Substance Use & Misuse, 41:979–999

ISSN: 1082-6084 (print); 1532-2491 (online)
DOI: 10.1080/10826080600667219

Taylor & Francis
Taylor & Francis Group

Secondary Syringe Exchange as a Model for HIV Prevention Programs in the Russian Federation

KEVIN IRWIN,[1] EVGENI KARCHEVSKY,[2]
ROBERT HEIMER,[1] AND LARISSA BADRIEVA[3]

[1]Department of Epidemiology and Public Health, Yale University, New Haven, CT, USA
[2]Harm Reduction Project "Renewal," Kazan, Russian Federation
[3]AIDS Prevention and Control Center, Ministry of Health, Republic of Tatarstan, Kazan, Russian Federation

Effective prevention of syringe-borne transmission of HIV and the hepatitis viruses can be undermined if contact between injection drug users and the staff of prevention programs is impeded by police harassment, limited program resources, and the absence of an open "drug scene." All these are commonplace in the Russian Federation. In response, "Project Renewal," the harm reduction program of the AIDS Prevention and Control Center of the Tatarstan Ministry of Health in Kazan, has created a hybrid syringe exchange program that as its primary focus recruited and trained volunteers to provide secondary syringe exchange. To compensate for operational barriers, the program staff identified private venues and trained responsible individuals to work through their own and related networks of injectors to provide clean syringes, other harm reduction supplies, and educational materials, while facilitating the collection and removal of used and potentially contaminated syringes. Program staff developed a detailed set of tracking instruments to monitor, on a daily and weekly basis, the locations and types of contacts and the dissemination of trainings and materials to ensure that the secondary distribution network reaches its target audience. Data show that these secondary exchange sites have proven more productive than the primary mobile and fixed-site syringe exchanges in Kazan. Beginning in 2001, Project Renewal has trained other harm reduction programs in the Russian Federation to use this model of reaching injectors, identifying and training volunteers, and monitoring results of secondary syringe exchange.

Keywords drug scene; harm reduction; HIV risk; injection drug use; outreach site host; rapid situation assessment; Russia; syringe exchange

Introduction

Syringe and needle exchange programs (SNEPs) in regions throughout the world have been demonstrated to be a cost-effective means (Reid, 2000; Kohn et al., 2001; Laufer, 2001) of reducing high risk injection and sex behaviors and disease transmission among injection drug users (IDUs) (Heimer et al., 1993; Watters et al., 1994; Drucker et al., 1998; Heimer, 1998; Bluthenthal et al., 2000; Des Jarlais et al., 2000, 2000b; Loff, 2002; Nelson, 2002;

Address correspondence to Mr. Kevin Irwin, Yale School of Public Health, Center for Interdisciplinary Research on AIDS, Suite 1B, Room 111, 40 Temple St., New Haven, CT 06510. E-mail: kevin.irwin@yale.edu

Ksobiech, 2003; MacDonald et al., 2003) while strengthening their connection with a range of services (Heimer, 1998; Strathdee et al., 1999; Grau et al., 2002; Porter et al., 2002). The effectiveness and quality of SNEPs in any given community is a product of reach and breadth of coverage, monitoring and supervision, and adaptability to changing local conditions.

Despite overwhelming evidence that SNEPs do not lead to increases in injection drug use (Watters et al., 1994; Fisher et al., 2003), most still face significant structural barriers (Heimer et al., 1996; Bluthenthal et al., 1997; Gostin et al., 1997). The fear and avoidance of arrest or persecution by police has a chilling effect on the effectiveness of syringe exchange programs to reach and maintain services with active drug users (Bluthenthal et al., 1997; Wood et al., 2003). Moreover, a lack of SNEP locations and operating time due to the limited financial resources of most programs often make access inconvenient for many prospective participants. Locating SNEPs in close geographic proximity to large numbers of IDU populations is recommended (Rockwell et al., 1999) but not always possible. To help address these challenges, secondary syringe exchange (SSE) has been acknowledged as an effective strategy to help overcome obstacles of convenience, logistics, and fear of police (Snead et al., 2003). In the Russian Federation, intense drug enforcement and limited funding characterize the conditions in which SNEPs operate, creating an environment in which secondary exchange may provide an important strategic component to SNEP effectiveness. One such program, "Project Renewal" in the city of Kazan, has set a standard of best practices for the integration of secondary exchange into prevention services.

Russian Situation

In 1999 a total of 114 countries and territories reported HIV infection from drug injection, more than doubling over the previous 7 years (UNAIDS, 2000). The growth of injection drug use in Russia and the Newly Independent States since 1990 has been especially dramatic (Dehne et al., 1999). Between 1996 and 2001, 80–90% of officially registered HIV infections were attributed to injection drug users (Bobkov et al., 1998; Kozlov, 2000), as explosive HIV epidemics have been reported in regions throughout the Russian Federation (Alcabes et al., 1999; Dehne et al., 1999; Rhodes, 1999; UNAIDS, 2000). As of the end of 2003 the Russian Federal AIDS Center (RFAC) reported over one quarter million registered HIV cases, now present in all 89 regions of the Russian Federation. Nearly 80% of cases have been reported in the last 4 years. RFAC also approximates that officially registered cases represent only 10–15% of the true total, estimating as many as 1.5 to 2 million current cases and projecting 5 million Russians (6% prevalence) may be infected by 2005 (Pokrovsky, 2001).

This rapid rise of injection drug use has appeared in the context of unique social, cultural, economic, and political transformations affecting the region (Kalichman et al., 2000; Amirkanian et al., 2001). Macrolevel conditions in Russia have coalesced to create an environment that influences injection-related and sexual risk for injectors, including the absence of a traditional public health infrastructure; rapid transitions in economic, health, and welfare status; intense legal efforts to restrict drug supplies; the transference of new drug production and distribution technology; and a lack of structures and resources for nongovernmental organizations and community organizations (Rhodes et al., 1999).

There appears to be a high level of acceptance for administering medicines by injection rather than orally in Russia (Veeken, 1998; Rhodes et al., 1999), which may nurture a cultural context that makes injection the preferred route of administration for illicit drugs.

Injection drug users in Russia tend to be rather young, with median ages in the low to mid twenties (Vishinsky, 1999; Kalichman et al., 2000). In Russia, youth from all social classes and ethnic groups inject drugs (Paoli, 2001). Injection drug use in Russia is now ubiquitous, having spread far beyond urban settings (*AIDS Weekly*, 2003; Molotilov et al., 2003). Needle sharing is widespread, as up to 60% of users report borrowing and lending equipment in some regions (Davidova et al., 1998; Reilly et al., 2000).

Prevention Environment

All the economic, legal, and drug interdiction conditions that commonly impede HIV prevention among IDUs flourish in the Russian Federation. In January 1998, the Federal Law on Narcotic Drugs further expanded one of the worlds most restrictive and repressive drug policies with no accompanying strategy for prevention or treatment. In Russia's difficult transition to a market economy, widespread crises of poverty and unemployment have made corruption the standard practice of state institutions and establishments in Russia (Gilinskiy, 2001). Hence, the routine extortion of drug users serves as a regular source of economic opportunity for many police officers (Paoli, 2002). Because drug laws are somewhat open to interpretation and enforcement, drug users must frequently pay fines to police on the spot. Studies showed that police practices in five cities in Russia presented a serious impediment to needle exchange efforts (Des Jarlais et al., 2002), whereas 16 cities showed high rates of overdose episodes and reluctance to seek emergency treatment services due to fear of prosecution (Tikhonov et al., 2003).

The Russia federal AIDS budget in 2003 was about $4.2 million, less than one quarter of which is devoted to prevention. SNEPs are not officially supported, and substitution therapy with methadone or buprenorphine remains illegal under the 1998 Federal Law on Narcotic Means and Psychotropic Substances. Nevertheless, approximately 75 SNEPs have been started in Russia, most since 1999. Approximately half of these projects have indirect support from governments at the local level, ordinarily through AIDS prevention or drug treatment centers, though there is great variability and frequent alteration in program structures.

