

## Chapter 11

# Drug consumption facilities in Europe and beyond

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### Abstract

Drug consumption rooms (DCRs) are professionally supervised healthcare facilities where drug users can use drugs in safer and more hygienic conditions. Since 1986, more than 90 DCRs have been set up in Switzerland, the Netherlands, Germany, Spain, Luxembourg, Norway, Canada and Australia. Consumption rooms aim to establish contact with difficult-to-reach populations of drug users, provide an environment for more hygienic drug use, reduce morbidity and mortality risks associated with drug use — in particular street-based drug injecting — and promote drug users' access to other social, health and drug treatment services. They also aim to reduce public drug use and improve public amenity near urban drug markets. At times, their establishment has been controversial due to concerns that they may encourage drug use, delay treatment entry or aggravate problems of local drug markets. As with evaluations of other public health interventions, research on DCRs faces methodological challenges in taking account of the effects of broader local policy or ecological changes. Despite these limitations, research shows that the facilities reach their target population and provide immediate improvements through better hygiene and safety conditions for injectors. At the same time, the availability of safer injecting facilities does not increase levels of drug use or risky patterns of consumption, nor does it result in higher rates of local drug acquisition crime. There is consistent evidence that DCR use is associated with self-reported reductions in injecting risk behaviour such as syringe sharing, and in public drug use. Due to a lack of studies, as well as methodological problems such as isolating the effect from other interventions or low coverage of the risk population, evidence regarding DCRs — while encouraging — is insufficient for drawing conclusions with regard to their effectiveness in reducing HIV or hepatitis C virus (HCV) incidence. However, use of the facilities is associated with increased uptake of detoxification and treatment services. While there is suggestive evidence from modelling studies that they may contribute to reducing drug-related deaths at a city level where coverage is adequate, the review-level evidence of this effect is still insufficient. Taken in sum, the available evidence does not support the main concerns raised about this kind of intervention and points to generally positive impacts in terms of increasing drug users' access to health and social care, and reducing public drug use and associated nuisance.

**Keywords:** injecting drug use, drug consumption rooms, safer injecting facilities, open drug scenes, public nuisance, Europe.

## Introduction

Drug consumption rooms (DCRs), also called safer injecting facilities, are professionally supervised healthcare facilities providing safer and more hygienic conditions for drug users to take drugs (Stöver, 2000). They comprise highly targeted services within wider networks of drug services. While they often operate from separate areas located in existing facilities for drug users or the homeless, some operate as stand-alone facilities.

DCRs arose in specific local contexts in response to problems posed by public drug use, especially by drug injecting in streets, railway stations or staircases of residential buildings, that persisted despite the availability of a variety of drug treatment, harm reduction and social services, and despite law enforcement efforts to disperse or contain public drug use. The rationale for the establishment of DCRs was to address public health and community problems associated with specific populations of drug users, especially injectors who consume in public or other high-risk situations.

These groups have important unmet healthcare needs and contribute to public order problems within local communities. A relationship between public injecting, elevated risk of viral infections and socio-economic deprivation, especially precarious housing or homelessness, has been long established by epidemiological research (for example, Latkin et al., 1994; Klee and Morris, 1995; Galea and Vlahov, 2002; Navarro and Leonard, 2004; Corneil et al., 2006). Risk factors exogenous to the individual, including multiple interacting physical, social and economic and policy factors, have been identified as constituting a broader 'risk environment' affecting the health of injection drug users (Rhodes, 2002; Rhodes et al., 2003). Qualitative research has shown that public injecting is associated with reduced options to maintain safety and hygiene, often related to an individual's fear of interruption, feelings of shame and hasty injection (Small et al., 2007; Rhodes et al., 2007).

DCRs aim to reduce high-risk and public drug use and to improve public amenity near urban drug markets, by providing a hygienic and regulated environment for drug use off the streets. They aim to create an acceptable situation for the public with regard to order and safety concerns that arise from open drug scenes. As pragmatic 'safer injecting environment' interventions, DCRs aim to minimise the likelihood of police and public interference and enable individual and community risk reduction practices to occur (Rhodes et al., 2006).

They further aim to reduce risk behaviour and improve health and social integration by: providing clean injecting equipment (needles, syringes, spoons, filters, wipes), good light, clean surfaces and sharps disposal; facilitating individually tailored health education, and promoting access to healthcare and drug treatment. House rules prohibit violent and threatening behaviour, alcohol use at the premises, drug dealing and the sharing of drugs and any injecting equipment, and define requirements regarding hygiene and injecting behaviour. Staff are trained to provide assistance and emergency care in cases of overdose

or other adverse events but do not assist clients to inject (see Dolan et al., 2000; Kimber et al., 2005; Hedrich, 2004).

The first legally sanctioned DCR was established in Berne, Switzerland in 1986 (Hämmig, 1992). During the 1990s DCRs were set up in other Swiss cities, the Netherlands and Germany; and from 2000 they were set up in Spain, Norway, Luxembourg, Australia (Sydney) and Canada (Vancouver) (Stöver, 1991; Klee, 1991; Eastus, 2000; Zurhold et al., 2001; Parliament of New South Wales, 1998; Health Canada, 2002). By the beginning of 2009 there were 92 operational DCRs in 61 cities, including in 16 cities in Germany, 30 cities in the Netherlands and 8 cities in Switzerland.

In Europe, most DCRs are integrated components of local service networks offering a range of social and health services. In Norway, and in Sydney and Vancouver, they are scientific pilot projects, operating under legal exemptions, which focus on supervising drug consumption and providing referral to other services (MSIC Evaluation Committee, 2001; van Beek, 2003; Wood et al., 2003; Skretting and Olsen, 2008). While most target drug injectors, some cater for heroin and crack smokers (Willen, 2002; Spreyermann and Willen, 2003; Simmedinger and Vogt, 2008). In all cases, the drugs used are pre-obtained and prepared by the clients.

