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

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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 injecting 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. The area suffers from poverty and crime, and much of the accommodation consists of small single occupancy rooms in 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.

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 a 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.

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