

**SYRINGE EXCHANGES: A PUBLIC HEALTH RESPONSE TO
PROBLEM DRUG USE**

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*Gemma M. Cox, (Ph.D, Manchester University)
Marie C. Lawless (M.Soc.Sc, University College Dublin)
Sean, P Cassin (B.A., B.D, N.U.I Galway)
Tony W. Geoghegan (M.A,University of North London,Dip.Addiction, Trinity College Dublin)

***The Merchant's Quay Project**

Drugs/HIV Service

4 Merchant's Quay

Dublin 8

Abstract

This paper presents the findings of the first ever Irish follow-up study to establish the effectiveness of syringe exchanges as a harm reduction strategy in the context of public health. The study was conducted in collaboration with 370 injecting drug users who attended the Merchant's Quay Project's Health Promotion Unit between May 1st 1997 and October 31st 1998. Data was collected from respondents by means of a structured interview at first visit and three-months after initial contact.

Evidence from the study demonstrates that syringe exchanges play an important contributing role in significantly reducing the numbers reporting both the use of heroin as a primary drug ($n=41$; McNemar $\chi^2=10.1$; $p<0.01$), and its frequency of use ($n=70$; McNemar $\chi^2=4.13$; $p<0.05$) at follow-up. Moreover, there were significant reductions in the reported borrowing ($n=60$; McNemar $\chi^2=10.1$; $p<0.01$) and lending ($n=42$; McNemar $\chi^2=7.9$; $p<0.01$) of used injecting equipment. There was however no significant change in the reported sharing of injecting paraphernalia or in levels of reported condom use.

The results of this study illustrate that low threshold services such as the Health Promotion Unit have the ability to attract injecting drug users not in contact with other drug treatment services. Furthermore, this type of service has been shown to be effective in maintaining contact with injecting drug users and promoting safer drug use among attendees. Even though the distribution of sterile injecting equipment reduces the situational sharing, this is hampered by the limited availability of sterile injecting equipment in Dublin. There is a need to continue to develop strategies to prevent HIV and hepatitis C transmission. One such approach would be to develop effective outreach as a means of reaching greater numbers of drug users earlier in their injecting histories. Other areas for future HIV and HCV prevention include discouraging the transition from smoking to injecting, and among those who inject, encouraging further reductions in sharing, sustaining risk reduction over time, and encouraging the adoption of safer sexual behaviour.

Key Words: syringe exchanges, injecting drug users, HIV prevention, harm reduction, low threshold services, health promotion, risk behaviour.

Introduction

A public health approach to problem drug use focuses primarily on the effects of the behaviour, rather than on the causal factors¹. For a social problem to be relevant from this perspective, it is necessary that the particular behaviour be both serious and widespread enough to have some bearing on the health of a society². Early in the AIDS epidemic the role of injecting equipment, specifically the sharing of needles and syringes contaminated with human immunodeficiency virus (HIV) was clearly linked to the transmission of the virus^{3 4}. The pattern of spread among injecting drug users was extended to their sexual partners, and thus potentially into the heterosexual population as a whole^{3 5}. In response, the introduction of syringe exchange programmes represented the first public health policy explicitly advocating harm reduction interventions aimed at reducing HIV risk behaviour without necessarily reducing illicit drug use *per se*⁶.

Syringe exchanges do not exist in isolation and demonstrating the effect of such programmes can be problematic for several reasons including; methodological and moral constraints which prevent the use of randomised controlled studies⁷. Nonetheless, a substantial body of international research has indicated that syringe exchanges are effective in the following areas: the delivery of a basic service⁸; improving access to sterile injecting equipment⁹, reducing levels of injecting risk behaviour^{10 11 12 13} and to a lesser extent sexual risk behaviour^{14 15}. Moreover, such programmes have proved to be an effective referral source for injecting drug users¹⁶ and often operate as a point of entry into additional treatment services¹⁷.

Methods

All new presenters at the Merchant's Quay Health Promotion Unit between May 1st 1997 and October 31st 1998 were invited to participate in the study ($n=1,337$). Data were collected by means of two highly structured questionnaires administered by trained staff at first-visit and at a three month follow-up visit. In both research instruments, self-reported data was collected from respondents on their current drug use, injecting risk behaviour, sexual risk behaviour, and contact with services. Whether unintentional or deliberate, invalid self-reported information about risk behaviour can bias the estimates of the magnitude of the association between attending the Unit and subsequent changes in risk behaviour^{18 19}. Nonetheless, a variety of approaches have shown that injecting drug users self-reports of sexual²⁰ and drug using risk behaviour^{21 22} are of acceptable reliability and validity. In order to minimise recall bias respondents were asked to recall information from two retrospective periods, behaviour over the previous four weeks, and over the previous three-months²³.