With objectives in public health and public order, DCRs operate within a triangle of individual and public health interests and the public order interests of local communities (Stöver, 2002). More than many other public services, they rely on acceptance by a wide range of key actors: drug users, communities, other health and social agencies, police and politicians.

The establishment of drug consumption rooms has led to some controversy and disagreement between the International Narcotics Control Board (INCB) and some UN Member States. This has centred on the interpretation of the international Drug Conventions, in particular in relation to the basic provision of the Conventions obliging States to limit the use of narcotic drugs strictly to medical and scientific purposes (INCB, 2008, p. 111).

This chapter does not address this debate; nor does it comment on the position of consumption rooms in respect of international drug control treaties. Its purpose is to summarise available evidence on the processes, outcomes and risks of DCRs, and also to identify key challenges for their development as mechanisms of harm reduction. Our review is structured according to the objectives of DCRs, as outlined in Table 11.1. The balance of priorities attributed to DCRs varies, with some placing greater emphasis on health goals, and others on public order. The main concerns expressed regarding the establishment of DCRs is that such facilities may promote initiation to drug injecting, conflict with treatment goals by encouraging users to continue injecting rather than enter treatment, and increase local drug dealing and drug-related crime by attracting users from other areas.

Table 11.1: Aims and objectives of drug consumption rooms

Aims	Outcome objectives	Indicators
1. Provide an environment for safer drug use	a) Reach and be accepted by target groups	Client profiles, service use patterns, client satisfaction
	b) Gain acceptability	Responses of local residents, businesses, police, politicians
	c) Establish conditions for safe, hygienic use	Various process indicators
2. Improve health status of target group	a) Improve risk-related behaviours	Street drug use, risk awareness, injection hygiene, borrowing/lending
	b) Reduce morbidity	Injection injuries, infectious disease transmission
	c) Reduce mortality	Overdose outcomes
	d) Improve access to healthcare and drug treatment	Treatment referral/uptake
3. Reduce public disorder	a) Reduce public drug use	Self-reported rates of public injecting, ethnographic observations of the burden of public injecting
	b) Improve public perceptions	Perceived nuisance, discarded syringes
	c) No increases in local drug-related crime	Crime statistics

## Methods

Experimental study designs, and in particular the randomised controlled trial, are considered the gold standard for the generation of scientific level-1 evidence about the effects of treatments (Ashcroft et al., 1997). Maher and Salmon (2007) discuss this imperative with regard to the evaluation of the outcomes of DCRs, and conclude that ‘the scientific, practical and ethical issues involved in applying this methodology to evaluating [such] complex public health interventions (...) mean that the likelihood of obtaining this level of evidence is negligible’ (Maher and Salmon, 2007, p. 351f). To inform public health decision-making, the authors recommend the use of prospective observational studies (level 2 evidence) as a feasible alternative (Maher and Salmon, 2007).

There have been relatively few rigorous evaluations of DCRs, with evidence reviews relying primarily on analyses of descriptive data, cross-sectional survey data, and ecological indicators from a larger number of less sophisticated studies. This is especially the case in Europe, where DCRs emerged as a local service response with questions of evaluation arising subsequently. However, the Sydney and Vancouver facilities were established as scientific pilot studies, and thus incorporated more rigorous research designs (see below). The Vancouver study is so far the only DCR evaluation to have used an elaborate prospective cohort-based design (Wood et al., 2004a; Wood et al., 2006b).

As with any health service evaluation, a key methodological challenge is to establish causality. It is difficult to attribute observed effects to DCRs since: (a) most users use these facilities only for some consumption episodes and may otherwise continue to engage in risk behaviour (Dubois-Arber et al., 2008a); and (b) other factors (typically unmeasured) in the local environment influence levels of risk behaviour and public drug use, including policy or ecological changes such as those related to availability of substitution treatment and other harm reduction services, and changes in police operations or in the drug market (Maher and Dixon, 1999; Fischer et al., 2002; Hall and Kimber, 2005). If, as in the case of evaluating syringe exchange programmes, DCRs do succeed in attracting higher risk clients, then controlling for selection bias poses a further challenge (Wood et al., 2007a; Schechter et al., 1999).

Cross-sectional studies have limitations regarding their interpretation, as they provide a 'snapshot' of the outcome and the characteristics associated with it at a specific point in time (Bland, 2001). Repeated cross-sectional studies can be useful for tracking trends over time (see an example in box on p. 317).

The level to which coverage of the most risky consumptions can be achieved plays an important role in whether any impact of DCRs can be detected at community level (Kimber et al., 2008a). For instance, in Frankfurt, in 1994 and 1995, the capacity of three DCRs with 22 places and a total of 100 coordinated opening hours per week was insufficient to cover the demand of 300 to 400 highly problematic street injectors out of an estimated population of 6 000 to 8 000 drug users (Kemmesies, 1995). From 1996, when a fourth facility provided 13 additional places, opening hours were extended to a total of 300 per week and 4 000 injections were supervised each week. It was together with other measures and interventions, including shelters, day-centres and treatment programmes, that a visible reduction of public drug use in the city was achieved (Hedrich, 2004).

Further, population HIV (and perhaps HCV) incidence rates may be too low to identify intervention effects. As a result, most outcomes can reliably only be observed at individual, rather than at population level.

