

NEEDLE EXCHANGE: THE VANCOUVER EXPERIENCE

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Hepatitis C is spreading rapidly in many areas despite the existence of needle exchange services. An extended case study of the hepatitis C and HIV epidemics in Vancouver, which at the time hosted the largest-volume needle exchange in North America, illustrates how adverse social, housing and economic conditions compounded by an upsurge in cocaine injecting can overwhelm restricted needle exchange provision. Together with other work, it suggests the need for far greater support for and investment in needle exchange, for a more interventionist but still 'low threshold' working style, and, in partnership with injectors' for harnessing injectors' social networks to extend risk reduction.

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Until recently nations in which needle exchange spearheaded harm reduction services could comfort themselves that their pragmatism forestalled the HIV epidemics seen elsewhere (Stimson, 1995, 1996). Recent findings suggesting that needle exchange can be counter-productive (Bruneau *et al.*, 1997; Strathdee *et al.*, 1997a) have forced even sympathetic observers to pause and reconsider (Des Jarlais, 1998; Elliott, 1998) but the more important reason for reflection is the challenge of hepatitis C. Rapid spread of this virus exposes low levels of HIV spread as a false reassurance (Mele *et al.*, 1993; Hagan *et al.*, 2000; Loxley, 2000). Even in nations with relatively advanced harm reduction services, progress in preventing viral transmission has plateaued out at a level which leaves HIV a potential threat (Wood, 1998) and hepatitis C leaking in volumes through the gaps (Coutinho, 1998).

What makes hepatitis C so hard to control is the degree of behaviour change needed to intercept its transmission (Crofts *et al.*, 1999; Hagan *et al.*, 2000; Crofts *et al.*, 2001; Assistant Secretary for Health and Surgeon General, undated). Residual levels of sharing insufficient to increase HIV prevalence can be more than enough to cause a hepatitis C epidemic (Crofts *et al.*, 2001) and this also applies to injecting equipment other than syringes and needles (Van den Hoek *et al.*, 1990; Van Ameijden *et al.*, 1993; Crofts *et al.*, 1997). Based on Australian figures it has been calculated that not until injectors averaged 31 sharing partners a year would HIV prevalence be in danger of escalating, and that if

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each shared with under 17, infection levels would become minimal. For hepatitis C the corresponding figures were 5.7 and 3 (Murray *et al.*, 2003). As a result, in the countries across the world, what has worked tolerably well in curbing HIV spread has not worked for hepatitis C (Coutinho, 1998; Elliott, 1998; Van Beek *et al.*, 1998; Crofts *et al.*, 1999; Judd *et al.*, 1999; Brunton *et al.*, 2000; Hagan *et al.*, 2000; Crofts *et al.*, 2001; Assistant Secretary for Health and Surgeon General, undated).

Learning from Failure

Despite recent findings, the weight of international evidence is that needle exchanges have reduced HIV spread and the behaviours which spread blood-borne disease without increasing the number of injectors or the frequency with which they inject (Hurley *et al.*, 1997; Cross *et al.*, 1998; Des Jarlais, 1999; Health Outcomes International Pty Ltd, 2002). The key questions now are not whether exchanges can work, but how and in what circumstances and why sometimes they fail to control infection spread and risk behaviour. To investigate this an extensive review was conducted of the literature relating to needle exchange and hepatitis C.¹ It included seven city case studies most of which documented the failure of exchanges in those cities to control infection spread or risk behaviour.

THE VANCOUVER EXPERIENCE

Of the case studies, the most extensive was Vancouver. The city was of special interest for three reasons. First, it was the site of one of the very few studies to directly document the impact of needle exchange on the incidence of hepatitis C. Second, despite hosting the largest-volume needle exchange on the North American continent, the city's low HIV rate among injectors more than tripled over 18 months to reach 7% in 1995. Because of this, Vancouver's experience has been seen as a make-or-break issue for needle exchange. When in the 1990s the then US 'drugs czar' General Barry McCaffrey blocked federal funding for exchange programmes, it was to Vancouver that he appealed for scientific justification (Oliver, 1999).

The studies prompted by this development offer the most graphic account yet of how needle exchange can be derailed by counterproductive restrictions and a bleak, risk-generating environment. The situation was (and remains) extreme, but elements will be familiar to workers in other countries: frequent compulsive cocaine injecting; highly damaged consumers; inadequate treatment provision; and desperately poor housing and welfare services. What happened there may be happening or about to happen in cities which, as Vancouver did, feel they have injection-related viral transmission under control.

