issue 9 autumn 2003

DRUG & ALCOHOL FINDINGS

linking **practice** to **research** **research** to **practice**

what works
what doesn't
what could be
done better

DRUG & ALCOHOL FINDINGS

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DRUG & ALCOHOL FINDINGS

Objectives To improve Britain's response to drug and alcohol problems by disseminating practice-relevant evaluation findings on the effectiveness of interventions including prevention, community safety and treatment.

Readers Workers involved in a specialist or non-specialist role in interventions addressing drug or alcohol problems in the United Kingdom, including drug and alcohol service practitioners, planners, managers, and commissioners, those whose responsibilities include these functions, and researchers working in these fields.

The FINDINGS partnership Alcohol Concern • National Addiction Centre • DrugScope • Mike Ashton

Editor Mike Ashton Drug & Alcohol Findings, 10 Mannock Road, London N22 6AA, England • Phone/fax 020 8888 6277 • editor@drugandalcoholfindings.org.

Editorial Board **Mike Ashton** Editor **Richard Phillips** Alcohol Concern **John Witton** National Addiction Centre **Harry Shapiro** DrugScope.

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* See page 34, *Treatment matching in alcoholism*.

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Nuggets

Recent evaluations of interventions selected for their particular relevance to UK practice

NUGGETTES

Evaluations that didn't quite make it as Nuggets; mini-jewels with practice implications for Britain

OFFCUTS

Shavings too good to leave on the floor: ideas, arguments, resources, themes

Just say no sir

Drinking in pubs and clubs is associated with much of the preventable harm related to alcohol, but preventing this harm is no simple matter. The key is to engineer laws and social structures which generate and sustain enough motivation to overcome commercial incentives.

by **Tim Stockwell**

Professor Stockwell is Director of the National Drug Research Institute in Perth, Australia.

Contact Tim Stockwell, National Drug Research Institute, Curtin University, GPO Box U 1987, Perth, Western Australia 6845, Australia, phone +44 61 8 9426 4200, fax +44 61 8 9486 9477, e-mail tim@ndri.curtin.edu.au.

Reprinted with amendments from: Stockwell T. "Responsible alcohol service: lessons from evaluations of server training and policing initiatives." Drug and Alcohol Review: 2001, 20, p. 257–265.

The 'Responsible Beverage Service' movement began in North America[1,2] with programmes to prevent drinking and driving, mainly by training bar staff to limit customers' intoxication levels. One stimulus was research suggesting that half of all alcohol-related crashes followed drinking on licensed premises.[3] Another was the rapid rise in civil actions against licensees whose customers had drunk to intoxication before driving and seriously injuring a third party, some of whom were awarded millions of dollars on the basis that the establishment had broken existing law by serving a patron until they achieved obvious intoxication.[4]

Civil cases also established a legal principle of negligence in such cases and 'vicarious liability' for the actions of customers, even after they have left the premises.[4] Model 'Dram Shop' laws clarified this liability and were another trigger for responsible serving programmes; initiatives such as staff training are a major way of satisfying the defence provided in these laws that everything possible had been done to prevent untoward incidents.[5]

Elsewhere in English-speaking developed countries, legal liability for licensees has been far more limited.[6] Arguably, in these jurisdictions interest in responsible serving has been stimulated by deregulation of licensed premises in terms of trading hours, outlet density, and drinking age.[7] In this environment, responsible serving and allied initiatives are among the few ways left to control local alcohol-related problems.

To be fully effective, responsible serving must be treated as part of a comprehensive set of local measures. Among those considered here are policing strategies to limit public disorder, in particular alcohol-related violence. Studies around the world have documented a strong link between public violence and drinking on licensed premises[8,9] due to intoxication aggravating the risk of violence in social situations already conducive to conflict.[10,11] This review also looks at more informal strategies intended to facilitate self-regulation by licensees.

Training programmes can work

Early studies sought to establish whether responsible serving programmes *could* limit intoxication under optimal conditions, rather than whether they *would* do so in normal practice.

A classic example published in 1987 compared two similar US navy social clubs, one of which acted as the intervention site, the other as control.[1] The project enjoyed high-level support, the intervention club manager introduced a number of policy changes, and serving staff were trained for 18 hours in practical skills including detecting intoxication and slowing down or refusing service. Policy changes included ceasing to serve beer in large 'pitchers', making food more available, and systematically monitoring alcohol consumption in every area of the bar. Self-reports and observation were used to estimate that the proportion of patrons who had drunk enough to reach a blood level of 0.10% was halved at the intervention site (from 33% to 15%) but changed little at the control site.

A different method was used to evaluate a server training programme in two fully cooperative US commercial bars.[12] In both about half the staff attended and passed a six-hour training course with similar aims to that in the navy study. Researchers posing as customers tried to buy a drink every 20 minutes for two hours. On average trained staff intervened to slow or stop consumption over three times per drinking episode compared to 0.75 times for untrained staff, and the blood level attained by their customers was significantly lower (0.06%) than for those served by untrained staff (0.10%).

Later a Canadian study extended server training to four commercial establishments. Compared to four control sites, these evidenced a modest but significant improvement in server behaviour.[2]

But do they work in practice?

From these promising beginnings, server training programmes progressed to real-world trials involving many more sites and hundreds of bar staff. Sadly, the early promise was not fulfilled.

One of the largest studies trained 1079 managers (for six hours) and bar staff (for three hours) at 100 premises in eight US cities and compared their performance against 135 control establishments.[13] Pseudo patrons feigned signs of intoxication on entry and recorded whether they were refused service – a demanding criterion. Server interventions short of refusal (offering non-alcoholic alternatives, slowing service) increased from 14% to 27% but refusal remained very low at 5%.

A community-wide intervention in the Australian port city of Fremantle trained over 130 bar staff working in seven of the larger licensed premises which accounted for over 70% of the assaults and

drink driving offences associated with local premises.[14] Their managers were also encouraged to develop responsible house policies covering key issues such as serving under-age and intoxicated patrons, safe transport home, preventing violence, and providing non-alcoholic alternatives. Police and a trainer selected by the local retail trade association delivered the intervention. Seven matched establishments in a neighbouring entertainment area acted as controls.

Trained bar staff significantly improved their knowledge of responsible service and there was a significant drop in the number of patrons exiting premises with blood alcohol levels over 0.08%. However, service refusal to 'drunk' pseudo-patrons and appropriate age-ID checking were unaffected, and there were only minimal changes in the implementation of responsible house policies. One notable exception was a large, high profile venue which introduced a range of new policies, refused service to drunk pseudo-patrons, had no patrons exiting with blood levels over 0.15% – and increased its profits.

Important conclusions from these experiences start from the observation that when training is community-wide, the impact seen in demonstration projects is diluted. This may partly be due to less enthusiastic establishments being drawn in to the larger studies or to shorter courses, but part of the reason seems to have been a failure to wholeheartedly implement responsible serving. Training works well where there is strong management back-up, but in purely voluntary schemes this cannot be guaranteed.

Enforcement stiffens resolve

Another approach to encouraging responsible serving is for police or civilian inspectors to more rigorously enforce existing liquor laws. Often these clearly ban serving alcohol to under-age or drunk patrons. Generally the latter provision is barely enforced, partly because of the difficulty of defining intoxication, and partly because enforcement is a low priority for police and/or licensing authorities.[15]

Some documented attempts have been made to see what happens when this neglect is replaced by an active enforcement programme which formalises the role of police in relation to responsible serving. Two classic examples permit a direct comparison between law enforcement and a voluntary approach based on staff training.

The first was initiated in the late 1980s when the President of the US National Public Services Research Institute approached police chiefs from over 100 US areas seeking interest in evaluating an enforcement approach to responsible alcohol service. Eight were willing to participate. Michigan was selected as a demonstration site, enabling a comparison with a server training study there a few years earlier.

The programme involved plain clothes police checking premises for intoxicated customers and observing serving practices.[16] Beforehand all licensees in the intervention area had been directly notified of the programme, messages reinforced by local media coverage. Licensees were given a training video plus table-top cards showing the signs of intoxication and advising about the penalties for serving intoxicated patrons. Following the police visits, feedback was given to licensees ranging from praise for good practice, through suggestions for improvement, to warnings, and, ultimately, a fine.

Refusal of service to intoxicated patrons substantially increased, most sharply around the programme's launch, when as yet only warnings of pending enforcement had been given: 54% of purchase attempts were refused compared to only 16% after the earlier training programme.[13] The number of alcohol-related road crashes after drinking on licensed premises also fell significantly, creating savings estimated at $90 to $280 for every dollar spent on the programme.

A more direct and well-controlled comparison of training versus enforcement was reported[17] as part of a multi-site community project to reduce alcohol-related harm in California.[18] The report focused on one strand of this major project – access to alcohol in liquor stores by under-age drinkers. Over 479 stores in three intervention and three control communities were studied.

Three interventions were trialed: store staff training; a police enforcement programme; and both together. Enforcement involved letters advising store owners of the initiative followed by a 'decoy' operation in which under-age drinkers tried to buy alcohol. Stores selling to the decoys were fined. Beforehand about 50% of purchase attempts had been successful. After the intervention this proportion fell significantly; where police enforcement operated, the purchase rate dropped below 20%. Training made no significant extra impact.

These studies tell a similar and, perhaps, unsurprising story: at a community-wide level, determined law enforcement involving penalties on offending licensees has a far greater impact on responsible service than training alone. The implication is that failure to serve responsibly is more a matter of motivation than of knowledge and skills, and that training programmes targeting the latter are unlikely to modify serving practices across the range of licensed premises or across whole communities.

But before training is dismissed, a study with a more hopeful outcome should be mentioned. Twelve years of US road crash data were used to benchmark the impact of the introduction of mandatory server training in Oregon in 1986.[19] Single-vehicle night-time crashes (up to 80% of which occur after drinking[20]) were used as a surrogate for alcohol-related crashes. Though training was phased in over two years, after the law was passed there was an immediate and significant reduction in such crashes in Oregon compared with the rest of the USA, a reduction sustained for the 18 months of the study.

Why should passing a law requiring compulsory training succeed where

He can serve you with a smile, but can he learn how to say no?

Golden Bullets

Practice points from this article

- Programmes which train managers and bar staff in the skills needed to limit customers' levels of intoxication and to prevent drink driving can work, but only with high level management support.
- To achieve community-wide responsible serving, rectifying serving skills deficits is less important than generating motivation to exercise these skills.
- Motivation can be generated by determined and well-publicised law enforcement actions involving penalties on licensees breaking the law.
- Local 'accords' involving licensees in an agreement to trade responsibly can work, at least in the short term and when allied with energetic monitoring.
- Benefits from training and community action projects are often short-lived and support is hard to generate and sustain.
- The major task is to institutionalise the legal and regulatory procedures which impact most on licensed premises and the structures which can sustain support for putting these in to practice.

Recommendations for institutionalising responsible serving

Legal structures

- Well-drafted legislation with clear harm-minimisation objectives
- Mandatory server training
- Banning of irresponsible promotions
- Local controls over trading hours and conditions
- 'Dram Shop' laws stipulating the legal responsibilities of licensees for the behaviour of patrons after they leave the premises

Regulatory structures

- Harm minimisation as the major corporate goal of licensing authorities
- Plain clothes licensing inspectors
- Uniformed police presence
- Comprehensive training of police and licensing officers
- Graded system of penalties leading to temporary suspension of licence
- Incentives for good practice by licensees

Promoting a supportive socio-political environment

- Public health advocacy on alcohol and licensing
- Publicly disseminated information on alcohol-related harm and licensed premises
- Media campaigns promoting licensing laws
- Local licensing forums with community participation

other large-scale training programmes have not? And how can the effect have been immediate, even before the training? A plausible explanation is that enforcement methods succeed to the extent that they deter law-breaking by publicising the penalties. Similarly with drinking and driving, an optimal outcome is not achieved by enforcement alone unless it is highly visible and well publicised.[21] Random breath-testing, for example, is most effective when large, highly visible testing units are backed by a vigorous media campaign. In the liquor service area, alcohol-related crashes have fallen following highly publicised cases in which licensees have been successfully sued for millions of dollars after a drunk patron has injured or killed a third party in a road crash.[22]

In conclusion, to offset the commercial imperative to sell alcohol on demand, legal disincentives to serve drunk and under-age customers can be created which are more effective than using training to exhort staff and managers to serve alcohol responsibly. Such disincentives are most effective when they combine targeted enforcement with generalised deterrence created by direct warnings and broader publicity.

A visible police presence deters

Two other law enforcement approaches have involved uniformed police patrols of premises at high-risk times, and the negotiation of local 'accords' between police, licensees and the community. The first has been studied in Britain and in Australia.

Torquay hosted the classic study of community policing of pubs.[23] In summer this English seaside resort was a popular destination for young people. A public order problem was apparent around the local entertainment area with its many clubs and pubs. The study involved pairs of uniformed police officers visiting all licensed premises two or three times a week, initiating friendly contact with the managers, and being seen to conduct a thorough check for under-age and/or drunk customers. The result was a 20% reduction in public order offences which reverted to baseline when the intervention ended. No such reduction was seen in a similar sized seaside resort which acted as the control site.

A second study in Sydney documented the impact of uniformed police who made over 1200 visits to licensed premises in a popular entertainment area at high-risk times.[24] Unlike the English study, no specific instructions were given to check for under-age or intoxicated customers. Rather, the strategy seems to have been to prevent trouble escalating by creating a more visible police presence. At face value, results were disappointing; there was actually a significant *increase* in reported violent incidents, though a slight decrease in local emergency department admissions. Server behaviour and patron intoxication were not measured.

These findings are usefully seen in conjunction with a study in Rhode Island, USA, which incorporated liquor law enforcement within a broad-spectrum community intervention to reduce alcohol-related injuries.[25] At the intervention site, arrests for assaults increased by 20%, yet the local emergency room saw 25% fewer assault injuries – not as paradoxical as might appear at first sight. Only a small proportion of assaults in public places are reported to the police,[11] leaving plenty of scope for an increased police presence to result in more assaults being observed and recorded. This need not be inconsistent with the same presence causing a real decline in alcohol-related violence.

'Accords' curtail competitive pressures

In the 1990s a new model for regulating licensed premises emerged in Australia that came to be known as the alcohol or licensing 'accord'. The idea emerged from pioneering work in the prime tourist area of Surfers Paradise and the earlier work of the West End Forum in Melbourne.[27] Since then it has been applied to innumerable neighbourhoods in Australia, taking different forms according to local priorities and the preparedness of police to tackle difficult issues such as service to intoxication.

The Surfers Safety Action Project in Surfers Paradise was a response to adverse media coverage of public drunkenness and alcohol-related violence in an entertainment area packed with over 20 nightclubs. A partnership between licensees, police, council officers and community representatives aimed to create a safer environment with a less tarnished reputation. Its main tool was a code of practice signed by all licensees which committed them to limit high-risk promotional and sales practices such as discounting drinks, gimmicks to encourage fast or excessive intake, and serving under-age or intoxicated customers. Also, security staff were trained in the non-violent handling of conflict and bar staff in responsible serving, and licensees were encouraged to develop policies to avoid intoxication and disorderly behaviour.

Maintaining the agreement was in the participants' commercial interests – the discounting ban was in effect a price-fixing agreement. Venues which broke rank were 'grassed on' to the project's committee and shamed into falling in line. An energetic evaluation team also monitored compliance and gave ongoing feedback to the committee. Within six months there were significant improvements in house policies and serving practices and a halving in the frequency of violent incidents observed by researchers.[28] Unfortunately, at a two-year follow-up these measures had reverted to baseline.

Two later Australian evaluations have shown variously mixed and weak outcomes. In Geelong assault offences were halved but there was no control area, nor any differentiation between assaults in public versus private locations, in the day-time versus the night-time, or in/around licensed premises versus elsewhere, making it difficult to assess the outcome.[29] One interesting feature was the reported preparedness of police to get tough on non-compliant licensees by visiting them more often and issuing fines for minor infringements such as not clearly displaying their name at the entrance. In Fremantle an increase in reported assault offences in public places probably reflected the greater probability of detection due to the enhanced police presence as well as police sometimes themselves being involved in assaults.[30]

These studies leave no doubt that the accord approach can be an effective harm reduction strategy, at least in the short term and when allied with energetic monitoring. Interesting issues are raised regarding the legality of what are effectively price-fixing agreements, and the extent to which an accord encourages police and licensing authorities to focus on the 'difficult' matters of service to intoxication and to under-age drinkers, or becomes a 'gentlemen's agreement' to turn a blind eye.

