SATELLITE SYRINGE EXCHANGE: AN APPROACH INCORPORATING HARM REDUCTION WITHIN HARM REDUCTION

by

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ABSTRACT

Syringe exchange programs are an effective way to prevent the spread of HIV among injection drug users (World Health Organization [WHO], 2004). Satellite syringe exchange occurs when injection drug users visit a syringe exchange program to exchange syringes for themselves as well as for others who do not visit the program directly (Valente, Foreman, Junge, & Vlahov, 1998). Some studies have concluded that satellite syringe exchange is less likely than direct contact with a syringe exchange program to eliminate high-risk behaviors such as syringe sharing, and may result in higher rates of HIV (Green et al., 2010; Bryant & Hopwood, 2009; De, Cox, Boivin, Platt, & Jolly, 2008; Huo, Bailey, Hershow, & Ouellet, 2005; Tyndall et al., 2002). This has led some syringe exchange projects to forbid satellite exchange (Des Jarlais, McKnight, Goldblatt, & Purchase, 2009); although this does not guarantee satellite exchange will not take place (Lorvick et al., 2006). On the other hand, one study has found that those who receive new syringes through satellite exchange tend to engage in less syringe sharing than those who do not receive new syringes at all (Murphy, Kelley, & Lune, 2004). Rather than banning satellite exchange, public health practitioners must recognize it as a way to reach some underserved populations. Syringe exchange programs could train those who exchange syringes on behalf of others to ensure they safely handle used syringes. These programs can also train these individuals to effectively spread harm reduction education and equipment to other injection drug users.
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LIST OF ABBREVIATIONS

Centers for Disease Control and Prevention (CDC)

Human Immunodeficiency Virus (HIV)

Injection Drug User (IDU)

Institutes of Medicine (IOM)

Satellite Syringe Exchange (SSE)

Syringe Exchange Project (SEP)

World Health Organization (WHO)
INTRODUCTION

Harm reduction related to drug use is a set of theories and strategies first formalized during the First International Conference on the Reduction of Drug Related Harm (O’Hare, 2007). This model seeks to reduce the individual and community harms associated with drug use (Aston & Seymour, 2010). A key component of harm reduction is delivering services to individuals without moral judgment. Harm reduction seeks to benefit all individuals who use drugs, not just those who are ready or willing to quit. For injection drug users (IDUs), one such harm is the risk of contracting HIV from shared use of infected needles and syringes (UNAIDS, 2010). Syringe exchange programs (SEPs) are a key way to reduce the transmission risk of HIV in IDUs (World Health Organization [WHO], 2004).

Sharing infected syringes is a major mode of transmission of bloodborne pathogens such as HIV in injection drug users (Centers for Disease Control and Prevention [CDC], 2009). According to the CDC, 27% of AIDS cases in the U.S. can be linked to injection drug use (CDC, 2005). For prevention of abscesses and bloodborne pathogens, the CDC recommends using a new needle for each injection (CDC, 2009). SEPs receive and safely dispose of used syringes from injection drug users and provide them with new, uncontaminated injection equipment and disease prevention education. SEPs have been shown to be effective in reducing the transmission of bloodborne pathogens in injection drug users, including HIV and AIDS (WHO, 2004). There are many other benefits provided by SEPs, including referrals to drug treatment (Strathdee et al., 2006), referrals to health care (Des Jarlais, McKnight, Goldblatt, & Purchase, 2009), medical care for abscesses and wounds (Des Jarlais et al., 2009), and access to preventative health services (Heinzerling, et al., 2005). SEPs also safely dispose of used syringes and have been
shown to decrease the number of inappropriately discarded needles in communities where they operate (Oliver, Friedman, Maynard, Magnuson, Des Jarlais, 1992; Doherty et al., 2000).