Legal policies and enforcement practices have created a paradox in Russia: Syringes are legally available and affordable at pharmacies, yet drug users are reluctant to use these resources out of fear. In Moscow, for instance, 99% of IDUs reported that syringes are not expensive nor is their acquisition difficult, but 83% stated that buying syringes at pharmacies often involves the risk of being scrutinized by police (Trubnikov et al., 2003). Rhodes and coworkers (2003) found that injection-related risk factors were not simply a matter of syringe availability in the Russian city of Togliatti but that the fear of police detainment or arrest among IDUs results in reluctance to carry needles and syringes, which is consequently associated with needle and syringe sharing at the point of drug transactions. Although a study that included five Russian cities suggested that needle exchange participants of all types were reducing the sharing of needles and syringes (Des Jarlais et al., 2002), novel strategies are needed to compensate for legal barriers and to generate cost-effective means of increasing coverage among IDUs and their sexual partners.

Secondary Syringe Exchange

Secondary exchange, also called satellite exchange, the distribution and recapture of syringes obtained through direct provision of an SNEP to a nonparticipating IDU (Normand

et al., 1995), is often a naturally occurring practice in any SNEP. By deliberately expanding the role of participants to conduct prevention outreach (Valente et al., 1998), the building of SSE into SNEP structures facilitate not only the extended delivery of syringes to IDUs (Latkin et al., 2003), but the removal of used and possibly contaminated syringes from the community and the effective provision of additional risk reduction supplies and information to IDUs who do not access SNEPs directly (Edlin et al., 2003).

The principle of involving IDUs as collaborators in planning and implementation of HIV prevention programs (Burrows et al., 1998; Drucker and Allan, 1999) increases program effectiveness for achieving the goals of changing social norms surrounding drug injecting and sexual behavior (Friedman et al., 1994; Des Jarlais, 2000). The purposive employment of SSE capitalizes on the effectiveness of drug-using peers to recruit and take leadership roles in their personal networks, optimizing a "natural opportunity" for education (Snead et al., 2003). Building on previous evidence showing that recruiting public opinion leaders influence risk behavior change (Kelly, 1991), work with IDUs has suggested that training peer leaders as educators is effective in reducing injection and sex risk among the members of their personal network (Levy et al., 1995; Latkin et al., 1996; Broadhead et al., 1998; Latkin, 1998; Sears et al., 2001).

Recipients of SSE report "privacy, convenience of location and time, force of habit, and concern for carrying paraphernalia around" as motivation for obtaining syringes from SSE sources rather than from a SNEP (Voytek et al., 2003). Because networks of drug-using peers penetrate larger and more diverse populations than do outreach workers (OWs) (Broadhead et al., 1998), properly conducted SSE can offer the dual advantages of increased coverage by connecting with clients who cannot or may not want to visit fixed site while maximizing cost savings (Anderson et al., 2003). Project Renewal has capitalized on the potential role of SSE to enhance several features of their overall harm minimization efforts.

Project Renewal: "The Kazan Model" Description

One of the older and more stable harm reduction projects in Russia is Project Renewal in Kazan, the capital of the Republic of Tatarstan, a city of 1.08 million inhabitants 800 kilometers east of Moscow. As home to a significant oil business, the Republic of Tatarstan is one of the wealthier in the Russian Federation. Project Renewal was initiated by Larissa Badrieva, the head of the policlinic, in May 1999 in cooperation with the Republican AIDS Prevention and Control Center. Initial funding came from the Open Society Institute (Moscow). From 2001 to 2003 Project Renewal received about half of its operating budget (U.S. $30,000) from the government of the Republic of Tatarstan and half from international sources.

Project Renewal works through 15 stationary needle exchange outlet locations (SNEO), 1 mobile unit (MNEO), and 3 street OWs to provide the following services for IDUs: needle and syringe exchange; associated risk reduction supplies and informational leaflets; individual counseling in HIV prevention and risk reduction; trainings in safer drug preparation, injection practices, and overdose prevention for IDUs; and HIV and hepatitis B and C antibody testing, liver function biochemical analysis, peripheral blood and immune system status analysis, sexually transmitted disease testing and all associated counseling provided by infectious disease specialists. The staff provides referral cards for testing services at the AIDS Center, and medical specialists also ride with the MNEO and occasionally visit apartments to provide counseling and testing.

The primary target group of Project Renewal is the hidden population of active drug users, estimated by Project Renewal to be 15,000 in 1999 and 12,000 in 2002 using

capture–recapture techniques (Hickman et al., 1999). The most popular injection drugs in Kazan are heroin, *vint* (metamphetamine, homemade from nonprescription ephedrine preparations), and homemade preparations of opiate from poppy, called *hanka* and *mak*. The number of heroin and *vint* users has remained stable, averaging 97% and 10%, respectively. There is some overlap due to the occasional inclination of *vint* users to turn to heroin (when "Solutan" supplies are cut off) and heroin users who may turn to *vint*, subscribing to a popular myth that recommends the use of *vint* as an effective route to discontinuation of heroin use. *Hanka* use is a diminishing seasonal activity practiced by 10% in 1999 and just 2% in 2002 only. Drug users often pool their resources to obtain the necessary materials for making and using drugs. This, combined with the scarcity of safe places to use drugs, has resulted in the common practice of drug use among groups of friends and associates.

In general, drug users in Kazan are highly mistrustful of strangers due to the threat of highly aggressive law enforcement. As a result, open-air drug activity does not exist in Kazan, so Project Renewal operates in conditions of a closed and highly clandestine drug scene. Drugs are distributed primarily at drug users' apartments and private houses, complicating access to the target group. OWs may meet IDUs at different places—in the street, in stairwells, in hospitals, in clubs—though it is hard to establish a confiding contact with drug users in public places and even more complicated to maintain stability with these social groups. For these reasons, Project Renewal staff attempt to organize their outreach activities in drug user's apartments to build trusting relationships in a nonthreatening environment.

Given the communal nature of drug-using activity in Russia, establishing and repeating contacts in apartments increases the likelihood of reaching additional IDUs. When IDUs are home and more at ease, they may be more receptive to harm reduction messages and trainings. By being on location during possible risk activities, OWs have a natural opportunity to observe participant practices and provide specific risk reduction trainings related to syringe-mediated sharing (Grund et al., 1996); safe utilization of the large sizes of needles and syringes common in Russia (Abdala and Clay, 1999; Abdala et al., 2001); risks associated with the sharing of filters, cookers, and other paraphernalia (Hagan et al., 2001); and proper discard of syringes. Project Renewal takes advantage of tightly knit IDU peer networks to purposely integrate SSE and peer education strategies into all harm reduction activities.

Project Renewal Organization

The cornerstones of success for SSE lie in constant expansion through the recruitment of volunteers and in maintaining verifiable consistency through effective supervision and management. SSE creates increased opportunities for meeting the multiple objectives of SNEPs: syringe distribution volume, breadth of coverage, reach into hidden populations, effectiveness of intervention efforts, and overall quality of services. However, the ability to track and substantiate the effectiveness of SSE activities presents considerable challenges. To address these complexities Project Renewal standardizes definitions of people, places, and things associated with all aspects of the SSE enterprise. The staff of OWs receives rigorous training and retraining and sets daily and weekly goals, categorizing tasks related to various stages of work with secondary exchangers. Standardized monitoring forms are filled out daily to track and evaluate progress.

First, the drug scene location for an outreach intervention is defined as an outreach site, distributed according to the following six categories: drug user (*vint* or heroin), middleman, dealer (distributor), cook, social gathering (tusovka), and shooting gallery (priton). The

first four categories of locations are personal apartments belonging to different types of participants in the drug trade. Previous work has shown that those who participate in some part of the drug economy can be influential change agents (Sherman and Latkin, 2002). Project Renewal's SSE program attempts to tap into existing drug distribution and sharing networks to accomplish its goals.