Vancouver's main needle exchange operated from a fixed site in Downtown Eastside, the city's drug injecting area and one of the poorest districts in Canada. The office closed at 8 pm and vans operated from one o'clock in the morning until after it re-opened at 8 am (Brooks, 1998; Downtown Eastside Youth Activities Society,

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2002). In 1997, the programme exchanged over 2.5 million needles. Though exceptions were made (Spittal *et al.*, 2004) exchange was usually on a one-for-one basis and during the relevant periods there were limits to the amount which could be exchanged at any one time (Schechter *et al.*, 1999). Most of the catchment population mainly injected cocaine (Strathdee *et al.*, 1997a). In the same district, from May 1996 the Vancouver Injection Drug User Study started to investigate the HIV outbreak. Their earliest finding (of which more below) was that attending the exchange was associated with a much *higher* risk of HIV infection. Later the project set out to discover if this also applied to hepatitis C.

Hepatitis C Spreading Rapidly

From 1996 the study recruited injectors who were interviewed and tested for HIV and hepatitis C and then re-contacted every six months to undergo the same investigations (Schechter, 1999). By late 1999, 1345 had been interviewed of whom initially over 8 in 10 were infected with hepatitis C and a fifth with HIV. Of the 247 negative for hepatitis C, 155 returned to be re-tested; 62 – exactly 4 in 10 – had become newly infected over on average 16 months; 93 had so far avoided it (Patrick *et al.*, 2001). The risk profiles of the two groups were compared to find clues to why one had become infected and the other not. Over the previous six months,² behaviours significantly related to becoming infected included prostitution and having multiple sexual partners, borrowing or lending needles, injecting at least daily, injecting cocaine or cocaine/heroin “speedballs”, and having recently been in addiction treatment other than on a methadone programme. Disturbingly, infection was also more common in injectors who had attended a needle exchange at least once a week: over half had become newly infected but only a quarter of the less frequent attenders.

Some of these behaviours may have been linked to infection simply because they were associated with other behaviours. For example, non-methadone treatment was unlikely to have actually *caused* infection. Probably it was just that frequent cocaine injectors were more likely to enter this kind of treatment *and* more likely to become infected. The same might be true of weekly needle exchange attendance. But even after taking other factors into account, frequent attenders remained two to three times more likely to become infected.

Was it the Magnet Effect?

Still the researchers cautioned against concluding that frequent attendance actually *caused* more infections. Studies have consistently found that higher risk injectors are drawn to needle exchanges, creating the illusion that attending the exchange actually elevated risk – the “magnet effect” (Ashton, 2003). The same was true of HIV in Vancouver and perhaps it was too of hepatitis C (Schechter *et al.*, 1999). However, for HIV, once the risk factors the study was able to measure had been taken into account, there was no case left for needle exchange to answer; in the case of hepatitis C, excess risk remained substantial and statistically significant.

²Before the positive test or the equivalent period for injectors who remained uninfected.

Still there remained the possibility that a basket of *unmeasured* or imperfectly measured risk factors for hepatitis C were more common in frequent attenders. In Vancouver, some of these unmeasured behaviours – such as sharing filters, spoons and water – would not have greatly increased the risk of becoming infected with HIV but might have for hepatitis C, helping to explain the inconsistency in the findings. Others behaviours were only taken into account using broad yes/no categories. For example, injection frequency was divided into either injecting at least once a day or not, yet *very* frequent injectors were far more likely to regularly attend the city's exchanges and probably also more likely to become infected (Schechter *et al.*, 1999). Men who injected cocaine at least four times a day were four times more likely to be weekly attenders. Women who injected anything at least four times a day were six times more likely; if they injected in shooting galleries, 12 times more likely, and if they raised money through crime, three times (Archibald *et al.*, 1998). Such behaviour is a marker of a highly risky lifestyle which could not fully be captured by the hepatitis C analysis. Another report directly confirmed that injectors who primarily sourced equipment from the exchange engaged more often in risky behaviours than pharmacy users (Miller *et al.*, 2002). The likelihood was that – rather than frequenting the needle exchange – it was this inadequately measured risk which elevated the incidence of hepatitis C infection.

