Impact of a medically supervised safer injection facility on community drug use patterns: a before and after study

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Abstract

Problem Illicit use of injected drugs is linked with high rates of HIV infection and fatal overdose, as well as community concerns about public drug use. Supervised injecting facilities have been proposed as a potential solution, but fears have been raised that they might encourage drug use.

Design A before and after study.

Participants and setting 871 injecting drug users recruited from the community in Vancouver, Canada.

Key measures for improvement Rates of relapse into injected drug use among former users and of stopping drug use among current users.

Strategies for change Local health authorities established the Vancouver supervised injecting facility to provide injecting drug users with sterile injecting equipment, intervention in the event of overdose, primary health care, and referral to external health and social services.

Effects of change Analysis of periods before and after the facility's opening showed no substantial increase in the rate of relapse into injected drug use (17% *v* 20%) and no substantial decrease in the rate of stopping injected drug use (17% *v* 15%).

Lessons learnt Recently reported benefits of supervised injecting facilities on drug users' high risk behaviours and on public order do not seem to have been offset by negative community impacts.

Background

Outline of the problem

Cities throughout the world are experiencing high rates of HIV infection related to injected drug use, and drug overdoses are a leading cause of death in many urban settings.[1 2] Infections from non-sterile injection and the unsafe public disposal of used syringes are also major concerns.[3 4] To address these problems, various initiatives such as methadone maintenance therapy and needle exchange programmes have been established.[5]

Despite these interventions, ongoing infectious disease and overdose rates, as well as concerns related to the public use of injected drugs, have persisted.[6] This is particularly true of Vancouver, Canada, which has experienced some of North America's highest rates of HIV infection and overdose despite an array of interventions.[6 7]

Strategy for change

In an effort to reduce the community and public health impacts of injected drug use, health authorities in Vancouver established North America's first medically supervised injection facility in September 2003. Within the facility, drug users can inject pre-obtained illicit drugs under the supervision of medical staff.[8] The facility also provides sterile injecting equipment for users and intervention in the event of overdose, as well as primary health care, addictions counselling, and referral to external health and social services.[9]

Although similar facilities have been established in Europe and Australia,[10] this intervention remains highly controversial.[11–15] In particular, the dearth of formal evaluations has led to fears that such facilities may encourage drug use, increasing rates of relapse among former injecting drug users,[16] and, by facilitating drug use, discourage current users from seeking treatment.[16 17]

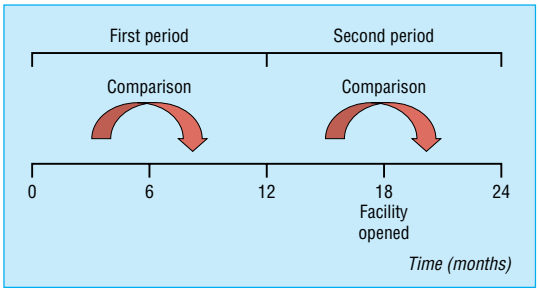
Key outcome measures

We sought to determine if the supervised injection facility was associated with increased rates of relapse among former injecting drug users or reduced rates of cessation among current drug users. We also sought to assess the impact of the facility on several secondary end points.

Information gathering

We report on data derived from the Vancouver injecting drug users study, an ongoing prospective observational study of injecting drug users recruited through self referral and street outreach since May 1996.[18] As part of the study, all subjects provide blood samples and complete an interviewer administered questionnaire at six-monthly follow-up visits so that drug use can be tracked longitudinally.

For the present study, we examined individual changes in drug use during a one-year period before the opening of the supervised injection facility (as a control period) and the one-year period that spanned the opening of the supervised injection facility on 22 September 2003 (see figure). In each one-year period we examined annual changes in injected drug use by comparing participants' behaviours in the first



Time periods used to compare changes in illicit drug use before and during the opening of the Vancouver supervised injection facility

six months of the period with their behaviours in the final six months.

End points of interest were defined a priori and included the rates of relapse into and of stopping injected drug use. Relapse was defined as changing from reported non-injection throughout the first six months of an annual period to reported injecting in the final six months, and stopping was defined as changing from reported injecting during the first six months of a period to reported non-injection throughout the final six months. We also examined changes in initiating and stopping crack cocaine smoking, binge drug use,[8] and methadone use.

Data analysis

Since we examined individual changes in drug use, to be eligible for the present study, participants had to have been followed up at both six-monthly follow-up visits in at least one of the one year periods. We expected that most participants would be seen in all four follow-up visits, but we also performed sub-analyses restricted to those participants who were seen in all four visits.

Because of the lack of independence between data points across periods and the differing denominators (pertaining to eligible individuals) used to calculate the rates, we were unable to devise a formal method for testing significance. We recognised that the observational nature of the study meant that differences could emerge by chance or from confounding effects unrelated to the supervised injection facility, but we wanted to set a low threshold for detecting what could be a meaningful negative change in community drug use. We therefore selected a change of 5% as the cut-off point, and if any behaviour changed by more than this level, we viewed it as a substantial change worthy of further investigation. Equally, small fluctuations that might be expected in this type of study would not be misinterpreted as meaningful changes.

