and age, among other factors. At baseline a variety of predictors were measured and found to relate to the outcome variables of interest. Therefore, these variables (including border-crossing factors, HIV knowledge, and HIV status) were considered in the final statistical models.

Statistical Methods

The researchers provided descriptive statistics on the demographic characteristics, participation in the project interventions, risk behaviors, and HIV prevalence at all-time points. To estimate the change in outcomes over the five surveys, they used logistic models for binary outcomes and linear models for continuous outcomes. Both types of models were fit by the method of generalized estimating equations using the GENMOD procedure in SAS, with a robust estimate of the parameter variance matrix based on an independent working correlation matrix.

Strengths and Weaknesses of the Study Design and Methodology

- ☐ Cross contamination between intervention and comparison groups
- ☐ Concurrent interventions occurring in experimental and comparison areas
- ☒ Historical bias or trend due to historical factors
- ☒ No comparison or control sites

Results

Sample Size

Site	Baseline	6-month	12-month	18-month	24-month
Ning Ming	291	331	303	299	209
Lang Son	342	340	327	335	333

Retention and Loss to Follow-Up (Cohort Studies Only)

Not applicable to this study

Sample Demographics

Age

The average age of the participants was 28.5 years.

Race or Ethnicity

In Lang Son, Vietnam, 28–48 % of the participants reported being a member of a minority group. In Ning Ming, China, 68–78 % reported being a member of a minority group with variation by site and time point.

Gender

The participants were predominately male (88–100 %) depending on the site and time point assessed.

Sexual Orientation

Not reported

Outcome and Other Measures

Measure	Finding					
Intervention coverage	Across all Ning Ming County sites, 82 % of 24-month survey participants said that they had received either new needles and syringes or pharmacy vouchers from the project in the last 6 months. Across Lang Son sites, 68 % reported receiving pharmacy vouchers from the project					
Risk behaviors	All drug-related risk behaviors improved significantly in both Ning Ming and Lang Son over time with a statistical model controlling for site and repeated measurements					
Ning Ming County	Baseline (%)	6-month (%)	12-month (%)	18-month (%)	24-month (%)	p-value ^a
Receptive sharing of needles and syringes in the past 6 months	47	29	22	17	9	<0.001
Distributive sharing of needles and syringes in past 6 months	52	25	27	17	11	<0.001
Shared drug solution in past 6 months	41	22	18	13	8	<0.001
Shared other injection equipment in past 6 months	63	40	32	23	9	<0.001
Shared any injection equipment in past 6 months	76	53	47	31	17	<0.001
Lang Son Province	Baseline (%)	6-month (%)	12-month (%)	18-month (%)	24-month (%)	p-value ^a
Receptive sharing of needles and syringes in the past 6 months	5	5	2	3	2	0.008

(continued)

(continued)

Lang Son Province	Baseline (%)	6-month (%)	12-month (%)	18-month (%)	24-month (%)	p-value ^a
Distributive sharing of needles and syringes in past 6 months	6	5	1	4	1	<0.001
Shared drug solution in past 6 months	32	39	25	32	16	<0.001
Shared other injection equipment in past 6 months	31	35	35	35	22	0.025
Shared any injection equipment in past 6 months	47	47	46	51	30	<0.001

HIV prevalence	HIV prevalence in the Lang Song sites declined from 46 % to 32 % between baseline and 24 months. In Ning Ming sites, HIV prevalence was stable: 16 % at baseline and 14 % at 24 months
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	Baseline (%)	6-month (%)	12-month (%)	18-month (%)	24-month (%)	p-value ^a
Ning Ming	16	23	14	13	14	0.069
Lang Son	46	46	43	37	32	<0.001

^aAll p-values control for site and correlation between repeated measurements

Conclusions

The Cross-Border Project reached a significant percent of the IDU target population and was able to reduce drug-related risk behaviors and HIV prevalence, especially in Lang Son Province, Vietnam. The researchers concluded that the project reached approximately 65 % of IDUs in the Lang Son and Ning Ming sites and qualified as a high-coverage intervention, with demonstrated success in improving key outcomes.

Reducing the international spread of HIV among IDUs will require programs at the global, regional, national, and local cross-border levels with coordination on both sides of borders. Programs of sufficient scale will be needed that allow IDUs to readily obtain clean injection equipment on either side of a border.

Because the Cross-Border Project successfully gained the support of all stakeholders, it offered important lessons in terms of community outreach and the need for strong and ongoing educational efforts. The interventions are being replicated in another Vietnam-China border region (Quang Ninh-Guangxi) as well as in Uzbekistan. The ultimate success of such HIV prevention interventions for IDUs depends on full understanding and support in the communities where they are

implemented. Intensive ongoing community education will help prevent misunderstanding of project interventions and stigmatization of IDUs.

Implications and Lessons Learned

The demonstrated success of the Cross-Border Project supports the implementation of similar programs in the future, the success of which, according to the original developers, will depend on the following advice:

Guidance About Peer Educators

The developers emphasized the importance of selecting appropriate peer educators systematically and with care to ensure that those chosen are enthusiastic, committed, and honest. Candidates should undergo a comprehensive training session before final selections are made. Before they begin work, they should be required to sign contracts that give details about duties, payment, and standards of conduct. The team leaders should provide initial and continuing training for peer educators that focus on the knowledge and skills necessary for implementation of the intervention and how to access the target population. When they do their work, peer educators should be given ID cards and uniforms to indicate their official status and help them avoid police interference. They should also be given appropriate safety equipment for handling and disposing of used needles and syringes. The number of peer educators chosen should be directly related to the size of the population the intervention wishes to target.

Ideal Traits of Local Program Staff

The local program staff are a critical component in the success of the intervention. If possible, program staff involved in the project should be enthusiastic, committed, and should stay with the program for the entire duration of the intervention. They should provide consistent supervision to the peer educators, and they should terminate the employment of those who sell drugs, commit crimes, or misuse project resources or supplies.

Selection of Pharmacies

The pharmacies that participate in the intervention should be those that are favored by IDUs and are easily accessible to them. Pharmacies should be replaced with an alternate if they deliberately misuse project supplies or resources.

Community Involvement

The developers stressed the importance of continually keeping the community informed of the project's operations and activities, to help garner public support for the project. The developers advised that it is important to continually remind the community that the intervention does not encourage or facilitate increased drug use, especially if this is commonly believed. In addition, project staff should pass along information about HIV/AIDS to maintain community awareness and understanding and to collect feedback from the community and IDUs so the project can operate more effectively. Project staff should aim to keep the lines of communication open between the two countries—by conducting joint meetings—so that both countries can share their experiences and most effectively reach IDUs who cross the border.

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