## Review methods

The available evidence on DCRs was reviewed in 2004 (Hedrich, 2004), based mainly on research published during the 1990s in the languages of countries where DCRs were operating (German, Dutch, French and Spanish), and which were relatively inaccessible to the English-speaking world.

The present chapter draws on this review, on research reports resulting from the evaluations of a medically supervised injecting centre in Sydney (MSIC Evaluation Committee, 2003; NCHECR, 2005, 2006, 2007a, 2007b) and of a safer injecting facility in Vancouver (Expert Advisory Committee on Supervised Injection Site Research, 2008; BC Centre for Excellence in HIV/AIDS, 2004; Wood et al., 2006b), as well as on peer-reviewed research articles on DCR outcomes published between 2003 and 2009, and on other recent literature reviews

(Springer, 2003; Tyndall, 2003; Independent Working Group, 2006; Kerr et al., 2007a; Fischer and Allard, 2007).

Relevant English language articles were identified using Medline. Further sources, especially for the non-English scientific literature, which is under-represented in Medline, were identified by reviewing reference lists, searching by author names, or through direct contact with researchers in different countries.

Due to their scientific relevance, it is useful to note the research designs of the Sydney and Vancouver studies. The Sydney evaluation used an observational design (MSIC Evaluation Committee, 2001). The facility database provided data for process evaluation, including client utilisation, referrals, overdoses, and client and staff attitudes to the service. Serial cross-sectional studies were conducted to determine impact on individual health outcomes. Using ecological data, notifications of new infections and ambulance attendances at opioid-related overdose events were compared between the DCR locality and control localities. Recently, the Sydney evaluation incorporated a cohort-based element in its methodology, although only limited data are available from this cohort (NCHECR, 2007a; Kimber et al., 2008a).

The Vancouver evaluation used a prospective cohort design (Wood et al., 2004a). A randomly selected cohort of 1 000 users of the facility was monitored on a range of health indicators and potential impacts including risk behaviour surveys, venous blood samples to assess HIV and HCV incidence, overdose events, and health service use. For ethical reasons, participation in the research was optional, although over 95 % of those invited agreed to participate. The Vancouver evaluation's greatest strength was the existence of a community-recruited cohort of over 1 500 injectors, the Vancouver Injection Drug Users Study, which was initially recruited in 1996–97. This cohort consisted of individuals who did and did not use the safer injecting facility, and therefore allowed for control-based comparisons, as well as before and after analyses. As with the Sydney evaluation, the Vancouver design also included a facility database to track all key service events (referrals, overdose, drugs used), and data from both cohort studies were linked to a range of external databases (detoxification programme databases, hospital databases).

Both the Sydney and Vancouver research projects included local resident surveys, qualitative interviews with users, staff and key stakeholders, and standardised evaluations of public order changes (discarded syringes, perceived nuisance, and crime data).

## Feasibility

### Objective 1a: reach and be accepted by target group

In all countries, studies have shown that the profiles of clients contacted reflect the target groups and that DCRs generally succeed in attracting drug users who are at high risk of HIV infection and overdose, as well as those who are likely to inject drugs in public (Hedrich, 2004; Wood et al, 2005b; Simmedinger and Vogt, 2008; Dubois-Arber et al., 2008a, Scherbaum et al., 2009). In most of the recent studies, the majority of clients are male and

over 30 years old with long histories of drug use. According to current data from Frankfurt, 4 520 individuals used the four local DCRs at least once in 2007. These clients have an average age of 34 years and are characterised by a high level of unemployment (65 %). Many suffer from drug use-related infectious diseases (HCV: 53 %; HIV: 5.9 %). A majority of DCR clients maintain regular contact with the local drug help system, and in particular make use of low-threshold agencies (89 %), but also of outpatient drug counselling facilities (36 %). More than half of clients (55 %) report being in medical treatment, which may include opioid maintenance treatment (Simmedinger and Vogt, 2008). Similar sociodemographic data are reported on 10 514 service users registered during the first seven years of operation at the Medically Supervised Injecting Centre (MSIC) in Sydney: their average age is 33 years, 74 % of service users are men, 61 % live mainly on social welfare benefits, and 24 % are homeless (van Beek, 2007). A comparison of socio-demographic profiles of DRC users in Zürich between 1997 and 2007 shows that current user populations are on average about a decade older, have an improved housing situation (6.7 % homeless in 2007, compared to 13.8 % in 1997), and commit fewer crimes to generate income (9.4 % in 2007, compared to 30 % in 1997) (Gautschi et al., 2008).

Retention and attendance rates at the Vancouver DCR also indicate that the facility is successful in gaining acceptance by its target group and that regular users of DCRs tend to be more marginalised, with various health and social problems, such as those related to unstable housing and public injecting (Wood et al., 2005b; Wood et al., 2006a). Client surveys conducted at several facilities also show high levels of satisfaction with staff and the services provided, as well as criticism of aspects such as opening hours (Benninghoff and Dubois-Arber, 2002; Poschadel et al., 2003; NCHECR, 2005, 2007b; Petrar et al., 2007).

### **Objective 1b: gain acceptability**

Surveys and qualitative research on residents, local businesses, police and other key actors show mixed reactions to DCRs. On balance they are generally accepted by communities, albeit with reservations. Although some police tend to be more sceptical (Zurhold et al., 2003; Benninghoff et al., 2003; Zobel et al., 2003; BC Centre for Excellence in HIV/AIDS, 2004), there is also evidence that police in some settings are accepting of DCRs and actively refer drug users to them (DeBeck et al., 2008).

