

Sexually transmitted infections, sexual risk behaviours and perceived barriers to safe sex among drug users

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Injecting drug users (IDUs) face dual risks for blood-borne virus transmission: through contaminated injecting equipment and risky sexual behaviours.¹ Sexual transmission may act as a bridge between IDUs and other populations.² Therefore, understanding sexual behaviours and barriers to safe sex practices, the prevalence of sexually transmitted infections (STI) and appropriate prevention interventions among IDUs is important. The use of alcohol and illicit drugs is associated with the spread of HIV and other STIs through risky sexual behaviours.³ Interventions to reduce sexual risk behaviours among IDUs have received less attention than interventions for reducing HIV risk associated with sharing contaminated injecting equipment.⁴

In the US, HIV prevalence among IDUs is 9% with considerable regional variation,⁵ and prevalence of both sexual risk behaviours and STIs among IDUs is also high.⁶ Little is known about sexual risk and STIs among Australian IDUs where HIV prevalence is <2%.⁷ While high rates of sexual risk behaviours have been reported by Australian Needle and Syringe Program (NSP) Survey participants,⁷ the survey does not undertake STI screening. One Melbourne study has documented high prevalence of both sexual risk and moderate prevalence of STIs among a street-recruited sample of IDUs and recommended outreach screening to reduce the barriers to accessing sexual health services.⁸

Abstract

Objective: Drug users are at elevated risk of HIV and other sexually transmitted infections (STIs). This study examines prevalence of STIs and perceived barriers to safe sex among drug users accessing low-threshold primary healthcare in inner-city Sydney.

Methods: Data were extracted manually from clients' medical records and analysed using STATA.

Results: Prevalence of HIV, syphilis, chlamydia and gonorrhoea were low (<2%), whereas hepatitis C (62%), hepatitis A (30%), and previous exposure to hepatitis B (25%) were more common. Recent unprotected vaginal and anal intercourse were reported by 85% and 26% of clients, respectively. Younger clients and those with a history of sex work or recent anal intercourse were more likely to report multiple recent unprotected sex partners. Having a regular sex partner was the most prevalent barrier to condom use (37%), and was more likely to be identified by clients who were older, of Indigenous descent, and/or heterosexual. Drug intoxication was a second important barrier (20%), and was more commonly identified by excessive alcohol users.

Conclusions: Targeted programs might increase awareness regarding the benefits of condom use and potential sexual risk associated with regular partners. Periodic assessments of alcohol use, and brief interventions for drug users who report problematic use, should also be considered.

Key words: injecting drug users, sexual risk behaviour, unprotected sex, low-threshold healthcare

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Low-threshold healthcare facilities endeavour to reduce major barriers IDUs face in accessing conventional healthcare facilities. They acknowledge risk behaviours without judgement or sanction and increase IDUs' likelihood of disclosing socially stigmatised behaviours.^{9,10} Such services offer free condoms, safe sex education, STI screening, treatment and health promotion. Given the scant literature regarding prevalence of STIs and sexual risk among Australian IDUs, we aimed to investigate these among drug users attending such a service. Specifically, this report describes: (i) the prevalence of major STIs and self-reported sexual risk behaviours; (ii) correlates of sexual risk behaviours; and (iii) perceived barriers to safe sex among drug users.

Method

Data were derived from a validated client intake assessment form which is routinely filled in for every client accessing services from the Redfern Harm Minimisation Clinic. This service is an IDU-targeted low-threshold primary healthcare centre established in an existing NSP setting in inner-city, Sydney, Australia.^{11,12} This nurse-led facility provides primary healthcare on both 'drop in' and appointment bases. Referrals are received from other community-based health services. Services include screening for bacterial STIs (mainly syphilis, gonorrhoea and chlamydia), blood-borne viral infection assessment for hepatitis C (HCV), HIV and hepatitis B, and referral to other appropriate healthcare centres and/or general physicians.

During initial presentation, nurses conduct a full assessment and record details about clients' demographic characteristics, drug use, risk behaviours related to blood-borne virus and STIs and other relevant health information. This assessment is updated annually for returning clients. Risk behaviours collected at the most recent assessment were recorded for this study. Further information was drawn from the medical files of clients diagnosed with an STI.