The trick is to make it stick

Research cited above shows that we already have strategies which can promote responsible service of alcohol and have a demonstrable impact on public health, safety and order. Where these have failed, this has been due to less than wholehearted implementation or to a failure to sustain the implementation effort. In the USA it proved difficult to recruit

police departments to participate in licensing law enforcement.[16] Enhanced policing in Torquay[23] (UK) and the Surfers Paradise accord[28] (Australia) substantially reduced alcohol-related violence, but the benefits were short-lived. Server training in the USA and Australia was effective when managements were totally supportive, but the impacts dissipated when training was provided to a wide cross-section of premises.

The energy needed to implement and sustain such interventions can come from many sources: research interest, local community concerns, rival licensees, police, managers of venues, and adverse media coverage. How can these forces be harnessed and then institutionalised to sustain consistent and concerted prevention efforts, rather than fire-fighting measures introduced only when things get really bad? Some suggestions are summarised in the panel on page 6.

Many governmental and non-governmental agencies and businesses have an interest in how licensed premises perform. Community projects generally seek to orchestrate their support through negotiation, agreement and cooperation. When they succeed, well and good, but even a well-documented failure can create an opportunity to make progress by persuading community leaders to consider more formal changes in how local premises are regulated and in local liquor laws.

Such was the experience of the Fremantle Respects You project when the steering committee was presented with a report showing that their server training programme had made little impact, coupled with recommendations for regulatory and legal reform.[14 28] The committee was made up of senior health, licensing and police officials as well as the head of the state alcohol retailers' association. Their support for the recommendations created an unstoppable momentum which after years of energetic lobbying led to major reforms of the Western Australian Liquor Act. These included: a statement that one of its primary aims was the minimisation of alcohol-related harm; a practical definition of 'intoxication'; and compulsory responsible service training for licensees and managers. Beyond the Act, initiatives included a public education campaign to support licensees and party hosts in their attempts to implement responsible serving.

A licensing act which promotes responsible serving, and which empowers police, licensing authorities and communities to take effective action, is one thing; getting that act utilised and enforced is another. The panel opposite identifies the importance of aligning the corporate objectives of relevant authorities with responsible serving principles, and of thoroughly training their staff in a range of monitoring and enforcement strategies. It is also important to create regulatory structures capable of being used to effect genuine deterrence against irresponsible practices.[15 31] For example, graded sanctions ranging from warnings, to modest fines, to temporary licence suspensions of differing lengths, to outright loss of licence, are more likely to be applied than when the only alternative to doing nothing is to lay criminal charges leading to large fines and loss of licence.

Even a well-drafted liquor act with ample harm-minimisation provisions, backed by a well-organised regulatory system, may be inadequate if the community is unsupportive. Support can never be taken for granted. A number of strategies are desirable to generate an appropriate level of concern about high-risk drinking and to maintain support for effective enforcement. Local alcohol advocacy groups are an important way to maintain public pressure for alcohol prevention, with liquor licensing law enforcement as a principal lever.[7]

Another helpful strategy is to maintain a regular flow of data on local levels of alcohol-related harm, ideally related specifically to licensed premises. This should be made available to liquor licensing decision-makers and, where possible, to the general public. Prevention activity on the ground is maximally effective when supported by relevant and hard-hitting media campaigns.[21] These strategies can combine to create and maintain a social and political climate supportive of effective regulation and enforcement.

OFFCUTS

A compilation of drinking outcomes among untreated controls groups in randomised alcohol treatment trials shows that at follow up on average about a fifth have become abstinent and that consumption has fallen by a statistically significant 14%.[1] A straight read-over to everyday settings is not possible and the figures conflate at-risk drinkers with alcoholics. However, the study does provide a rough reference point regarding **the level of success that can be expected without active treatment**. The implication is that post-treatment abstinence in a minority of clients and small but significant drinking reductions are not enough to prove that providing a service is better than doing nothing.

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LINKS Nuggets **5.12 4.13 3.14 1.10**

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Mined, refined, assayed and set in context – nuggets of data with weighty practice implications

Nuggets features recent evaluations of interventions selected for their particular relevance to UK practice. An attempt is made to balance studies relating to alcohol and illegal drugs, and to prevention, community safety, and treatment. Studies are sourced mainly through Britain's national drug and alcohol information services (DrugScope and Alcohol Concern) and through our network of research contacts.

Entries are drafted after consulting related papers and seeking comments from the lead authors and members of FINDINGS' advisory panels or other experts. They have generously enriched our understanding but bear no responsibility for the published text. Though not individually acknowledged, we particularly thank the study authors for their work and for helping us interpret it.

Each entry is structured as follows:

Findings The most practice relevant findings for the UK and the main methodological characteristics of the featured studies.

In context Brief comments on the featured studies' methodology and findings set in the context other related studies.

Practice implications Suggestions about how the implications of the featured studies might be put into practice in the UK taking into account related research and the UK policy and practice context. The suggestions are intended to inform decisions over policy and practice but *do not constitute a sufficient basis for taking those decisions*, which should be more widely based on research, experience and expert opinion.

Featured studies References to the evaluation(s) described in **Findings**.

Additional reading Optionally, a selection of documents drawn on in drafting the entry. Full references on request.

Copies of cited documents may be available from the author ◤ **Contacts** or for a fee from Alcohol Concern (020 7928 7377) or DrugScope (020 7928 1211); check before ordering. In case of difficulty contact editor@drugandalcoholfindings.org.

Contacts Where available, contact details of the lead author(s) of the featured studies. These may not be current and do not imply that the author has agreed to enter into correspondence over the study.

Links Cross reference to related items in current or past issues of FINDINGS. A Nugget entry referred to as '**1.2**' is the second entry in FINDINGS issue 1.

9.1 Rapid opiate detoxification feasible at home

Findings For suitable patients, rapid detoxification from opiates can be done at home without on-site professional supervision. A benzodiazepine is used to induce light sedation sufficient to control discomfort and to prevent recall of the worst of the experience.

Using this procedure, 1368 patients at one public and one private clinic in Spain were detoxified before transfer to the opiate antagonist naltrexone. They had been advised to abstain from heroin for at least 12 hours but this was not essential. After joint patient/carer assessment and instruction, the carer was given the medication and the pair returned home, where the patient was sedated with midazolam and given clonidine and other drugs to control the withdrawal symptoms precipitated by naltrexone. The procedure was supervised by the carer (usually a family member) who maintained phone contact with the clinic. Typically patients remained rousable and could walk with assistance but were confused and restless for 4–6 hours. Vomiting and diarrhoea were the most common withdrawal effects (each affecting under 15% of patients) but by 24 hours symptoms were moderate. Just 24 patients had to be taken back to the hospital. The most they needed was brief admission for rehydration and generally only advice and reassurance. All but three of the 1368 patients returned to the clinic to start naltrexone maintenance.

In context These results must be seen in the context of a young patient group less severely addicted and problematic than typical addict patients in Britain and in close contact with their families, many of whom could afford private care. Well over twice as many opted instead for inpatient detoxification, an indication that the study dealt with a selected if substantial minority. Typically patients smoked (a less efficient route than injecting) modest doses of heroin. Those also heavily using cocaine, alcohol or benzodiazepines were excluded.

The procedure is similar to that trialed successfully in Australia on a general medical ward, an alternative for patients unsuitable for home detoxification which also avoids the need for intensive care and specialist nursing ◤ *Additional reading*. This work also showed that the procedure is feasible for patients leaving methadone maintenance. However, rapid procedures of any kind have yet to demonstrate that their main short-term advantage (virtually 100% completion and induction on to naltrexone) carries through to a higher proportion of patients maintaining long-term recovery. Much seems to depend on the availability of intensive clinical and social support.

Practice implications The study shows that for some patients rapid withdrawal can be achieved at home at a fraction of the cost of inpatient detoxification or rapid withdrawal under deep sedation or anaesthesia. However, given their family support and a good prognosis, many of these patients may have done just as well if detoxified as outpatients. Those who would have dropped out as outpatients may also be the ones who relapse after rapid procedures. Where relapse is anticipated a high level of monitoring and support is advisable to minimise the risk of overdose. LINKS Nugget **7.1**

After the study the clinics switched to injected octreotide to control vomiting and diarrhoea, sometimes administered by a trained family member. This could instead be done by clinic staff at the assessment visit (if detoxification starts soon after) or through a home visit by a nurse. Using lofexidine instead of clonidine would reduce the risk of complications from low blood pressure such as collapse and injury.

Bearing these considerations in mind, there seems no reason why rapid home detoxification should not be considered for a limited group of patients. Primarily these will be relatively low-dose heroin users not also dependent on benzodiazepines who have suitable home environments with families who will closely monitor their progress and respond appropriately.

Featured studies Carreño J.E. *et al*. "24-hour opiate detoxification and antagonist induction at home – the 'Asturian method': a report on 1368 procedures." *Addiction Biology*: 2002, 7, p. 243–250. Copies: apply DrugScope.

Additional reading Glasgow N.J. *et al*. "Accelerated withdrawal from methadone maintenance therapy using naltrexone and minimal sedation: a case-series analysis." *Drug and Alcohol Review*: 2001, 20 (2), p. 13–22. Copies: apply DrugScope.

Contacts Colin Brewer, Stapleford Centre, 25A Eccleston Street, London SW1W 9NP, England, dr.brewer@staplefordcentre.co.uk.

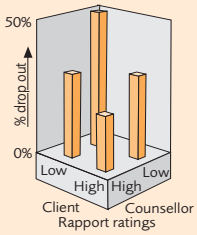
Thanks to Dr William Shanahan of the Kensington and Chelsea Drug Treatment Centre for his comments.

9.2 How to identify retention-enhancing alcohol counsellors

Findings An exploratory study of problem drinkers has tested a practical means of identifying in advance which therapists are most likely to retain clients.

The Finnish study allocated 66 new outpatient counselling clients to one of four therapists. Allocation was not random but their caseloads were comparable. Clients were typically socially stable and in their thirties or forties. Beforehand the therapists had been rated for their empathy, genuineness, respect for the client and concreteness (specific and direct expression of feelings and experiences), based on their written accounts of how they would respond to five counselling scenarios. The raters were qualified or student social workers who had been asked to adopt the point of view of service users.

After their first sessions, clients and therapists independently reported the degree of rapport they had felt with the other. When both saw their rapport as good, only a fifth of clients later dropped out; when both saw it as poor, half did so. When their perceptions differed, the proportion (about a third) was in between. Therapists who on average experienced more rapport tended to have clients who felt the same and who more often completed therapy, a proportion which ranged from under 40% to nearly 90%. To a degree the variations in rapport and retention could have been predicted from the ratings therapists were given before seeing the clients.



In context The study was too small for extended statistical analyses, not randomised, and the results may be peculiar to the clinic, counsellors and clients studied. However, it does build on a larger US study which randomly allocated 247 new alcohol patients to eight counsellors who had been rated using the same technique *Additional reading*. As might be expected, in this inpatient setting ratings were unrelated to length of stay, but up to two years later hospital records indicated that relapse occurred less often and on fewer days if the patient's counsellor had rated high on the dimensions replicated in Finland. Parallel findings in different settings and countries bolster confidence that the ratings probe important personal qualities.

There is also a considerable body of work confirming that therapist-client rapport is an important influence on retention and outcome. This includes a British study which found that problem drinkers were far more likely to regularly attend for treatment if the therapist-client interaction was characterised by feelings of warmth on both sides and if the client felt the therapist was empathic and understanding. The featured study adds a possible means for predicting which therapists are most likely to generate these feelings, one seemingly based on a human reaction to their personal qualities rather than a professional assessment of their skills. Raters prepared for this task only by reading a description of the four dimensions yet (as in an earlier study by the same team) tended to agree on how they scored each therapist.

LINKS Nuggets **9.3 7.4 6.6 3.7 3.6 2.2**

Practice implications Which therapy is deployed is much studied and often makes little difference; the therapist's interpersonal style is paid less attention but is often influential. These qualities can be gauged at recruitment or during performance reviews using a procedure similar to that employed in the featured study. The same procedure has potential as a training aid and as a tool to help counselling teams reflect on their work. Services could also consider asking the therapist to rate their feelings of rapport with the client after the first therapy session and assigning another member of staff to assess the client's feelings. This would help monitor counsellor performance and identify clients at greatest risk of dropping out, who may need to switch to another counsellor or be given special attention. None of these procedures requires special skills or training.

Featured studies Saarnio P. "Factors associated with dropping out from outpatient treatment of alcohol-other drug abuse." *Alcoholism Treatment Quarterly*: 2002, 20(2), p. 17–33. Copies: apply Alcohol Concern.

Additional reading Valle S. "Interpersonal functioning of alcoholism counselors and treatment outcome." *Journal of Studies on Alcohol*: 1981, 42, p. 783–790. Copies: apply Alcohol Concern.

Contacts Pekka Saarnio, University of Tampere, Pinninkatu 47, Tampere, FIN-33014, Finland, fax 00 358 3 215 7484, e-mail pekka.saarnio@uta.fi.

Thanks to Sue Kenten of Drug and Alcohol Services for London (DASL) for her comments.

NUGGETTE

Subcutaneous **naltrexone implants** which block the effects of heroin for six or seven weeks could reduce the early relapse rate after detoxification. A new report documents outcomes for 101 patients including the first to be implanted in Britain in 1997 and a second intake treated three years later.[1] For both the implants typically followed rapid detoxification. During the 12-week follow-up period, continuing patients would have had to have the implant replaced, a relapse opportunity. Despite being encouraged to do so, most did not repeat the implant, possibly due to the expense. Nevertheless, just 17 were reported to have relapsed and perhaps 23 if the worst is assumed of the six who could not be contacted. There were two deaths apparently unrelated to the implant or to relapse to heroin use, an important finding since any abstinence-based therapy carries with it the risk of overdose if patients resume opiate use. A third of the second intake 'tested' the implant in the first few days yet most did not persist, suggesting that the procedure helps some who would otherwise quickly relapse sustain at least several weeks without regular heroin use. Similarly, a German study of 108 patients on naltrexone (69% implants) after rapid detoxification found that after a year, 53% of the 90 who could be traced were abstinent; 20% more sustained this with implants than with oral naltrexone.[2] More research is needed on the relative benefits and risks of non-opiate pharmacological treatments like naltrexone versus substitution treatments like methadone maintenance, exploring who is most likely to benefit from which.

1 Foster J. *et al*. "Naltrexone implants can completely prevent early (1-month) relapse after opiate detoxification: a pilot study of two cohorts totalling 101 patients with a note on naltrexone blood levels." *Addiction Biology*: 2003, 8, p. 211–217.
2 Gölz J. *et al*. "Catamnestic outcome of opiate addicts after rapid opiate detoxification under anaesthesia, relapse-prophylaxis and psychosocial care." *Suchtherapie*: 2000, 1, p. 166–172.

NUGGETTE

An update from the English education watchdog Ofsted shows that the fact that 96% of English secondary schools say they have a **drug education** policy is no guarantee of **quality**. The inspectors found drug education generally "adequate" but less than good in 60% of lessons.[1] Lack of interactivity was a major failing: the 'facts' are taught but pupils are usually not involved in constructive discussion of their views, attitudes and values and only rarely are they or their parents consulted about the overall programme,

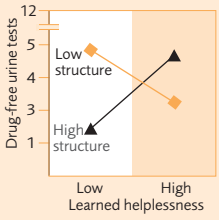
Similarly, research on drug education in Scottish schools goes behind official statistics which optimistically record that 98% of Scottish schools provide drug education "in line with current national advice". Interviews with staff in nine secondary schools and a direct-observation case study in one revealed that they commonly fell short of best practice.[2] Very few had developed a comprehensive drug education policy with clear goals, reflected in widespread confusion over the "difficult" issue of harm reduction. When it came to planning the programme, most did not involve pupils and none involved parents. Though classroom discussions were common, their scope must have been limited by the active discouragement of pupil self-disclosure, wariness over harm reduction, and a strong if implicit message that the only right decision was not to take drugs. The author, now a drugs/alcohol health promotion officer with the Greater Glasgow NHS Board, argues that "fundamental changes to how drug education is approached … would be required to resolve these issues." Recommendations include the formalisation of personal and social education as a topic for which schools receive recognition, a focus on quality in the monitoring of its implementation, and specific training and qualifications for teachers as specialists in the subject.