There are many different models for syringe exchange, including one-for-one exchange, one-for-one plus a small number of additional syringes (called one-for-one plus), or a need-based distribution model with or without a turn-in of used syringes as a requirement (Des Jarlais et al., 2009). Some SEPs have caps on the number of syringes that can be distributed per visit, others do not. Participants in programs with no limit on distribution of syringes tend to engage in less reuse of their own syringes than those with caps or a strict one-for-one trade (Kral, Anderson, Flynn, & Bluthenthal, 2004). However, some argue that maintaining a one-for-one policy allows SEP personnel to maintain frequent face-to-face interaction with each IDU, allowing them to refer IDUs to drug treatment or medical care as needed (Tyndall et al., 2002).

Harm reduction follows the same principles as public health. Harm reduction involves “creating the conditions in which injecting drug users face minimal barriers to safe injection” (Beletsky, 2005, p. 272). Public health endeavors to “assure conditions in which people can be healthy” (Institutes of Medicine [IOM], 1988, p. 7). Public health works to make sure all people have access to healthy choices. Part of public health’s duty, therefore, is to remove barriers between people – such as injection drug users – and the tools they need to avoid disease – such as new syringes.

**SATELLITE SYRINGE EXCHANGE**

For many reasons, there are some IDUs who are unwilling or unable to go to an SEP directly. In these cases, satellite syringe exchange (SSE) can provide them the tools they need. SSE “refers to the giving or receiving of new sterile needles and syringes to/from another
individual that were originally obtained from formal or ‘safe’ sources” (Bryant & Hopwood, 2009, p. 324). There are a variety of sources for new syringes, including pharmacies, mobile syringe programs, fixed-site SEPs, and SSE. This paper will focus on the relationship between SSE and fixed-site SEPs.

It is interesting to note that syringe exchange originally began in the form of SSE. In 1980, a “Junkie League” (Junkiebond) was formed in Rotterdam, the Netherlands to protect the health of IDUs (Marlatt, 1996). Their theory was that “drug users themselves know best what their problems are” (Marlatt, 1996, p. 784). This led to the first recorded syringe exchange program in 1984, in which “the Municipal Health Service delivered disposable needles and syringes in large quantities to the Junkiebond once a week for distribution and collection of used needles” (Marlatt, 1996, p. 784). It was drug users, not public health officials, who first developed and implemented the idea of syringe exchange; taking charge of distribution and collection themselves. Since then, public health has played an important role in obtaining political support for syringe exchange and establishing and administering SEPs.

Satellite exchangers are individuals who receive services such as supplies and education from an organized SEP and provide those same services to others who do not access the SEP directly. SSE can range from casual to highly organized, and can entail the distribution of a few syringes to large quantities (Lenton, Bevan, & Lamond, 2006). One study found that satellite exchangers distributed anywhere from three to 700 syringes at a time, with a median of thirty syringes (Murphy, Kelley, and Lune, 2004). In one study, most satellite exchangers reported concern for the health of others as their primary motivation for engaging in SSE, and provided syringes to their friends and family, not to strangers (Snead et al., 2003). A 2007 survey revealed
that 89% of SEPs in the United States permit SSE and 76% encourage the practice (Des Jarlais et al., 2009).

SSE “extends the reach” of traditional SEPs by making syringes available to injection drug users (IDUs) at different times and locations, and especially at the time of drug purchase or injection (Lorvick et al., 2006, p. 866), a time when traditional public health workers typically would not be present. Further, SSE provides sterile syringes to individuals who might not otherwise have a source for them (De, Cox, Boivin, Platt, & Jolly, 2008).

From a program administration perspective, SSE can be quite effective for distribution and collection of syringes and prevention of disease, since the use of satellite exchangers can allow a single program to cover a large geographic area at low cost (Anderson, Clancy, Flynn, Kral, & Bluthenthal, 2003). One program, which operates solely through SSE and maintains no fixed site, is able to use this approach as a way to keep overhead costs low and to assure that their paid staff members spend almost all of their time engaged in the delivery of services. In 2002, this program was able to spend 75% of its budget on harm reduction supplies rather than overhead (Anderson et al., 2003).