A drug user outreach site is an IDU's apartment typically visited by friends. These provide the most direct communication opportunities as OWs work directly with the owner and his associates, who may in turn introduce OWs to new outreach sites. A middleman outreach site is an IDUs apartment where other drug users come for assistance in purchasing drugs. This type of the outreach site is rather challenging for outreach work. The number of drug users may vary, as can the middleman's trading system. Often, the middleman and his friends use drugs together at the apartment. A dealer (distributor) outreach site is the dealer's apartment. Drug users and middlemen come here to buy drugs. Often, the dealer will let close friends inject in the apartment, whereas others may use their heroin in the stairwells or elsewhere. OWs often meet drug users or middlemen waiting for heroin delivery around the building, and any of them might serve as the target for outreach intervention. A cook outreach site is the apartment of one who prepares drugs for oneself and other visiting drug users. Because both friends and strangers come to these sites, a cook's social network may be rather wide, making it a good working site.

A social gathering (tusovka) outreach site is a location (not necessarily an apartment) where drug users along with nondrug users gather together more for socializing than for drug purchase and use. This may be in a courtyard or in a stairwell in the wintertime. A shooting gallery (priton) outreach site is an apartment where a group of drug users dwells. Pritons are often places of high turnover, with many users coming and leaving. Pritons are used not only for the drug trade but also for group drug use and sexual activities.

The key person at any outreach site is termed the outreach site host. A dealer, a middleman, drug user, cook, priton owner, or a social place leader can perform as the outreach site host. Identifying the leaders of networks with promising potential as volunteers is a complicated matter in itself. After identifying a potential leader, OWs must gain their trust, engage and train them, and establish a supportive relationship that promotes sustained participation.

Volunteer Site-Building Phases

To manage the complexities and confusion of building an SSE and peer education network, Project Renewal establishes working phases with every outreach site as opening, development, support, secondary development, and closing.

In the opening phase, contacts are made in one of several ways. OWs with drug-using experience usually begin with places that are familiar to them; street acquaintances, contacts in the infectious disease hospitals, current participants in existing outreach sites, an SNEO, or the MNEO are used to establish new outreach sites. Gaining trust is the most crucial predictor of establishing a successful contact, so the personal qualities and professional skills of the OW are vital. Once a number of contacts and their networks are established, participating IDUs become the main route for identifying and introducing new outreach contacts and sites. OWs without drug-using experience but who are friendly toward drug-users may have fewer initial contacts but eventually gain the trust of participants.

The next step in the opening phase is to perform a rapid situation assessment of the site environment to determine the potential for successfully establishing SSE and peer

education. This is carried out informally, through observations and conversations with IDUs, largely revolving around the evaluation of the site host's potential to serve as a project volunteer. Enrolling unfit site leaders can be detrimental to the project, the site leader, and the members of his personal network. OWs become adept at assessing the personal traits of a site host, his or her attitude toward the project and harm reduction philosophy, and such qualities as taking care of his or her own health or altruistic attributes.

The social dynamics of the site are also crucial to the eventual success or failure of the host volunteer. Issues related to the site host's relationship with the social surroundings are appraised, particularly the presence of cohabitants and their potential to either help or impede the work of the site host. OWs describe the site in terms of types of drugs used, host position at the drug scene, the potential to network with host's associates, the potential to observe risky behavior of the host and his clients, and the average number of the regular clients who have not been previously reached by the project. After estimating the group size, the OW then arranges a suitable schedule for visiting the site.

The opening phase entails careful balancing between repeated visits that are adequate enough to gain the trust of the host, make friends, and evaluate the situation while not inconveniencing the host or arousing undue suspicion. OWs ordinarily visit the site several times per week but for no longer than 1 hour. The average time for opening phase completion is 2 to 3 weeks. If the opening phase objectives are not met within 1 month, work at the site is terminated.

When a site is determined to be eligible, OWs move to the development phase. The primary objectives are (1) involving and motivating the host and his regular clients in meeting the goals of the project, (2) providing and disseminating harm reduction education, (3) effecting behavior change, (4) establishing personal contact with all outreach site visitors, and (5) cultivating new outreach sites.

The first and often challenging step for OWs is to engage and motivate the site host to make him or her a member of SSE and peer education network. Three types of motivation are pursued: psychological, social, and material. Psychologically, most people involved in drug distribution perceive that they are not only subject to legal punishment but may also sustain harm to their social surroundings. They are frequently subjected to social blame reflected in mass media and public opinion. Even drug users themselves express their disapproval, calling them the offensive word "baryga" (profiteer). Often, cooperation with the harm reduction project helps them to benefit others and elevates their self-esteem. The desire to be socialized can also be motivating. Cooperation with the harm reduction project often provides socially outcast drug users with opportunities to connect with previously unavailable basic medical services. Access to material harm reduction supplies like sterile syringes and other injecting equipment are also of great value to IDUs, helping to compensate for costs and limited safe access to materials. Because police often watch the drugstores, alternative access to syringes reduces potential harm to IDUs.

To meet the education objective of the development phase, OWs concentrate efforts on working with volunteers who are motivated to become peer educators, providing trainings in specific risk reduction practices during their daily visits. Volunteers are then trained in proper SSE and the distribution of harm reduction materials. The teaching techniques are tailored to best suit the situation. Personal teaching or group trainings may also be delivered directly at the outreach site for the site host and his visitors, via seminars at the project's office, or other appropriate venues.

To meet the behavior change objective, OWs strive to move volunteers and their regular clients from educational awareness to consistently less risky drug-using and sexual behavior. By being on location, the OW can directly observe clients' behavior and risks. Here, the

OW can point out potential risks in real time and provide concrete advice, reasonable recommendations for safer alternatives, and demonstrate the use of specific materials and techniques. Above all, the OW provides continual and regular support for people in their desire to change the behavior.

The development phase is a test of OW professionalism, sensibility, and persistence. The outreach site should be visited often (a few times a week) and for longer periods of time (several hours) than in the opening phase. The duration of the phase depends on the outreach site category and the number of regular clients. OWs strive for personal contact with every drug user who visits the site to motivate, educate, and eventually to identify potential project volunteers in the continual search for the new outreach cites. Sustained and supportive personal contacts with IDUs increases the likelihood of making new contacts and generating new sites. The OW may reach development objectives more quickly when working with an ordinary drug user (in several weeks) than working with a priton (often several months). When the OW ceases to make new contacts at the site, it is an indicator to advance to the next working phase, the support phase.

In the support phase, site-specific work intensity is reduced as OWs work with new contacts to create new sites and volunteers assume the functions previously performed by OWs. Volunteers conduct SSE, providing a regular supply of sterile syringes and other injection equipment. Likewise, they distribute leaflets and referral cards for blood testing, bring the harm reduction message to the drug users who frequent their site, train them in risk reduction practices, and accompany them to the AIDS center for testing, to the SNEO, or any number of harm reduction activities. The OWs main objective becomes regular provision of supplies of all materials and the transport of used syringes collected by volunteers for safe disposal. OWs train site members to safely recap syringes and store used syringes, ordinarily in large soft drink bottles, for later pickup and removal. The OW monitors the dissemination of harm reduction materials to ensure that the secondary distribution network is reaching its target audience.

The OW must continually support the outreach site host and regular clients in their continued efforts to change their behavior. OWs are effective only through being sensitive, careful, and concerned about clients' needs and rendering practical assistance in the access to medical and other services. The frequency of visits can be reduced in accordance with the needs of the site. More modest sites may only require visits once per month, whereas pritons and other dynamic sites call for weekly or biweekly visits. OWs pay particular attention to the numbers of new clients at a site. When a large number of new clients appear at the outreach site, the OW should go to the next working phase, the phase of secondary development. Some sites change so quickly the support phase barely happens.

Secondary development of the outreach site is needed to connect with large numbers of IDUs who have not been previously contacted by the project. The OW strives to connect with each new visitor personally. The objectives for OWs are much the same as that in the initial development phase: training in health management, initiating behavior change, and identification of people with the potential to become project volunteers. The frequency of site visits are increased accordingly.

The final phase, closing, is a temporary or permanent interruption of services. An outreach site may be closed down for various reasons, both internal and external to the site. The site host may leave, may be arrested and detained or imprisoned for varying lengths of time, may stop using drugs, or may die. Because identifying confidential information about sites is not recorded, a second staff member is always introduced to the host and the site so that in the event that the OW is no longer employed by Project Renewal, the site will continue to receive services.