The Sample

A total of 370 respondents completed both the first visit and follow-up questionnaires. This cohort represents 28% of the total number of new presenters at the Health Promotion Unit ($n=1337$). 79% of the follow-up respondents were male ($n=292$) and 21% were female ($n=78$). The mean was 23.4 years (mode=18; range 16-48 years). At first visit respondents reported an average injecting career of 2.6 years (median=1 year; range 1 week-26 years). 49% of the sample reported that their initial presentation at the Unit was their first treatment contact ($n=181$). Levels of imprisonment were high as 47% of respondents reported having served a prison sentence ($n=171$), 24% of whom were on temporary release at the time of first visit ($n=41$). Respondents reported a range of physical and mental health complaints at their initial

contact with the Unit, many of which were injecting related. For example, 16% reported abscesses ($n=56$), 5% hepatitis B ($n=18$) and 16% hepatitis C ($n=56$). Only 16% of the respondents reported having received the hepatitis B vaccination ($n=56$) while 42% reported having had an HIV test ($n=151$). Regarding mental health complaints, 65% of respondents reported suffering from depression ($n=228$), 52% reported being unable to cope ($n=182$) and 27% reported being suicidal ($n=76$).

Analyses

The McNemar statistic was employed to determine the changes in clients behaviour over the two time periods, with a 5% level of significance. All percentages are based on valid responses adjusted for missing data. Missing data include information not collected by staff at the Project and non responses by clients.

The Results

Drug Use

Table 1 illustrates that at first visit 94% of the cohort reported using heroin as their primary drug ($n=345$) this decreased to 87% at follow-up ($n=320$). In short, 41 respondents or 12% of those who reported using heroin as their primary drug at first visit had changed to using another primary drug at follow-up. This may be partially explained by the increase in the numbers (from 15 to 31) reporting the use of physeptone (McNemar $\chi^2=6.25$; $p<0.05$). There was however no significant change in reported poly drug use between first visit ($n=222$) and follow-up ($n=226$).

This study also revealed a significant reduction in the frequency of injecting of their primary drug. 70 respondents, or 67% of those who reported at first visit injecting their primary drug 4 or more times a day ($n=104$) had by follow-up reduced this frequency to once a day or less (McNemar $\chi^2=4.13$; $p<0.05$). There was also considerable evidence of positive behaviour change in relation to improved injecting practices. At follow-up respondents were significantly more likely to report hygienic and safer injecting practices. There was a 44% increase in respondents ($n=96$) who reported cleaning their injecting site where previously they had not done so (McNemar $\chi^2=23.2$; $p<0.001$). Similarly, 64% of respondents ($n=56$) who previously had to rely on others to inject, were by follow-up able to self inject (McNemar $\chi^2=10.25$; $p<0.01$).

Injecting Risk Behaviour

Overall, the sharing of injecting equipment was the exception rather than the norm, in that at first visit 24% of respondents ($n=85$) reported the recent borrowing, and 15% the recent lending of used injecting equipment ($n=55$). Table 1 reveals that there were significant changes in both behaviours over the three-month period under investigation. For example, 71% of clients who reported borrowing used equipment at first visit ($n=60$), had ceased such behaviour by the follow-up intervention (McNemar $\chi^2=10.1$; $p<0.01$). Similarly at follow-up, clients were significantly less likely to report the recent lending of used injecting equipment (McNemar $\chi^2=7.9$; $p<0.01$). However, there was no substantial change in respondents self reported sharing

of injecting paraphernalia. In this regard, Table 1 clearly illustrates that while 71 respondents had ceased to share injecting paraphernalia between first visit and follow-up, an additional 68 respondents had adopted such behaviour.

Sexual Risk Behaviour

The Health Promotion Unit had less of an impact on the sexual risk behaviour of attendees. While there was some uptake in reported condom use at follow-up, the change was not statistically significant. At first visit 38% of the respondents reported using condoms ($n=138$), at follow-up this increased to 43% of the cohort ($n=156$). Regarding having a regular sexual partner, between first visit ($n=221$) and follow-up ($n=232$) there was no significant change. However, Table 1 illustrates that at follow-up there was a significant increase in the number of respondents who reported having a regular sexual partner who was an injecting drug user (McNemar $\chi^2=5.19$; $p<0.05$).

Contact with Services

Table 2 illustrates that although not statistically significant, there was an increase in the number of respondents reporting attendance at other drug treatment services at the three-month follow-up visit (from 75 to 95). Similarly, there was an increase in the number of respondents who reported having a medical card and having been in contact with a G.P by follow-up. Attendees were also proportionately more likely at follow-up to report having received the hepatitis B vaccination. Table 2 illustrates that 10% of attendees who had not received this vaccination at first visit had been vaccinated by follow-up ($n=31$). Finally, 18% of respondents who reported not having had a HIV test at first visit had done so by follow-up ($n=36$).