**POTENTIAL FOR CONTROVERSY**

However, there is controversy over the efficacy of SSE at discouraging syringe sharing and decreasing risk of HIV. A study of Australian injection drug users found that those who obtain new syringes primarily through satellite exchange were more likely to share syringes than their peers who visited the SEP directly (Bryant & Hopwood, 2009). Canadian and American studies have found that SSE recipients engaged in more syringe-sharing (Huo, Bailey, Hershow, & Ouellet, 2005; Tyndall et al., 2002), more syringe re-use (Green et al., 2010), and had a higher
level of HIV than their counterparts who visit the SEP (De, et al., 2008). Additionally, one study found that recipients of SSE may be less likely than direct SEP participants to enroll in drug treatment (Huo et al., 2005). These findings imply that there is a benefit to IDUs to attend an SEP, and that SSE alone is not as effective at reducing risk of HIV transmission.

On the other hand, a study of British IDUs found similar levels of syringe-sharing among those who obtained needles through pharmacies, SEPs, or satellite exchange (Craine et al., 2010). In addition, a comprehensive California study found that clients of SEPs with less restrictive syringe distribution policies engaged in similar amounts of syringe-sharing, and reused their own needles less often than clients of SEPs with one-for-one or one-for-one-plus policies (Kral et al., 2004). When comparing the HIV risk behaviors of individuals who visited an SEP directly, those who received syringes through SSE, and those who did not participate in exchange at all, one study found that individuals who received syringes through satellite exchange more closely resembled those who visited an SEP directly than those who did not exchange at all (Murphy et al., 2004). Murphy et al. also documented that SSE recipients “demonstrated an awareness of harm reduction practices” (Murphy et al., 2004, p. 258).

Individuals receiving syringes from other IDUs through SSE may not necessarily come into contact with trained public health professionals. Some satellite exchangers may be trained public health workers, but this may not always be the case. Visits to an SEP can expose IDUs to many valuable services. SEPs, in addition to providing sterile injection equipment, can act as a bridge to treatment and medical care (Des Jarlais et al., 2009). Individuals who do not visit an SEP directly may not receive these vital services. One study found that IDUs who did not utilize an SEP directly had lower rates of testing for HIV and other bloodborne pathogens (Cao & Treloar, 2006).
In addition to the concern for SSE recipients, there is cause to be concerned about those who exchange syringes for others. For example, one study found that IDUs exchanging syringes for others experienced accidental needle-stick injuries at a greater rate than those who did not (Lorvick et al., 2006).

Syringe law also is another source controversy around SSE. In the United States, laws regulating the possession and distribution of syringes are determined at the state level. In California, syringe possession is treated as drug paraphernalia and is punishable by law; however, counties or cities may allow SEPs and/or pharmacy sales of syringes (Backes & Rose, 2010). Such cities and counties may exempt individuals from prosecution for violating drug paraphernalia laws if they possess ten or fewer syringes (Backes & Rose, 2010). A bill currently before the California legislature would expand this limit to thirty syringes (Legislative Counsel of California, 2011). Since SSE can involve dozens or, in some cases, hundreds of syringes (Murphy et al, 2004), this leaves satellite exchangers vulnerable to arrest and prosecution for possession of syringes.

DISCUSSION

The relationship between syringe source and HIV risk behaviors is complex. There are a variety of reasons that individuals may receive syringes through SSE. It may be these characteristics that are the risk factors, rather than SSE itself. Environmental factors and legal conditions also play a role in HIV rates and the availability of syringes, as do SEP operational conditions and structures. To view SSE as promoting a higher level of syringe-sharing or HIV is to overlook many other factors.
A review of the literature shows that those who receive syringes through SSE can have different characteristics than those who receive syringes from an SEP directly. Specifically, those who utilize SSE are more likely to be HIV positive (De, et al., 2008), African American (Green et al., 2010), and male (Green et al., 2010). They are more likely to identify as gay, lesbian, or transgendered (Bryant & Treloar, 2006). They are more likely to have less than a high school education (Green et al., 2010) and have unstable housing (Bryant & Treloar, 2006). They are more likely to inject stimulants (Bryant & Treloar, 2006), to inject daily (De, et al., 2008), and tend to have an increased number of injections per syringe (Green et al., 2010). In addition, IDUs who are young (45 years old or less) or who are homeless are less likely to take an adequate number of syringes if they do visit a syringe exchange project (Heller, Paone, Siegler, & Karpati, 2009). All of these characteristics affect the risk profile of the IDUs who receive syringes through SSE.