The outreach site may also be closed if further operations have been considered unreasonable or the main outreach objectives have been reached. A project that is limited in human resources becomes quickly immobilized in achieving its objectives. Occasionally, IDUs grow comfortable with using the SNEO site. This is helpful, because new sites are growing in number all of the time and OWs need time to open them. Even when a site is closed, OWs try to maintain contact and ensure that volunteers are current with the information and supplies needed to adapt to changing habits and trends. In some cases, sites have been reopened after hosts returned from prison.

Role of SNEOs and MNEOs

The SNEO serves as a good place for building up the volunteer network. SNEO personnel have a friendly attitude toward drug users, provide a trusting climate, and cooperate with the outreach team. In the first year of operation, Project Renewal opened one SNEO in the same building that houses the AIDS Center. Because heroin is usually used in groups of two to three people and most IDUs were reluctant to visit the SNEO, a standard exchange rate of $X + 3$ new syringes for X used syringes returned was used. No per visit limits were placed on any individual transaction. IDUs increasingly saved their syringes and gave them to peer delegates, often project volunteers who had been trained by OWs. These behavior changes reduced the number of used and potentially contaminated syringes in circulation. Sustained police pressure prompted the staff to actively identify and recruit potential SSE volunteers, connecting them with OWs for additional training and effective monitoring.

In the second year of operation, a second site was opened on the opposite end of the city, which spans some 35 kilometers. After this, in April 2001, the Tatarstan Republican Ministry of Health assumed some of the costs that provided for 13 additional outlets to be established through municipal polyclinics. Clinical staff were trained by Project Renewal, and OWs advertised their services, assisted as needed, and monitored the activities of clients providing SSE. Rapid growth in the satellites sites also resulted in an undesirable loss of ability to monitor SSE and verify that materials were reaching their clients. Because monitoring is crucial to the validation, success, and continued support of the project, syringes were limited to 50 per client per visit. The primary SNEO operates daily from 3:00 a.m. to 9:00 p.m., whereas the secondary site operates from 9:00 a.m. to 5:00 p.m. Satellite SNEOs operate from 8:00 a.m. to 2:00 p.m.

MNEO has also been an effective strategy for developing new volunteer contacts. The Project Renewal MNEO began operation in October 2000 and was carried out by OWs. In the absence of a street drug scene in Kazan, the neighborhoods of known heroin dealers and mediators were chosen. Through the first 5 months of operation, the MNEO was working at six locations in various city districts for 1–4.5 months, or an average 2.5 months, at each location, visiting each location one to two times a week.

The MNEO van quickly attracted police attention. Once, MNEO activities had to be curtailed due to the permanent detentions of clients by police officers. Although Project Renewal had an agreement with the Tatarstan Republic Ministry of Internal Affairs headquarters stating that police would not interfere with the MNEO, clients were often detained after the vans departure. To reduce police attention, Project Renewal modified the MNEO techniques. Since that time the MNEO has been targeting sex workers, many of whom were also injecting drugs. The MNEO now operates at two locations in city districts where sex working IDUs congregate, visiting each place two to three times a week, from 6:00 am to 10:00 p.m. in summer and 4:00 p.m. to 8:00 p.m. in winter. The clients of MNEO

are not only sex workers but also IDUs who live nearby, and several clients of MNEO have been recruited and trained to perform secondary syringe exchange.

Data Sources

Through daily log monitoring by all staff of all SSE activities, Project Renewal is able to track the effectiveness of their efforts. Project Renewal has developed a comprehensive training manual for building and maintaining a secondary needle exchange that provides the requisite forms and operational details (Badrieva and Karchevsky, 2001). Several sources of data, including surveys, official statistics, and capture–recapture techniques (Hay, 2000), are used to estimate the IDU population in Kazan.

The project also trains OWs to administer client surveys that record demographics, details about their drug injection history and current practices, duration of contact with the project, number of contacts, syringe acquisition, and comprehensive details of injection behaviors. Two waves of over 400 interviews have been conducted. The project conducted the first wave of data collection from 1999 to 2001 (n = 228, age range 13–47) and the second from 2002 to 2003 (n = 201, age range 16–50). Interviewees are divided into categories according to duration and intensity of contact with the project, from newly encountered injectors to those who have maintained weekly contact for a minimum of 4 months.

Results

During the first 4 years of Project Renewal's operation, the number of IDUs in Kazan appears to be shrinking based on the aggregate estimation, from approximately 15,000 to 12,000. Narcologists reported fewer youth coming for treatment, and Project Renewal survey data from 1999 to 2003 show an older average client age. Data from the first to second wave of interviews revealed increased mean ages, from 21.9 to 26.1 years among new clients and from 22.9 to 27.6 years among regular clients, with more having finished secondary education but less employed or continuing into graduate education. Survey data also indicated that more IDUs were involved in drug distribution, sex work, engaged in illegal activities, and reported higher injection frequencies. Taken together, these indicators suggest that Kazan has an aging cohort of drug users and a reduction of new younger injectors.

Tracking data show that outreach efforts continually generate the largest number of verifiable primary contacts. Although it is difficult to trace duplicate cases, the total of 14,853 primary contacts over the fist 4 years of Project Renewal's operation was most impressive when considering that a large percentage of Kazan's peak population of 15,000

Table 1
Primary contacts per year by contact point

Primary contacts per operating year	SNEO		MNEO		Outreach		Total	
	New	Ongoing	New	Ongoing	New	Ongoing	New	Ongoing
1999–2000	712	712	0	0	4,128	4,128	4,840	4,840
2000–2001	671	767	381	381	3,600	4,152	4,652	5,300
2001–2002	423	513	907	939	2,307	3,652	3,637	5,077
2002–2003	287	454	112	547	1,325	2,905	1,724	3,906
Total	2,093		1,400		11,360		14,853	

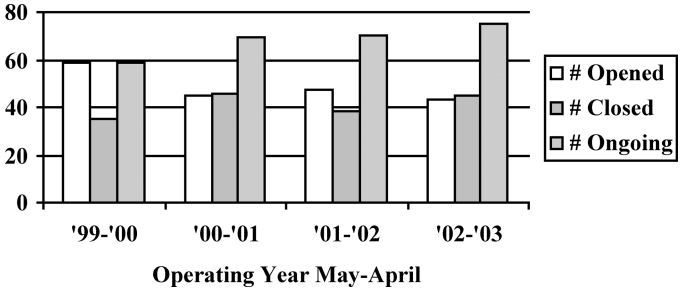

Figure 1. Outreach site survival.

IDUs have been imprisoned, usually for about 2 years, and unavailable for contact for up to one half the study period. Cohort reduction and prison effects are especially evident in the last year of operations. It should be noted that Table 1 data reflect the category through which initial contacts were established and do not track the shifting of contacts between outlet type.

In addition to the general decline in IDU population, Project Renewal also experienced funding interruptions in its fourth year of operation, accounting for some reduction in syringe availability and necessitating a stricter rationing of distribution. This may have also contributed to the decline in new primary contacts during this period. Despite this, Figure 1 demonstrates the steady increased efficiency of outreach staff ability to build and maintain volunteer sites, resulting in 75 ongoing operational sites in the most recent year depicted.

Of the 194 total outreach sites established in the 4 years of operation, 52 (27%) were opened by OWs with drug-using experience visiting places familiar to them. Other project personnel enlisted their own acquaintances in 18 cases (9%). Additional sites were opened via a total of 7 street contacts (4%), 3 contacts in infectious hospitals (2%), and 14 contacts from SNEO and MNEO (7%) were recruited. The most effective route for cultivating new outreach sites is through the help of IDUs at existing sites, accounting for 100 sites (52%). More than half of outreach sites were in locations inhabited by individual engaged in drug sales. However, congregating spots also proved to be productive recruitment venues, suggesting that multiple approaches are essential. Project Renewal categorizes and tracks outreach sites based on either the primary contact person or the type of location (Figure 2).