1 Ofsted. *Drug education in schools: an update*. November 2002.
2 Fitzgerald N. *School-based drug education in northeast Scotland – policy, planning and practice*. June 2003. Copies: apply author, niamhief@hotmail.com.

9.3 Counselling: style matters

Findings US research has revived the idea of patient-treatment matching, but with a difference – matching to therapeutic styles rather than distinct therapies.New clients at an inner-city addiction service were randomly allocated to 12 weekly sessions of one of two styles of individual therapy. The highly structured option focused on behaviour, directing the client to identify concrete behavioural goals and teaching cognitive-behavioural strategies for reaching them. In the less structured option, the same counsellors focused on feelings, followed the client's lead, and acted as a sounding board for them to develop their understanding. Cocaine was the main drug problem. Typically clients were poor, black, single unemployed men. By report ❶ 80 had been randomised, by report ❷ 143.

Across all the clients, outcomes from the two approaches were equally good during treatment and nine months after treatment entry. However, more depressed clients or those who felt unable to control their everyday lives ('learned helplessness') did much better when the counsellor directed therapy. Less depressed clients and those who felt more able to control their lives did better in the less structured option. Treatment readiness at the start of treatment was associated with later abstinence, but only in the highly structured therapy. Combining all the relevant variables maximised the ability to predict who would do well in which approach.



In context The therapeutic dimensions tested in the study have been researched most in psychotherapy, but addiction studies have started to explore them. A recent study of alcohol patients in couples therapy found that a therapeutic focus on emotional experiences helped distressed patients cut their drinking, but made outcomes worse for those less distressed. As in psychotherapy, the same study found that highly defensive patients and those who reacted against attempts to influence them did best when the therapist was less directive, worst when they were more directive. This parallels Project MATCH's finding that alcohol outpatients prone to react angrily did best in non-directive motivational therapy because this reduced their resistance to treatment, while those least prone to anger did best in the more directive therapies. These findings seem close to the featured study's findings on the relationships between 'learned helplessness', depression and the directiveness of therapy.

As in the featured study, a study of 12-step based residential rehabilitation found that feeling in control of your life does not always promote recovery – it depends on the therapy. The presumed explanation was that 12-step programmes require the opposite of self mastery – surrender to a higher power. Apart from the role of particular variables, such studies suggest that matching based on multidimensional client and therapeutic profiles is more likely to succeed than simplistic single, variable matches.

LINKS Nuggets **9.2 6.4 4.4**

Practice implications Evidence is strong enough to advise a non-directive therapeutic style with clients who feel in control of their own lives and/or whose anger or defensiveness would otherwise lead to a counter-productive reaction, and possibly too a more directive style with clients at the opposite ends of these dimensions. Beyond this, there is insufficient research to be confident about which styles work best with which people in which situations. However, what is now clear is that therapeutic style does matter. Influential dimensions include directiveness, emotional versus behavioural focus, and the degree to which painful emotions are addressed. The featured study shows that therapists can deploy approaches at opposite poles on these dimensions, raising the possibility that they can also be trained to assess which mix is likely to suit which clients. The ability to make this assessment could be one mechanism through which counsellor empathy and good communication skills improve outcomes.

Featured studies ❶ Gottheil E. *et al*. "Effectiveness of high versus low structure individual counseling for substance abuse." *American Journal on Addictions*: 2002, 11, p. 279–290 ❷ Thornton C. *et al*. "Coping styles and response to high versus low-structure individual counseling for substance abuse." *American Journal on Addictions*: 2003, 12, p. 29–42. Copies: for both apply DrugScope.

Contacts ❶ Edward Gottheil, Department of Psychiatry and Human Behavior, Thomas Jefferson University, 833 Chestnut Street East, Suite 210-E, Philadelphia, PA 19107, USA, edward.gottheil@mail.tju.edu ❷ Charles Thornton, mailing address as above, charles.thornton@mail.tju.edu.

9.4 Ways to expand shared care for opiate addicts

Findings Proactively offering specialist support increases GP involvement in 'shared care' was the key finding of a study in the north west of England. The study assessed how many of the clients of a community drug service moved to shared care after their GPs had been invited to enter into joint care arrangements.

The invitation took one of two forms. The first was a letter from the service's manager offering to discuss shared care arrangements and to provide an information session, with a follow-up letter six months later. Case workers also approached GPs about individual clients. The second version also consisted of two letters six months apart, but from the service's primary care liaison worker who offered to meet staff and to provide extensive and continuing support including shared care protocols, patient review clinics at the surgery, help with patients at risk of relapse, and facilitating transfer to shared care. The same worker also assessed and reviewed any of the GPs' patients attending the service. Practices which did not respond were phoned.

50 primary care teams in an area with a low uptake of shared care were randomly allocated to the two approaches. At first none of the clients/patients were in shared care. Twelve months later, this was still the case for clients registered with practices sent the first invitation, but 18 of the service's 75 clients at practices approached in the second way were now in shared care. However, they were registered with just seven of the 26 practices offered liaison worker support.

In context The study supports advice in national guidelines that a liaison worker can facilitate shared care by providing readily available, specialist support, but there is no guarantee that a similar study would produce similar results elsewhere. Engaging GPs is a complex process dependent on the local drug use, primary care and drug service environments. Altering the invitation procedure will have variable results depending on other factors.

Netting just seven practices and 18 patients may seem disappointing, but two out of three of the study's assessors had to concur that shared care was in place, and frequently they disagreed. Conceivably, many more clients and practices were assessed as in shared care by at least one, or might have been agreed on by two if the criteria had differed. Though even at 18 months there was no evidence of this in the study area, elsewhere the enthusiasm and example of a few practitioners has spearheaded a successful drive to recruit local colleagues.

LEFT HANGING?
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Practice implications National UK strategies aim to implement shared care in virtually every health or drug action team area and to involve 30% of practices, yet new primary care contracts see drug misuse treatment as an 'enhanced' service which funders can choose whether to fund and practices whether to opt in to. This makes it essential that drug services and health authorities proactively encourage shared care, aided by new, relatively generous payments for GPs.

There can be no universal model for engaging GPs or for shared care, and no substitute for assessing the local situation. Reaching beyond an enthusiastic core can take years of persistently addressing the concerns of GPs. In other areas, once it is clear that they will not be alone and at risk of becoming overwhelmed, GPs quickly come on board. A drug service liaison worker is one common model which the study shows can engage some practices. Elsewhere, primary care authorities have appointed a GP with special interest and experience in the subject who can support other GPs, perhaps including initial assessment and handling complex cases. A step up is to establish a central clinical service whose primary role is to share care with GPs. Where drug services have hitherto been inaccessible, this has worked well because the effect is to take some of the load off GPs rather than asking them take on a load previously left to specialists.

LINKS Nuggets **6.7 2.9**

Featured studies Dey P. *et al*. "Randomized controlled trial to assess the effectiveness of a primary health care liaison worker in promoting shared care for opiate users." *Journal of Public Health Medicine*: 2002, 24(1), p. 38–41. Copies: apply DrugScope.

Additional reading Substance Misuse Management in General Practice (SMMGP) web site, www.smmgp.co.uk.

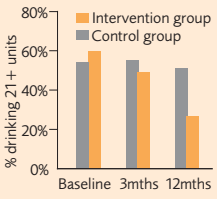
Contacts Paola Dey, Centre for Cancer Epidemiology, Kinnaird Road, Manchester M20 4QL, England, Paola.Dey@grover.cce.man.ac.uk.

Thanks to Jim Barnard of SMMGP for his comments.

9.5 Nurses help prevent future hazardous consumption while caring for injured drinkers

Findings A British study has shown that hospital clinics dealing with conditions commonly related to excessive drinking can practically and effectively reduce drinking at minimal cost.

Young men who had suffered facial injuries after drinking were approached by researchers at an outpatient jaw and face clinic in Cardiff a few days after being referred there from an accident and emergency department. Of 219, 151 had drunk at least eight units of alcohol before their injury (previously found to distinguish injured drinkers from uninjured companions), met other study criteria, and agreed to participate. Most had been assaulted; hazardous and excessive drinking were the norm, but few were highly dependent.



Patients were randomised to normal care (the control group) or to this plus a brief motivational alcohol intervention of up to 20 minutes, conducted immediately by one of the clinic's senior general nurses. Follow-up data was collected from 92% of the patients three months later and from 81% after 12 months. Alcohol consumption in the control group had barely changed: at 12 months, half were still drinking above recommended limits and 81% scored above AUDIT's hazardous drinking level. In contrast, on average intervention subjects were drinking 10 units less a week, 27% (down from 60%) were drinking excessively, and 58% at hazardous levels. Gains were most evident at the later follow up.

In context The potential of brief alcohol interventions in medical settings is well established but concerns remain over effectiveness and practicality in normal practice. The featured study reduces these concerns, but only for a certain combination of setting and patients: a clinic insulated from the disruptions of an emergency service whose patients attended for lengthy periods, had recently been reminded of the hazards of drinking, but were not distracted by the immediate aftermath of injury.

In one way the study did depart from everyday practice because researchers followed up the patients. For them the process might have seemed like an extended, multi-session intervention, potentially improving outcomes. As in previous studies, drinking reductions can be expected to lead to reduced alcohol problems and injury, but these outcomes were either not reported or not significantly reduced.

Regarding practicality, alcohol's obvious relevance in such a setting should help motivate staff to address the issue and calm concerns about alienating patients. Using the clinic's own staff was an important advance which meant that the intervention took little or no extra time since it could be done during routine care. Training and supervision were the main costs. Two 90-minute workshops were followed by monthly supervision and top-up training. Expert and enthusiastic guidance from a research team will not be available everywhere, but there is growing expertise in motivational approaches in alcohol agencies and among clinical researchers.

LINKS *Nuggets* **8.3 6.1 3.10 3.3 2.8** • *How brief can you get?* issue 2 • *Investing in alcohol treatment: brief interventions*, issue 7

Some emergency patients who might have benefited from the intervention will have missed out because they did not have injuries of the kind requiring referral to the clinic. Conducting the intervention within the accident and emergency department could have reached more, but here practicality becomes a major issue. There have been positive findings, but studies have also found that in this setting very few patients are identified for intervention and fewer still receive it.

Practice implications The salience of alcohol in such settings suggests that patient numbers would justify training staff to routinely screen for risky drinking and to conduct brief interventions. It is important to monitor screening rates and to regularly encourage staff (eg, by feeding back the outcomes of the screening), otherwise few patients may be screened. Patients with moderate drinking problems or who are drinking excessively should be targeted for an immediate brief intervention using a non-confrontational, motivational interviewing style which aims to reduce problems rather than drinking (though one will often require the other). If follow-ups can be factored in, outcomes can be monitored and are also improved. Dependent patients require referral to treatment, preferably pursued then and there and followed up to maximise treatment uptake. In costing these programmes, hospital trusts should bear in mind potential future savings due to reduced re-admission rates and shorter inpatient stays.

Featured studies Smith A.J. *et al*. "A randomized controlled trial of a brief intervention after alcohol-related facial injury." *Addiction*: 2003, 98, p. 43–52. Copies: apply Alcohol Concern.

Contacts Jonathan Shepherd, University of Wales College of Medicine, Heath Park, Cardiff CF4 4XY, Wales , 029 2074 4215, ShepherdJP@cf.ac.uk.

Thanks to Robert Purser of Aquarius Action Projects for his comments.

OFFCUTS

What happens (or might happen) when **laws banning possession of controlled drugs** are repealed or relaxed is the subject of much research; what happens when such laws are introduced is for most countries lost in the mists of time. Not so for the Czech Republic, which from the 1 January 1999 criminalised unauthorised possession of narcotic and psychotropic substances for personal use, a controversial move at first vetoed by the president. The government commissioned Palacky University to research the impact of the change under the scientific supervision of Florida State University, establishing the project's independence. The extensive English-language summary[1] records that while the catastrophic consequences predicted by some did not materialise, neither did the anticipated benefits: the change "had hardly any impact on drug-related problems". As a result, all the expenditure on the law and its enforcement was wasted. Estimated at nearly £800,000, the potential waste was certainly far greater since the estimate included only the cost of prosecutions and only for the first two years.

Interviews with drug users suggested practically nil impact on established addicts but a "clear trend" for recreational users to avoid services for fear of social stigmatisation and contact with the police. Cannabis and 'hard' drug markets merged. The squeezing out of small-time home production, and the need to avoid detection, encouraged escalation both in the potency of the products and in the quantities sold at any one time. There were clear signs of the emergence of a professionalised and 'hardened' market featuring mobile phones, 'runners' and relatively powerful dealers, familiar to countries such as Britain with long-standing anti-possession laws.

Inconsistency in the application of the law, also familiar to Britain, quickly became apparent as police found the new powers a convenient way to pursue other agendas. Had the law been rigorously enforced the waste of resources would have been even greater, argues the report, though it is at least conceivable that wholehearted implementation might have have had a greater deterrent impact (but perhaps also further negative side-effects).

1 Zábranský T. *et al. PAD: Impact Analysis Project of New Drugs Legislation (summary final report)*. Prague: Czech Government, 2001. Download from www.ceis.it/focalpoint/download/Czech_impact_study.pdf.

Criminalising drug possession in the Czech Republic 'did not reduce drug problems'

9.6 Alcohol counselling: try brief therapy first

Findings An Australian study has extended work on brief alcohol interventions beyond the hospital clinic to a drug/alcohol counselling service, confirming their potential as a first-line response to less severely affected clients seeking help with drinking problems.

869 new clients completed a computerised assessment which established that 421 were seeking help with problems related to at least moderately heavy drinking. 295 agreed to enter the study and were randomly allocated to a up to 90 minutes of therapy (in one or several sessions) or to a scheduled four and a half hours of cognitive-behavioural therapy over six sessions, both to be completed within six weeks. The shorter intervention adopted the FRAMES approach incorporating feedback on the client's alcohol problems and an empathic counselling style offering advice but also focusing on personal responsibility for change.

LINKS Nuggets **9.7 8.5 7.3 5.11 5.3**

Six months after therapy ended, an attempt was made to follow up the 223 clients who had received at least half the scheduled intervention time. 133 responded. On the assumption that non-responders had not changed their drinking, both interventions had been equally effective in reducing drinking and drink-related problems. When the analysis was limited to responders, the conclusion was the same. For example, after either intervention the proportion of responders drinking at hazardous levels had fallen from nearly a half to under a fifth. Since the briefer option cost least, it was the most cost-effective.

In context Most previous studies have also found brief alcohol therapies equivalent to longer or more intensive therapies, but usually they suffered from limitations actually or potentially present in the featured study. Foremost are selection and attrition processes which tend to exclude the most severely dependent and problematic drinkers, the ones most likely to gain more from extended treatment. Unusually, the featured study took this further by only following up clients who had completed at least half their therapy, four in ten of whom did not respond. The remaining sample had nearly all completed therapy and had started it with relatively low levels of alcohol and other problems. Only among this subset can it claim to have found briefer therapy as effective as longer. Another common problem is that the intended gap between brief and longer therapies is in practice considerably narrowed, partly because research assessments themselves have an impact. This may have been a factor in the featured study. The therapies also shared one feature which can itself have a powerful impact – feedback to the client of their alcohol consumption/hazard levels compared to population norms.

Research to date shows that brief interventions can have an impact on many drinkers seeking help which rivals that of extended therapy, but such interventions have yet prove themselves across the full range of problem severity seen at treatment services. On the other hand, neither is there convincing evidence for the superiority of longer treatments practised in a variety of treatment settings, which now includes counselling services.