Perceived barriers to safe sex were documented through an open-ended question assessing reasons for not using condoms. Inter-rater reliability was high ($\kappa=0.92$, $p<0.01$) between the two researchers who coded the first 100 client responses to this item.

Pathological testing

HIV was detected using enzyme immunoassay (HIV Combo AxSYM, Abbott Laboratories, USA) and positive specimens were subjected to Western blot confirmatory testing (HIV Blot 2.2, MP Diagnostics, Singapore). Syphilis was detected using enzyme immunoassay rapid plasma regain (VD Macro-vue RPR card test Vecton Dickinson), and chlamydia and gonorrhoea were detected using polymerase chain reaction (ProbeTec CT/GC assay from BD) of urine samples. Roche Cobas Elecsys reagents were used for detecting IgG antibody of hepatitis A, HCV antibody and core antibody of hepatitis B. HCV antibody was further confirmed by enzyme immunoassay (Vitros Otrthoclinical HCV Blot 3.0 MP Diagnostics Germany), and qualitative HCV RNA by COBAS Ampliprep/COBAS AMPLICOR HCV Test version 2.0.

Data collection and analysis

The study was approved by the Sydney Local Health District Ethics Review Committee. Information on all 500 clients the clinic received between July 2006 and March 2011 was extracted manually from medical records by the first author. Multivariate logistic regression analysis derived adjusted odds ratios (AOR) and 95% confidence intervals (CI) controlling for variables associated at $p<0.15$ in univariate analysis to identify variables independently associated with: reporting recent (last 12 months) multiple unprotected sex partners (binary outcome: '≥2' versus '0-1 partner') and correlates of perceived barriers to safe sex. Multicollinearity was assessed, and goodness-of-fit was examined using the Hosmer–Lemeshow test. Data were analysed using STATA.

Results

Blood-borne virus and STI screenings were the main reasons for initial presentation; one-quarter of clients presented specifically for a sexual health assessment (Table 1). The prevalence of bacterial STIs (infectious chlamydia, gonorrhoea and syphilis) in the cohort was low (<2%). One-quarter of clients reported two or more drugs of concern. Of the 385 clients who reported recent (preceding 12 months) unprotected sex, 44% reported 2-5 unprotected-sex partners, 10% reported 6-10 and 6% reported 11 or more. The most recent unprotected sexual event most often occurred in the preceding six months (93%). Homosexual and bisexual clients were more likely than heterosexual clients to report unprotected anal intercourse (44% versus 24%, $p<0.01$). Thirteen per cent reported a history of sex work, including 20 clients currently engaged in sex work. Prior sexual health screens were reported by 249 (57%) clients, 19% of whom reported prior diagnoses and/or management of an STI.

Correlates of unprotected sex with multiple partners and recent sexual risk behaviours

Univariate analysis revealed younger (*cf* older) clients (OR 1.05; CI 1.03-1.07), those with a history of sex work (OR=2.3; CI 1.3-4.1) and those who reported recent unprotected anal sex (OR=3.3; CI 2.1-5.4) were more likely than others to report recent multiple (two or more) unprotected-sex partners. Clients positive for HCV (OR=0.54; CI 0.34-0.80) or hepatitis B core antibody (OR=0.53; CI 0.33-0.87), and those whose drug of concern was methamphetamine (OR=0.58; 0.38-0.90), were less likely than others to report recent multiple unprotected-sex partners. Clients who reported unprotected sex less than one month prior were more likely than others to report multiple unprotected-sex partners (OR=1.77; CI 1.16-2.69). A linear trend was found between history of STI diagnosis and increasing number of unprotected sex partners in the preceding 12 months ($p=0.03$). In multivariate analyses, younger age (AOR=1.06; CI 1.04-1.10), a sex work history (AOR=2.30; CI 1.28-4.14) and unprotected anal sex (AOR=3.37; CI 2.04-5.56) remained significantly associated with recent multiple unprotected-sex partners.

Aboriginal and/or Torres Straight Islanders were more likely than other participants ($p<0.05$) to report an unprotected sexual episode

Table 1: Demographic, drug use, sexual risk behaviours, blood-borne viral and STI-related information of 500 clients.