In the first 4 years of operations, Project Renewal has closed down 164 of the 194 established SSE and peer education outreach sites, highlighting the importance of constant expansion. About one third of all closed outreach sites, 56 (34%) were shut down due to

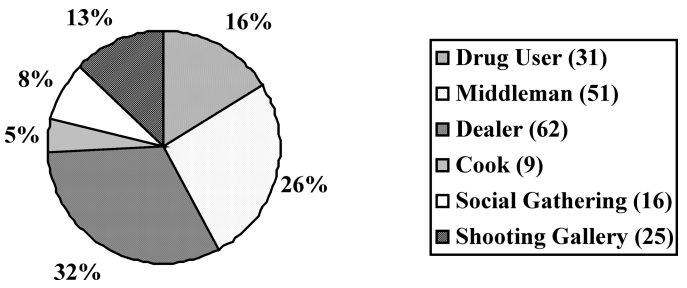

Figure 2. Outreach site by type (n = 194).

Table 2
Activity of outreach site hosts

Number and percent of outreach site hosts who	1999–2000	2000–2001	2001–2002	2002–2003
Introduced their friends to project	59 (100%)	69 (100%)	70 (100%)	75 (100%)
Mean no. of new IDUs introduced per site host	33	40	31	24
Regularly distributed syringes	56 (95%)	65 (94%)	69 (99%)	74 (99%)
Mean no. of IDUs who received syringes per site host	27	31	28	20
Regularly collected used syringes for exchange	56 (95%)	65 (94%)	69 (99%)	74 (99%)
Mean no. of IDUs who gave used syringes for exchanging to one site host	19	20	18	14
Regularly distributed leaflets	47 (80%)	62 (90%)	64 (91%)	72 (96%)
Risk reduction counseled	55 (93%)	63 (91%)	59 (84%)	64 (85%)
Distributed referral cards	44 (75%)	47 (68%)	38 (54%)	38 (51%)
Distributed testing referral cards	25 (42%)	32 (46%)	34 (49%)	34 (45%)
Provided HR trainings	24 (41%)	22 (32%)	7 (10%)	6 (8%)
Assisted in connection with services	22 (37%)	26 (38%)	18 (26%)	14 (19%)

the firing of an outreach worker. In total, 38 sites (23%) were closed either because further operation was considered unmanageable and unproductive or the main outreach objectives had been reached. Site hosts quit using drugs at 18 outreach sites (11%), and 10 (6%) were closed down when the hosts' stopped working with the project to avoid attracting police attention. Another 24 of the site hosts (15%) were sent to prison and 17 (10%) changed the residence, usually for fear of being detained. In sum, 51 outreach sites (31%) were closed due to police-related reasons. One outreach site host died. In several cases sites were reopened after a volunteer returned from prison.

Outreach site hosts have been active harm reduction agents throughout the existence of Project Renewal. Hosts have been particularly adept at recruiting, collecting and distributing

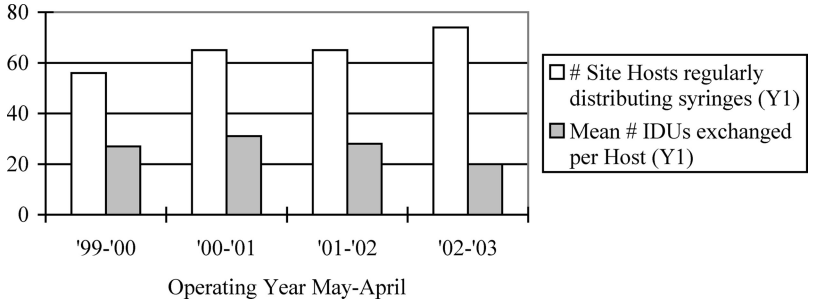

Figure 3. Estimated site host contribution.

Table 3
Ability to obtain new syringes as needed

	New clients	Regular clients	*f*
1999–2001	48 (36.4%)	67 (69.8%)	$p < .0001$
2002–2003	64 (61.0%)	84 (87.5%)	$p < .0005$
	$p < .0005$	$p < .0005$	

syringes, and providing information materials, counseling, and assisting in connecting IDUs with services personally or with referral cards for additional counseling and testing. Some have even conducted their own harm reduction trainings with help of OWs.

The primary function of site hosts has been introducing new contacts to the project and exchanging syringes (Table 2). As the number of site hosts has increased steadily, the mean number of IDUs exchanging with each host has tapered (Figure 3). These effects may be attributed to a combination of factors, including rates of arrest and imprisonment, decline in overall numbers of IDUs, shrinking personal networks of trust, and IDUs who have chosen to obtain new syringes through other means, like the MNEO, SNEO, or pharmacies. When factoring in the tapering population of available IDUs, this form of secondary exchange still accounts for 12.3% of coverage, in keeping with the 4 year average of 12.7%.

Coverage alone may not necessarily be a good indicator of syringe accessibility. Both high coverage and a sufficient volume of syringes exchanged are required for SNEP to be successful. Survey data from Project Renewal participants indicated that both new and regular clients reported increased ability to obtain new syringes as needed from 1999 to 2003 (Table 3).

When factoring for reduction in overall IDU cohort and rates of prison detention, it appears that Project Renewal has been effective in reaching the vast majority of IDUs in Kazan at some point. Survey data collected by Project Renewal also indicate that the number of IDUs getting tested for HIV has increased substantially, from 44.7% to 79%, along with substantial decreases in syringe sharing and mediation. The increase in testing has been concentrated among new clients.

SSE has consistently contributed to a substantial number of syringes distributed and collected by Project Renewal since its inception (Figure 4). The cross-fertilization of contacts between MNEO, SNEO, and outreach efforts has resulted in 986,251 new syringes

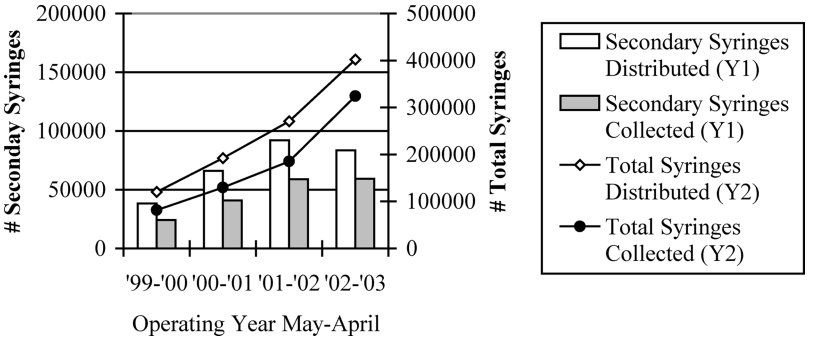

Figure 4. Secondary syringe distribution volume.

being distributed to IDUs in Kazan, 28.4% of which were directly attributable to SSE efforts.

Conclusion

Individuals and communities, armed with education, incentives, and effective interventions, can and will modify risk behaviors associated with HIV transmission (Kalichman, 1998). There is strong evidence that HIV epidemics among injectors can be reversed, stabilized, and prevented with early interventions and appropriate public health policies (Ball, 1998; Ball et al., 1998; Des Jarlais et al., 1998; Strathdee et al., 1998). Effective strategies have been legal access to injection equipment (Hurley et al., 1997); low threshold agonist pharmacotherapy, including methadone (Farrell et al., 1994); outreach, network, and peer interventions (Coyle et al., 1998; Neaigus, 1998); and community development approaches (Friedman et al., 1997). Early intervention and rapid public health response are key (Ong et al., 1991; Manderson, 1992; Beebe, 1995). Epidemics of HIV and hepatitis are moving very quickly through Russia. Official response is very slow, funding is woefully inadequate, and existing programs are relatively new, often under-funded, and face official resistance, so maximum rapid impact is crucial. Numerous barriers to legal access to syringes and the prohibition of agonist therapies serve to increase the necessity of novel community-based peer network approaches that reach high risk hidden populations of IDUs in very challenging conditions.