Practice implications Current evidence supports routinely offering assessment plus a relatively brief intervention to new alcohol treatment or counselling clients with low to moderate dependence and problems. Active ingredients seem to include: feedback to the client on how much they are drinking, how this compares with population norms and the associated risks; an empathic, non-confrontational counselling style; and self-help materials to take away. Many clients react as well to this as to more extended treatment, improving cost-effectiveness. However, it is advisable to monitor their reaction and if needed to offer more intensive help. Monitoring may itself be beneficial as well as enabling the intervention to be evaluated, and satisfying ethical concerns over possible under-treatment. Another approach is to offer all clients extended treatment but to incorporate a brief intervention in the first session or immediately after assessment, ensuring that even those who later drop out have received a potentially effective intervention. Treatment can then be curtailed for clients who respond well, improving cost-effectiveness.

Featured studies Shakeshaft A.P. *et al*. "Community-based alcohol counselling: a randomized clinical trial." *Addiction*: 2002, 97, p. 1449–1463. Copies: apply Alcohol Concern.

Contacts Anthony Shakeshaft, National Drug and Alcohol Research Centre, University of New South Wales, Sydney, New South Wales 2052, Australia, fax 00 61 2 9385 0222, a.shakeshaft@unsw.edu.au.

9.7 Initial motivational session improves alcohol treatment retention and outcomes

Findings Two promising induction procedures for improving treatment retention and outcomes have been directly compared at a US outpatient alcohol service. Motivational interviewing emerged as preferable to 'role induction'.

126 callers to the service were eligible for the study (dependent on or abusing alcohol but not recently in treatment) and agreed to participate. They were randomly assigned to a control group simply given an appointment for their first therapy session, or to one of two 90-minute preparatory sessions. The motivational session aimed to bolster commitment to drinking reductions using written feedback on the client's drinking and related risks. The role induction session included information on what to expect from the therapy and how to get the most from it, and forewarned the client of possible negative feelings. All but a few clients attended their assigned sessions.

Only the motivational interview significantly improved attendance and drinking outcomes. Clients assigned to this subsequently attended 12 out of 24 therapy sessions compared to eight for the controls. During therapy and the 12-month follow-up they drank heavily on under two days a month compared to five for the controls, used other drugs less often, and felt better physically, effects which did not fade with time. The motivational interview seemed to promote attendance by helping clients to rapidly control their drinking. In turn, attending regularly may have helped them maintain this control. Surprisingly, the interview did not improve attendance at the very first therapy session. Neither were there any measurable added benefits in terms of alcohol-related problems or psychological well-being.

In context Previous research has also found that preliminary motivational interventions enhance treatment attendance and/or outcomes, while role induction improves initial rather than long-term attendance. However, when instability and lack of resources rather than lack of motivation are the main obstacles, motivational interventions have little impact.

What the featured study adds is a direct comparison between two popular approaches. Confidence in its results is boosted by a high follow-up rate and multiple, convergent outcomes. One complication

NUGGETTE

One of the most controversial issues to be dealt with in forthcoming guidance from the Department for Education and Skills is **testing school pupils for drugs**. A draft raises serious issues which might make some schools reconsider, such as whether testing is consistent with their pastoral responsibilities. Now US research questions whether testing actually deters drug use.[1] Researchers extracted drug use data from national surveys of about 75,000 pupils in grades eight, ten and 12 (spanning the teenage years) in over 700 schools, then matched this with information on drug testing policies obtained from over 80% of the same schools. Over the years 1998 to 2001 about a fifth of schools tested pupils. Whether schools tested at all, and whether they tested on suspicion of drug use, were both unrelated to whether pupils had used cannabis in the past 12 months and the number of times they had done so. The same was true when the focus was narrowed to male school athletes or to 'experienced' cannabis users. Use of other illicit drugs was also unrelated to testing. The researchers acknowledge the possibility that schools which instituted testing did so because they had high rates of drug use and that testing reduced these to average levels, but comment that this seems unlikely, and the study is being interpreted as the most solid evidence to date that testing pupils does not deter drug use. The study did not assess whether testing deterred pupils from using or being under the influence of drugs actually at school. However, if this had occurred, experienced cannabis users (who on average had used the drug 20 or more times in the past year) should have been able to fit in more use occasions in schools which did not test. There was no hint of this.

1 Yamaguchi R. *et al*. "Relationship between student illicit drug use and school drug-testing policies." *Journal of School Health*: 2003, 73(4), p. 159–164. Copies: apply DrugScope.

is that in effect both intervention groups had shorter waiting times than the controls, but this cannot explain why only the motivational interview improved on normal procedures. Other measures might have raised attendance to the point where either preparatory session would have made little difference. For example, the resources put into these sessions could have been used to accelerate treatment entry and to prevent clients missing sessions by contacting them shortly before, reminding them of the time, and motivating attendance.

Such initiatives commonly improve not just retention but also substance misuse outcomes, sometimes even when attendance is unaffected. As well as helping ensure that the client receives the services they need, possibly they deepen their commitment to therapy by demonstrating concern, responsiveness, and preparedness not to let them slip through the net. Similar responsiveness, but demonstrated in the early stages of therapy itself, has been found to be an important retention-enhancing factor.

LINKS Nuggets **9.6 8.6 8.5 7.3 6.6 3.7 2.2** • *The grand design: lessons from DATOS*, issue 7

Practice implications Alcohol counselling services should consider integrating a motivational interview into the initial contact to improve retention and outcomes. At the same time an assessment could be made of whether the client, despite being motivated to attend, may be blocked by lack of stability or resources or by social pressures or obligations. These clients may need intensive, practical assistance to clear away the obstacles. Sometimes this work (as in the featured study) is undertaken by specialist staff, but there is a strong argument for skilling all case workers to undertake these roles with their clients. Potential benefits include continuity for the client, an early start to forging a therapeutic relationship, and eliminating communication breakdowns between staff. Other means to improve attendance, retention and outcomes include pre-appointment reminders and reducing delays between initial contact and starting therapy.

Featured studies Connors G.J. *et al*. "Preparing clients for alcoholism treatment: effects on treatment participation and outcomes." *Journal of Consulting and Clinical Psychology*: 2002, 70(5), p. 1161–1169. Copies: apply Alcohol Concern.

Contacts Gerard J. Connors, Research Institute on Addictions, The State University of New York, 1021 Main Street, Buffalo, New York 14203, USA, connors@ria.buffalo.edu.

Thanks to Gillian Tober of the Leeds Addiction Unit for her comments.

NUGGETTE

Following legislation to regulate **drug consumption rooms** the German Ministry of Health commissioned a study of all 19 of the country's facilities. These offer a legally sanctioned building in which to inject (or take by other means) drugs, with emergency intervention and medical care on-site. Published in full in German, a summary has been released in English.[1] A 10-year trend analysis in four cities concluded that the facilities had significantly contributed to reductions in drug-related deaths. Across Germany, from 1995 to 2001 there were 2.1 million visits to the rooms of which 5426 culminated in a drug-related emergency which could have ended in death. In the event, there were none. Normally about one in 20–30 overdoses is fatal. A recent review said the study provides the "most compelling evidence" yet that drug consumption rooms reduce overdose deaths.[2]

Another study assessed the first 18 months of Australia's first drug consumption room, the focus of intense controversy. It reported that there were 56,861 visits by 3810 registered users who experienced 409 overdoses, of which in a year at least four and perhaps nine would otherwise have been fatal.[3] Due probably to its small capacity (under 5% of all injections in the area took place on its premises) and the fact that visitors used it on average just once a week, the facility made no discernable impact on the local overdose rate. As in Germany, the report notes benefits such as improved injecting technique, provision of health advice and care, and referral to other services.

1 Poschadel S. *et al. Evaluation der Arbeit der Drogenkonsumräume in der Bundesrepublik Deutschland*. English abstract. November 2002.
2 Kimber J. *et al*. "Drug consumption facilities: an update since 2000." *Drug and Alcohol Review*: 2003, 22(2), p. 227–233.
3 MSIC Evaluation Committee. *Final report of the evaluation of the Sydney medically supervised injection centre*. 2003.

9.8 Naltrexone helps heavy drinkers gain control

Findings A Spanish study suggests that naltrexone can augment a controlled drinking programme, potentially extending its role from people seeking treatment at alcohol clinics to moderately dependent, 'binge' drinkers identified in hospitals and primary care.

Of 214 male primary care patients referred to the research project, 74 were judged suitable for a controlled drinking programme (not so dependent as to require detoxification and free of liver, neurological or psychiatric illness). 60 began three months of weekly individual therapy, for a randomly selected half supplemented by daily naltrexone. Typically patients were young (average 30 years) and moderately dependent, drinking heavily when they did drink but not every day. Abstinence was advised for the first month. All but three complied. In the next two months strategies learned in the first were deployed to control drinking. The following year patients were seen monthly by their therapists and quarterly by researchers to assess outcomes.

During therapy few patients drank heavily. Though naltrexone patients reported less desire to drink, this was reflected only in a non-significant trend to drink less. In the following year they not only continued to crave alcohol less but also drank significantly less. In both groups about four in ten resumed heavy drinking but those who had taken naltrexone did so on fewer days (once versus twice a week) and consumed less (under two units a week compared to over four).

In context This is the only controlled study specifically to test naltrexone with patients who regularly drink to excess but are not severely dependent. One weakness is that patients and therapists knew they were using naltrexone and the controls were not given placebos. This means the study is closer to normal practice but also that patients' and doctors' expectations could have contributed to the results.

LINKS Nuggets **7.2 5.1 5.2 3.9** • *Interesting times in the pharmacotherapy of alcohol dependence*, issue 8 • Nuggette p.9, issue 7

Naltrexone's main effect is to 'normalise' drinking and to prevent lapses becoming relapses rather than to prevent drinking altogether. It seems to work by dampening the experienced and anticipated rewards of intoxication. These features should make it specially suitable for people who want to curb their 'positive' desires to drink to excess, rather than for patients drinking continuously to avoid negative states such as withdrawal or anxiety. Severely dependent drinkers with low social support and unstable lifestyles may not take naltrexone regularly enough, and the entrenched, multi-faceted nature of some alcoholics' problems can mean that it adds little or nothing to conventional treatment. For these patients, abstinence may be the only sustainable way out of their dependence, a route which naltrexone seems less able to promote.

Practice implications Naltrexone shows promise as an adjunct to controlled drinking programmes for drinkers who regularly drink to excess but are not continuous, physically dependent drinkers. Such programmes could be among the interventions available to GPs (probably by referral), occupying an intermediate position between brief interventions for risky drinkers and referral to detoxification and treatment for the more severely dependent. Suitable patients should include those who when they start drinking find difficulty stopping but who have sufficient stability, motivation and support to take the medication. Research suggests that naltrexone is best combined with skills-based therapies aimed at preventing lapses becoming relapses, and that after an initial period it can be taken 'as needed'.

Two major UK studies at alcohol clinics have provided greater support for naltrexone than for acamprosate, the main alternative medication. Side-effects are more common and more troubling with naltrexone, but the major contraindications (opiate dependence and significant liver disease) are unlikely to disbar drinkers thought suitable for a controlled drinking programme. Though not licensed for alcohol treatment in the UK, naltrexone is used in some treatment centres.

Featured studies Rubio G. *et al*. "Naltrexone improves outcome of a controlled drinking program." *Journal of Substance Abuse Treatment*: 2002, 23, p. 361–366. Copies: apply Alcohol Concern.

Additional reading O'Malley S. *Naltrexone and alcoholism treatment*. US Dept. of Health and Human Services, 1998. Download from http://hstat.nlm.nih.gov.

Contacts Gabriel Rubio, Unidad de Conductas Adictivas, Hospital Universitario 12 de Octubre, Avda de Cordoba s/n, 28041 Madrid, Spain, fax 00 34 1 390 8598, rubio-v@mi.madritel.es.

Thanks to the National Addiction Centre for their comments.

FEATURE NUGGET

9.9 DTTOs: the Scottish way cuts the failure rate

Findings Non-compliance serious enough to lead the court to revoke the sentence is the norm for drug treatment and testing orders (DTTOs) in England and Wales, leading to high reconviction rates; in Scotland, such failures are rare. Two studies help explain the gap.

In London (study 1) researchers studied all 12 DTTO teams and at seven interviewed 76 offenders four months after starting their orders. When they had agreed to the order, half had been unclear what it entailed. Already a quarter were in custody, nearly all after their orders had been revoked. Another 15% were in residential rehabilitation. The constraints on these offenders could have largely accounted for the overall reductions in drug use and offending. Though generally appreciative, a large minority of the full sample were critical of the links made by their treatment service to other agencies and (perhaps related to this) how the service had dealt with their other (presumably other than addiction) problems.

Just two of the seven teams were seen as effectively managed. Rather than a shared model of good practice, procedures were driven by individual preference and resource and staffing issues. What teams shared was a lack of individualised care planning. Only three said they were meeting national standards by breaching (formal notification of failure to comply) on the second missed appointment and there was inconsistency over using breach to motivate clients. Staff did not see court reviews of breach cases as helpful, partly because hearings occurred so long after the event. Half the nationally intended number of drug tests were conducted. There was no consistency in whether tests were used as a therapeutic or a disciplinary tool nor in how they were used in these capacities.

In 13 and nine months respectively, at pilot DTTO schemes in Glasgow and Fife just three out of 96 orders had been revoked (study 2). Interviews with 28 offenders show the typical DTTO participant to be a male heroin addict in their late twenties with an extensive criminal record, who was previously spending hundreds of pounds weekly on drugs raised through prolific property offending. The similarity to DTTO offenders in England makes it unlikely that the disparity in DTTO failure rates is due to differences in the type of offenders.

In context Of those which have ended, 69% of DTTOs in England and Wales were revoked because the offender was convicted or did not comply with the order, the cause of 51% of the revocations. Findings from the earliest schemes in England show that nearly all offenders whose orders are revoked are soon reconvicted, that their offending changes little from before the order, and that a scheme's revocation rate parallels its reconviction rate. If this applies nationally, DTTOs in England and Wales are failing to make the anticipated impacts on offending and on diverting drug using offenders from prison. In Scotland just a fifth of offenders are reported to the courts for breaching their orders and even fewer have their orders revoked.

By 'tripping up' offenders and contributing to a high failure rate, certain features of DTTO schemes probably impede rehabilitation and reduce their impact on recidivism. What these might be can identified from the featured studies, from earlier work on English pilot schemes (◤ *Links*), and from international research on drug courts. Several features of DTTOs in England and Wales contradict the lessons of this research: many offenders are unsure what they are signing up to and do not know what the consequences of their actions will be; commonly these consequences are inconsistent and distant from the action; treatment options are limited and not systematically tailored to the individual; offenders often see different judges or magistrates for sentencing and for reviews.

The biggest issue for England and Wales is revocation. Here the lesson from drug courts is that a willingness to persist despite some initial offending and non-compliance turns the tight structure imposed by the court into a positive feature, rather than one which leads most offenders to fail. A range of more minor sanctions means that transgressions can be responded to (the offender doesn't simply 'get away with it') without ending the order. In England and Wales the requirement to initiate breach on the second unacceptable failure to comply, coupled with the lack of alternatives to revocation, results in a high failure rate and resort to imprisonment, an escalation which still fails to curb their offending. In London, many teams felt the standards were unrealistic when offenders had to attend daily. Often they were stretched, creating inconsistency in how far that stretching should go. In turn this makes it difficult for offenders to be made fully aware of what will be required of them and later what the consequences will be if they fail to comply. Consistency between the order and its implementation was associated with better drug use and crime outcomes.

Scotland's less stringent national guidelines are subject to the court's discretion and to the overriding objective of keeping the offender in treatment. Missing appointments with the supervising officer is not normally a breachable matter. Rather than simply recording a transgression, Scottish guidance mandates an 'assertive' and rapid response by the supervising officer to address underlying problems. Courts and DTTO staff share the understanding that their target group has a 'chronic relapsing' condition which makes it unrealistic to expect near-complete compliance, reflected in the choice of long-term methadone prescribing as the most common treatment, a relatively rare choice in the English pilots. Scottish national guidance stresses individualised care while English guidance leaves less room for discretion, stipulating an onerous treatment and testing regime which provides many opportunities for failure.

