

Needle Exchange Programs and the HIV Outbreak among Injection Drug Users in Vancouver, Canada: Addressing Some Common Misperceptions



Introduction

The use of needle exchange programs (NEPs) has been associated with reductions in HIV infection in a number of settings [1-3]. However, questions regarding NEP efficacy have persisted [4], and have been partially fuelled by misinterpretations of an early evaluation of NEP use and HIV prevalence in Vancouver, Canada [5]. In this study, a higher HIV prevalence was found among those who reported using the NEP weekly compared to those who did not use the NEP weekly. In recent years, a growing body of research into the Vancouver HIV epidemic has permitted a broader discussion of the Vancouver outbreak and the factors that contributed to it. Referring to this research, the effectiveness of NEP use for HIV prevention in Vancouver is addressed below.

Did the 1997 Vancouver study demonstrate that NEPs cause HIV infection?

No, the study merely demonstrated an association between frequent use of NEP and HIV prevalence. Among the more common misinterpretations is that the Vancouver study demonstrates that NEPs lead to higher levels of HIV infection. But the authors of the 1997 study addressed this point in their original manuscript: “our study was not intended to evaluate the effectiveness of NEP...[T]he fact that frequent NEP attendance was associated with HIV prevalence should not be interpreted as causal” (p. F64) [5]. Correlation between two things does not mean one causes the other. In medical research, it is common to find statistical correlations that are not causal. For instance, it was once thought that coffee drinking caused cancer, but it was later shown that the association between coffee and cancer was due to the fact that coffee drinkers were more likely to smoke cigarettes [6].

Why did frequent users of NEPs in Vancouver have high rates of HIV infection in this study?

Frequent NEP users had higher rates of HIV because they were high intensity drug users who were particularly vulnerable to HIV infection. After the original 1997 Vancouver study, a further evaluation clearly showed the folly of concluding that the NEP caused higher rates of HIV [7]. In particular, Vancouver epidemiologists demonstrated that the association between NEP use and HIV prevalence reflected a “selection bias”: individuals at high risk of HIV infection in Vancouver were the people most likely to frequently use NEPs. The researchers pointed out that frequent users of NEPs were significantly different from drug users who did not frequently use them, including being more likely to be homeless, to inject drugs daily, to inject cocaine, to work in the sex trade, to inject in “shooting galleries” and to have recently been in prison. Numerous studies have shown that these characteristics are associated with HIV infection. The researchers evaluating the Vancouver experience with NEP concluded that the rate of HIV infection among frequent NEP users was not surprising, given these factors that meant they were at higher risk of infection. It is incorrect to conclude that NEPs contribute to HIV infection. Instead, it is highly plausible, given the risk profile of those frequently using NEPs, that the rate of HIV infection among drug users in Vancouver would have been much higher if access to sterile syringes did not exist.

Why did the Vancouver HIV epidemic occur despite the presence of the NEP?

Research has shown that a number of other key factors contributed to HIV risk in Vancouver. These factors likely overwhelmed the positive effect of the Vancouver NEP. These contributing factors were completely independent of the NEP and are commonly under appreciated by those who have raised concerns about the efficacy of NEPs. Among the most important contributors was the high prevalence of cocaine injection in Vancouver. Unlike heroin injectors, who may inject a few times per day, cocaine injectors commonly inject up to 20-30 times per day, which predisposes them to cocaine psychosis and to higher rates of syringe sharing [8]. As well, there has often been poor access to addiction treatment in Vancouver, and inability to access addiction treatment among local drug users has been shown to contribute significantly to HIV risk [9], as have the high rates of sex-trade involvement and homelessness [10, 11]. Finally, high rates of syringe sharing and subsequent HIV infection have been linked to high rates of incarceration among local drug users, [12, 13] as there is currently little or no access to sterile injection equipment in Canadian prisons.

Were there programmatic deficiencies of the Vancouver NEP that limited its effectiveness?

Yes. Recent research has shown that there were deficiencies of the Vancouver NEP that limited local drug users' access to sterile syringes. Several recent studies have shown that syringe sharing in Vancouver has been driven primarily by the difficulties drug users experienced in accessing sterile syringes [14-16]. Various features of the Vancouver NEP, such as limited operating hours and restrictive one-for-one syringe exchange policies, led to insufficient access to sterile syringes among a population of cocaine users with significant syringe needs [16, 17]. Local health officials have recently responded to these concerns by expanding syringe access.

Do governments have a human rights obligation to ensure access to sterile syringes for injection drug users?