Russian IDU populations are often hidden, and SSE is an effective means for reaching them (Grund et al., 1992). One model for peer-driven interventions in Russia was successfully developed by a research team in Yaroslavl (Sergeyev et al., 1999). The Kazan model combines and expands on these paradigms, resulting in impressive penetration and coverage of a large city with intense police scrutiny. Burrows (2001) identified the Kazan model for "best practice" of harm reduction in the Russian Federation. The Kazan model effectively makes use of existing networks of drug use and distribution to expand the coverage of all its activities while increasing cost-effectiveness. As Russian Federation drug policies show no sign of relaxation and harm reduction is falling out of favor with many officials, the Kazan model will be an important solution for protecting the health of IDUs in Russia.

Glossary

Baryga: An exploitive profiteer.
Hanka: Homemade injectable opiate produced from poppy straw.
Mak: Homemade injectable opiate produced from poppy heads.
Priton: An apartment where a group of drug users dwells, a shooting gallery.
Tusovka: A location (not necessarily an apartment), where drug users and nondrug users gather together more for socializing than for drug purchase and use.
Vint: A homemade ephedrine-based injectable stimulant derived from "solutan" syrup or ephedrine tablets.

RÉSUMÉ

La poursuite policier, la limitation de resources pour les programmes d'aide et l'absence d'une discussion ouverte sur la consommation de drogues, empêchent le contact entre les

travailleurs des programmes de prévention et les usagers de drogues intraveineuses, ce qui bloque une prévention efficace sur la transmission des virus de l'hepathite et du sida par voie intraveineuse. Tous ces facteurs sont communs dans la Féderation de Russie. En réaction, le "Projet Rénovation," le programme de réduction des dommages du Centre de Controle et de Prévention du SIDA du Ministere Tatare de la Sante au Kazan, a créé un programme hybride d'échanges de seringues dont l'objectif principal est de recruiter et d'entraîner des volontaires pour promouvoir l'échange de jeringues secondaire. Pour contourner les difficultées de ces opérations, ces programmes ont identifié des lieux de réunions privés et ont contacté des individus responsables pour travailler à travers leurs propres réseaux de consommateurs de drogues par voies intraveineuses afin de leur fournir des seringues propres, d'autres matériaux pour réduire les risques de contamination et du matériel éducatif tout en organisant la colllecte et l'élimination de seringues usagées et de seringues pouvant étre contaminées. Les travailleurs du programme ont mis en place toute une serie de moyens pour le suivi, quotidien ou hebdomadaire, des lieux et types de contacts, de la distribution du matériel et la formation pour assurer un réseau de distribution secondaire atteigne l'audience pour laquelle elle a été créée. Les résultats obtenus révèlent que ces emplacememts secondaire d'échange ont été plus productifs que les premierstypes d'échanges de seringues fixes et mobiles au Kazan. Initié en 2001, le Projet Rénovation a suscité d'autres programmes pour la réduction des dommages dans la Fédération de Russie par l'adoptoin de ce modèle pour atteindre les usagers de drogues intraveineuses, identifier et entraîner les volontaires, et pour faire le suivi des résultats de l'échange de seringues.

RESUMEN

El acoso policial, las limitaciones en recursos de los programas de ayuda, y la falta de una escena abierta en el uso de drogas, impiden el contacto entre los trabajadores de los programas de prevención y los usuarios de drogas intravenosas y pueden socavar la prevención efectiva de la transmisión por via intravenosa de viruses de hepatitis y HIV. Todos estos factores son communes en la Federación Rusa. En respuesta, el "Proyecto Renovacion," el programa de reducción de daños del Centro de Control y Prevención de SIDA del Ministerio Tartaro de Salud en Kazan, ha creado un programa híbrido de intercambio de jeringuillas que tiene como objetivo principal reclutar y entrenar voluntarios para proveer un intercambio de jeringuillas secundario. Para compensar las barreras operativas, los trabajadores del programa identificaron lugares de reunión privados y entrenaron individuos responsables para trabajar por medio de sus propias redes de usuarios de drogas intravenosas con el fin de proveer jeringuillas limpias, otros materiales de reducción de daños, y materials educativos, al mismo tiempo que facilitaron la colección y eliminación de jeringuillas usadas y jeringuillas potencialmente contaminadas. Los trabajadores del programa desarrollaron un grupo detallado de instrumentos para el seguimiento, diaria o semanalmente, de los lugares y tipos de contacto, y de la diseminación de los materiales y formación para asegurar que la red de distribución secundaria alcance la audiencia para la que fue designada. Los datos obtenidos indican que estos emplazamientos secundarios de intercambio fueron más productivos que los intercambios de jeringuillas primarios mobiles y fijos en Kazan. Comenzando en 2001, el Projecto Renovación ha entrenado otros programas de reducción de daños en la Federación Rusa en la utilización de este modelo para llegar a los usuarios de drogas intravenosas, identificar y entrenar voluntarios, y para hacer seguimiento de los resultados del intercambio secundario de jeringuillas.

THE AUTHORS

Kevin Irwin, M.A. (USA), is a Research Associate in the Department of Epidemiology and Public Health at the Yale School of Medicine. He received his B.A. from Syracuse University, in New York, USA, and his M.A. in Sociology from Yale University, where he expects to obtain his Ph.D. in the spring of 2006.

Evgeni Karchevsky, Ph.D. (Russian Federation), is Associate Professor in the Department of Applied Mathematics of Kazan State University. Dr. Karchevsky also serves as the manager of Outreach Services for Harm Reduction Project Renewal.

Robert Heimer, Ph.D. (USA), is an Associate Professor in the Departments of Epidemiology and Public Health and Pharmacology at the Yale University School of Medicine. Dr. Heimer received his B.A. from Columbia College and his Ph.D. in pharmacology from Yale University in 1988. He is the principal investigator of studies that combine HIV virology and anthropological investigations of the injection practices of drug users.

Larissa Badrieva, M.D. (Russian Federation), is an infectious disease physician. From 1990 to 2001 she worked as the head of the policlinic in the AIDS Center in Kazan, Russia. Since 2001 she has been the head of the Harm Reduction Program in the Tatarstan Republican AIDS Center in Kazan and Head of Project Renewal.

References

Abdala, N., Gleghorn, A., Carney, J. M., Heimer, R. (2001). Use of bleach to disinfect HIV-1 contaminated syringes. [Erratum appears in *Am Clin Lab* 2001 Aug;20(7):16]. *American Clinical Laboratory* 20:26–28.

Abdala, N. S., Clay, P. (1999). Survival of HIV-1 in Syringes. *Journal of Acquired Immune Deficiency Syndromes & Human Retrovirology* 20:73.

AIDS Weekly. (2003). Epidemic in Russia extends beyond large urban centers. p.11, NewsRX

Alcabes, P. B., Marek Grund, J. P. (1999). Needle and syringe exchange in Poland and the Former Soviet Union: a new approach to community-impact studies. *Journal of Drug Issues* 29: 861.

Amirkanian, Y. A., Kelly, J. A., Issayev, D. D. (2001). AIDS knowledge, attitudes and behavior in Russia: results of a population-based, random-digit telephone survey in St. Petersburg. *International Journal of STD and AIDS* 12:50–57.

Anderson, R. C., Flynn, L., Kral, N., Bluthenthal, A. (2003). Delivering syringe exchange services through "satellite exchangers": the Sacramento Area Needle Exchange, USA. *International Journal of Drug Policy* 14:461.

Badrieva, L., Karchevsky, E. (2001). *Building Volunteer Networks: Secondary Needle Exchange, Peer Education*. Kazan, RF: Project Renewal.

Ball, A. (1998). Policies and Interventions to stem HIV-1 epidemics associated with injecting drug use. In: Stimson, G. V., Des Jarlais, D. C., Ball, A., eds. *Drug Injecting and HIV Infection*. London: UCL Press, pp. 201–232.

Ball, A., Rana, S., Dehne, K. L. (1998). HIV prevention among injection drug users: responses in developing and transitional countries. *Public Health Reports* 113(Suppl 1):170–181.

Beebe, J. (1995). Basic concepts and techniques of rapid appraisal. *Human Organization* 54:42–51.

Bluthenthal, R. N., Kral, A. H., Gee, L., Erringer, E. A., Edlin, B. R. (2000). The effect of syringe exchange use on high-risk injection drug users: a cohort study. *AIDS* 14:605–611.