HIV too Continues to Spread

Vancouver's hepatitis C study was a continuation of the study which documented a similar picture with respect to HIV. The first HIV report was based on over 1000 injectors contacted up to February 1997 (Strathdee *et al.*, 1997a). All else being equal, it found that attending an exchange more than once a week over the last six months was associated with being HIV positive. Though statistically significant, the association was not strong and infection might have occurred well before Vancouver's exchanges had opened. Moreover, in statistically evening out variables other than needle exchange attendance the analysis may have also eliminated some of the mechanisms through which exchanges achieve HIV prevention (Bruneau *et al.*, 1997). Less easy to dismiss was the finding that 23 of the 24 injectors who had *become* HIV positive during the first six months of the study had during that time used exchanges as their main source of injecting equipment. Generally they had no difficulty accessing syringes, yet 17 had shared with other people. Despite the storm these findings provoked, without a comparison group the study could not prove that needle exchange was the culprit: perhaps a similar group who had not attended needle exchanges would have shared just as much or more, and have become infected even sooner (Kim, 1997).

A later report taking in admissions to the study up to April 1988 confirmed what was hinted at in the earlier findings; that needle exchange looked like an HIV risk factor because infection-prone injectors regularly sourced their equipment from the exchange – the “magnet effect” (Schechter *et al.*, 1999). Risk factors assessed at the injectors' first interviews were used to predict how many would go on to become infected. New infections were linked to unstable housing, occupying hotel rooms in the deprived district which hosted the exchange, injecting cocaine four or more times a day, and needing help from others to inject. Once these had been taken into account, infections were no more likely to occur in frequent than infrequent attenders. The

impression that needle exchanges elevated risk arose because most of the real risk factors were found in greater abundance among regular attenders.

Years earlier a different kind of study had reached a similar conclusion. In 1995, Vancouver injectors who had undergone two HIV tests within 18 months were interviewed to assess differences during that period between the 192 who remained free of HIV, and the 89 who became HIV positive (Patrick *et al.*, 1997). Again, exchange attendance was implicated. Attendance at least weekly was more common in the injectors who became infected while proportionately twice as many who avoided HIV infection rarely visited an exchange. But after other risk factors had been taken into account, exchange attendance dropped out of the risk profile. Among those left in were borrowing syringes, unstable housing, and injecting four or more times a day.

It was, however, cold comfort that the Vancouver exchange did not increase the already high risk of HIV and hepatitis C infection among its users. Neither did attending the exchange at least once a week do anything noticeable to prevent this risk continuing and culminating in infection. Each year nearly 12% of frequent attenders became HIV positive and about 40% became newly infected with hepatitis C, 4 in 10 had recently injected in shooting galleries, and the same proportion had re-used someone else's needle (Strathdee *et al.*, 1997a; Schechter *et al.*, 1999). Over the course of attending, their risk profile changed relatively little, and not in ways which could be attributed to the influence of the exchange.

WHY DID VANCOUVER'S EXCHANGES FAIL TO PREVENT THE EPIDEMICS?

Why Vancouver's syringe exchange programmes seemed to have little if any impact on the HIV and hepatitis C epidemics is one of the most contested topics in the addictions field (Kim, 1997). One possible explanation can be discounted. Local sharing networks were fluid and new sharing partners were commonly acquired – but not by meeting at the exchange (Schechter *et al.*, 1999). Another plausible possibility is that by relieving the pressure on local pharmacies the exchange made itself look ineffective when its customers were compared with injectors who relied on pharmacy sales. Without exchanges, heavy cocaine injectors (not universally welcome in retail premises) may not have been willing or able to pay for their supplies from pharmacies, and the pharmacists may not have been willing to serve them, leading to a resurgence in sharing.

Another possible explanation is that negative findings were an artifact of the methodology of the studies. Few of Downtown Eastside's injectors were absolute non-attenders, so in all three major reports the comparisons were essentially between frequent and less frequent attenders. These groups differed by definition in how often they used the exchange, but not necessarily in how adequately it met their needs for injecting equipment, a consideration which may be more important than attendance (Guydish, 1998). Infrequent attenders probably collected relatively few needles and syringes a week,³ but they also needed fewer. They were much less likely to inject four or more times

³Because there were limits on how many could be collected at each visit.

a day or to inject at least daily and more likely to turn to pharmacies to top up their supplies (Schechter *et al.*, 1999). If anything, it was the weekly attenders who more often experienced difficulty in obtaining sterile syringes (Archibald *et al.*, 1998; Wood *et al.*, 2002a). Equality of supply in relation to need may have also equalised risk.