### **Objective 1c: establish conditions for safe, hygienic consumption**

Process evaluations indicate that DCRs provide hygienic facilities, sterile injecting equipment, professional staffing and supervision, entrance criteria, safety rules, emergency procedures, safer injecting instruction and health education (Ronco et al., 1996a, 1996b; Linssen et al., 2001; Zurhold et al., 2001; Wolf et al., 2003; and Zobel and Dubois-Arber, 2004; Kimber et al., 2005). Studies also indicate that hygiene and safety are important reasons why clients use the facilities (Poschadel et al., 2003; Benninghoff et al., 2003). Despite millions of injections occurring at DCRs over the past 20 years, there have been no reported overdose fatalities (Poschadel et al., 2003; NCHECR, 2007b; Milloy et al., 2008; Expert Advisory Committee on Supervised Injection Site Research, 2008).

The Canadian research in particular shows that concerns that DCRs delay entry into treatment or even promote drug use are not substantiated. There were no observable increases nor decreases in drug use in the community, and no measurable increases in rates of relapse into injection drug use or initiation into injection drug use (Kerr et al., 2007b), stopping injection drug use, or seeking treatment (Stoltz et al., 2007; Kerr et al., 2005, 2006a; Wood et al., 2005a). Available evidence from Sydney (MSIC Evaluation Committee, 2003; NCHECR, 2007b) and Europe (Ronco et al., 1996b; Poschadel et al., 2003; Benninghoff et al., 2003) points to the same 'neutral' effect.

There are occasional reports of users making their first injection in a DCR (Benninghoff et al., 2003; Solai et al., 2005; Kerr et al., 2007b). Whether these would have occurred in the absence of the DCR is not known.

## Conclusions on objective 1

DCRs reach and are accepted by their target populations, including marginalised street users and those at higher risk of infectious diseases or overdose (objective 1a). They are generally accepted by communities and key actors, or at least tolerated as the lesser of alternative evils (objective 1b). Further, they provide conditions, especially for regular clients, that improve hygiene and reduce exposure to health risks such as infectious diseases or overdoses (objective 1c). The risk that some users initiate injecting at DCRs is low and there is no evidence they increase levels of drug use or risky patterns of consumption. On the basis of available evidence, consumption rooms achieve their immediate objective of providing an environment away from the streets where high-risk or public drug users can consume their drugs more safely and hygienically, and they don't encourage drug use or injecting.

## Impact on health outcomes

### Objective 2a: reduce risk behaviours

The European Report on DCRs (Hedrich, 2004) identified 12 studies and one review of the impact of DCRs in the Netherlands, Germany and Switzerland on risk behaviours. Although subject to various methodological limitations, all European studies indicated positive effects. Staff also report positive changes in many clients' injecting hygiene. For example, several pre-post studies in the Netherlands showed increased knowledge of injecting hygiene and safer drug use among DCR users (Meijer et al., 2001; Linssen et al., 2001); cross-sectional surveys in Germany and in the Netherlands showed self-reported improvements by large proportions of DCR clients in injecting-related risk behaviour, injecting practices and hygiene since using a DCR (Jacob et al., 1999; Poschadel et al., 2003; van der Poel et al., 2003; Zurhold et al., 2001). Serial cross-sectional surveys in Switzerland showed decreases in the proportion of DCR clients reporting syringe sharing and sharing of other injecting equipment (Benninghoff et al., 2001, 2003; Benninghoff and Dubois-Arber, 2002; Solai et al., 2004) as well as increases in the proportion saying they would never accept used injecting equipment (Minder Nejedly and Bürki, 1999; Reyes Fuentes, 2003; Ronco et al., 1996a, 1996b). These earlier findings have been confirmed by Dubois-Arber et al., 2008b and by a more recent study from Spain that also reports reduced borrowing of used syringes among highly marginalised injecting drug users attending DCRs (Bravo et al., 2009).



Backstreet where public drug use takes place, Vancouver



Safer injecting facility, Vancouver



Source: M. J. Milloy for both photographs.

Outside Europe, these results have been replicated by studies in Sydney, where DCR clients were more likely than non-DCR clients to report using sterile syringes for all injections and less likely to report sharing injecting equipment, and where staff also reported improved hygiene and reduced sharing among DCR clients (MISC Evaluation Committee, 2003; NCHECR 2007a, 2007b). Likewise in Vancouver, a prospective cohort study of injecting drug users (IDUs) showed that syringe sharing decreased among DCR users but not among non-users of DCRs after the facility opened, and that the degree of reduction was associated with greater use of the facility (Kerr et al., 2005; Wood et al, 2005a; Stoltz et al., 2007). A recent meta-analysis shows highly similar effects of DCRs on the extent of syringe sharing across sites, with frequent DCR use being associated with a 70 % reduced likelihood of reporting syringe sharing (Milloy and Wood, 2009).

Collectively, these studies provide clear evidence that DCR use is associated with reduced self-reported and observed injecting risk behaviour, including the risk of overdose, and improvements in reported and observed injecting hygiene, especially among those who use the facilities consistently.

## **Objective 2b: reduce morbidity**

Few studies report on injection-related injuries, although such injuries may represent a significant source of morbidity among people who inject drugs (Palepu et al., 2001; Salmon et al., 2009a). In Sydney, a small decrease in the frequency of injection-related problems over time was observed among DCR clients, including less bruising, scarring and abscesses (NCHECR, 2007b). In Vancouver, the risk of injection-related bacterial infections decreased among DCR users, and the use of the facility was independently associated with other safe injection practices, including decreased reuse of syringes, increased use of sterile water and increased cleaning of injection sites with alcohol swabs (Stoltz et al., 2007). There is further evidence from qualitative studies undertaken in Vancouver of the potential impact of DCRs on reducing the incidence of soft tissue infections (Small et al., 2008; Krüsi et al., 2009) and of the advantages of nurse-delivered safer injection education in reaching IDUs most at risk for injection-related harm (Wood et al., 2008; Lloyd-Smith et al., 2009).