LINKS Nuggets **8.11 5.6 3.11** • *First test for the DTTO*, issue 6

Scottish teams prefer the DTTO to be a standalone order, partly because the extra requirements of a probation order provide more opportunities for failure. Two out of three of the English pilots operated concurrent probation orders. Scotland's approach may be related to its retaining the option of a probation order with a condition of treatment, used mainly for offenders whose criminality is unlikely to be tackled by treatment alone. The lack of this option in England and Wales, compounded by national DTTO intake targets, may lead to unsuitable offenders being placed on DTTOs. This pressure might have been moderated if intake targets had been balanced by completion-rate targets. England and Wales have none and neither are local completion rates monitored in national reports. In Scotland, the completion rate is a nationally set performance indicator.

Drug courts were established in Glasgow and Fife after the end of study 2, but some elements seem to have been in place beforehand. A few sentencers accounted for a great number of orders and typically the offender saw the same sentencer for sentencing and review. This close relationship may have helped DTTO teams and offenders anticipate and avoid transgressions which the sentencer would see as serious enough to warrant revocation.

When breach is reported, Scottish national guidance recommends that treatment continues and courts generally do not revoke an order unless it is clearly not working. Additional to the sanctions available across the UK, Scottish sentencers can fine offenders and force absconders to attend the court to have their order reviewed. In the English pilots, breach almost always resulted in revocation.

Practice implications If permitted by national policy, changes could be made to DTTO schemes to reduce the failure rate and probably also (the evidence is insufficient) reduce recidivism. Among these are a more extensive range of rewards and sanctions. More realistic standards would reduce the failure rate directly, and because they would be implemented more consistently. Completion rate targets and/or a national emphasis on keeping offenders on the order might encourage compliance-enhancing measures. Prescriptive guidance on treatment could be replaced by a stress on individualised packages of care, with a large role for methadone maintenance for opiate-addicted offenders. Impending or actual non-compliance should elicit a swift and assertive response to help the offender get back on track. Finally, there is an urgent need for research which systematically varies features of DTTO provision to explore the causes of the high failure and recidivism rates in England and Wales.

Featured studies 1 Best D. *et al*. *Evaluating the effectiveness of drug treatment and testing orders in London*. 2003. Copies: Barbara Burns, 020 7740 8524, or Darian.Mitchell@london.probation.gsx.gov.uk 2 Eley S. *et al*. *Drug treatment and testing orders: evaluation of the Scottish pilots*. Scottish Executive Social Research, 2002. Copies: www.scotland.gov.uk/cru/kd01/green/dtts-00.asp.

Contacts 1 David Best, National Addiction Centre, 4 Windsor Walk, London SE5 8AF, England, spjedwb@iop.kcl.ac.uk 2 Susan Eley, Dept. of Applied Social Science, University of Stirling, FK9 4LA, Scotland, susan.eley@stir.ac.uk.

Thanks to Gillian Oghene and the Fife drug court team, Caterina Fagg, DTTO manager in Wakefield, Tim McSweeney of the Criminal Policy Research Unit, and Paul Beaufond of the Home Office for their contributions, and to Professor Philip Bean of the Midlands Centre for Criminology and Criminal Justice for his comments.

9.10 Family programme improves on school lessons

Findings A 'leading' drug education curriculum barely improved on normal lessons, but supplementing this with evening family sessions led to 30% fewer children starting to drink in their early teens.

The Strengthening Families Program for 10–14-year-olds consists of seven two-hour evening sessions dealing with parenting issues, plus four boosters the following year. In the first hour parents and children learn in parallel then in the second practice these skills with each other. Sessions are highly interactive and (especially with parents) use videos to model scenarios and responses. Three group leaders each work with three or four families in groups of about ten families.

Grade seven pupils (age 12–13) and their families in 36 randomly allocated schools received either Life Skills Training lessons, these plus an offer of the parenting programme, or formed an 'education as usual' control group. Questionnaires completed by pupils a month after the initial sessions were used as the baseline from which to assess a year later how many had started to use alcohol, tobacco or cannabis. Only 38% of allocated families attended a parenting session but results are reported for all those offered the intervention. About 26% of their children started drinking compared to 35–37% at the other schools. Only with respect to cannabis did Life Skills Training on its own improve on the control condition.

LINKS Nuggets **7.11 3.15**

In context An authoritative British review saw Strengthening Families as the most promising, well researched alcohol prevention programme ◤ *Offcut* p. 15, issue 6. Tested here on white rural families, its origins lie with the families of mainly black, drug using parents, and it has been designed to be suitable for US minority populations. The study was a particularly stringent test since the comparison curriculum was itself extensive and well constructed – and, unlike the evening sessions, it was experienced by nearly all the children. Contact between parents and children sharing classes and schools may have diffused the parenting programme's impact.

An earlier evaluation has now reported outcomes three and a half years after schools started an earlier version of the programme. Compared to 'education as usual', initiation of drinking and smoking and progression to regular use were substantially retarded, leading to estimates that Strengthening Families saves nearly ten times its costs by averting alcohol-related harm. Also reduced were aggressive or destructive juvenile behaviour. Thought to underlie these outcomes are demonstrable improvements in parenting and family atmosphere.

Practice implications That family interventions *can* work is now established. Remaining issues are to do with practicality, especially whether families will participate – in small rural communities, those who do may influence the entire school, but this cannot be assumed elsewhere. The Strengthening Families team found time constraints and scheduling conflicts to be the main obstacles rather than poverty or family dynamics. However, British experience is that the families in greatest need are the ones most likely to miss out. The US researchers recommend minimising time demands, maximising scheduling flexibility, personal contact, influential local supporters, incentives such as free meals, adapting the engagement process and programme to the local environment, and gaining the support of relevant agencies. Local coordinators can help overcome obstacles such as transport and childcare. British work emphasises assertively consulting and involving parents, treating drugs as one of several parenting issues, and the importance of the project leader ◤ *Additional reading*.

Though resource-intensive, the fact that the programme's benefits could extend to youth crime create a wider potential support base. Even if not implemented in full, content and methodology may be transposable into a number of family and youth work settings.

Featured studies Spoth R.L. *et al*. "Longitudinal substance initiation outcomes for a universal preventive intervention combining family and school programs." *Psychology of Addictive Behaviors*: 2002, 16(2), p. 129–134. Copies: apply DrugScope.

Additional reading Velleman R. *et al*. *Taking the message home: involving parents in drugs prevention*. DPAS, 2000. Copies: download from www.drugs.gov.uk.

Contacts Richard Spoth, Insitute for Social and Behavioral Research, Iowa State University, Iowa 50010-8296, USA, fax 00 1 515 294 3613, rlspoth@iastate.edu, www.projectfamily.isbr.iastate.edu.

Thanks to David Foxcroft of Oxford Brookes University for his comments.

9.11 Secondary school DARE ineffective without interactive extensions

Findings The first randomised trial of the DARE drug prevention curriculum for secondary school pupils found its police-led lessons ineffective unless supplemented by activities which involved pupils, parents, and communities as active participants.

Seventh or eighth grade pupils (age 12–14) in 24 randomly allocated US schools received either normal DARE lessons, 'DARE-plus', or neither (the controls). DARE-plus supplemented DARE with interactive elements involving parents and the community as well as pupils, allowing them to share or lead decision-making. It included training DARE officers in interactive teaching, a parent involvement strategy partly led by elected pupils, and extra-curricular youth activities and neighbourhood action teams organised by community workers.

Nearly 80% of the 6728 pupils were surveyed just before the programmes started and again after they had ended. Though there were positive trends, on no measure of drug use (alcohol, tobacco, cannabis) did DARE-only schools significantly improve on the controls. In contrast, among boys DARE-plus significantly retarded growth in smoking and drinking and in experience of physical victimisation, and led to significant or near-significant improvements in attitudes, beliefs and experiences thought to be underly drug use and violence. Among girls, neither programme improved on the controls.

In context DARE's original primary school curriculum has been found ineffective compared to usual or alternative approaches. This study suggests that simply extending that approach into secondary schools will also be ineffective – especially disappointing since nearly all the children had been taught DARE in their previous schools. If the approach is effective, reinforcing it later should improve outcomes. DARE accepts that it must incorporate the lessons from such research. A new primary school curriculum has been developed and a more interactive secondary school curriculum is being evaluated.

LINKS Nuggets **4.14 2.15 1.13 1.11** • *Prevention is a two-way process*, issue 5

The study's 'plus' elements (not to be confused with DARE's own PLUS supplement) were derived from Project Northland, a programme to prevent underage drinking with an unusually convincing research record. On their own (or with another classroom programme) these elements may have been as effective as adding them to DARE.

Practice implications DARE's major components are curriculum content, teaching methods, and teaching personnel. The first two are changing as DARE comes to grips with the evidence, but how far they can change may be limited by the third. The study adds to evidence that interactive teaching which allows pupils to influence content and methods is the most effective vehicle for drug education. Such teaching makes heavy demands on teaching skills and implies a willingness to allow children to interact on a contentious topic. Lessons may need to accommodate self-disclosure and pupil advocacy of a range of views, including those at odds with the law. There are question marks over whether police rather than teachers are best placed to do this work. While recognising their valuable role in stimulating and supporting drug education, research commissioned jointly by the Association of Chief Police Officers argued that police classroom input should be limited to drugs and the law. Forthcoming national guidance is expected to stress that, rather than substituting for the teacher, external contributors should be brought in only when they can provide educational inputs which the teacher cannot.

On the basis of results to date, the main benefits of DARE are relieving schools of the costs (financial and staff time) of drug education and potential improvements in relationships between police and schools/pupils. The first of these will be diminished if DARE further involves teachers. Schools keen to improve police relations but also to prevent drug problems may wish to await results from the new DARE curricula, or to implement a curriculum with a better preventive record and foster police-pupil relationships through other means.

Featured studies Perry C.L. *et al*. "A randomized controlled trial of the middle and junior high school D.A.R.E. and D.A.R.E. Plus programs." *Archives of Pediatric and Adolescent Medicine*: 2003, 157, p. 178–184. Copies: apply DrugScope.

Contacts Cheryl Perry, Division of Epidemiology, University of Minnesota, 1300 S. Second St., Suite 300, Minneapolis, MN 55454, USA, perry@epi.umn.edu.

Thanks to Alistair Lang of DARE (UK) and Niall Coggans of the University of Strathclyde for their comments.

Role Reversal

Controversial, expensive, yet promising so much, interest is increasing in prescribing heroin to heroin addicts. It's the drug field's ultimate role reversal – from killer drug to lifesaving medication. Just five studies hold the answers to whether it can work.

by **Mike Ashton**
& **John Witton**

Mike Ashton is the editor of Drug and Alcohol Findings, phone/fax 020 8888 6277, e-mail da.findings@blueyonder.co.uk.
John Witton is Health Services Research Coordinator at the National Addiction Centre.

This review is based partly on work conducted for the National Treatment Agency. At various stages it benefited from the contributions of: Wim Van Den Brink of the Amsterdam Institute for Addiction Research; Gabrielle Bammer of the National Centre for Epidemiology and Population Health at the Australian National University; Andrew Preston of Exchange Health Information; John Merrill, Consultant Psychiatrist at Drugs North West; Tom Carnwath, Consultant Psychiatrist, Darlington; Nick Lintzeris, Visiting Fellow at the National Addiction Centre; Nicky Metrebian of the Centre for Research on Drugs and Health Behaviour; Helen Clark, Specialist Substance Misuse Commissioner for East London DATs; Suzie Yapp, Joint Commissioning Manager for Milton Keynes DAT; Adrienne Wright, Sheffield DAT Joint Commissioning Manager; Megan Jones, Camden DAT; Peter McDermott; Mike Smith of Trafford Substance Misuse Services; John Strang, Director of the National Addiction Centre; Dr Ambros Uchtenhagen, Institut für Suchtforschung, Switzerland.

Though they have enriched it, none of the above bear any responsibility for the final text.

Led by government ministers frustrated at slow progress in the fight against serious drug problems, Britain is about to revive its acquaintance with heroin not as a drug of abuse, but as a treatment for drug abuse. Heroin prescribing has traditionally been the main distinguishing feature of what was seen as the 'British system' for responding to heroin addiction. It rested on the unique legal leeway afforded doctors in Britain, until recently the only nation which allowed heroin (in its pharmaceutical form called diamorphine) to be prescribed for the treatment of addiction. Before 1968, any doctor could exercise this prerogative. Since then the treatment has been restricted to specialists who hold the requisite Home Office licence, nearly all of whom work in NHS drug dependence clinics.

At first the dominant response to the 1960s UK heroin outbreak, soon diamorphine prescribing waned to be replaced by injectable and then oral methadone. Of the 70 or more licensed doctors today, perhaps 50 prescribe diamorphine (almost entirely in injectable form[1]) to just 450 patients.[2] An increase in these numbers can be expected to flow from the commitment in the UK's latest drug strategy to ensure that "properly supervised heroin prescribing" is available "for all those who would benefit from it", regardless of where they live.[3] Clinical guidance is expected soon from the Department of Health.

Despite its unique history, British evidence on diamorphine's value is thin ▸ *The nature of the evidence*, p. 23. Worldwide there are just five directly relevant studies. Each is outlined in numbered panels on the following pages and referred to by those numbers in the main text. Where they help fill out the picture we have also drawn in other studies.

Why consider diamorphine?

The 'Why bother?' question is the main one diamorphine has to answer. After all, Britain has spent the last 30 years moving *away* from diamorphine and towards oral methadone, a treatment with substantial research backing and which benefits many thousands of patients. Only if there are substantial *extra* benefits compared to oral methadone might the extra costs and risks be justified. Even then there would remain the issue of whether injectable methadone might provide the same benefits yet permit a less drug-dominated lifestyle – injecting once rather than three times a day and less pronounced mood swings.

The potential advantages of diamorphine derive from its anticipated pulling power for heroin addicts, defined traditionally and legally in Britain as having an "overpowering desire" for the chemical.[4,5] Those who find methadone unappealing or for whom it fails to curtail heroin use might be attracted and retained by diamorphine, extending the benefits of maintenance therapy – social stabilisation, risk and crime reduction, health improvements – to yet more patients.

The same pulling power is the source of diamorphine's potential drawbacks. Once known to be an option, new patients who would have been satisfied with and done well on oral methadone may demand diamorphine. They may even deliberately fail on methadone to 'qualify' for the drug. Once in diamorphine treatment, relatively safe, hassle-free and cash-free access to their drug of choice might prolong patients' careers as addicts and as patients. Injectable diamorphine maintains the frequency of injecting with its associated risks. As in the 1960s, addicts may sell all or part of their diamorphine, spreading addiction and risking the purchasers' lives, yet preventing this by requiring thrice daily attendance for supervised injection is costly and unpopular with patients.

Establishing the validity of these hopes and fears sets the agenda for this review.

An attraction in to treatment?

No study has directly addressed whether offering diamorphine as well as or instead of methadone widens the range of heroin addicts attracted in to treatment. Only addicts *already* in methadone treatment or with prior experience of methadone have been studied. Beyond them may be an un-

known number of heroin devotees who would not enter treatment at all unless diamorphine were available.

Such evidence as there is suggests that for opiate addicts in treatment or with experience of methadone, diamorphine would rarely be a front-line treatment choice, though in London at least a quarter and perhaps as many as half wanted a prescription which included injectables.[6]

Patients for whom methadone and especially injectable methadone has failed are more likely to opt for diamorphine. Even in these samples, a substantial minority – in some cases, most – opt to try or re-try methadone in injectable form. Yet more would accept this if they had to. These findings remind us that many heroin addicts enter treatment precisely to *move away* from a drug which has now unacceptably disrupted and dominated their lives.

For example, in study ❸, 37 out of 58 patients chose injectable diamorphine but 21 opted for injectable methadone. However, the 200mg ceiling on both drugs was a much less generous dose of diamorphine.[7] This sample was selected to have had unsuccessful experiences with oral methadone and two-thirds had also tried injectable methadone, presumably with no lasting success.

Research in Manchester was uncontaminated by dose restrictions yet came up with a similar finding.[8] As in study ❸, the clinic prescribed injectable methadone or diamorphine to patients who continued to inject despite receiving oral methadone. Both in dose (ranging up to 200mg methadone daily and 480mg diamorphine) and in restrictions (patients could pick up from pharmacies and inject at home) there was a level playing field for both drugs. Yet on entering treatment half the patients were hoping for injectable methadone and just a third diamorphine, figures which might have been biased by what they felt it was realistic to hope for.