There are a variety of factors that may keep some IDUs from going to an SEP site. Many of these reasons are related to the nature of illicit drug use and the associated laws. Fear of police surveillance can keep individuals from visiting a syringe exchange site. A California study showed that even in counties where SEPs operated legally, 17% of participants reported being arrested or cited for drug paraphernalia (Martinez et al., 2007). As one interviewee stated, “I’d rather get AIDS then go to jail” (Feldman & Biernacki 1988, p. 35).

Research has shown that IDUs are more likely to obtain needles through SSE when there are limitations on the operations of SEPs (Stopka, Singer Santelices, & Eiserman, 2003). Limited hours of operation of an SEP can be a barrier for some populations (Voytek, Sherman, & Junge, 2003; Murphy et al., 2004). Programs that have extended their hours of operation have been found to attract a more ethnically diverse population (Brahmbhatt, Biggs, & Strathdee, 2000).
Place is an important factor in syringe exchange, as it is in other areas of public health. One mapping study showed that female sex workers tend to avoid areas known for violence or policing, which can push them from areas with health care services and syringe exchange programs (Shannon et al., 2008). The convenience of a location is also a factor (Rich, Strong, Towe, & McKenzie, 1999). IDUs may avoid an area that is too “out in the open” (Murphy et al., 2004, p. 255) or a neighborhood perceived as unsafe. Geographical proximity affects IDU utilization of SEP (Gindi, Rucker, Serio-Chapman, & Sherman, 2009). IDUs who live in an area with no SEP may rely on someone with reliable transportation to visit an SEP in a nearby city to exchange syringes for the group (Murphy et al., 2004).

Two studies have shown that the primary reason individuals do not go to a fixed site SEP is a desire to avoid being identified as a drug user to police, employers, social contacts, or family (Murphy et al., 2004; Stopka et al., 2003). Further, drug users with a history of arrest are more likely to avoid visiting an SEP (Murphy et al., 2004).

A California study showed that some recipients of SSE do not go directly to the SEP because “If I have that [injection supplies] around all the time, I’ll end up using more, and I’m trying to keep it down low” (Snead et al., 2003, p. 340). Similarly, injection drug users who do not inject frequently, as well as those with a shorter injection history, seem less likely to use SEPs (Cao & Treloar, 2006).

For some, disability or mental illness prevents travel to an SEP (Murphy et al., 2004). These barriers include issues such as agoraphobia and physical health challenges such as wheelchairs. Other reasons given by IDUs who prefer to use SSE were convenience (De et al., 2008), “being unable to personally attend an SEP because of their drug-related physical or
mental state and/or problems with transportation” (De et al., 2008, p. 81), lack of awareness about the program (Rich et al., 1999), or fear of harassment or stigma (De et al., 2008).

These reasons, each elucidated by research, do not imply blame. Whether an IDU cannot or chooses not to go to an SEP is not necessarily a fault of the IDU. Nor is it necessarily the fault of the SEP. These barriers – be they geographic, legal, operational, or personal – simply reflect the conditions and culture in which syringe exchange currently must operate.

Each method of syringe access has advantages and disadvantages. Research has shown that each modality of syringe access attracts IDUs with a different risk profile – for example, IDUs that access mobile van-based SEPs tend to be at greater risk of HIV than those who access fixed-site SEPs (Miller, Tyndall, Spittal, Li, Palepu, & Schechter, 2002). Therefore, it is best to employ every possible method of access in order to obtain maximum disease prevention results (Henman, Paone, Des Jarlais, Kochems, & Friedman, 1998). As one researcher stated, “legal access through all means is the most likely way to promote the use of sterile syringes” (Stancliff, Agins, Rich, & Burris, 2003).