No conclusions can be drawn about the direct impact of DCRs on infectious disease incidence, owing to a lack of studies as well as methodological problems, such as isolating the effect of DCRs from other interventions (substitution treatment, needle exchange, outreach), low rates of HIV/HCV incidence, or low coverage of the risk population. For example, in Sydney, health authorities were notified of fewer newly diagnosed HCV, HIV and HBV infections in the DCRs' locality compared to other control localities (MISC Evaluation Committee, 2003). However, no evidence was found that any changes in the number of notified cases were attributable to the DCR. Furthermore, the low incidence of HCV and HIV among IDUs in Australia made it unlikely that the number of cases would be sufficient to detect any statistically significant associations. Limited coverage of the facility was also unlikely to produce a detectable community impact on incidence.

## Objective 2c: reduce mortality (overdoses)

There is some evidence of the impact of DCRs on mortality, but this evidence is mostly indirect and based on the outcome of emergencies occurring in the facilities (see box on p. 144). The majority of emergencies among users of DCRs involve heroin injection-related overdoses, with smaller proportions involving cocaine use. Emergency rates vary from 0.5 to 7 per 1 000 injections (see Hedrich, 2004, for Germany, Netherlands, Switzerland and Spain; Kerr et al., 2006b, for Vancouver; NCHECR, 2007b, for Sydney; and Skretting and Olsen, 2008, for Norway). As rapid intervention is available at DCRs, these events are less severe than overdoses occurring elsewhere, and fewer ambulance attendances or hospitalisations are needed (NCHCR, 2007b). In addition, DCRs located near open drug scenes may respond to overdoses in the immediate vicinity (Hedrich, 2004). None of the overdoses recorded at DCRs have resulted in death (the only known death at a DCR involved anaphylactic shock). Furthermore, by providing immediate intervention following the first signs of overdose, other impacts of non-fatal overdose-related events, including irreversible damage to the brain and other vital organs due to hypoxia, can also be prevented (van Beek et al., 2004; Hämmig and van Beek, 2005; NCHECR, 2007b).

Apart from potential fatalities prevented through supervised consumption among clients, there are several estimates of the impact of DCRs on drug deaths at population or city level. Based on utilisation data and expected mortality rates among the populations reached by DCRs, it has been estimated that these facilities helped prevent 10 deaths per year in Germany, and four per year in Sydney (Hedrich, 2004; MSIC Evaluation Committee, 2003). In a comparison of overdose death trends in the vicinity of the DCR with the rest of the region of New South Wales, no statistically significant impact of the Sydney facility on opioid-related deaths in Kings Cross was found. Due to an approximate 70 % decrease in overdose deaths following a heroin shortage in Australia, the researchers argue that the assessment of the impact may have been hampered by small sample sizes (NCHECR, 2007b, p. 29). In their simulation of the impact of the Vancouver DCR, Milloy and colleagues (2008) concluded that the facility may have prevented between 1.9 and 11.7 overdose deaths per year.

An ecologically based time-series analysis involving four German cities from 1990–2001 concluded that statistically significant reductions in overdose fatalities were observed in Saarbrücken and Hannover six months after the opening of the DCR, and in Hamburg and Frankfurt after the opening of the third and fourth rooms respectively (Poschadel et al., 2003).

While it is impossible to ascertain how many emergencies would have occurred and been fatal in the absence of DCRs, epidemiological and clinical data suggest that immediate staff interventions at emergencies occurring at DCRs, where millions of drug consumptions have taken place under supervision, has reduced the impact of overdose-related events, such as morbidity and death. Where coverage and capacity are sufficient and opening hours appropriate, DCRs may contribute to reducing drug-related deaths at a city level.

## Objective 2d: improve access to healthcare and drug treatment

There are large variations between countries regarding services offered on-site, which make comparisons difficult. Different policies towards accepting clients who are already in substitution treatment also affect treatment referral rates. Regarding referrals to treatment, only the Vancouver and Sydney studies measure actual uptake.

In most European DCRs a range of other services are usually delivered on-site alongside supervision of drug consumption. Low-threshold medical care and psychosocial counselling services are especially well used and contribute to the stabilisation and improvement of the somatic and psychological health of users (Linszen et al., 2001; Poschadel et al., 2003; Zurhold et al., 2001; van der Poel et al., 2003; Ronco et al., 1994). Clients are also referred to drug treatment or other care, though proportions vary and uptake rates are often unknown. For instance, in the survey of all German consumption rooms, over half of all clients reported having received a referral by DCR staff to other drug or social services at least once (Poschadel et al., 2003).

In both Vancouver and Sydney, use of the facility was associated with more exposure to safe injecting education and access to healthcare (Wood et al., 2006a, 2007b; van Beek, 2003; Tyndall et al., 2006; NCHECR, 2007a, 2007b; Kimber et al., 2008b). In Vancouver, a 30 % increased uptake of detoxification and subsequent addiction treatment were noted. For frequent attenders in particular, DCRs act as a link to the wider system of healthcare and facilitate entry to treatment: in Vancouver, entering a detoxification programme was more likely among IDUs who visited the facility at least weekly and among those who had contact with onsite addiction counsellors (Wood et al., 2007b).

The above results suggest that DCRs complement rather than conflict with treatment goals. In fact, with the exception of the initial years of DCR operation, current typical client populations at DCRs are in (or have successfully been brought into) contact with other harm reduction and treatment services, and many oscillate between those, or make parallel use of them. This reflects the complementary role of DCRs within a comprehensive drug policy approach, such as in Switzerland, where long-term behavioural trends and health-related impacts are documented (see box on p. 317).