Inadequate Distribution Part of the Reason

Equality of risk among frequent and infrequent attenders is, of course, nothing to applaud when for both risk remained extraordinarily high. Though prolific by North American standards, the probability was that the exchange was not prolific enough. It handed out two million needle/syringe sets a year but up to ten million were needed to give each injector a fresh set each time (Strathdee *et al.*, 1997a). Frequent injecting aggravated distribution shortfalls, greatly heightening the chances that exchange users would share needles and syringes.

Injecting cocaine at least daily and “bingeing” (a run of very frequent injections) were both linked to the experience of difficulty in obtaining sterile syringes (Wood *et al.*, 2002a) reported by a fifth or more of local injectors (Strathdee *et al.*, 1997a; Wood *et al.*, 2001a, 2002a). This experience was in turn linked to a threefold increase in the chances of sharing needles or syringes (Wood *et al.*, 2002b). Each injector typically re-used their own needles three times (Strathdee *et al.*, 1997a) – in some samples four to five times (Schechter *et al.*, 1999). The more they had to do this, the more often they shared with other people, reinforcing the theory that inadequate supplies led to sharing. The upshot was that injecting either cocaine or heroin at least daily was associated with a higher likelihood of sharing needles or syringes (Wood *et al.*, 2001a). Specifically, using needles after other people was three times more likely in people who injected over four times a day (Strathdee *et al.*, 1997b).

Limits on supplies and one-for-one exchange could not have helped. During the period of the major studies the exchange handed out on average just six syringes/needles at each visit (Perlman, 1996; Bailey, 1999). On a conservative estimate of injecting frequency (Strathdee *et al.*, 1997a) the average customer would have needed to visit three times a week. A third of the exchange’s users injected four or more times a day (Schechter *et al.*, 1999) and a quarter more than six (Strathdee *et al.*, 1997a). They would have needed about 50 sets a week, normally available only by visiting the office with a large quantity of used sets to exchange (Brooks, 1998), not something most injectors would wish to contemplate (Balian, 1998). The disincentive was clear in a study which reported that over two-thirds of a sample of Vancouver injectors had had needles confiscated, usually by police (Strathdee *et al.*, 1997b). There was also a tendency for users who needed the most supplies (frequent cocaine injectors) to source them from the vans, the arm of the service least able to supply them. Customers who relied mainly on the vans found greater difficulty meeting their needs (Miller *et al.*, 2002). Asked why they had difficulty getting supplies, injectors interviewed in 2000–2001 blamed the office being closed or having missed the exchange van, which spent a limited time in each location (Wood *et al.*, 2002a).

But for some customers the vans may have been preferable to the office where they feared police surveillance. The police presence had been stepped up in response to the area’s drug problem and personal experience of this affecting drug supplies was linked to a near doubling of the odds of someone sharing needles (Wood *et al.*, 2001a).

The mechanism behind this link is unclear. Most likely the same police pressure which affected drug sourcing also led to fears of needles being confiscated (Strathdee *et al.*, 1997b) and of police surveillance of the exchange, deterring injectors from attending and leading to shortage of supplies.

Important as it was, inadequate distribution of injecting equipment was not the whole story. Difficulty in getting supplies was aggravated by injecting cocaine daily or “bingeing”, but these also made their own independent contribution to needle sharing (Wood *et al.*, 2001b, 2002b). Also, 1 in 5 local injectors shared needles even when they reported no problems getting fresh supplies (Wood *et al.*, 2001a).

Risk-Generating Environment

Vancouver’s needle exchange services failed to stop the epidemics not just because their operations were highly restricted, but also because the services they did provide were no match for the risks generated by troubled customers poorly served by welfare, housing and economic systems.