SSE is necessary in order to provide services to those most at risk for drug-related illness. Some IDUs cannot or will not go to a needle exchange location. Just as there are many factors that contribute to a person’s willingness and ability to access medical care (Andersen, 1995), there are many factors that contribute to a person’s willingness and ability to access an SEP (Gindi et al., 2009). In both cases, these factors include race, age, gender, beliefs about health, and perception of their need for care as outline by Anderson’s Behavioral Model of Health Services Use (Figure 1). These factors can predispose individuals to seek care, enable individuals to seek care, and influence their need for care (Gindi et al., 2009).
In accessing SEPs, age is an important factor, with younger IDUs less likely to access SEPs (Gindi et al., 2009). Language and cultural barriers can keep IDUs from knowing about vital services or the laws that protect them (Groseclose et al., 1995). It has been found that satellite exchange can be particularly effective for homeless youth (Sears, Guydish, Weltzein, & Lum, 2001).

**HARM REDUCTION WITHIN HARM REDUCTION**

Direct SEP participation has been associated with less syringe sharing (Bryant & Hopwood 2009; Huo et al., 2005; Tyndall et al., 2002) and, in at least one study, lower incidence of HIV (De, et al., 2008) than SSE. However, SSE is associated with lower rates of syringe sharing than those found in individuals who do not exchange syringes at all (Murphy et al., 2004; Huo et al., 2005).
A survey of California needle exchange participants revealed that 70% of clients engaged in SSE even when SEP policy specifically prohibited it (Lorvick et al., 2006). Among SEPs with no such policy, 78% of participants engaged in SSE – a statistically insignificant difference (Lorvick et al., 2006). Satellite exchange happens whether it is encouraged or not. Some IDUs are unwilling or unable to go to a fixed site SEP because of the various factors discussed. For those IDUs, SSE may be the only viable way to get a new syringe. Fortunately, there are drug users who are willing and able to bring new syringes to their peers and reduce the ongoing risk of disease transmission among IDUs.

SSE is associated with risk, both for the exchanger and the exchangee (De et al., 2008 Lorvick et al., 2006; Tyndall et al., 2002). However, banning the practice does not seem to work. It would be more consistent with harm reduction principles to acknowledge that a large percentage of IDUs will be distributing the new syringes they collect to other IDUs. Once the fact of SSE is acknowledged, programs can actively provide resources, training, and support for the satellite exchangers. Specifically, those who exchange syringes for others can be taught how to handle and store used needles safely in order to avoid needle stick injuries. Further, they can be taught to pass on harm reduction principles to their peers. These benefits are impossible if SSE is forbidden.

A Baltimore SEP study showed that, while only 10% of their participants were satellite exchangers, these individuals accounted for 64% of the syringes exchanged (Valente et al., 1998). This means satellite exchangers are introducing sterile needles into the community and returning potentially-contaminated needles to be disposed of properly. Satellite exchangers perform other valuable roles, too, including bringing their peers into SEPs. One study found that,
over time, IDUs tend to become direct SEP users, even if they start as indirect users through receiving SSE (Green et al., 2010).

HIV risk factors appear to be correlated with harm reduction services contact – the more contact IDUs have with harm reduction services, the more likely they are to change their high-risk behaviors (Miller et al., 2002; Bryant et al., 2010). It is important to acknowledge that IDUs themselves can provide harm reduction services through SSE. In fact, because of their membership in the community, satellite exchangers can be more effective than fixed site SEPs at reaching IDUs with harm reduction messages (Valente et al., 1998; Broadhead, Heckathorn, Grung, Stern, & Anthony, 1995).