Bluthenthal, R. N., Kral, A. H., Lorvick, J., Watters, J. K. (1997). Impact of law enforcement on syringe exchange programs: a look at Oakland and San Francisco. *Medical Anthropology* 18:61–83.

Bobkov, A., Kasennova, E., Selimova, L., Bobkova, A., Khanina, T., Ladnaya, N., Kravchenko, A., Weber, J. (1998). A sudden epidemic of type 1 among injecting drug users in the former Soviet Union: identification of subtype A, subtype B, and novel gagA/envB recombinants. *AIDS Research and Human Retroviruses* 14:669–676.

Broadhead, R. S., Heckathorn, D. D., Weakliem, D. L., Anthony, D. L., Madray, H., Mills, R. J., Hughes, J. (1998). Harnessing peer networks as an instrument for AIDS prevention: results from a peer-driven intervention. *Public Health Reports* 113:42–57.

Burrows, D. (2001). A best practice model for harm reduction in the community and prisons in Russian Federation. *Health, Nutrition and Population Discussion Paper*. Washington, DC: The World Bank.

Burrows, D., Trautmann, F., Bijl, M., Sarankov, Y., Chernenko, O., Pogosayan, L., Sarang, A. (1998). *Training on HIV/AIDS Prevention Strategies Among Injecting Drug Users in the Russian Federation: Training Guidlines*. Moscow: Medecines sans Frontieres (Holland).

Coyle, S. L., Needle, R. H., Normand, J. (1998). Outreach-based HIV prevention for injecting drug users: a review of published outcomes data. *Public Health Reports* 113(Suppl 1):19–30.

Davidova, A., Bogoyavlensky, G., Volkova, N., et al. (1998). *Drug Use and Potential Risk of HIV Infection in Russian Young People*. Paper presented at the Second Conference on Social sciences and AIDS in Europe, Paris. Abstract Number 17.1.

Dehne, K. L., Khodakevich, L., Hamers, F. F., Schwartlander, B. (1999). The HIV/AIDS epidemic in Eastern Europe: recent patterns and trends and their implication for policy-making. *AIDS* 13:741–749.

Des Jarlais, C., Perlis, T., Friedman, S. R., Chapman, T., Kwok, J., Rockwell, R., Paone, D., Milliken, J., Monterroso, E. (2000). Behavioral risk reduction in a declining HIV epidemic: injection drug users in New York City, 1990–1997. *American Journal of Public Health* 90:1112–1116.

Des Jarlais, D. C. (2000). Structural interventions to reduce HIV transmission among injecting drug users. *AIDS* 14:S41–S46.

Des Jarlais, D. C. F., Grund, P., Milliken, J.-P., Titus, J., Zadoretzky, S., Perlis, C., Bodrova, T., Zemlianova, V. (2002). HIV risk behaviour among participants of syringe exchange programmes in central/eastern Europe and Russia. *International Journal of Drug Policy* 13:165.

Des Jarlais, D. C. M., Friedmann, M., Titus, P., Aviles, S., Deren, E., Torian, S., Glebatis, L., Murrill, D., Monterroso, M., Friedman, E. (2000). HIV incidence among injection drug users in New York City, 1992–1997: evidence for a declining epidemic. *American Journal of Public Health* 90:352–359.

Des Jarlais, D. C., Perlis, T., Friedman, S. R. (1998). Declining seroprevalence in a very large HIV epidemic: injecting drug users in New York City, 1991–1996. *American Journal of Public Health* 88:1801–1806.

Drucker, E., Lurie, P., Wodak, A., Alcabes, P. (1998). Measuring harm reduction: the effects of needle and syringe exchange programs and methadone maintenance on the ecology of HIV. *AIDS* 12:S217–230.

Drucker, E. C. (1999). Harm reduction in the home of the war on drugs: methadone and needle exchange in the USA. *Drug & Alcohol Review* 18:103–112.

Edlin, J. S. (2003). Secondary syringe exchange among injection drug users. *Journal of Urban Health* 80:330.

Farrell, M., Ward, J., Mattick, R., et al. (1994). Methadone maintenance treatment in opiate dependence: a review. *British Medical Journal* 309:997–1001.

Fisher, D. G., Fenaughty, A. M., Cagle, H. H., Wells, R. S. (2003). Needle exchange and injection drug use frequency: a randomized clinical trial. *Journal of Acquired Immune Deficiency Syndromes* 33:199–205.

Friedman, S. R., Des Jarlais, D. C., Ward, T. P. (1994). Social models for changing health-relevant behavior. In: DiClemente, J. L., ed. *Preventing AIDS: Theories and Methods of Behavioral Iinterventions*. New York: Plenum Press.

Friedman, S. R. (1997). Sociocultural interventions at the community level. *AIDS* 11(Suppl A):S201–S208.

Gilinskiy, Y. Z. (2001). Drugs in Russia: situation, policy and the police. *Police Practice & Research* 2:345–364.

Gostin, L. O., Lazzarini, Z., Jones, T. S., Flaherty, K. (1997). Prevention of HIV/AIDS and other blood-borne diseases among injection drug users. A national survey on the regulation of syringes and needles [comment]. *JAMA* 277:53–62.

Grau, L. E. P., Arevalo, S. L. V. N., Catchpool, C. B. A., Heimer, R. P., for the Diffusion of Benefit through Syringe Exchange Study. (2002). Expanding harm reduction services through a wound and abscess clinic. *American Journal of Public Health* 92:1915–1917.

Grund, J. P., Blanken, P., Adriaans, N. F., Kaplan, C. D., Barendregt, C., Meeuwsen, M. (1992). Reaching the unreached: targeting hidden IDU populations with clean needles via known user groups. *Journal of Psychoactive Drugs* 24:41–47.

Grund, J. P., Friedman, S. R., Stern, L. S., Jose, B., Neaigus, A., Curtis, R., Des Jarlais, D. C. (1996). Syringe-mediated drug sharing among injecting drug users: patterns, social context and implications for transmission of blood-borne pathogens. *Social Science & Medicine* 42:691–703.

Hagan, H. T., Weiss, H., Hopkins, N. S., Duchin, S. G., Alexander, J. S., Russell, E. (2001). Sharing of drug preparation equipment as a risk factor for hepatitis C. *American Journal of Public Health* 91:42.

Hay, G. (2000). Capture–recapture estimates of drug misuse in urban and non-urban settings in the north east of Scotland. *Addiction* 95:1795.

Heimer, R. (1998). Can syringe exchange serve as a conduit to substance abuse treatment? *Journal of Substance Abuse Treatment* 15:183.

Heimer, R. (1998). Syringe exchange programs: lowering the transmission of syringe-borne diseases and beyond. *Public Health Reports* 113:67–74.

Heimer, R., Bluthenthal, R. N., Singer, M., Khoshnood, K. (1996). Structural impediments to operational syringe-exchange programs. *AIDS & Public Policy Journal* 11:169–184.

Heimer, R., Kaplan, E. H., Khoshnood, K., Jariwala, B., Cadman, E. C. (1993). Needle exchange decreases the prevalence of HIV-1 proviral DNA in returned syringes in New Haven, Connecticut. [comment]. *American Journal of Medicine* 95:214–220.

Hickman, M., Cox, S., Harvey, J., Howes, S., Farrell, M., Frischer, M., Stimson, G., Taylor, C., Tilling, K. (1999). Estimating the prevalence of problem drug use in inner London: a discussion of three capture-recapture studies. *Addiction* 94:1653–1662.

Hurley, S. F., Jolley, D. J., Kaldor, J. M. (1997). Effectiveness of needle-exchange programmes for the prevention of HIV infection. *Lancet* 349:1797–1800.

Kalichman, S. C. (1998). *Preventing AIDS: A Sourcebook for Behavioral Itervention*. Mahmah, NJ: Erlbaum.

Kalichman, S. C., Kelly, J. A., Sikkema, K. J., Kozlov, A. P., Shaboltas, A. V., Granskaya, J. V. (2000). The emerging AIDS crisis in Russia: review of enabling factors and prevention needs. *International Journal of STD and AIDS* 11:71–75.