In the event, just 1 in 8 were prescribed diamorphine. After attending the clinic for on average three to four years, about half saw injectable methadone as the best treatment option, a third diamorphine. The proportions reversed when patients were simply asked which drug they would choose, suggesting a degree of ambivalence over moving away from heroin.

Even in these relatively conducive circumstances, more often than not injectable methadone was the preferred treatment. Elsewhere, diamorphine's attractions would be further eroded by the need to travel to specialist centres and by extra restrictions such as prohibiting take-home doses[9] and requiring supervised consumption[6 10] or frequent attendance.[11 12] Such restrictions may explain why in seven months a study in Geneva (study ❹) which offered the chance of high doses of diamorphine managed to attract just 61 regular heroin users.

Do patients stay longer?

Retention is important because unplanned early exits from methadone maintenance usually mean reversion to pre-treatment levels of crime and illicit drug use.[13] Staying on does not guarantee good outcomes,[14 15] but the link between the two is strong.[16 17] This also seems the case for diamorphine. In the Netherlands, wholesale relapse followed forced reversion to methadone. In Switzerland, the longer patients had stayed in diamorphine treatment, the less likely they were to leave for non-therapeutic reasons such as drop-out or discharge for breaking clinic rules, and the more likely they were to no longer be using heroin after leaving.

Findings detailed below provide strong evidence that prescribing diamorphine to patients assessed as suitable for this option (normally because they have not done well on oral methadone) does result in much longer retention than on oral methadone. There is also some evidence of longer retention compared to injectable methadone. Where available, one-year retention rates are cited to aid comparability. We also explore what people left to go to; it would be perverse to condemn an early exit to a life free of opiate dependence as 'poor retention'.

Experience in Britain

Unlike trials in the Netherlands and Switzerland, relevant British studies did not disadvantage diamorphine by imposing potentially deterrent supervised consumption regimes, but sometimes they did tip the balance by restricting dose levels. Still, diamorphine's retention benefits were clear cut.

❶ In the 1970s trial in London, 74% of patients seeking diamorphine treatment and who got what they wanted were in the same treatment 12 months later, but only 26% prescribed oral methadone. Doses were roughly equal, meaning that in practice diamorphine was being prescribed at a much lower level.[7] About 40% of treatment leavers from both groups had (for at least the time being) achieved a virtually opiate free lifestyle during the last month of the follow up.

In contrast to the early '70s, in most areas diamorphine is now effectively closed to new patients, raising the possibility that today more might feel they have no alternative but to stick with oral methadone. However, later studies have reinforced its findings.

❷ Over a six-month follow-up period, 36% of oral methadone patients at English community drug clinics left treatment, but just one (4%) prescribed diamorphine. Striking as it was, this gap might have been greater had the first interview been done at treatment intake rather than months later, when most patients who were going to drop out had probably already done so. Dose levels seem to have been roughly even but the diamorphine patients are likely to have been a more problematic group, making the drug's retention advantage all the more significant.

Conceivably, some of the oral methadone patients exited to an opiate-free lifestyle. After all, they had been in treatment for about a year and three quarters were aiming for abstinence. However, this seems an unlikely explanation for the difference in retention. Leavers were probably concentrated among those who continued to use heroin and were not aiming to stop.[i]

❸ In the latest British study, after 12 months 59% of patients who chose injectable diamorphine were still in treatment compared to 48% who chose injectable methadone. Outside a research context, retention would have been higher: ten of the 25 leavers were discharged for breaking the study's rules.

The study itself offers no comparison with oral methadone but can roughly be benchmarked against the 'poor responders' in NTORS' oral methadone maintenance

Golden Bullets

Practice points from this article

- Diamorphine can attract and retain heroin addicts who have not benefited from oral methadone, achieving large reductions in drug use and crime and improvements in health and social stability.
- Explicit criteria can be used to select patients for injectables based partly on lack of success in optimised oral regimes.
- Injectable methadone often provides an acceptable and effective compromise between oral methadone and injectable diamorphine.
- Remaining addicts who will only respond well to diamorphine are likely to be a small but important minority. For these patients diamorphine is a cost-effective option.
- Guidelines encouraging supervised consumption require specialist facilities and staff trained to handle drug-related emergencies.
- A balance needs to be struck between highly controlled regimes which prevent diversion but fail to attract some patients who would benefit, and overly-relaxed regimes which risk diversion and provide no incentive for patients to move on.
- Local service networks should facilitate two-way transfer between oral and injectable regimes.

Study ❶ London clinic, early 1970s

The only British randomised comparison of diamorphine and methadone was conducted in London in the early 1970s. 96 heroin addicts seeking treatment at a clinic were randomly allocated to either injectable diamorphine or oral methadone maintenance. Patients were included in the trial only if they had been insistent that diamorphine was the drug they wanted, had rejected alternative therapies, and had been injecting heroin daily for at least three months at high enough doses to convince staff that diamorphine might be appropriate. In practice, the trial's subjects were using twice as much heroin as the 164 heroin users who did not qualify for the trial. Nearly all had criminal records (averaging about three non-drug convictions) and about half these pre-dated opiate use. A substantial minority reported serious psychological disturbance including nearly 4 in 10 who had attempted suicide.

No special anti-diversion measures or extra attendance requirements were imposed on the diamorphine patients. Diamorphine and methadone doses were modest, generally ranging from 40 to 80mg daily and averaging 60mg, meaning that diamorphine doses were much less generous.[7] However, pre-treatment use levels also seemed modest, averaging an estimated 74mg of pure heroin.[viii] All but four patients were followed up 12 months after treatment entry regardless of whether they had dropped out of treatment.

1

Hartnoll R. *et al*. "Evaluation of heroin maintenance in controlled trial." *Archives of General Psychiatry*: 1980, 37, p. 877–884.

programmes. As at treatment entry in study ❸, these patients were also continuing to use drugs heavily despite oral maintenance treatment. In NTORS just 38% were still in treatment 12 months later.[22] The implication is that many addicts resistant to oral methadone treatment will stick with injectable diamorphine, even when dose is restricted.

Experience overseas

Applicability of the next two studies to Britain suffers from their very different contexts, including the requirement to attend daily for supervised consumption. Both suggest that patients who leave highly regulated diamorphine treatment often do so because its success means they no longer have to put up with the inconvenience.

❹ 70% of Swiss diamorphine patients stayed in the treatment for at least a year. Just over half the leavers progressed to treatments entailing a move away from injecting or from opiate use. They had some success. Of those who could be contacted, 85% were no longer using heroin daily, rising to 90% among patients who had left after more than a year in treatment. However, many could not be contacted. Taking these into account, still at least half of all leavers were no longer using heroin daily. Despite the inconvenience of supervised consumption and a more problematic caseload, the 70% one-year retention rate on diamorphine bettered the 57% in Swiss oral methadone programmes.

❺ The only seemingly contradictory results come from the Netherlands. 70% of diamorphine patients completed 12 months of treatment but 86% receiving only oral methadone. However, treatment success or progression seemed major reasons for leaving diamorphine early. At 12 months well over half the diamorphine leavers were doing well[ii] but only a handful of methadone leavers. Many who left voluntarily or for health reasons did so to return to methadone.[21]

For these Dutch patients used to 'low threshold' methadone services with minimal supervision, the highly regulated diamorphine clinics must have been a shock. The 26 leavers doing well on diamorphine may have decided there was no longer any need to endure these procedures. Also tipping the retention balance against diamorphine is the fact that a quarter of patients were discharged for 'disciplinary' reasons, casualties perhaps of an inflexible and demanding regime.

Do patients do better?

Since diamorphine programmes retain patients longer than methadone programmes, outcomes too can be expected to be better. The evidence on illicit opiate use and on social, crime and health problems supports this expectation. However, outcomes are not only better because more patients are retained, but also because retained patients make greater improvements.

Here especially, what diamorphine is being compared *against* is critical. Rival methadone regimes have often been suboptimal, but to an extent the same is true of diamorphine ◤ *The nature of the evidence*, p. 23. How an optimised oral methadone regime would compare with an optimised diamorphine regime remains an open question.

Experience in Britain

❶ In the 1970s London trial, with respect to drug use, 'no difference' was the overall verdict. In the twelfth month after treatment had started, 36%[iii] of patients on injectable diamorphine and 41% on oral methadone had reduced their illicit opiate use to twice a week or less. Among the remainder, there were more relatively heavy users in the oral methadone group – 37% versus 26%. These differences were not statistically significant and nor were differences in the use of non-opiate drugs, health, or employment.

On crime, diamorphine held the lead. After a year this remained a major source of income for 43% of patients allocated to diamorphine and 61% methadone. Taking baseline levels into account, the gap was no longer statistically significant, but arrest and prison experiences across the follow-up year confirmed diamorphine's lead: half the diamorphine patients had avoided arrest and 81% imprisonment, compared to 28% and 68% on oral methadone.

On both drug use and crime, diamorphine's benefits would probably have been more evident had dosing not disadvantaged the diamorphine patients.

❷ In a later English study, when first interviewed after on average the best part of a year in treatment, fewer diamorphine than methadone patients were using illicit heroin (22% v 69%), they spent far less on illegal drugs, and they had committed non-drug crimes on just two days in the last 30 compared to six on oral methadone. Their psychological health too was significantly better.

Limitations of the study preclude strong conclusions and results are confined to patients still in treatment. The impression is of a group of diamorphine patients who probably started treatment with more problems yet who, given adequate doses and a relatively undemanding, retention-enhancing regime, ended up feeling better, using illicit drugs less, and committing fewer crimes than patients limited to oral methadone.

❸ The fact that treatment-leavers at a London clinic were not followed up hampers assessment of which group of patients benefited most from their choice of injectable diamorphine versus injectable methadone. In both groups patients who *stayed* in treatment made significant early gains in drug use, crime, and in health and social functioning, gains sustained at the one-year follow-up. However, treatment leavers were probably not doing so well. The same problem prevents meaningful comparison between diamorphine and injectable methadone.

What can be said is that both groups made significant improvements on injectables which they had not made in previous oral treatments, and that many more diamorphine patients stayed to experience these benefits. Since the regime was typical of Britain, similar outcomes can be expected at other

A Dutch patient reaches for heroin and syringe slid to him under a glass partition.

clinics, and perhaps bettered if they abandon the study's severe diamorphine dose cap.

Interestingly, this study called into question a supposedly major advantage of injectable methadone – that patients have to inject just once a day. Continued injecting of illicit drugs and a preference for splitting their methadone meant that at first seven out of ten methadone patients actually injected two or three times a day. Splitting was a response to the discomfort caused by injecting large volumes of concentrated methadone, a problem also noted in Switzerland. However, no methadone patient injected four or more times a day, a rate seen at first in nearly half the diamorphine patients. Over time both groups reduced injecting frequency.

Experience overseas

❹ Among patients retained in treatment (and most were for at least two years), the Swiss trials showed substantial reductions in illicit drug use and crime and improvements in physical health, emotional well-being and social functioning, all the more impressive given the past failures of oral methadone. No one fatally overdosed on prescribed heroin and the death rate of 1% per treatment year compares favourably with other treatments, especially since many deaths were probably due to pre-existing disease.

Despite diamorphine retaining more problematic patients, the gains were greater than in patients retained in Swiss oral methadone programmes. For example, 18 months after entering treatment just 5% of diamorphine patients were using heroin daily compared to 21% on methadone. However, rates of heavy (daily) drinking remained high, involving about a third of patients.

But these figures concern only patients still in treatment. A sub-study attempted to contact *all* patients and former patients 13 months to four years after starting treatment. Just 3%–16% were still using illegal heroin virtually every day (compared to 40%[iv] two years after starting methadone treatment in England[18]). Cocaine use and crime too were at a fraction of their pre-treatment levels.

Only in Geneva was injectable diamorphine directly compared to a control condition consisting mainly of oral methadone treatment. Six months after starting treatment, no diamorphine client was using illicit heroin daily compared to nearly half the controls. Their spending on illicit drugs and criminal income had fallen to a tenth of pre-treatment levels while both remained high in the control group. Psychological and social functioning improved more than in the controls as did the number of overdoses and feelings of well-being. Suicide attempts were virtually eliminated in the diamorphine patients but increased in the control group.

Whether these advantages can be attributed to diamorphine itself is unclear. Extra services available to the diamorphine group seem visible in the fact that 15 of 27 were treated for mental health problems compared to just 2 out of 21 in the control group.[v] Still, this study goes part way to answering the major question hanging over the Swiss studies: whether diamorphine patients would have done just as well in a further attempt on oral methadone. If Geneva is anything to go by, most (but by no means all) would once again have found this ineffective.

❺ A similar verdict emerged from the randomised trial in the Netherlands. At the 12-month follow-up, about half the diamorphine patients had made substantial improvements in their previously poor health, social functioning or psychological adjustment, 24% more than on oral methadone only. Improvements on diamorphine were spread across all three types of outcomes but on methadone tended to be limited to just one. Some of the clearest benefits were in reduced crime. However, many patients in both groups remained immersed in drug using circles featuring cocaine.

For the first time the study showed what can happen when diamorphine patients are forced to revert to methadone. Two months later over 80% who had previously done well had returned to their poor pre-treatment levels of functioning, seemingly strong evidence that the diamorphine treatment caused the improvements.[19] The fact that in this study patients knew that relapse might lead to reinstatement (so may have engineered 'failure' on methadone) does not diminish the relevance of the findings. Unless clinics elsewhere denied reinstatement to the very patients who seemed to need it most, a similar relapse rate can be expected in normal practice.

What it was about the treatment which made the impact is harder to pin down. Factors other than the drug being prescribed could have influenced outcomes, most notably dose levels. Methadone patients received on average about 70mg a day – high by Dutch standards but below levels recommended to prevent illicit heroin use.[20] Diamorphine patients received just 10mg less plus very large doses of diamorphine, which were adjusted to eliminate illicit use. As in Switzerland, attendance requirements may also have been influential as may the new staff and facilities at the diamorphine clinics.

Critics argue that given a similar regime, methadone patients might have done just as well. In the Dutch context, they miss the point – there *could not* have been a similar methadone regime. High dose levels and attendance requirements were themselves reliant on the pulling power of diamorphine. Methadone patients would have found them unacceptable. If anything, in this study it was the diamorphine option which was disadvantaged. Equalisation of pyschosocial inputs to the generally low Dutch uptake level meant that this pulling power could not be exploited to increase engagement in interventions with the potential to lever more patients out of a drug-based lifestyle.

Study ❷ English community drug team

One of three clinics run by the same community drug team in England changed to offering the option of diamorphine maintenance for patients who did not want to stop using heroin or felt unable to do so. The other two remained restricted to oral methadone. Regimes at all three were similar, involving usually weekly attendance to review treatment and for counselling. Dosing was flexible, averaging 253mg diamorphine daily and 72mg methadone.

27 patients prescribed injectable diamorphine were matched with 39 oral methadone patients from the other two clinics to achieve roughly equivalent samples in terms of age, gender, length of opiate use (averaging 10–12 years), and duration of current treatment. At their first interview the diamorphine patients had already been in this treatment for on average 11 months, methadone patients for nine. About six months later those still in the same treatment were re-interviewed.

Despite rough matching, the diamorphine group must have been a selected set of patients able to convince an experienced psychiatrist that they needed the drug. We know that at treatment entry they all felt unwilling or unable to stop using heroin. This reluctance continued through to the in-treatment interviews when they were much less likely than methadone patients to avow abstinence as a treatment goal.

Without pre-treatment data or random allocation, in this study it is not possible to say to what degree any differences in retention or outcomes were caused by the difference in treatments. Influences such as different staff, doctors, areas and differences in the patients themselves could have affected the outcomes. Patient differences are likely to have disadvantaged outcomes for diamorphine. Patients offered this treatment were probably more severely dependent, and pre-study drop-out would probably have been higher among the methadone patients, leaving a relatively stable set of interviewees.