Some of the factors which seemed to underlie continued resort to other people’s injecting equipment were personal: sexual relationships (for women, living with a man who injected; for men, lifestyles associated with being gay); a history of sexual abuse; despair sufficient to trigger suicide attempts; depression. Such backgrounds were common among the exchange’s customer base (Patrick *et al.*, 1997; Strathdee *et al.*, 1997a, 1997b; Archibald *et al.*, 1998; Wood *et al.*, 2001a). This troubled population could not have been helped by depressing living conditions and unenviable lifestyles. Three quarters had been in prison (Patrick *et al.*, 2001). Over a third were engaged in revenue-raising crime and a quarter in prostitution (Strathdee *et al.*, 1997a; Schechter *et al.*, 1999). Three quarters of the women had accepted money for sex. Exchange attenders were generally poorly educated (Wood *et al.*, 2001a) and very poorly housed, mostly in “welfare” hotels. In extricating themselves from a drug-centred lifestyle, a third faced the added obstacle of a sexual relationship with another injector.

Poor living conditions were related to the loss of affordable and social housing in the city (Schechter *et al.*, 1999). In the small Downtown area, thousands of relatively cheap, single-occupancy hotel rooms, typically ten feet square, filled the gap, a sink into which the city’s poor single population descended – in the words of the city’s housing centre director, “people who have few other choices” (Director of the Housing Centre, 2001a). In 1994, the year the HIV epidemic took off, into this environment came an upsurge in cocaine injection (Schechter *et al.*, 1999). Local drug users often injected it several times a day for days at a time (Perlman, 1996; Wood *et al.*, 2002a), an experience likely to aggravate psychological problems and to impede rational decision-making. Not surprisingly, the cocaine roller coaster was associated with high-risk sharing (Wood *et al.*, 2002b).

A peculiarity of the area’s housing set the seal on the epidemics. Commonly hotel managers locked buildings at night and charged for re-entry, encouraging residents to stay in their rooms. Communal binge injecting developed, especially on the days when the injectors (the same day for them all) received their welfare cheques (Heimer, 1998), turning the tiny rooms into ad-hoc shooting galleries (Patrick *et al.*, 1997). Sterile needle/syringe stocks would have become rapidly depleted at a time when obtaining fresh supplies was obstructed (Heimer, 1998; Schechter *et al.*, 1999). In any event, often the only source would have been the exchange vans, whose schedules may not have

coincided with need, and which would not normally have dispensed enough equipment to keep the “party” going safely. Ill-furnished rooms with no bathrooms and often no cooking facilities (Director of the Housing Centre, 2001a) made adequate injecting hygiene difficult. Augmented by the effects of the drugs, they would also have lent themselves to confusion over whose syringe was whose (Balian, 1998).

If at night the buildings were locked-in concentrations of injectors sharing lives, drugs and injecting equipment, so too was Downtown as a whole, hemmed in by adjacent gentrification whose property owners generated “pressure which ensures a gradient of police enforcement” (Harvey *et al.*, 1998). Stepping out of their ghetto, Eastside injectors would receive unwelcome attention from officers primed to keep these more upmarket streets “clean”. Joining this cleaner society was prohibited by housing costs. In contrast, movement in to Eastside was encouraged by low rents which attracted new arrivals to the city. Without these the epidemics might have reached saturation point, but the newcomers provided a steady supply of hosts to infect (Patrick *et al.*, 1997). Supported housing for substance misusers and replacing single-occupancy hotel accommodation with low-cost social housing are now firmly on Vancouver city council’s agenda. Progress is being made, but slowly and resources remain tight (Director of the Housing Centre, 2001a, 2001b).

Limited Access to Treatment

Recurrent themes in the Vancouver reports are the need to connect the city’s injectors to addiction treatment and the failure to do so (Archibald *et al.*, 1998). Though treatment entry was an ambition, the area’s main needle exchange soon found itself stymied by two-month waiting lists and by the lack of programmes suitable for young people or for cocaine users (Bardsley *et al.*, 1990). Ten years later the area’s “woefully inadequate” (Schechter *et al.*, 1999) access to treatment had improved little (Brooks, 1998). Even in 2002 a six-bed unit remained the only adequately resourced means to perform the crucial first step of removing addicts from the destructive Downtown environment (De Vlaming, 2001).

But even if there had been a cocaine clinic on every corner, the exchange may not have fully exploited them. Its management and the city’s health funders saw its role as expediting “requests” for intervention, not prompting them (Bardsley *et al.*, 1990). In 1998, the local health board described needle exchange as “an opportunity to . . . make health staff more accessible when a client is ready for healthier lifestyle changes” (Brooks, 1998). While waiting for this change of heart, injectors became infected with life-threatening diseases. In retrospect it seems clear that depressed, mentally ill, young, self-destructive cocaine addicts, trapped in a destructive environment, were in no position to bootstrap themselves out of their situation.