Discussion

This study has shown that syringe exchange programmes can be highly effective as a public health initiative. The changes in reported primary drug use, and frequency of use could be simply ascribed to such external market forces as low/non availability of heroin and a greater availability of prescribed drugs such as methadone. Yet the absence of any reported increases in drug use along with the substantial increase in more hygienic injecting practices indicates both the willingness and the capacity of this drug using population to effect change.

While, one of the primary aims of any syringe exchange is, in as far as possible, to eliminate the sharing of used injecting equipment, the results although positive, highlight a number of issues of concern. In theory, increased availability of injecting equipment should reduce the necessity to share (the circulation theory)²⁴. The term sharing covers two aspects of joint use of injecting equipment, borrowing and lending, which differ markedly in terms of personal risk²⁵. This study illustrated a significant reduction in both the borrowing (McNemar $\chi^2=10.1$; $p<0.01$) and lending (McNemar $\chi^2=7.9$; $p<0.01$) of used injecting equipment by respondents at the three-month follow-up intervention. Evidence from international studies support these findings, for example Calsyn *et al* (1991) found that the proportion of injectors who share in areas where clean injecting equipment is available is lower (78%) than areas where there is restricted access (98%)²⁶. Other research has shown lower rates of sharing among syringe exchange attendees when compared with non-attendees^{9 11 27} and studies comparing baseline measures among syringe-exchange attendees with post entry measures have also shown a reduction in sharing^{10 28 29}.

There is no doubt that the availability of sterile injecting equipment (or lack thereof), impacts on the levels of sharing²⁴. This is of particular relevance to the situation in Dublin where syringe availability remains limited³⁰. The Merchant's Quay Project is the only voluntary syringe exchange and the only five day a week service in Dublin. This lack of access to syringe exchange services at week-ends and evening times, represents a serious deficit in service provision. Service development should include syringe exchanges at local and community level, strategically placed vending machines, mobile syringe exchanges and pharmacy involvement in needle/syringe distribution could address this situation. However, increased availability cannot eliminate all sharing behaviour, as environmental, economic, cultural and social factors can result in a situation in which needle sharing takes place^{9 17}.

Despite the positive changes in the lending and borrowing of injecting equipment, minimal changes in the sharing of injecting paraphernalia were reported. This is of concern as research illustrates that the sharing of spoons and filters is likely to be a major cause of the spread of HIV and HCV infection¹⁴. Although the results of this study suggest that among injecting drug users there is a high level of knowledge and practice to prevent HIV, less importance is given to hepatitis C transmission. It is vital that greater emphasis be placed on disseminating information on HCV transmission as part of a syringe exchange intervention to ensure that injecting drug users perceive the sharing of injecting paraphernalia as potentially risky behaviour. To this end, there is a need to target drug users, with a variety of educational and awareness programmes similar to those done for HIV in the 1980's and 1990's. Given the high levels of HCV infection among drug users with up to an 80% infection rate reported in Dublin studies³¹ this matter is of serious concern.

The fact that as many as half of the sample reported their initial presentation at the Health Promotion Unit as being their first treatment contact places the role of health promotion within a syringe exchange to the fore in forging earlier contact with the drug using population. To this end, a more proactive approach could be adopted. The provision of outreach services, including syringe exchange, to deal specifically with the 'hard to reach', such as, injecting drug users who have not maintained contact or have never initiated contact with a syringe exchange, will ensure a more effective public health response.

Changes in sexual behaviour, in particular the use of condoms, were less marked than changes in injecting practices. Although there was no significant change in the percentage of clients who reported having had a regular sexual partner, 30% of follow-up clients reporting movement in and out of such a relationship within the time period ($n=110$). These findings highlight the importance of advising drug users on sexual risk behaviour in addition to injecting risk behaviour.

Almost all studies have reported low levels of condom use among drug users with little improvement over time^{11 14 15 32}. Research studies highlight that harm reduction interventions have tended to focus less on changing the sexual behaviour of drug injectors³³ and also suggest that in instances where such interventions are made the outcome is not always effective¹⁵. The emphasis placed on needle and syringe sharing has tended to lead to the exclusion of other risk factors⁴. As drug users continue to reduce the individual harms directly associated with drug use, and particularly injecting drug use, sexual transmission is becoming increasingly important in determining the future dynamics of the HIV epidemic spread. There remains a significant risk of HIV transmission to the non-injecting partners of drug injectors, in particular women¹⁴. The limited impact of interventions on sexual risk behaviour is a matter of serious concern. It is vital that a greater emphasis be placed on promoting safer sex practices as an integrated component of syringe exchange services. Encouraging needle exchange users to discuss their

sexual practices with a view to adopting safer sexual practices is a highly skilled intervention. Service providers engaged in low threshold and health promotion approaches to harm reduction will need to provide training for staff to ensure that they have the skills and competencies to address the issues of sexual risk behaviour more effectively.