Variable	Total sample	Percentage/prevalence ^a
Mean age (range, ±SD)	500 (15-75; 9.03)	
Ethnicity		
Aboriginal or Torres Strait Islanders	65	13
Others	435	87
Gender		
Male	386	77
Female	113	23
Transgender	1	0.2
Referral source		
Residential alcohol and drug treatment agency	261	53
Co-located NSP	99	20
Self/family/friends	98	20
Other healthcare services	35	7
Primary reason for presentation^b		
Blood-borne viral infection screening/vaccination	260	52
Sexual health assessment/STI check-up	125	25
Drug health related issues/injecting related injuries	90	18
Counselling/welfare services	25	5
General health issues	21	4
Sexual preference		
Opposite gender	416	91
Same gender	12	3
Both genders	31	7
Route of drug administration		
Injecting (IDU)	429	86
Non-injecting (NIDU)	68	14
Not drug users	3	0.6
Drug of concern		
Methamphetamine (ice)	338	73
Heroin	119	26
Alcohol	114	25
Other	74	16
Current/past sex work		
Yes	57	13
No	394	87
Unprotected anal sex in previous 12 months		
Yes	104	26
No	303	74
Last unprotected penetrative sex		
<1 month	158	35
>1 month	289	65
Clients underwent STIs and BBVIs tests		
HIV	364	0.3
Syphilis RPR, EIA reactive	337	1.5
Gonorrhoea	286	0.4
Chlamydia	286	0.7
Hepatitis A	345	30
Hepatitis B core antibody	381	25
Hepatitis C antibody	425	62
-HCV RNA qualitative detected	208	74

a prevalence refers to STIs and blood-borne viral infections (BBVIs), SD: standard deviation;

bAlmost a quarter of clients presented seeking more than one service.

within the preceding month. Compared to other men, men who expressed a preference for same-sex partners ($n=24$) were more likely ($p=0.01$) to report unprotected sex with multiple partners in the previous 12 months.

Barriers to condom use

Information about barriers to condom use was available for 293 clients, 89% (261) of whom did not always use condoms (Table 2). Partner-related reasons were most common, with 96 clients (37%) stating that they did not use condoms because they had regular or mostly regular partner(s). However, 27% of this group reported recent unprotected vaginal/anal sex with ≥ 2 partners and another 4% with ≥ 6 partners.

Subgroup analyses indicated that clients who reported having regular sex partners as the barrier to condom use were more likely than others to be older (AOR=1.1, CI 1.0-1.1), of Aboriginal/Torres Strait Islander descent (AOR=3.3, CI 1.3-8.4), and to prefer heterosexual sex (AOR=6.9, CI 1.9-24.7). Respondents who

reported alcohol as the drug of concern were more likely than others to identify intoxication as a barrier to condom use (AOR=2.8, CI 1.5-5.1).

Discussion

Our findings indicate that prevalence of bacterial STIs and HIV is low among clients of this low-threshold service for IDUs, although prevalence of viral hepatic infections remains high. Our clients, like IDUs of other settings, tend to engage in high-risk sexual activity.¹³⁻¹⁵ However, as our data demonstrate, the client group is heterogeneous, which, together with reported rates of risk, demands a targeted intervention approach.

Consistent with the literature, unprotected sex was common among those who reported a regular partner.¹⁶ Of concern is that one-quarter of clients reported recent unprotected sex with ≥ 2 partners. Clients' understandings of 'regular partner' are unclear, and clinical experience indicates that partnerships are often unstable among this client group. The risk of acquiring STIs is dependent upon individual behaviour, the structure of clients' sexual network and the prevalence and duration of infections in the network.¹⁷ Despite reported high-risk behaviours, the limited evidence available suggests that the prevalence of chlamydia, gonorrhoea and syphilis among IDUs in Australia is low, with a study among street-based IDUs in Melbourne documenting only slightly higher prevalence than we observed (chlamydia: 6% vs. 2%; gonorrhoea: 1% vs. 0.5% and syphilis: 0% vs. 1.5%).⁸ Effective contact tracing procedures and treatment services in Australia¹⁷ may also play an important role in limiting average duration of infection and probability of transmission per sexual contact. Although this study did not collect information regarding the frequency of sexual activity, it is possible that reduced libido and drug-induced sexual dysfunction among IDUs¹⁹ may also lead to relatively low frequency of sexual activity.