Studies assessing the effectiveness of treatment consistently show that opioid maintenance treatment reduces the level of illicit opiate use and the frequency of injecting. Drug use and injecting may, however, still occur among clients in opioid maintenance, and clients in treatment may also use DCR facilities. For instance, during the first seven years of operation of the MSIC in Sydney, 13 % of all clients registering at the facility indicated that they were in methadone treatment (van Beek, 2007). Data from the first year of operation of the DCR in Geneva (2002) show that a majority (61.1 %) of users declared at the time of enrolment that they were in substitution treatment (Dubois-Arber, 2008a).

The question of whether clients in oral methadone treatment should use DCRs for injection is dealt with in different ways. In Germany, and Luxembourg, methadone clients are formally excluded from most consumption rooms. Elsewhere, however, the pragmatic view is taken

that if methadone clients are going to inject anyway it is better that they do so in hygienic circumstances where there is also the opportunity for staff to talk with them.

### **Long-term behavioural trends and health-related impact of harm reduction facilities, including DCRs (Switzerland)**

In 1993, 1994, 1996, 2000 and 2006 repeated national cross-sectional surveys were conducted among IDUs attending facilities that offer needle and syringe programmes, in order to measure trends in injecting behaviour (Dubois-Arber et al., 2008b). In 2006, half of these facilities (n=11) included a DCR.

Between 1993 and 2006, current injecting — in the last six months — decreased among those who had ever injected from 95.1 % to 74.2 %. The median number of injections in the last week also decreased from 14 to 7. The proportion of new injectors (first injection in the last two years) decreased from 18.7 % to 3.3 %. In 2006, most injecting events took place at home (56.4 %) or in a DCR (32.8 %). The type of drugs consumed in the last month showed a reduction in heroin, from 60.5 % of users in 1993 to 43.1 % in 2006, but an increase in cocaine users, from 23.7 % to 63.5 %. This may partly be related to an increasing proportion of IDUs on methadone treatment among the clients: 37.2 % in 1993, and 59.1 % in 2006. In 2006, about 10 % of IDUs had injected with a borrowed syringe in the last six months. This proportion has been quite stable since 1994, after a decrease between 1993 and 1994. Although more common, sharing of other injection equipment — spoons, filters and water — has decreased since 1996. Behavioural trends did not differ between IDUs recruited in facilities with or without a DCR.

During the same period (1993–2006), the national monitoring of injecting equipment showed a decrease from 2.2 millions to 1.6 million in syringes delivered in NSPs. New cases of HIV reported among IDUs decreased from 498 to 61, and notified acute cases of hepatitis C from 37 to 33. The number of IDUs receiving methadone treatment increased from around 12 000 to around 17 000, and drug-related deaths decreased from 353 to 193 (Gervasoni and Dubois-Arber, 2009).

This overall evolution cannot be attributed exclusively to the availability of NSPs and DCRs. However, it is posited that DCRs have contributed to the improvement in IDUs' health in Switzerland.

## **Conclusions on objective 2**

DCRs help to improve the health status of the target population and contribute to reductions in high-risk injecting behaviour. There is evidence that when coverage and capacity are adequate, DCRs help to reduce overdose deaths. Available evidence does not allow conclusions to be drawn on whether or not they have specific, attributable impact on HIV and HCV infection rates, although fairly substantial reductions in HIV and HCV risk behaviour have been associated with DCR use. DCRs do increase access for specific 'hard-to reach' target populations of drug users to health, welfare and drug treatment services.

## Impact on public order and crime outcomes

### Objective 3a: reduce public drug use

Direct evidence of the impact of DCRs on levels of public drug use is limited and sometimes mixed. This is because of methodological limitations, restricted coverage, the difficulty of knowing how many facility-based injections would otherwise have occurred in public, and because other factors, such as police activity or changes in the drug market, also affect public drug use.

Studies in the Netherlands, Germany, Switzerland, Sydney and Vancouver showed lower levels of self-reported public drug use among clients (van der Poel et al., 2003; Zurhold et al., 2001; Poschadel et al., 2003; Benninghoff and Dubois-Arber, 2002; Stoltz et al., 2007; NCHECR, 2007b). However, it was not always possible to attribute this effect to DCRs (Zobel and Dubois-Arber, 2004). In Vancouver, the opening of the DCR was associated with a reduction of public injection, discarded syringes and drug-related litter (Wood et al., 2006a). In this instance, these effects were found independently of changes in police presence and weather patterns. In Sydney there was a reduction in public drug use among regular clients and reduced community visibility of injecting drug use (NCHECR, 2007b; Kimber et al., 2008b).

Among those who attended DCRs some report that they also continued to take their drugs in public places, when the DCR had insufficient space, was located away from drug purchase sites or when opening hours were restricted (Zurhold et al., 2001, 2003; Poschadel et al., 2003). Public injecting in some DCR localities may increase as a result of police actions to reduce drug markets in other areas (Benninghoff et al., 2003; Poschadel et al., 2003; Hedrich, 2004).