At first the exchange referred only a tiny minority of its customers either to addiction treatment or to the medical assistance many badly needed (Bardsley *et al.*, 1990). Later exchange staff made 38,000 referrals a year (Bailey, 1999) but only a very small proportion could have turned up or the relevant services would have been seeing thousands, not hundreds (De Vlaming, 2001) of clients. Relatively few addicts, and dependent cocaine users in particular (Stark *et al.*, 1990; Stark, 1992; Festinger, 2002), follow through on referral unless access to treatment is rapid and easy; in Vancouver, it was neither. In the absence of immediate access addicts may need to be supported and shepherded to the door (Bokos *et al.*, 1992; Lidz *et al.*, 1992; Donovan, 2001), a function the

exchange was not resourced for and may not have seen as its role. Injectors who knew they were infected with HIV were half as likely to share syringes or needles (Wood *et al.*, 2001a) but, despite making referrals, the exchange also led few injectors to seek an HIV test.

Risk Reduction Effort Limited

To a degree the exchange's hands were tied by externally imposed funding constraints and restrictions which left it unable to meet its customers' needs. But it also tied its own hands by adhering to a philosophy ill-suited to a situation which cried out for energetic intervention. When it came to encouraging risk-reduction, the emphasis was on gaining trust and attracting customers by being "accepting" and "non-intrusive" and by creating a "milieu in which the [injector] can feel free to function as he would" (Bardsley *et al.*, 1990). No questions were asked beyond the basics needed to monitor attendance. Customers would, it was hoped, respond by becoming more responsible in their drug use. Research reviewed above suggests that "responsibility" was unachievable by this subtle route. Very soon, even if the exchange had wanted to do more, it would have been held back by the conjunction of escalating numbers and resource constraints. So well did it attract and retain injectors that demand quickly outstripped initial projections by more than tenfold. Budgets and staff were stretched, precluding extended relationship-building and exploration of concerns and needs. Observers described needle exchange contacts as "cursory and on-the-run" (Kerr *et al.*, 2001). Though their users were the most problematic seen by the service, the vans were particularly badly placed to respond. Drivers spent barely more than a minute with each contact in an exchange centring on the negotiation of the one-for-one rule preceded by a brief greeting and ending in a well-meaning (but clearly often ineffective) injunction not to share (Perlman, 1996). Lack of resources was in turn associated with local opposition to the exchange (Wood *et al.*, 2002a), making it hard to gain political support. Budget restrictions and the community's unwillingness to countenance late-night concentrations of injectors at the exchange site mandated limited opening hours, which contributed to difficulty in accessing equipment, encouraged sharing, and led to the spread of infection. Budget restrictions also led to cutbacks in the mobile service with similar implications. Limits on supplies per visit, again partly due to funding constraints (Schechter *et al.*, 1999), must have made it harder to meet the needs of the most frequent injectors and prevented customers passing on sterile syringes to their contacts (Archibald *et al.*, 1998).

To deflect local hostility (of which it was acutely aware; Bardsley *et al.*, 1990) the exchange actively chose to offer a restricted service. A "constant concern" was that customers would collect sterile equipment for re-sale (ironically, if they had this might have helped reduce disease spread), so at first usually just two syringes and needles were handed out at each visit. The limit was later raised but not abandoned for many years (Schechter *et al.*, 1999). The one-for-one rule was at first flexibly implemented but later hardened, partly due to community concerns about syringes and needles being left in public spaces (Brooks, 1998). There was also concern that supplying free needles would encourage more frequent injecting. As often the case even in Britain, the exchange was pressured into operating on the basis of "worst case scenarios" (Camp, 2002).

