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▶ Needle exchange and the HIV epidemic in Vancouver: Lessons learned from 15 years of research.

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Hyshka E., Strathdee S., Wood E. et al.

International Journal of Drug Policy: 2012, 23(4), p.261–270.

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Fifteen years of research into Vancouver's needle and syringe programme leads to the conclusion that such programmes can stop the spread of HIV and do not increase harms. However, they can only be effective if their policies allow sufficient sterile equipment to be distributed to ensure injectors always have fresh supplies.

SUMMARY This review covers 15 years of research into a single intervention in a single city, the controversial and much-discussed issue of HIV rates in Vancouver, Canada and their relation to needle and syringe exchange provision. The authors start by identifying guidance from organisations including the World Health Organization and the United Nations Office of Drug Control that endorse needle and syringe programmes for combating HIV, as well as a large number of studies not specific to Vancouver evidencing their benefits, including reducing borrowing and lending of used syringes and HIV infection rates among injectors and promoting entry to addiction treatment. At the same time, there is no credible evidence to support claims that needle and syringe programmes: increase drug use; encourage people to start injecting; increase the amount of publically discarded syringes; aggravate or crime; or generate high-risk social networks.

Despite this evidence, needle and syringe programmes are controversial and under-utilised across much of the world. Despite the evidence, negative beliefs about their effectiveness remain, as do concerns that they might cause harmful effects. The authors believe these concerns are in part due to evaluations of some of the first needle exchanges, specifically in Vancouver. Vancouver's first needle exchange programme was implemented in 1988 as a response to rising injecting drug use. Controversy surrounding the Vancouver experience focused in particular on findings that needle exchange had failed to stop an alarming rise in HIV rates, and those who attended the exchange continued to share needles. These findings were cited by United States officials when enacting legislation that curtailed needle and syringe programmes. This review uses the relevant research to tell the story of what the authors see as what really happened in Vancouver.

Main findings

An estimated 13,500 injecting drug users live in Vancouver, of which one third live in a neighbourhood known as the Downtown Eastside ▶ illustration. The area suffers from poverty and crime, and much of the accommodation consists of small single occupancy rooms with poor facilities. Half of Vancouver's injectors live in these rooms or in other unstable housing situations, with one in 10 homeless. There is also a substantial sex work economy, and public drug dealing and use are common.

In 1988 the first attempt to introduce needle and syringe programmes was cautious and focused on minimising public disorder. As a result, the service provided only one-for-one syringe exchange from its inception until 2002, the aims being to stop syringes from being discarded unsafely in public, to give staff more contact time with injectors, and to reduce the likelihood of injectors selling on new syringes. Strict limits on the number of syringes each injector could receive were also imposed – initially two per day or 14 per week. The process of exchange was conducted at a fixed site in Downtown Eastside during the day, and in the evening at an exchange van. By 1993, over a million syringes were being exchanged per year, and HIV rates were considered low and stable.

"I think that with a stable house, if the person was on some kind of opiate therapy, if we gave them some real things to do that gave them some kind of life, that they would buy into it in a second. We're not animals. This isn't a party down here. It's a very shitty life ... they'd change it if they could. Some innovative programming could really change things down here."
'Sid', a 40-year-old drug user from Downtown Eastside

In 1994, injecting drug use and HIV rates in Vancouver soared; the percentage of injectors infected with the virus more than tripled to 7% from 2% the year before. The reviewers attribute this to a combination of factors including mentally ill people being removed from institutions, poor availability of social housing, and a large increase in cocaine availability. An early study found that people who attended the needle exchange were more likely to behave riskily, for example by sharing syringes, and were more likely to inject cocaine, which was increasingly becoming the main drug used in Downtown Eastside. Cocaine's effects last a much shorter time than heroin; it may be injected over 20 times a day, while heroin is typically injected only two to four times a day. The result is a much greater demand for syringes.

In response, limits were raised from two to four syringes per day, then doubled again to eight. More mobile exchange vans were also added, and in 1997, more than 2.5 million syringes were exchanged. Following this increase in provision, one much-cited study found that people who attended the exchange more than once a week were more likely to be infected with HIV than other injectors, even after adjusting for differences in how often and what drug they injected. The study authors estimated that between five and 10 million syringes would need to be exchanged in order to meet demand, and that the needle exchange programme should be expanded. They also concluded that needle exchanges, though "an important cornerstone of HIV prevention", were not enough to prevent rising HIV rates without increased investment in other health and drug treatment services.