2

McCusker C. *et al*. "Prescribing drug of choice to illicit heroin users: the experience of a U.K. community drug team." *Journal of Substance Abuse Treatment*: 1996, 13(6), p. 521–531.

OFFCUTS

The English National Treatment Agency has released **guidance on the prescribing of injectable opioids** for heroin addiction based on the views of an expert group and a review of the literature.[1]

Key recommendations are that:
- optimised oral methadone maintenance should be the maintenance treatment for the majority of heroin users;
- injectable heroin and methadone should be considered only for the minority genuinely unresponsive to an optimised oral maintenance treatment approach;
- injectable treatments based on this guidance should be seen as a new drug treatment modality requiring the development of new integrated care pathways.

1 *Injectable heroin (and injectable methadone): potential roles in drug treatment. Full guidance report*. National Treatment Agency for Substance Misuse, 2003. Download from www.nta.nhs.uk.

Who needs diamorphine?

Concern that some patients who meet clinical criteria for diamorphine would do just as well on oral methadone has some basis, but studies suggest these are a minority and one not clearly identifiable. To deny diamorphine to all potentially suitable patients in case some don't need it would sacrifice the gains that many only make on diamorphine.

Experience in Britain

❶ A year later, 19 of the 46 London patients denied their insistent requests for diamorphine and given oral methadone instead had nevertheless been able to move away from regular use of illicit opiates. But this study recruited patients who today would be considered insufficiently problematic to qualify for diamorphine.[vi] More exacting entry criteria would probably have cut the number who did well on oral methadone.

The oral methadone patients tended to polarise into either abandoning legal and illegal opioids altogether, or staying heavily immersed in opioid use and drug using circles. An attempt to characterise patients who did poorly on methadone came up with nothing clear cut, but they did tend to have come from families of lower socioeconomic status, to have left school early and started crime young (often before drug use), and to have been separated from their mothers. There were no such links in the diamorphine group. The implication is that people handicapped by early deviancy and family breakdown and who lack social and economic resources are least able to make use of oral methadone as a route out of addiction.

Experience overseas

❹ At the start of the randomised Swiss substudy in Geneva, presumably nearly all the patients wanted diamorphine (or they would not have volunteered for the study). Six months later those who missed out in the lottery could transfer to diamorphine, but just nine out of 24 did. Despite on average three prior attempts, most of the rest were now making what they felt was satisfactory progress on methadone. This was not self-deception. At the six-month follow-up, about half of all the patients allocated to methadone were using heroin at most only occasionally. Improved methadone programmes in Geneva and rapid admission assisted by the research project might partly explain their success this time round.

This is the only study directly relevant to whether patients will deliberately fail on methadone in order to qualify for diamorphine. It suggests not.

❺ The Dutch study provides the most comprehensive method yet for selecting patients for diamorphine, one which seems to have minimised the number prescribed diamorphine who would have done as well on oral methadone.

Twelve months after entering treatment, nearly 30% of the methadone patients were responding well. However, improvements were nearly always limited to one area of functioning while problems elsewhere remained. As a result, under 1 in 10 had (by the study's own criteria) improved enough to no longer be considered for diamorphine – perhaps the most meaningful indication yet of the proportion of addicts who 'qualify' for and want diamorphine, but would actually have done well on oral methadone.

For this minority, the diamorphine programme would have been an unnecessary inconvenience and for the health system an unnecessary expense. But to have consigned the entire sample to oral methadone on these grounds would have sacrificed the remission of nearly twice as many patients who would only have done well on diamorphine.[vii]

The risk of 'getting stuck'

Diamorphine's presumed pulling power becomes counter-productive 'stickiness' if it unduly delays the ending of opiate dependence and of its treatment. The result would be reduce the capacity of specialist clinics (virtually the only source of this treatment) to recruit new patients. Beyond this practical consideration, probably few people see a life under the influence of opiate drugs as desirable – just better if legal rather than illegal.

No study has yet assessed whether diamorphine treatment prolongs addiction by mounting a long-term follow-up comparing diamorphine patients with a similar group not given this treatment. In fact, there is very little evidence at all on the time course of diamorphine treatment. Instead we have to piece together clues from studies not designed to answer this question. British studies of relatively relaxed regimes without supervised consumption suggest that some patients do stay on who in other circumstances would have progressed to other treatments or away from drugs altogether. In contrast, Swiss studies of highly structured diamorphine programmes suggests that a few years in these is more than most people wish to experience, especially if there are good quality treatments to move on to.

Experience in Britain

❶ In the 1970s London trial, a year later 14 of the 46 patients denied their demands for diamorphine and given oral methadone instead had became virtually opioid-free. If they been granted their wishes, ten of the 14 (based on what happened to those who did get what they wanted) might still have been in treatment and dependent on diamorphine. Today, only clients more entrenched in their addiction would normally be considered for diamorphine and fewer may be able to use

Study ❸ London clinic, late 1990s

An injectable prescribing clinic in London recruited 58 long-term opiate dependent injectors who still regularly injected and suffered drug-related problems despite relatively high dose (at least 80mg daily) oral methadone treatment. Patients could choose either injectable diamorphine (37 did) or injectable methadone (21) and were followed up for 12 months.

Drugs were dispensed at the clinic at first daily and then less often. There was no routine requirement for supervised consumption and the diamorphine group did not have to attend more often. Doses of both drugs were capped at 200mg, disadvantaging the diamorphine patients.[7] Among patients retained for 12 months the average ending dose of diamorphine was 185mg, of methadone, 161mg.

The study's prime value is that it reflects normal British practice: only patients who had not done well on oral methadone were admitted, injectable methadone and diamorphine were both on offer, and the clinic operated a fairly typical dispensing and attendance regime. This means that its outcomes are a guide to what to expect at other clinics which decide to mount an injectable prescribing programme. The main limitation to generalisability is the unusually low cap on diamorphine doses.

3

Metrebian N. *et al*. "Prescribing drug of choice to opiate dependent drug users: a comparison of clients receiving heroin with those receiving injectable methadone at a West London drug clinic." *Drug and Alcohol Review*: 2001, 20, p. 267–276.

Metrebian N. *et al*. "Feasibility of prescribing injectable heroin and methadone to opiate-dependent drug users: associated health gains and harm reductions." *Medical J. of Australia*: 1998, 168(12), p. 596–600.

Study 4 Switzerland, 1994–2000

In Switzerland nearly 2000 opiate addicts started diamorphine maintenance at 21 centres as part of a national evaluation.[28] To enter the trial they had to exhibit marked social and health damage from at least two years of dependence on injecting heroin despite at least two prior treatment attempts. On average they had been addicted for 10 or more years and over 9 in 10 had unsuccessfully tried methadone maintenance. Unemployment and debt were the norm, and half had no stable housing, were raising money through crime, or in poor physical or mental health.

Patients took an average of 474mg diamorphine daily under supervision at the clinic up to three times a day. Nearly a quarter also received methadone. Weekly counselling was mandated with optional further assistance, a more intensive level of support than in oral methadone programmes. However, more often than not these services were not delivered or used at the intended level.

The most stringent test of whether injectable diamorphine improved on oral methadone was a sub-study in Geneva, where 51 patients were randomly allocated to injectable diamorphine (27) or to a six-month waiting list (24) during which time at least 19 received oral methadone from usual sources. Full six-month follow-up data was obtained from all the diamorphine patients and 21 of the controls. In this study extra services such as psychiatric care were available to and used by the diamorphine patients.

Without in any of the Swiss studies a control group given equally intensive therapy but offered only oral methadone, it is impossible to be sure that the diamorphine part of the treatment caused the improvements. The influence of non-drug elements was presumably why, despite similar prescribing regimes, outcomes differed at different clinics. The analysis failed to adjust for these differences, a possible source of bias.[29]

The findings must also be seen in the context of a well-resourced treatment system in a country whose addicts' health and social conditions compare favourably with Britain.[30] In particular, the Swiss patients committed acquisitive crimes at about one eighth of the rate of patients entering English methadone programmes.[31] Information is most complete for retained patients; reports on the full sample exclude treatment leavers and a study which did follow these up managed to interview just 61%.

4

Rehm J. *et al*. "Feasibility, safety and efficacy of injectable heroin prescription for refractory opioid addicts: a follow-up study." *Lancet*: 2001, 358, p. 1417–1420.

Uchtenhagen A. *et al*. *Prescription of narcotics for heroin addicts. Main results of the Swiss National Cohort Study*. Basel: Karger, 1999.

Perneger T.V. *et al*. "Randomised trial of heroin maintenance programme for addicts who fail in conventional drug treatments." *British Medical Journal*: 1998, 317, p. 13–18 (the Geneva sub-study).

oral methadone as a platform for recovery. ❷ After on average about a year in treatment at an English drug clinic, nearly 4 in 10 of the patients prescribed diamorphine saw abstinence as a current treatment goal – surprisingly high, since at treatment entry all had felt unable to try to stop using heroin. However, this 'goal' was perhaps more an ambition than an intention. In the next six months, just one of the 27 came off diamorphine. Perhaps worryingly, by then half as many (20%) were aiming for abstinence.

Experience overseas

❹ Reports on seven years of diamorphine maintenance in Switzerland provide the longest perspective. At treatment entry the patients had been addicted for 10 years and probably had no intention of ceasing to use heroin in the near future. Yet within five years, two thirds had left treatment and most of these were no longer using heroin daily. Overall, within five years perhaps half of all treatment starters were no longer dependent on heroin, legal or illegal.

Having treatments to move on to seemed important. Over the full seven years, 61% of leavers left to enter other treatments, mainly methadone maintenance. This was the norm in the first year and became more common the longer a patient had been on diamorphine. At follow-up, discharged patients who had gone on to further treatment were less likely to be using heroin daily (8% v 20%) and more likely to have divorced themselves from the drug scene and from crime.

In this study patients had a strong incentive to leave – years of having to attend a clinic up to three times a day. They also had a well stocked armoury of treatments to move on to which the diamorphine clinic helped them to access.

❺ In contrast to the mainly voluntary Swiss discharges, the Dutch experience shows that attempting to curtail treatment by forcing patients to leave is likely to be a mistake. As the one-year deadline approached, the clinics did what they could to smooth the way back to methadone. Diamorphine was tapered with almost always a parallel increase in the methadone dosage, and each patient was helped to develop a personal treatment plan.[21] Nevertheless, over 8 in 10 previously doing well relapsed so badly that re-admission to diamorphine treatment had to be considered.

Assessing local need

Having established (as far as possible) that diamorphine maintenance is both feasible and effective for selected patients, there remains the important issue of how great the need might be. A final answer can only be given after oral and injectable methadone (and perhaps too buprenorphine) regimes have been optimised. Only then will we know how many heroin addicts actually need diamorphine as opposed to a more responsive methadone regime.

Given current provision, about a fifth of patients entering English methadone programmes do not respond well to treatment.[22] From these could be subtracted those who would accept and do well on injectable methadone (as we've seen, probably the majority) leaving a residue of patients who will only do well on diamorphine. To these existing patients must be added an unknown number who would enter treatment only if diamorphine were available. How great this number is will also depend partly on the accessibility and responsiveness of current non-injectable regimes.

Once the smoke clears, the need for diamorphine is likely to extend beyond the current 450 patients,[2] but with improved methadone programmes, maybe not dramatically so. Whether this need materialises in patient numbers will depend on how constricted the gateways are and what comes with the diamorphine. Insisting that patients first fail on methadone may deter some from entering treatment at all. As in Geneva, programmes which require continued attendance several times a day for supervised injection can find it hard to tempt patients away from oral regimes or to recruit addicts not currently in treatment. Such regimes are also costly, limiting the number of slots health services will be prepared to fund.

Organising diamorphine services

Ideally, diamorphine prescribing will be implemented in areas which already have well functioning oral and injectable methadone services. These might also be the best location for diamorphine programmes. Integrating these options avoids patients 'losing their place' if they transfer between them, a risk likely to deter progression from diamorphine to injectable and/or oral methadone. It would also ease movement in the other direction. This could be important because cost-effectiveness and other considerations suggest that patients should be encouraged to try oral methadone first. If injectables clinics are separate, they will need to ensure that patients who transfer to another service to try oral drugs can quickly return if this does not work out.

There will also be a need for good links with detoxification, rehabilitation and aftercare services. British patients offered diamorphine have normally been approaching their

Study 5 The Netherlands, 1998–2001

The largest randomised diamorphine trial conducted so far involved 549 patients treated in six cities in the Netherlands between 1998 and 2001. Patients were long-term heroin users who used heroin daily and evidenced poor physical, mental, or social functioning. All had been treated repeatedly with oral methadone at doses of at least 60mg (or 50mg for smokers) for at least four consecutive weeks and were currently enrolled in a methadone programme. In separate studies for injectors and smokers, patients were randomly allocated to diamorphine (injectable or smokable) plus supplementary oral methadone for 12 months, or placed on a waiting list and prescribed oral methadone only.

Diamorphine up to 1000mg daily was consumed under supervision three times day at special clinics with newly recruited staff. Doses were adjusted with the aim of eliminating illicit heroin use. Oral methadone was prescribed daily by existing services using normal protocols up to a maximum of 150mg daily. Dutch methadone services generally restrain dose levels to allow patients to continue to experience heroin. In practice, therefore, the trial was largely a comparison of oral methadone plus either prescribed or illicit heroin. Diamorphine doses averaged 549mg daily supplemented by 60mg of oral methadone; methadone-only patients averaged about 70mg a day. Counselling and other therapies were made equally available to both groups.

A 40% improvement in at least one of the problem areas where the patient was doing badly before treatment, without deterioration elsewhere or increased resort to stimulant drugs, were the criteria for a 'good' response to treatment.

The 12-month follow-up collected information from over 90% of subjects, including treatment leavers. After 12 months methadone patients could transfer to diamorphine while diamorphine patients were switched back to oral methadone and reviewed after two months. Those who had been doing well on diamorphine but then relapsed would be considered for reinstatement to diamorphine. There was no evidence that outcomes suddenly improved in preparation for this deadline.

5

Van den Brink W. *et al. Medical co-prescription of heroin: two randomized controlled trials*. Utrecht: Central Committee on the Treatment of Heroin Addicts, 2002.

fortieth birthdays and addicted to heroin for a decade or more.[8 23] Swiss experience is that, especially after the first few months, a substantial minority who leave treatment will opt to end drugtaking altogether via abstinence-based treatments, and that patients do best when this is arranged beforehand.

For any UK diamorphine service, a doctor licensed to prescribe the drug for addiction is essential. These will normally be experienced in addiction and should be backed by a multidisciplinary team able to cater for the needs of what are likely to be among the most problematic of heroin patients.[24] For Britain, a major rationale for prescribing diamorphine will be to prevent continued regular illicit heroin use. Monitoring this requires urinalysis equipment capable of distinguishing illicit heroin from diamorphine; such tests are feasible but require further development.

On site or not?

Normally services will be expected to have measures to prevent diversion of diamorphine on to the illicit market. How big this problem will be is unclear, but it is certainly a possibility – diversion fuelled the original upsurge of heroin addiction in Britain in the 1960s. In the early 1970s, study 1 noted that five out of its 42 diamorphine patients were selling some of their prescription.

The Swiss (4) and Dutch (5) studies plus work in Britain[24] show that avoiding diversion by requiring on-site injecting or smoking is feasible. However, this can only work for patients who can cheaply, easily and quickly get to the clinic. Unless the network of diamorphine centres is greatly expanded, on-site consumption will leave large parts of Britain unserved, especially rural areas. There are other options (such as supervised consumption in a pharmacy, local surgery or drug service) but these will not be easy to organise. The same problem arises even if on-site consumption is limited to the early stages of treatment, the minimum recommended in national guidelines.[27]

Clinics which supervise consumption will need suitable facilities and staff trained to advise on safer injecting and to intervene in the event of overdose or other mishaps.

The Swiss (study 4) tempered the inconvenience of on-site consumption by allowing patients to skip visits and take oral medication instead, an opportunity most took advantage of. Insisting instead on the return of used ampoules – a tactic used in London (study 3) – may be a less intrusive and less expensive way to prevent diversion.

Selecting suitable patients

Clear, explicit and measurable criteria based on the patient's history and current functioning will help reserve the diamorphine option for those least likely to do well on oral methadone. Making the criteria explicit also creates the opportunity to refine them in the light of experience.