Yes. Numerous declarations from United Nations bodies confirm a strong global consensus that access to sterile syringes for drug users is part of the "highest attainable standard of health" guaranteed by international human rights law. The international treaty that guarantees the right to health was concluded before the discovery of HIV, but the UN committee that oversees the application of that treaty has stated that government duties in fulfilling the right to health must include "the establishment of prevention and education programs for behaviour-related health concerns such as sexually-transmitted diseases, in particular HIV/AIDS" [18]. UN guidelines on human rights obligations related to HIV/AIDS enjoin governments to ensure that there are no legal or other barriers to syringe exchange programs [19]. At the Special Session of the UN General Assembly on HIV/AIDS in 2001, all UN Member States committed to ensuring access to "a wide range of prevention programs," including "sterile injecting equipment" and "harm-reduction efforts related to drug use" [20].

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References:

1. Hurley SF, Jolley DJ, Kaldor JM. Effectiveness of needle-exchange programmes for prevention of HIV infection. *Lancet* 1997;349:1797-1800.
2. Des Jarlais DC, Marmor M, Paone D, et al.: HIV incidence among injecting drug users in New York City syringe-exchange programmes. *Lancet* 1996; 348(9033): 987-91.
3. Des Jarlais DC, Hagan H, Friedman SR, et al.: Maintaining low HIV seroprevalence in populations of injecting drug users. *JAMA* 1995; 274(15): 1226-31.
4. Bellm J. Needle-exchange programmes are not the answer [letter; comment]. *Lancet* 1999;353:1657-1661.
5. Strathdee SA, Patrick DM, Currie SL, et al. Needle exchange is not enough: lessons from the Vancouver injecting drug use study. *AIDS*, 1997,11:F59-65.
6. MacMahon B, Yen S, Trichopoulos D, Warren K, Nardi G. Coffee and cancer of the pancreas. *N Engl J Med.* 1981 Mar 12;304(11):630-3.
7. Schechter MT, Strathdee SA, Cornelisse PG, et al. Do needle exchange programmes increase the spread of HIV among injection drug users?: an investigation of the Vancouver outbreak. *AIDS* 1999,13:F45-51.
8. Tyndall MW, Currie S, Spittal P, et al. Intensive injection cocaine use as the primary risk factor in the Vancouver HIV-1 epidemic. *AIDS* 2003,17:887 - 893.
9. Wood E, Spittal PM, Li K, et al. Inability to access addiction treatment and risk of HIV-infection among injection drug users. *J Acquir Immune Defic Syndr* 2004, Jun 1;36(2):750-754
10. Miller CL, Spittal PM, LaLiberte N, et al. Females experiencing sexual and drug vulnerabilities are at elevated risk for HIV infection among youth who use injection drugs. *J Acquir Immune Defic Syndr* 2002,30:335-341.
11. Corneil T, Kuyper L, Shovellor J, et al. Unstable housing, associated risk behavior, and increased risk for HIV infection among injection drug users. *Health and Place* 2004, In Press.
12. Small W, Kain S, Laliberte N, Schechter MT, O'Shaughnessy MV, Spittal PM. Incarceration, addiction, and harm reduction: inmates' experience injecting drugs in prison. *Substance use and misuse* 2003,(in press).
13. Wood E, Li K, Montaner JS, Schechter MT, Kerr T. Incarceration is associated with syringe sharing among injection drug users. *Public Health Reports* 2004, In Press.
14. Wood E, Tyndall MW, Spittal PM, et al. Factors associated with persistent high-risk syringe sharing in the presence of an established needle exchange programme. *AIDS* 2002,16:941-943.
15. Wood E, Tyndall MW, Spittal PM, et al. Unsafe injection practices in a cohort of injection drug users in Vancouver: could safer injecting rooms help? *CMAJ* 2001,165:405-410.
16. Wood E, Tyndall MW, Spittal P, et al. Needle exchange and difficulty with needle access during an ongoing HIV epidemic. *International J Drug Policy* 2002,13:95-102.
17. Spittal P, Small W, Laliberte N, Johnson C, Wood E, M.T. S. How otherwise well meaning exchange agents can contribute to limited sterile syringe availability in Vancouver, Canada. *Int J Drug Policy* 2003,15:36-45.
18. U.N. Committee on Economic, Social and Cultural Rights, *General Comment No. 14: The Right to the Highest Attainable Standard of Health* (Geneva: United Nations, 2000).
19. Office of the High Commissioner of Human Rights (OHCHR)/Joint United Nations Programme on HIV/AIDS (UNAIDS) *HIV/AIDS and Human Rights: International Guidelines* (Geneva: United Nations, 1998), paragraph 29(d).
20. United Nations General Assembly, *Declaration of Commitment on HIV/AIDS*, UN doc.A/RES/S-26/2, August 2001, paragraph 52.