Effects of change

Overall, 871 participants were eligible for the study, with 674 individuals completing both follow-up interviews during the first one-year period (22 March 2002 to 22 March 2003), and 700 individuals completing both interviews in the second period (22 March 2003 to 22 March 2004). The participants in the first period had a median age of 35.3 years (interquartile range 28.6-41.3), 260 of them (39%) were women, and 206 (31%) were of aboriginal ancestry. Participants in the second period had a median age of 34.1 years (26.6-40.8), 286 (41%) were women, and 223 (32%) were of aboriginal ancestry.

As the table indicates, comparison of changes in drug use in the two one-year periods shows no substantial differences in rates of relapse into injected drug use (17% *v* 20%) or stopping injected drug use (17% *v* 15%). Similarly, there were no substantial differences in rates of stopping binge drug use (58% *v* 63%) or crack cocaine smoking (12% *v* 14%), nor in rates of starting or stopping methadone use (11% *v* 7% and 13% *v* 11% respectively). The only differences that exceeded the 5% cut-off were in the decrease in number of participants who relapsed into binge drug use in the second period (13% *v* 8%) and in the increase in number who started smoking crack cocaine (21% *v* 29%). Results were similar in the sub-analyses restricted to the 562 participants who attended all four follow-up visits (table).

Lessons learnt and next steps

Our study indicates that the opening of North America's first supervised injection facility was not associated with measurable negative changes in the use of injected drugs. Indeed, we found a substantial reduction in the starting of binge drug use after the opening of the facility, suggesting that it had not

Changes in drug use among injecting drug users in Vancouver in one-year period before the supervised injection facility opened and in the one-year period when the facility opened. Values are numbers (percentages) of participants unless stated otherwise

Variable	Change in drug use		% difference between periods	
	Before facility opened (n=674)	When facility opened (n=700)	All participants (674 *v* 700)	Participants in both periods (562 *v* 562)*
Using injected drugs				
Started:				
Yes	29/174 (17)	41/201 (20)	3.7	3.5
No	145/174 (83)	160/201 (80)		
Stopped:				
Yes	68/404 (17)	51/348 (15)	–2.1	–1.5
No	336/404 (83)	297/348 (85)		
Binge drug use				
Started:				
Yes	63/468 (13)	33/434 (8)	–5.9	–6.4
No	405/468 (87)	401/434 (92)		
Stopped:				
Yes	64/110 (58)	72/115 (63)	4.4	3.9
No	46/110 (42)	43/115 (37)		
Smoking crack cocaine				
Started:				
Yes	47/225 (21)	52/181 (29)	7.8	7.3
No	178/225 (79)	129/181 (71)		
Stopped:				
Yes	43/353 (12)	50/368 (14)	1.4	1.9
No	310/353 (88)	318/368 (86)		
Using methadone				
Started:				
Yes	24/216 (11)	22/302 (7)	–3.8	–2.3
No	192/216 (89)	280/302 (93)		
Stopped:				
Yes	26/206 (13)	27/247 (11)	–1.7	–3.5
No	180/206 (87)	220/247 (89)		

Denominators vary because only some individuals were eligible for each change considered (for example, analyses of stopping use of injected drugs were restricted to those who were injecting at the start of the period considered).
*Refers to the 562 individuals who contributed data to all four follow-up visits during the two study periods.

Key learning points

Supervised injection facilities are associated with improved public order and reduced syringe sharing, but their impact on community drug use has not been evaluated

This study shows that the opening of a supervised injection facility did not adversely affect community drug use, including relapse into injected drug use, stopping injected drug use, and seeking treatment

prompted "risk compensation" among local injecting drug users, whereby the benefits of a safer environment are overcome by more risky behaviours such as higher intensity drug use.[19] Although there was a substantial increase in the number of participants who started smoking crack cocaine, it is unlikely that the facility, which does not allow smoking in the facility, prompted this change. These findings are relevant to a recent review of supervised injection facilities by the European Monitoring Centre on Drugs and Drug Addiction, which highlighted concerns that these facilities could potentially "encourage increased levels of drug use" and "make drug use more acceptable and comfortable, thus delaying initiation into treatment."[17]

Given the international public health emergency presented by injected drug use, it is not surprising that the merits of supervised injection facilities are being hotly debated.[11–15 20] Evaluation of the Vancouver facility has shown that its opening has been associated with reductions in public drug use and publicly discarded syringes[8] and reductions in syringe sharing among local injecting drug users.[9] Our study suggests that these benefits have not been offset by negative changes in community drug use. The next step will involve further prospective evaluation of injecting drug users in the community to examine the impact of the supervised injection facility on rates of bloodborne infections and drug overdoses.

Our study has several limitations. Firstly, study participants were not a random sample, although they seemed to be representative of injecting drug users in the community.[21] Secondly, we relied on drug users' reports of their own behaviour. Although studies have shown that drug users may under-report some socially undesirable behaviours,[19] self reporting of illicit drug use has largely been shown to be valid.[22] Furthermore, our study was designed after these data were collected, and thus the participants and interviewers were essentially blinded to this eventual use of the data. As such, we believe this eliminates interviewer bias or socially desirable responding as an explanation for our findings.

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Interactive case report

An alcoholic patient who continues to drink

This case was described on 7 and 14 January (*BMJ* 2006;332:33, 98). Debate on the patient's management continues on bmj.com (http://bmj.com/cgi/letters/332/7532/33#). On 4 February we will publish the case outcome together with commentaries on the issues raised by the management and online discussion from relevant experts and the patient.