Finally, the results of this study illustrate that the possibility of making interventions in the overall health and welfare of clients is significant, given the particular range and level of health complaints reported by attendees. The provision of more traditional medical inputs on site within a syringe exchange could prove invaluable in addressing other primary health concerns such as abscesses, soft tissue damage and other infections in addition to providing screening services for HIV/HCV and vaccinations. This level of medical intervention could offer significant health gain not only for the individual drug user but also in the wider public health context at a societal level.

Conclusion

The origins of drug treatment in Ireland are from a total abstinence background and it is only in more recent years that syringe exchanges have become more widely accepted as a valid component of drug treatment. While progress has been made, syringe exchange programmes still represent one of the least socially acceptable faces of drug treatment and have proved difficult to establish at community level in Dublin. The results of this study, support international research which illustrate that syringe exchanges are an effective public health response to problem drug use. However, the study also highlights a number of deficits in terms of service provision which will have to be addressed in the Irish context if syringe exchanges are to maximise their potential as public health initiatives.

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Table 1 Changes in Drug Use and Risk Behaviour

First Visit	Follow-Up		x²	p value
<i>Heroin Use (n=368)</i>				
	Yes (n=320,87%)	No (n=48,13%)		
Yes(n=345,94%)	304(95%)	41(85%)	10.1	<0.01
No (n=23,6%)	16(5%)	7(15%)		
<i>IVDU (n=367)</i>				
	Yes (n=323,88%)	No (n=44,12%)		
Yes (n=341,93%)	305(94%)	36(82%)	5.35	<0.05
No (n=26,7%)	18(6%)	8(18%)		
<i>Borrowed IV Equip. (n=360)</i>				
	Yes (n=54,15%)	No (n=306,85%)		
Yes (n=85,24%)	25(46%)	60(20%)	10.1	<0.01
No (n=275,76%)	29(54%)	246(80%)		
<i>Lent IV Equip. (n=364)</i>				
	Yes (n=32,9%)	No (n=331,91%)		
Yes (n=55,15%)	13(41%)	42(13%)	7.9	<0.01
No (n=308,85%)	19(59%)	289(87%)		
<i>Shared IV Paraph. (n=359)</i>				
	Yes (n=191,53%)	No (n=168,47%)		
Yes (n=194,54%)	123(64%)	71(42%)	0.02	<0.86
No (n=165,46%)	68(36%)	97(58%)		
<i>IVDU Partner (n=336)</i>				
	Yes (n=88,32%)	No (n=248,68%)		
Yes (n=109,32%)	60(68%)	49(20%)	5.19	<0.05
No (n=227,68%)	28(32%)	199(80%)		
<i>Condom Use (n=361)</i>				
	Yes (n=156,43%)	No (n=204,57%)		
Yes (n=138,38%)	83(53%)	55(27%)	2.2	<0.13
No (n=222,62%)	73(47%)	149(73%)		

Table 2 Contact with Specialist Services

First Visit	Follow-Up		x²	p value
<i>Treatment Status (n=369)</i>				
	Yes (n=95,26%)	No (n=275,74%)	3.16	<0.075
Yes (n=75,20%)	28(29%)	47(17%)		
No (n=295,80%)	67(71%)	228(83%)		
<i>Contact with G.P (n=361)</i>				
	Yes (n=168,47%)	No (n=193,53%)	1.6	<0.2
Yes (n=152,42%)	90(54%)	62(32%)		
No (n=209,58%)	78(46%)	131(68%)		
<i>Vaccination Hep.B (n=359)</i>				
	Yes (n=63,18%)	No (n=296,82%)	0.28	<0.59
Yes (n=58,16%)	32(51%)	26(9%)		
No (n=301,84%)	31(49%)	270(91%)		
<i>Detox (n=369)</i>				
	Yes (n=92,25%)	No (n=277,75%)	66.9	<0.001
Yes (n=204,55%)	56(61%)	148(53%)		
No (n=165,45%)	36(39%)	129(47%)		
<i>HIV Test (n=355)</i>				
	Yes (n=86,24%)	No (n=267,76%)	1.44	<0.23
Yes (n=150,42%)	50(58%)	100(37%)		
No (n=203,58%)	36(42%)	167(63%)		
<i>Medical Card (n=362)</i>				
	Yes (n=196,54%)	No (n=166,46%)	1.44	<0.23
Yes (n=184,51%)	148(76%)	36(22%)		
No (n=178,49%)	48(24%)	130(78%)		