### Objective 3b: improve public perceptions

Evidence related to public perceptions is also mixed. Several German, Swiss and Dutch studies have reported mostly acceptance of DCRs, at least as a preferable option to public use (Linssen et al., 2001; Zurhold et al., 2003; Zobel et al., 2003). In Vancouver, a survey among a random sample of 117 business owners located in the vicinity of the DCR found that 54 (46 %) were in favour of having a DCR, 23 were undecided and 40 were opposed to it. Businesses located further away from the facility showed less support (BC Centre for Excellence in HIV/AIDS, 2004). A five-year evaluation of the community perceptions of drug-related amenity before (year 2000) and after the opening of the Sydney DCR (surveys conducted in 2002 and 2005) among local residents and businesses found a significant decrease over time of those who reported recently witnessing public injection and improperly discarded syringes (Salmon et al., 2007) and that community attitudes tended to become more positive over time (Thein et al., 2005; MSIC Evaluation Committee, 2003). However, attributing these improvements to the DCR was complicated by a concurrent heroin shortage and rise in stimulant use. In Germany and Switzerland some DCRs have encountered strong opposition from local residents, which diminished with experience of the DCR in operation. Generally, fewer nuisance problems are reported in cities where a political consensus or cooperation between police and drugs services exists (Hedrich, 2004).

## Effects on local crime

No increase in acquisitive crime has been observed after the opening of DCRs in the Netherlands and Switzerland (Linssen et al., 2001; Meijer et al., 2001; Spreyermann and Willen, 2003; Benninghoff et al., 2003).

The impact of the safer injecting facility in Vancouver on public disorder and drug-related crime has been studied extensively, including through follow-up studies comparing the situation before and after the opening of the facility (see box below). Furthermore, no evidence of negative impacts of the operation of the facility on community drug use patterns has been found (Kerr et al., 2006a).

### The impact of the Vancouver DCR on crime, nuisance, safety and police referrals

The Vancouver DCR, known as 'Insite', is situated in a large open drug scene. The area is known for high levels of public injecting, drug dealing, and its open sex work market. Insite is open 18 hours a day, and includes 12 individual booths for injecting.

Insite has been evaluated to assess its potential impact on public order, crime, and its potential impact on policing practices. An early mixed methods analysis employed field counts of the number of individuals injecting in public, discarded syringes and other injecting litter, over an 18-week period (Wood et al., 2004c).

In multivariate regression analyses, the opening of Insite was associated with reductions in each measure of disorder after adjustment for police presence and rainfall. In two follow-up studies, use of Insite was also found to be associated with self-reported declines in public injecting (Stoltz et al., 2007; Petrar et al., 2007). Local crime statistics have been used to assess a potential association between the opening of Insite and drug-related crime (Wood et al., 2006c). In this before and after analysis, the opening of Insite was not associated with increases in drug trafficking, robbery/assault, or vehicle break-in charges. A recent study also sought to assess whether local police were referring drug users to Insite (DeBeck et al., 2008). Among 1 090 DCR clients enrolled in a prospective cohort study, 182 (16.7 %) individuals reported having ever been referred to the SIF by local police. At baseline, 22 (2.0 %) participants reported that they first learned of the SIF via police. In multivariate analyses, factors positively associated with being referred to the SIF by local police when injecting in public included engaging in sex work, daily cocaine injection, and unsafe syringe disposal. Collectively, these findings suggest that Insite has reduced public disorder, in particular public injecting, and has not exacerbated drug-related crime. Furthermore, Insite has provided a mechanism for police referral of individuals who engage in public injecting.

In Sydney, an evaluation of the crime statistics in the relevant neighbourhoods documented that operation of the MSIC DCR did not lead to increases in crime or social disturbance in its immediate vicinity. There was no evidence of any positive or negative impact on rates of drug-related crime, drug-related loitering, and no increase in the proportion of supply offences following the opening of the MSIC (NCHECR, 2007b; Freeman et al., 2005).

Most European reports show a similar picture. However, there have been reports from a few European facilities of increases in drug dealing around the facility (Geense, 1997; Zurhold et al., 2001), as well as aggressive incidents outside the premises, increases in petty crime and resentment from local residents (Kimber et al., 2005).

## Conclusions on public order and crime outcomes

Consumption rooms can reduce the level of drug use in public. The extent to which this is achieved depends on their accessibility, opening hours and capacity. There is no evidence that the operation of consumption rooms leads to more acquisitive crime. There is small-scale drug dealing in the vicinity of many services, which is not surprising given their location. Nuisance is more likely when capacity or location of the facility does not meet local needs and waiting times are long. In some instances, these problems can be addressed by an adjustment of service capacity, aided by police cooperation and the involvement of the DCR in local order maintenance. However, facilities near illicit drug markets are not able to solve wider nuisance problems that result from these markets. Consumption rooms have greater impact where there is a political consensus that they are part of a comprehensive local strategy to respond to drug use-related problems that acknowledges public and individual health objectives as well as the need to maintain an acceptable situation with regard to order and safety in the community.

## Challenges

The evidence reviewed in this chapter indicates that DCRs may contribute to reducing drug-related harms in settings where public drug use and injecting pose serious public health and social problems. For the future, these types of interventions face a number of challenges. The first set of challenges arises from changing patterns of drug use and drug using contexts and the new configurations of harms that these may imply. The second set of challenges concerns creating the environmental conditions that enable the reach and impact of existing DCRs and the development of new projects where there is a demonstrated need.

## Targeting interventions in a changing world of drug use

Changing drug use situations present challenges for harm reduction interventions, calling for the capacity of responses to adapt rapidly to shifts in drug use, risks, target groups and needs (see also Hartnoll et al., 2010). Such changes may impact on: the prevalence or frequency of injecting; modes of drug administration (such as inhaling or smoking); patterns of drug use (for example, the injecting of crack cocaine, cocaine or amphetamine, or 'speedball'); and risk environments.

Operational data collected at European DCRs shows that there is a cumulative 'revolving door' client group of ageing injectors (Simmedinger and Vogt, 2008), but also that there are new groups of service users, in some cases young, for whom differentiated responses regarding safer use education are needed (Sozialdepartement der Stadt Zürich, 2008).