FORSIGHT AND HINDSIGHT: LESSONS LEARNT

In defence against accusations that they did not react quickly enough to the cocaine-fuelled epidemics, Vancouver's exchanges and the city's authorities could cite the well known virtues of hindsight. Yet lessons learnt only after the epidemics had taken hold could have been anticipated by talking in depth to a few representative local injectors. This is precisely what researchers from the Vancouver Injection Drug User Study did in preparation for their studies (Harvey *et al.*, 1998). The 16 injectors they interviewed spoke of how the urgent desire to inject (usually cocaine) and a negligent attitude to one's health meant that sterile supplies not immediately to hand would be ignored in favour of sharing, re-using, or even picking up equipment discarded in the street. Periods of bingeing were described as particularly inimical to sensible decision-making. Many mentioned police confiscation or destruction of needles and syringes. Stimulant-driven hyperactivity led different people's equipment to get confused, a reference to the group injecting scenario later seen as the key to infection spread. Past and present abuse and trauma were common and racism and the stigma of addiction and AIDS were seen as contributors to addiction, as were the experience of homelessness and living in "welfare hotels".

In sum, these injectors were oppressed, depressed, fatalistic and trapped in a dispiriting environment. They were not well placed to value their own lives and health sufficiently to prioritise these over immediate relief and lacked the material and social supports to actualise health improvement. All else being equal, they would have used sterile equipment, but it didn't take much of a departure from "equality" for the balance to be tipped towards more accessible if potentially contaminated equipment. High-volume, high convenience, right-time, right-place supplies flooding rather than trickling into their hotel rooms and alleyways might have made a difference, and beyond this a concerted attempt to clean up the area, improve the housing and to address medical, psychiatric, welfare and addiction treatment needs. Two at a time one-for-one exchange completed in a minute or two was never going to be enough.

Much More Needed

Experience in Vancouver led disease control experts to call for programmes which went well beyond the addiction field to deal with the acute housing problems and poverty (Patrick *et al.*, 1997) which then and now made Downtown Eastside the drugs equivalent of Skid Row (Stimson, 2002; Girard, 2003). It was argued that local needle exchanges should diversify into one-stop welfare centres connecting customers with medical and social care and addiction treatment, and should also directly tackle high-risk behaviour not affected simply by needle exchange (Archibald *et al.*, 1998).

The exchange function itself also needed to diversify to more times and places to match syringe distribution channels to local injectors' lifestyles and to take account of the constraints placed on them by housing and socioeconomic conditions. To an extent, this is what happened (Brooks, 1998). Many of the now diverse set of exchanges servicing Downtown Eastside do not adhere to rigid exchange rules and hand out large quantities of needles and syringes with saturation as the goal (Egan, 2003). The fact that group injecting was a feature of the area and a focus for disease spread also provided an ideal opportunity to recruit injectors themselves to distribute sterile needles and syringes, a role which would have extended the reach of the needle exchange into

times and places – especially the hotel rooms – where the service was not directly available (Archibald *et al.*, 1998; Schechter *et al.*, 1999). Of course, this would have necessitated a lifting of the limits on supplies. Another option was to make the service directly available in hotel rooms and a start was made in 1995, but four years later it was still “far from complete”.

Given the limitations of needle exchange in this environment, local infection control experts argued for supervised injection rooms (Kerr *et al.*, 2001; Wood *et al.*, 2001a). In these they saw Vancouver’s addicts being able to receive not just needle exchange but also counselling, medical care, drug treatment and practical services such as showers and laundry. Crucially these would be provided at the same site and in an environment which promoted sustained contact between staff and users. Despite political opposition, on 21 September 2003 Canada’s first safe injection facility opened in Downtown and rapidly attracted a clientele estimated at nearly half the area’s injectors (Ramsey, 2003).

Another important influence on Vancouver’s future is likely to be its hosting of the 2010 Olympic and Paralympic Winter Games (Vancouver City Council, 2004). The plans envisage major developments near Downtown Eastside, in particular the athletes’ village. Pressure to clean up the area for the visitors could conceivably include positive developments such as improved access to addiction treatment and decent low-cost housing, or it may mean efforts to clear drug users from the city or sweep them into prison for the duration. A hike in hotel charges may do the job for the city, forcing its poor single population to look elsewhere for accommodation.