**RECOMMENDATIONS**

If it seems SSE is not as effective at preventing HIV as a fixed site SEP, a perspective shift may be in order. IDUs who exchange syringes for their peers engage in valuable harm reduction work. In fact, it was IDUs who first implemented syringe exchange–and it was in the form of SSE (Marlatt, 1996). It can seem to public health workers the IDUs who are exchanging for their peers are not doing enough to prevent syringe sharing and HIV. However, it is important to consider the perspective of the IDU. In many cases, public health now administers programs originally developed by and for IDUs. SEP personnel must ask themselves what they can do to enable satellite exchangers to pass along sufficient supplies and harm reduction messages and materials to their peers. The California HIV Planning Group’s Substance Use/IDU Task Force recommended that IDUs themselves be included in “designing, delivering, and evaluating effective services” (California HIV Planning Group, n.d.).
Because SSE extends the reach of vital syringe exchange programs, it should be encouraged. Ignoring the possibility of SSE – or worse yet, forbidding it – does not guarantee it will not take place. Therefore, it would be wise to incorporate training and support for satellite exchangers into the design of SEPs (Voytek et al., 2003). These practices would allow SEPs to train satellite exchangers in how to handle used needles safely, how to provide harm reduction messages to their peers, and even how to prevent and reverse drug overdose. One California-based study showed that IDUs engaged in SSE were interested in becoming peer educators and receiving formal training (Snead et al., 2003). SEPs can provide resources and training to the IDUs willing to provide this service to others, in order to make sure they can effectively pass on harm reduction supplies and education.

To facilitate SSE, SEPs should employ less restrictive policies for distributing syringes when legally possible. Evidence shows that SSE is more common at SEPs that have less restrictive policies, i.e., without a strict one-for-one syringe exchange requirement (Bluthenthal et al., 2007). Less restrictive policies also result in greater syringe coverage, meaning individuals are more likely to be able to use a new syringe for each injection (Bluthenthal et al., 2007).

Evidence suggests that IDUs who do not visit an SEP directly receive fewer HIV tests than those who do (Cao & Treloar, 2006). To address this issue, public health professionals might consider developing programs to take HIV testing services to IDUs, rather than requiring the IDUs to come to a fixed site for testing. Such a program could include pre- and post-test counseling and referral specifically tailored to meet the needs of IDUs in the field.

Widespread implementation of SSE may prove to be a controversial decision. Therefore, syringe providers must work with local medical and public health entities when designing and implementing programs, in order to educate and address opposition from members of the
community. The California experience teaches that opposition to SSE can be overcome through the use of evidence and authority (Backes & Rose, 2010). Many policymakers have fears about syringe exchange that can be assuaged by use of the existing data on practices and outcomes. Policymakers in California tended to be influenced by the local health officer – a physician – when it came time to implement syringe exchange at the local level (Backes & Rose, 2010). As with any public health program, it is important for SEPs to work with local opinion-leaders and the community at large. This will afford stakeholders an opportunity to share their knowledge, values, and experiences as public policy regarding SSE is developed.

In some areas, satellite exchangers are vulnerable to arrest and prosecution as they deliver needed syringes to other IDUs. Advocates of public health must work to change this. In California, personnel who work or volunteer for an SEP may be exempted from prosecution for distribution of drug paraphernalia (California Health and Safety Code 11364.7). It is important to extend this exemption to include individuals participating in SSE, in California and anywhere drug paraphernalia laws are enforced.

**CONCLUSION**

Clean needles save lives. Syringe exchange projects bring life-saving equipment and harm reduction education to an at-risk population, reducing the spread of HIV. SSE extends the reach of SEPs. While in some instances, the data suggests that SSE is less effective than SEP attendance at preventing HIV, SSE can and does prevent infection. SSE is to be encouraged and facilitated rather than prohibited.

It is important for IDUs to utilize SEPs directly when possible. These public health projects act as a bridge to medical care and drug treatment, and provide counseling, training,
HIV-testing, and many other services. However, not all injection drug users are willing or able to attend a syringe exchange project. Satellite syringe exchange provides this underserved population of drug users with valuable disease-prevention services. Satellite syringe exchange provides harm reduction within harm reduction.
REFERENCES