Kelly, J. A. (1991). HIV risk behavior reduction following intervention with key opinion leaders of population. *American Journal of Public Health* 81:168.

Kohn, C. H., Henderson, S., Greer, C. W. (2001). Syringe exchanges are cost-effective means of prevention. *AIDS Weekly*, P. 9. NewsRX.

Kozlov, A. P. (2000). HIV in Russia, Belorussia and Ukraine. *Russian Journal of HIV/AIDS and Related Problems* 4:11–14.

Ksobiech, K. (2003). A meta-analysis of needle sharing, lending, and borrowing behaviors of needle exchange program attenders. *AIDS Education and Prevention* 15:257–268.

Latkin, C. A. (1998). Outreach in natural settings: the use of peer leaders for HIV prevention among injecting drug users' networks. *Public Health Reports* 113:151–159.

Latkin, C. A., Mandell, W., Vlahov, D., Oziemkowska, M., Celentano, D. D. (1996). The long-term outcome of a personal network-oriented HIV prevention intervention for injection drug users: the SAFE Study. *American Journal of Community Psychology* 24:341–364.

Latkin, C. A., Wei, D., Sherman, M. A. (2003). Direct and indirect acquisition of syringes from syringe exchange programmes in Baltimore, Maryland, USA. *International Journal of Drug Policy* 14:449.

Laufer, F. N. (2001). Cost-effectiveness of syringe exchange as an HIV prevention strategy. *Journal of Acquired Immune Deficiency Syndromes* 28:273–278.

Levy, J. A. G., Chuck, P. (1995). The outreach assisted peer-support model for controlling drug dependency. *Journal of Drug Issues* 25:507.

Loff, B. W. (2002). Needle exchange programmes beneficial in Australia. *Lancet* 360:1403.
MacDonald, M. L., Kaldor, M., Hales, J., Dore, J. J. (2003). Effectiveness of needle and syringe programmes for preventing HIV transmission. *International Journal of Drug Policy* 14:353.
Manderson, L. A. (1992). An epidemic in the field? Rapid assessment procedures and health research. *Social Science and Medicine* 35:839–850.
Molotilov, V., Sofronova, R., Gusseynova, N., Laricheva, N., Hader, S. L., Garfein, R., Paxton, L. (2003). Rapid increase in HIV rates—Orel Oblast, Russian Federation, 1999–2001. *Morbidity and Mortality Weekly Report* 52:657–660.
Neaigus, A. (1998). The network approach and interventions to prevent HIV among injection drug Users. *Public Health Reports* 113(Suppl 1):140–150.
Nelson, R. (2002). Syringe exchange programmes lower HIV risk. *Lancet* 360:1570.
Normand, J., Vlahov, D., Moses, L. E. (1995). *Preventing HIV Transmission: The Role of Sterile Needles and Bleach*. Washington, DC: National Academy Press.
Ong, B. N., Humphries, G., Aneett, H., Rifkin, S. (1991). Rapid appraisal in an urban setting: an example from the developed world. *Social Science and Medicine* 32:909–915.
Paoli, L. (2001). *Illegal Drug Trade in Russia*. Feiburg, Germany: United Nations Office for Drug Control and Crime Prevention.
Paoli, L. (2002). The price of freedom: illegal drug markets and policies in post-Soviet Russia. *The Annals of the American Academy of Political and Social Sciences* 582:167–180.
Pokrovsky, V. (2001). *Report of the Russian Federal Centre for the Prevention of AIDS*. Moscow: Russian Federal Centre on IADS.
Porter, J., Metzger, D., Scotti, R. (2002). Bridge to services: drug injectors' awareness and utilization of drug user treatment and social service referrals, medical care, and HIV testing provided by needle exchange programs. *Substance Use & Misuse* 37:1305–1330.
Reid, R. J. (2000). A benefit-cost analysis of syringe exchange programs. *Journal of Health & Social Policy* 11:41.
Reilly, B., Burrows, D., Melnikov, V., Andreeva, T., Bijl, M., Veeken, H. (2000). Injecting drug use and HIV in Moscow: results of a survey. *Journal of Drug Issues* 30:305–321.
Rhodes, T., Mikhailova, L., Sarang, A., Lowndes, C. M., Rylkov, A., Khutorskoy, M., Renton, A. (2003). Situational factors influencing drug injecting, risk reduction and syringe exchange in Togliatti City, Russian Federation: a qualitative study of micro risk environment. *Social Science & Medicine* 57:39–54.
Rhodes, T., Stimson, G. V., Crofts, N., Ball, A., Dehne, K. L., Khodakevich, L. (1999). Drug injecting, rapid hiv spread, and the "risk environment." *AIDS* 13(Suppl A):S259–S269.
Rhodes, T. B. (1999). HIV infection associated with drug injecting in the newly independent states, Eastern Europe: the social and economic context of epidemics. *Addiction* 94:1323–1337.
Rockwell, R., Des Jarlais, D. C., Friedman, S. R., Perlis, T. E., Paone, D. (1999). Geographic proximity, policy and utilization of syringe exchange programmes. *AIDS Care* 11:437–442.
Sears, C., Guydish, J. R., Weltzien, E. K., Lum, P. J. (2001). Investigation of a secondary syringe exchange program for homeless young adult injection drug users in San Francisco, California, U.S.A. *Journal of Acquired Immune Deficiency Syndromes* 27:193–201.
Sergeyev, B. O., Rumyantseva, T., Volkanevskii, T. P., Broadhead, V. L., Heckathorn, R. S., Madray, D. D. (1999). HIV prevention in Yaroslavl, Russia: a peer-driven intervention and needle exchange. *Journal of Drug Issues* 29:777.
Sherman, S. G., Latkin, C. A. (2002). Drug users' involvement in the drug economy: implications for harm reduction and HIV prevention programs. *Journal of Urban Health* 79:266–277.
Snead, J., Downing, M., Lorvick, J., Garcia, B., Thawley, R., Kegeles, S., Edlin, B. R. (2003). Secondary syringe exchange among injection drug users. *Journal of Urban Health* 80:330–348.
Strathdee, S., Celentano, D., Shah, N., Lyles, C., Stambolis, V., Macalino, G., Nelson, K., Vlahov, D. (1999). Needle-exchange attendance and health care utilization promote entry into detoxification. *Journal of Urban Health* 76:448–460.

Strathdee, S. A., Van Amerijden, E. J., Mesquita, F., Wodak, A., Rana, S., Vlahov, D. (1998). Can HIV epidemics among injection drug users be prevented? *AIDS* 12(Suppl A):S71–S79.

Tikhonov, B. S. (2003). Prevalence and circumstances of opiate overdose among injection drug users in the Russian Federation. *Journal of Urban Health* 80:212.

Trubnikov, M. N. K., Barkov, L. N., Blagovo, D. A. (2003). Sources of injecting equipment for drug users in Moscow, Russia. *International Journal of Drug Policy* 14:453.

UNAIDS. (2000). *Report on the Global HIV/AIDS Epidemic*. Geneva: UNAIDS/WHO.

Valente, T. W., Foreman, R. K., Junge, B., Vlahov, D. (1998). Satellite exchange in the Baltimore Needle Exchange Program. *Public Health Reports* 113:90–96.

Veeken, H. (1998). Russia, sex, drugs, and AIDS and MSF. *British Medical Journal* 316:138–139.

Vishinsky, K. (1999). *Analysis for the Spread of Psychotropic Substances in Russia and Specificall in Moscow*. Moscow: Scientific Research Institute of Narcology, Ministry of Health.

Voytek, C. S., Junge, S. G. (2003). A matter of convenience: factors influencing secondary syringe exchange in Baltimore, Maryland, USA. *International Journal of Drug Policy* 14:465.

Watters, J. K., Estilo, M. J., Clark, G. L., Lorvick, J. (1994). Syringe and needle exchange as HIV/AIDS prevention for injection drug users [comment]. *JAMA* 271:115–120.

Wood, E., Kerr, T., Small, W., Jones, J., Schechter, M. T., Tyndall, M. W. (2003). The impact of a police presence on access to needle exchange programs. *Journal of Acquired Immune Deficiency Syndromes: JAIDS* 34:116–118.