Despite these conclusions, the results were deemed by many internationally – including the US Office of National Drug Control, several US senators and the US 'Drug Czar' – to show that needle and syringe programmes had been unsuccessful. After the findings were reported, more funding was released to increase access to Vancouver's drug treatment and needle and syringe programmes, syringe limits increased to 14 per day, and the total number of syringes exchanged reached 3.5 million in the year 2000. Vancouver's HIV outbreak nonetheless took years to stabilise.

A further study examined more closely the link between using the needle and syringe programme and becoming infected with HIV by

following up 870 injectors initially free of the virus. Whilst those who attended the service frequently were more likely to become infected than those who did not, this was fully explained by the fact that frequent attendees were at higher risk in the first place, including unstable housing and injecting cocaine daily; there was no evidence that attendance in itself increased risk of infection.

The reviewers identify several factors which may have lead to the failure of Vancouver's needle exchange to prevent rising rates of HIV. Importantly, many injectors were not able to access syringes due to the opening hours of the exchange, which shut in the evening at 8pm and did not open until 8am. Limiting hours was intended to reduce nearby drug use overnight, seen by some as prioritising the acceptability of the service to the community and to politicians over its effectiveness. Another factor mentioned was the usual insistence on one-for-one exchange of used for new syringes, meaning injectors who did not have used syringes to exchange were denied sterile syringes, although not all studies agreed this was an important factor. Police presence and the methods they employed were found to lead to increased risk of HIV infection because injectors became less willing to carry sterile syringes, which were sometimes confiscated, and more likely to rush injecting and share syringes either deliberately or accidentally.

Finally, the reviewers discuss more recent policy changes in Vancouver's needle and syringe programme, a change in focus to emphasise distribution of sterile needles rather than exchanging used needles for new. Limits on the number of syringes that can be distributed were removed, the collecting of used syringes was separated from the distribution of new syringes, and more varied methods of distribution were added. These methods were found to have led to significant reductions in the rate of syringe sharing, as well as lower levels of new HIV infections.

The authors' conclusions

The most important conclusion made by the reviewers is that attending the needle exchange in Vancouver did not increase injectors' risks of contracting HIV; higher rates of HIV infection among those who attended frequently is explained fully by their being at higher risk in the first place due to pre-existing circumstances and behaviour, particularly the frequent injection of cocaine. Though the needle exchange did not result in unwanted negative effects, neither did it stem the spread of HIV infection. Whilst the reviewers cannot be certain why this was, they suggest that factors including limited opening hours, the requirement for one-for-one exchange, a lack of prevention and treatment services, and police crackdowns, combined to restrict the availability of sterile syringes, leading to higher levels of syringe-sharing.

The lessons from Vancouver are that the focus of a needle and syringe programme should be on the distribution of syringes to those who need them, rather than on reducing public disorder, and that the distribution and collection of syringes should be separate, while outreach work should also be used to contact harder to reach groups. Broader lessons are that the specifics of programmes and the local context must be attended to closely, as factors such as the opening hours, distribution policies, characteristics of local injectors, policing methods and so on may all influence effectiveness. In order to assess effectiveness, services should be evaluated and monitored to discover what may be holding back the distribution of syringes. Overall, it should be recognised that needle and syringe programmes *can* "drastically" cut the number of new HIV infections, but this requires effective implementation.

FINDINGS **COMMENTARY** Findings editor Mike Ashton has commented extensively on the experience of the Vancouver needle exchange, and a Findings thematic review on hepatitis C and needle and syringe programmes also covered the subject. In both documents, the conclusions drawn were not significantly different from those of the featured review – agreeing that although the needle exchange did not increase the risk of contracting HIV, it appeared that way because it attracted higher-risk injectors. Nonetheless, it failed to curb the spread of infections. The Findings reviews echoed the featured review's explanations for this failure, but also emphasised poor housing in Downtown Eastside and the risks generated by the environment as a whole, which led to one in five Vancouver injectors reusing needles even when they had access to sterile supplies. Also in agreement with the featured review was the conclusion that, rather than undermining the case for needle and syringe programmes, "the overriding conclusion from this evidence is that we need far more and far more support for this work".

In the UK, official guidance from the National Institute for Health and Care Excellence stipulates that injectors should have more than enough sterile equipment than they need for every injection, while World Health Organization guidance also reinforces the importance of access to needle and syringe programmes. For more research evidence on these programmes and discussion of their impact, see the relevant Drug Matrix cell and Matrix Bite.

Thanks for their comments on this entry in draft to research author Elaine Hyshka of the University of Alberta in Canada, and to Jamie Bridge, Chair of the UK National Needle Exchange Forum. Commentators bear no responsibility for the text including the interpretations and any remaining errors.

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