Additionally, increases in cocaine injecting observed in several European countries (EMCDDA, 2009) may imply increased frequency of injecting and associated health harms, including vein damage, bacterial and viral infections (see also Grund et al., 2010). The use of DCRs by clients in opioid maintenance treatment may also point to ineffective treatment regimes or to clients for whom methadone is unsuitable. In one case, a small subgroup (4 % of DCR clients) who mainly injected cocaine, were among the most frequent users of the facility, accounting for almost two-fifths of all injections observed in the year of study (2002) (Dubois-Arber et al., 2008a). Most of this group (65 %) were in methadone treatment at the time they had registered at the facility. Differentiated intervention emphasis should therefore be tailored to different and changing client needs, including through integrating referral and service delivery as part of a wider local system response to drug treatment and care (Dubois-Arber et al., 2008a). Studies also show that frequent DCR users may use the room as a place of socialisation and support (Benninghoff et al., 2003).

Most DCRs target drug injectors, with the exception of the Netherlands, where the majority of places are for smoking, reflecting the low proportion of injectors in the problem drug use population. Limited facilities for smoking have been added to some DCRs in Germany and Switzerland, and a room has been opened specifically for crack users in Frankfurt and for heroin smokers in Hamburg. Although smoking is generally seen as less risky than injecting, there may still be health risks, for example of transmitting HCV through sharing crack smoking paraphernalia (Fischer et al., 2008; Macías et al., 2008; Neaigus et al., 2007; Grund et al., 2010), as well as problems associated with public drug use. The expected benefits of implementing facilities for smoking at DCRs include contact with recent or younger users with the possibility of facilitating early treatment and reducing the risk of HCV infection.

Given the increased prevalence of both heroin smoking and the use of crack cocaine in a number of EU countries, assessment of the advantages and disadvantages of providing facilities for non-injectors, and the manner in which such services are best delivered merits further research.

The examples given above suggest that DCRs can play a wider and more proactive role than originally envisaged, in particular with regard to transmitting tailored health education messages to individual clients and to developing realistic prevention and safer use messages for the wider population of problem drug users. Because DCRs are for most clients not the main place of drug use (Dubois-Arber et al., 2008a; MSIC Evaluation Committee, 2003; Hedrich, 2004), learning to consume drugs safely in other contexts is an important individual outcome to be achieved. From this perspective, DCRs could be a basis from which to extend peer education and community-oriented projects to modify local risk environments (Pretil, 2007). In this regard, as frontline services, DCRs have the potential to constitute a sensitive and timely early warning system about drug use trends and effects of market changes (Degenhardt et al., 2008); they can help to gain in-depth knowledge of risky drug use practices and risk-increasing aspects of the local environment (Salmon et al., 2009a; 2009b).

## Creating an enabling environment for intervention

Where DCRs are 'normative' as part of established harm reduction policy (Switzerland, Germany, the Netherlands, Luxembourg, Norway, parts of Spain), they are likely to continue and evolve. In this situation they face the challenges outlined above. In other countries, the situation is different. In some, there is a polarisation of public debate leading to the rejection of proposals, in others there is ambivalence resulting in a deadlock of new initiatives. The role of DCRs in the future has to be seen in the context of developments regarding public drug use and accessibility, as well as quality of drug treatment, including the existence of real reintegration options, funding and sustained political commitment.

If DCRs are to have an impact at community level it is necessary to provide sufficient capacity relative to the estimated size of the target population, to locate rooms on sites that are easily accessible, and to ensure that opening hours are long enough to meet demand, especially in the evenings and on weekends. Staffing and modus operandi are also important. Assessing the cost-effectiveness and impact of different service models at different levels of population coverage in different epidemiological settings is a key research question for the future.

In settings where there is a demonstrable need for DCRs, their development and the extent to which they can achieve their objectives is tempered by the broader social and policy context. A qualitative assessment of the literature suggests that DCRs can only be effective if they are:

- integrated into a wider public policy framework as part of a network of services aiming to reduce individual and social harms arising from problem drug use;
- based on consensus, support and active cooperation among key local actors, especially health, police, local authorities, local communities and consumers themselves;
- seen for what they are — specific services aiming to reduce problems of health and social harm involving particular high-risk populations of problematic drug users and addressing needs that other responses have failed to meet.

## Conclusion

This chapter has focused on scientific evidence regarding whether DCRs, as a specific intervention, have achieved their stated objectives. Despite some limitations of the available evidence, the broad conclusion is that DCRs do bring benefits on specific aspects of individual and public health and social order without incurring serious risks. To achieve this, adequate coverage is essential, as is political support and consensus between key actors.

Expectations towards DCRs thus need to be realistic, as they cannot address all the key variables of drug-related harms. They do not change the fact that users buy their drugs in illicit markets, nor can they aim to change the drug market itself. They are, however, an effective public health intervention providing a 'safer environment' to reduce risks inherent in public drug use; they are unique in their capacity to develop individually

tailored health education that achieves sustainable behavioural change among the most vulnerable populations; and the facilities provide clear benefits by increasing drug users' access to health and social care, and in reducing public drug use and associated nuisance.

### DCRs — implications for practice

Drug consumption rooms can only be effective if they are:

- integrated into a wider public policy framework as part of a network of services aiming to reduce individual and social harms arising from problem drug use;
- based on consensus, support and active cooperation among key local actors, especially health, police, local authorities, local communities and consumers themselves;
- seen for what they are — specific services aiming to reduce problems of health and social harm involving particular high-risk populations of problematic drug users and addressing needs that other responses have failed to meet.

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