Men who have sex with men (MSM) in our sample reported similar risk behaviours to gay periodic survey participants. For example, 65% of the 24 MSM in our sample reported unprotected anal sex in the previous 12 months, similar to the 61.7% of 2010 Gay Periodic Survey participants who reported the same behaviour in the equivalent period.

Although not perfectly comparable, our data suggest lower prevalence of safe sex than among the general population of NSW, the Australian state in which this study was undertaken (1.3% vs. 18%, respectively, reported always using condoms).¹⁸ Similarly, half our clients reported recent unprotected sex with two or more partners, compared to 10% in the broader population. Our sample also reported a relatively high rate of unprotected anal sex. Although this was more commonly reported by homo/bisexual (40%) than heterosexual clients (24%), the practice was still relatively high in the latter group and this is consistent with previous reports among IDUs.⁵ Australia has, to date, managed to avert a generalised outbreak of HIV among IDUs, and HIV infection among Australian IDUs is largely confined to men who have sex with men.⁷ Earlier studies in other settings found that, despite the potential to play a

Table 2: Clients' perceived barriers to condom use (n=261).

	%
Partner-related	
Regular or mostly regular/long-term partner (s)	37
Love/trust/familiarity with partners	7
Partner pressure/Partner may think I am not clean	4
Knew the partner (s) were clean/Felt safe with partner (s)	4
Trying to conceive/Partner is infertile	2
Regular partner deceased/ Otherwise partner may have unprotected sex with others	2
Female partner(s) only, therefore low-risk	1
Sex-work, difficult to always negotiate	1
Intoxication (drug-related)	
Intoxication, drunk, stoned	19
Accepted offer for drug, craving for drug/Prolonged sex on drug	2
Relating to condom	
Do not like condom/lack of sensation	7
Loss of spontaneity/ Interfere with continued erection	2
Condom break/slip/do not fit well/Allergy to condoms (latex)	2
Availability	
Situational availability (not available at the required time)/unplanned	4
Lack of access to condom/ Inconvenient to always carry condom	2
Spur of the moment/felt out of control	2
Not caring/ignorance/cognitive impairment	2
Do not know exactly why	2
Other	3

Percentages add up to greater than 100, because some respondents stated more than one barrier.

preventive role, NSPs and other harm reduction programs have little effect on IDUs' safe sex practices,¹⁹ although sporadic initiatives have been implemented in recent years.²⁰

Although most of our sample were polydrug users, clients who reported alcohol as a drug of concern were more likely than others to report intoxication as a barrier to condom use. A recent meta-analysis found that alcohol use is an independent risk factor for intentions to engage in unprotected sex.²¹ Regular assessments of alcohol use and targeted brief interventions at low-threshold services may improve clients' health outcomes.

The study is limited, as relevant information could not be collated for some clients. The sample was of consecutive clients; however it is not clear if clients of this service are representative of IDUs more generally. As identified above, information on the frequency of sexual encounters was not collected and low sexual activity may partially explain the low STI prevalence. Face-to-face interviews regarding sexual risk behaviours may also be subject to social desirability and other response bias.²²

It is difficult to draw firm conclusions from these findings, given that just three bacterial STIs (infectious chlamydia, gonorrhoea and syphilis) were examined, and that the study did not assess sexual activity. Nevertheless, results suggest that the level of risk among this group is not as high as might be assumed. Further studies including the diagnosis of a broader range of STIs and the detailed characterisation of sexual activity would be useful to investigate this suggestion.

Despite the relatively low STI prevalence, the high prevalence of sexual risk behaviours indicates these clients remain at risk of STIs. Appropriately targeted programs might increase awareness among IDUs regarding the benefits of condom use and potential sexual risk associated with regular partners. The literature suggests that the efficacy of such interventions is variable across settings but, largely, IDUs reduce their sexual risk behaviours.²⁰ Periodic assessments of alcohol use, and brief interventions for IDUs who report problematic use, should also be considered. Low-threshold services are an important avenue to provide such targeted programs and interventions. The attendance of IDUs at these facilities offers an important opportunity, as this group can be hard-to-reach and may prioritise their health lower than other competing demands they may face.

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