VANCOUVER IS NOT ALONE

Vancouver’s unconvincing record may not be typical but neither is it an isolated example. The review on which this article was based included six other case studies (Ashton, 2003). Only in Tacoma in the USA did research show that the exchange not only curbed the spread of HIV and hepatitis B but also hepatitis C. There the service was legal, well organised, comprehensive and active, and there were few other anti-infection services or legal needle/syringe suppliers to muddy the waters. Like Vancouver, Montreal seemed an example of what can go wrong when equipment supplies are limited and the trickle allowed out from an exchange fed rather than flooded high-risk sharing networks. Particularly intriguing was the example of Amsterdam, the cradle of needle exchange. Its extensive “low threshold” provision left hepatitis C spreading rapidly and beyond the early years any beneficial impacts on HIV infection or on risk behaviour were hard to pin down. As in Vancouver, probably influential was the diluting effect of easy access to legal syringes and needles from other sources and the non-interventionist style of the exchanges. In contrast, the study which threw up these results was distinctly interventionist. Its interviews were effectively a thorough risk assessment coupled with HIV testing and counselling. Going through these repeatedly did seem to reduce both the lending and borrowing of used needles and syringes. Moving out from the case studies to less well documented services or less directly relevant studies, the picture is the same. Across the world, despite needle exchange services, a residue of needle and syringe sharing and more frequent sharing of other equipment form perfectly adequate transmission routes for viruses such as hepatitis C which are prevalent in the injecting population (Chetwynd *et al.*, 1995; Bluthenthal *et al.*, 1998; Robles *et al.*, 1998; MacDonald *et al.*, 2000;

Thorpe, 2000; Smyth *et al.*, 2001; Valenciano *et al.*, 2001). Progress has been impeded by the strength of the sharing relationships that have survived anti-HIV messages (Klee *et al.*, 1995; Stimson, 1995; Koester, 1996; Power, 1996; Wiebel, 1996; Smyth *et al.*, 2001), by poor housing, social and economic environments which thwart health promoting behaviour (Franken *et al.*, 1997; Paone *et al.*, 1997; Patrick *et al.*, 1997; Des Jarlais, 1998; Schechter *et al.*, 1999; Aitken *et al.*, 2002), and by the transmissibility of the hepatitis C virus. Vancouver and Montreal are examples of how an upsurge in cocaine injecting can create epidemics out of these fragile situations. But even in a relatively conducive environment, simply opening a service which offers to exchange new needles and syringes for old does not automatically reduce injecting risk behaviour or eliminate the potential for epidemic viral spread (Stimson *et al.*, 1996; Elliott, 1998): it all depends on the volume and nature of the service.

More Not Less

Far from casting doubts on the value of needle exchange, the overriding conclusion from this evidence is that we need far *more* exchange and far more support for this work. Further progress in reducing the spread of infectious diseases will require greater and more widespread provision and a determined strategic focus on eliminating risk behaviour. In this effort, exchanges will be pivotal. Where there are shortcomings, often the problem is not with needle exchange as such, but with the underresourcing, underdevelopment and marginalisation of this work which creates the conditions for failure. Uniquely, exchanges based in drug agencies or run as standalone services have the potential to reach large numbers of high-risk injectors in a situation where their injecting behaviour can be openly acknowledged and responded to by knowledgeable and trusted staff with the time, privacy and space for discussion and intervention (Ball, 1997; Griffith *et al.*, undated). More resources and greater support could also pave the way for a proactive working style which maximises the opportunities for intervention. The Vancouver model of a transitory interaction in the street or a hands-off exchange in the office may still be a choice made by the customer, but should not be one forced on them by under-resourcing or misplaced reticence on the part of services. Instead exchanges are often reluctantly accepted by local communities and under constant hostile surveillance, forcing a defensive posture which prioritises the avoidance of nuisance and risk to *non-drug* users. One needle stick injury to a local resident or a needle found by a child (Körner and Trelaor, 2004) may be all it takes to close a service or to force it to make unrealistic demands on its customers, potentially at the cost of many drug injectors' lives. Policies which restrict their operation and provide poor access to support services give exchanges little chance to prove their worth (Bastos *et al.*, 2002), creating a self-fulfilling prophecy.

Progress will be greatest when the retail transaction model of needle exchange is replaced by one in which injectors use exchanges to achieve health promotion objectives through change rooted in and supported by their own social networks (Dolan *et al.*, 1992; Stimson, 1995; Latkin, 1998; Neaigus, 1998; Sergeev *et al.*, 1999; Preston *et al.*, 2001; Jose *et al.*, undated). In this endeavour, even more so than in their conventional role, exchanges will find themselves working against the grain of societies which see communities of injectors as targets to be shunned or attacked rather than nurtured and engaged as partners in achieving health gains.

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