The Dutch study (5) provides the most comprehensive model. Selection was based on a history of at least five years of heroin addiction, continued daily heroin use despite (in Dutch terms) adequate oral methadone treatment, and the persistence of severe drug-related problems as measured by standard assessment tools. Similar measures can later be reapplied to assess whether the patient is benefiting from the treatment.

Justifying the cost

In the UK oral methadone maintenance costs around £1000 a year compared to about £6000 a year for diamorphine ampoules.[25] These estimates cover only medication and dispensing fees; staff and facilities for supervised consumption would increase the gap. However, patients selected for diamorphine will usually exhibit severe health problems and illicit heroin use (often entailing high levels of crime) which have not responded to methadone. For these patients, the potential savings for the community of moving on to diamorphine will also be much greater than from persisting with methadone.

In Switzerland, a day in diamorphine treatment with supervised consumption cost £20 per patient and the benefits (mainly savings to the criminal justice system) were nearly £40 a day.[26] Since this is a partial accounting of benefit, and because many patients left to go to lower cost treatments and achieved lasting improvements, the long-term benefit-to-cost ratio is likely to have been much higher. With typical British addicts (much more criminal) the scope for cost savings is even greater.

Conclusion: small but important

Gazing into the future, it seems likely that diamorphine will continue to be an option reserved for a minority of heroin-dependent patients who will not or do not benefit from non-injectable formulations such as oral methadone or sublingual buprenorphine. Despite the failure of prior treatments, most of these patients will respond well to diamorphine and the treatment will net savings for society which would not be achieved by another try at oral methadone.

The main limiting factors will be cost and practicality and these in turn depend partly on how much weight is placed on the risk of diamorphine being diverted on to the illicit market. If this is felt to mandate continued on-site consumption at the prescribing clinic, then making the treatment available to all who might need it will be very costly and probably impossible.

Given the volume of heroin on the illicit market, it can be argued[25] that some diversion from a small minority of addicts will make no real difference to the extent of heroin addiction, and that the risk does not warrant restrictions which consign addicts to

oral programmes which for them are ineffective or which fail to attract them in to treatment. Society, too, would be the loser in this scenario. Unduly restricting diamorphine would mean drug-driven crime and drug-related health problems continue to impose costs which could have been reduced by diamorphine treatment.

NOTES

i By interview two, 14 had left oral methadone treatment and among the remaining patients there were 17 fewer using heroin. It seems likely that most or all of the leavers had been among this 17 and that they continued to use heroin illegally – early rather than delayed reductions in illicit heroin use are the norm in methadone treatment. Also, at interview two a lower proportion of retained methadone patients said abstinence was a goal than at treatment entry. On the assumption of some continuity in treatment goals, this suggests that drop-out was most pronounced in patients who were not at first aiming for abstinence.

ii According to the study's response to treatment criteria.

iii In the paper 24%, but unaccountably this excludes five patients "selling some of their prescription every day (and not buying other opiates instead)".

iv In the previous three months.

v This gap cannot be accounted for by greater mental health problems among the diamorphine patients; the reverse was the case.

vi There was no requirement for previous failures on oral methadone or for serious drug-related problems, and on average they had been using opiates for about six years compared to the decade or more seen in other trials.

vii In the two arms of the study, 20% and 17% more patients remitted on diamorphine than on methadone.

viii How accurate this estimate was is unclear. The paper implies that quantities were assessed on the basis of expenditure rather than directly.

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The nature of the evidence

No recent British studies have directly compared methadone and diamorphine maintenance and elsewhere gaining permission to mount such a trial is extremely difficult. The upshot is that few studies have been done and none is a definitive guide to practice in Britain.

Since *extra* value relative to oral (or in some studies, injectable) methadone is the key issue, the quality of the regimes against which diamorphine is benchmarked is critical. Often these have been sub-optimal. No study has attempted to construct a rival more capable of competing with diamorphine. Such attempts could have made a big difference. Flexible, individualised dosing,[32 33 34 35] quality counselling and therapy[36 37 38 39 40 41 42] and a well run, responsive regime[43 44 45] can improve retention and turn methadone 'failures' into successes.

However, this line of argument has its limits. Patients sometimes resist very high doses of methadone and find frequent counselling and clinic attendance unappealing. One of the benefits of diamorphine could be that it has sufficient pulling power to overcome these resistances and to engage patients in regular therapeutic contact and a highly structured regime. Just as studies to date have not optimised methadone regimes, neither did any fully exploit this potential. The exception seems to have been the Swiss studies (❹), but these also required long-term supervised consumption, an imposition which studies in Britain suggest is often unnecessary. Such regimes risk deterring some patients, elevating drop-out in those who do enter treatment, and disrupting normalisation of the lifestyles of retained patients. The upshot is that no study can yet claim to have compared an optimised oral methadone programme with an optimised diamorphine programme.

LINKS Nuggets **8.7 5.10 3.2 1.5**

The value of the results from UK studies (❶❷❸) is compromised by the generally low doses of diamorphine offered to patients. Results from study ❹ in Switzerland (less criminal addict population and more extensive welfare provision) and study ❺ in the Netherlands (where methadone programmes do not set doses high enough to eliminate illicit heroin use) are an uncertain guide to what to expect in Britain. Studies generally do not report alcohol use outcomes and there are no analyses of differential impact on men and women or on different ethnic groups.

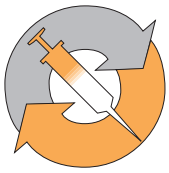
hepatitis C and needle exchange

Six case studies show how the complex balance of needle exchange services can be disrupted, leaving hepatitis C and HIV spreading rapidly. Common themes are resource starvation, local hostility, counterproductive restrictions and a non-interventionist ethos.

by **Mike Ashton**

editor of Drug and Alcohol Findings, phone/fax 020 8888 6277, e-mail da.findings@blueyonder.co.uk.

See part 1 in issue 8 for acknowledgements. Thanks also to John Egan, Visiting Research Fellow at the National Centre in HIV Social Research in Australia.



In the last issue of FINDINGS we established that hepatitis C is still spreading rapidly due to continued sharing of injecting equipment and that needle exchange is the key to curbing the epidemic. This issue investigates what it will take for exchanges to match up to the challenge. The focus is on *case studies of failures*: *case studies* because these best portray the interacting variables which combine to affect infection control; *failures* because these throw into relief the conditions for success. That there can be success even against hepatitis C is shown by the Tacoma case study.

Though we hope you will, there is no need to read all the studies – each is a self-contained story. Use the clipboarded 'case notes' to pick and choose, but, we suggest, don't miss out on Vancouver.

In later issues we'll draw together the themes from these and other studies and from UK work, but one theme should be mentioned up front – the 'magnet effect' ◤ p. 28. Perversely, needle exchanges which attract high-risk injectors risk being seen as actually having *caused* them to be at greater risk. Exchanges in the case studies often suffered from this illusion, but rarely was it the whole story. The deeper cause of poor results is that exchanges often operate under crippling "restrictions that condemn the programmes to fall far short of the needs of the persons for whom they were designed".[129] By under-resourcing and under-valuing this work, sceptical authorities create the conditions which seem to justify their misgivings.

Trickle-feed exchange no match for hepatitis

Our Swedish case study directly confirmed fears that syringe exchanges may not adequately prevent hepatitis C infection.[61] For two years the Malmö exchange tracked new HIV and hepatitis infections among 515 callers who initially tested negative for one or more of the viruses and were re-tested at least six months later. Over a typical follow-up period of 31 months, there were no new cases of HIV but a quarter previously free of hepatitis B became infected (about 1 in 8 per year) and over half with hepatitis C (about 1 in 4 per year).

Whether these rates were less than they would have been without needle exchange is impossible to say, but they are worryingly high. Since the exchange virtually eliminated the local illicit market in injecting equipment, sharing injecting paraphernalia and/or sharing the exchange's own needles and syringes must have caused hepatitis to spread. The same high-risk practices might also have spread HIV were it not that the few infected injectors in the city were known to other users.

Constricted equipment supply seems the most likely explanation. Shortfalls should have been eased by the fact that the great majority of attenders were amphetamine rather then heroin users. Still, the deficit must have been substantial. Typically attenders visited about once every six weeks but could collect at most three syringes and six needles, all to be returned next time. Shortfalls could not be made up from elsewhere since the exchange was the sole legitimate source of injecting equipment.

Malmö

✓ One-for-one exchange allied with capped quantities and infrequent visits leave hepatitis B and C spreading rapidly.

✓ But there were no pre-exchange measures nor a comparison group of non-attenders, so the exchange may still have reduced risk.

✓ First example of the 'magnet effect' – high risk injectors drawn to the exchange.

Other features of the exchange may have contributed to sporadic attendance and disease spread. It was open only during working hours and sought a potentially off-putting amount of information from callers at their first visit. Strict one-for-one exchange meant that in order to be re-supplied, injectors had to hang on to used equipment until their next visit. Yet they may also have been deterred from making frequent visits because carrying syringes in the street risks detection. The net result could have been to extend the interval used equipment was kept in circulation, just what the exchange should have been avoiding.

Malmö is also our first example of the magnet effect. Counter-intuitively, relatively frequent

exchange attenders were slightly but significantly *more* likely to become infected with hepatitis B or C. Rather than regular attendance increasing risk, this was almost certainly because those at higher risk in the first place tried to mitigate this by attending regularly. They tended more often to be primary heroin users for whom even twice the typical attendance rate would not come close to satisfying their needs.

First hard evidence that needle exchange can work against hepatitis C

From Malmö we know that (highly restricted) needle exchange can leave hepatitis spreading rapidly, but not whether the spread was *less* rapid than it would otherwise have been. US teams led by the same researcher directly addressed this issue with conflicting results: at best zero impact in Seattle, but a large positive impact in Tacoma.

Tacoma's exchange was the first in the USA to gain public funding. From a shoestring operation it grew into a well-resourced HIV prevention centre offering a comprehensive service.[120] Activist leadership and the fact that it started with a 'clean slate' and local support meant that 'Point Defiance' was free to offer a user-centred service untrammelled by the concerns and restrictions which tied the hands of other schemes.[194] At the time of the study little else was available to help the city's injectors avoid infection, so if the exchange worked, there should have been clear benefits from attending. For both HIV and hepatitis C, exactly what was found.

Point Defiance operated from three fixed sites and also ran a mobile exchange available by phoning to arrange a time and place to meet. Apart from the pharmacy site, which accounted for relatively little business, there was no limit on supplies at any one time and exchange on behalf of others was encouraged. There was, however, a strict one-for-one policy. Staff spent considerable time educating and counselling callers and delivering on-site health and welfare services. Callers were turned into long-term clients via the case management service which organised housing and health care. The exchange also became the largest local recruiting agent for methadone treatment.

Studies strongly suggest that opening the exchange reversed an epidemic of hepatitis B among injectors, and helped hold HIV down by roughly halving risky sharing among attenders compared both to non-attenders and to their own pre-exchange behaviour. However, risk remained high. Before attending, customers had averaged 56 injections a month with a syringe used by someone else, after attending this dropped to 30; from 58%, the proportion injecting in ways which could spread disease fell to a third.

Benefits extend to hepatitis C

The chance to test whether these behaviour changes also curbed hepatitis C arose because the surrounding county was one of four designated nationally to monitor new infections. The system depended on patients showing symptoms and only a minority do, but there was no reason to believe that this fraction would differ between exchange attenders and non-attenders.

If the exchange had reduced the spread of hepatitis C, then newly infected injectors should include relatively few exchange attenders. To assess this, researchers compared them with injectors who had *not* become infected.[141] After adjusting for other influences, an injector was seven times more likely to become infected with hepatitis C if they had not used the exchange, for hepatitis B, nearly six times.

The study was far from ideal. It relied on data collected for other purposes, did not establish new infections by re-testing injectors, and used a comparison group unrepresentative of the local injecting population. However, the benefits of exchange attendance were so clear cut that only unrealistic assumptions would have rendered them insignificant. For experts convened by the US National Academy of Sciences, it constituted evidence of a "powerful retardant effect of needle exchange program attendance on infection with [hepatitis B and C]".[120]

Tacoma

- ✓ Convincing demonstration that needle exchange can curb the spread of hepatitis C.
- ✓ Important factors probably include local support enabling comprehensive services, and the lack of 'competing' outlets.
- ✓ Shows that one-for-one exchange need not be counter-productive if quantities are uncapped and supplies taken to the customers.
- ✓ Still high level of sharing.

Pharmacy sales dilute impact

Just north of Tacoma on the USA's north west coast lies Seattle, where the fixed-site exchange was located near the city's main drug market. If current provision is a guide, it operated on a strict one-for-one basis[142] and was open for just a few hours daily and not every day.[143] It seems to have done little to stem the spread of hepatitis B or C.

Researchers tracked what happened to injectors seen at local treatment and other agencies in 1994–1996 who at first tested negative for the viruses.[63] Thousands were tested, but the sample was small because 86% were already infected with hepatitis C. Continuing injectors were re-tested a year later when 39 out of 187 had become infected with hepatitis C, 19 of whom had sourced at least half their new needles/syringes from the exchange. After accounting for some prior risk factors, these regular customers were no more protected from the virus than people who had never used the exchange or had used it only as a minor source of equipment. Though not statistically significant, all the differences (with respect to hepatitis B as well as C) were in the wrong direction, linking *increased* risk with exchange use.

Again the magnet effect was implicated. Unmeasured risk variables found in greater abundance among regular attenders might account for the findings. Higher risk injectors certainly tended to be the ones who both started to use Seattle's exchange and who continued to attend.[144] Unlike Tacoma, alternative sources of sterile equipment such as pharmacies also meant that risky sharing could be avoided without attending the exchange, diluting its impact.[145]

Such considerations probably mean that the impression of increased risk is unreliable. But equally there is no evidence that attending the exchange *decreased* risk, and regular attenders exhibited high levels of risk behaviour. Over the follow-up year, nearly half had shared syringes and half of these had done so with two or more people. Some sharing of other equipment was the norm as was measuring out drugs by backloading. Attending the exchange may (we don't know – there were no pre-exchange measures) have reduced these risk behaviours, but in the context of a heavily infected local injector population, any continued sharing was likely to transmit hepatitis C – and did.

Seattle

- ✓ No evidence that a limited service with one-for-one exchange did anything to stem the spread of hepatitis B or C.
- ✓ Half the attenders were still sharing needles and syringes and most were sharing other equipment.
- ✓ Key difference from Tacoma may be that there were alternative sources of sterile equipment in the city, diluting the impact of the exchange.

Cocaine and housing crisis overwhelm North America's largest exchange

Gravitation of high-risk injectors to exchanges also partly accounted for negative findings in two Canadian cities – but only partly. Studies of exchanges in Vancouver and Montreal also revealed a disturbing inability to counter the spread of HIV and hepatitis C as an upsurge in cocaine injecting overwhelmed constricted services.[63]

Only in Vancouver was hepatitis C recorded,[65] an offshoot of a series of studies prompted by an outbreak of HIV. This work provides the most graphic account yet of how good intentions can be derailed by a restricted service and a bleak, risk-generating environment. Because these are the findings which did most to undermine confidence in needle exchange, we examine them in depth.

HIV rings the alarm

Alarms had rung when Vancouver's low HIV rate among injectors more than tripled over 18 months to reach 7% in 1995. The outbreak was a shock because the city hosted the largest-volume needle exchange on the North American continent. In 1997, it exchanged over 2.5 million needles.[146]

Vancouver's main needle exchange operated from a fixed site in Downtown Eastside, the city's drug injecting centre and the poorest district in Canada.[113] Though the office closed at 8pm, vans operated from one in the morning until after it re-opened at 8 am.[146 147] Exchange was strictly one-for-one and the number of syringes handed at any one time was at times tightly capped.[148] Locally, cocaine was the main injected drug.[113]

Working in the same district, in 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 applied also to hepatitis C.

Hepatitis C also alarming

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.[148] 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 155 injectors who were negative for hepatitis C and returned to be re-tested, 62 – exactly 4 in 10 – had become infected over on average 16 months; 93 had so far avoided it.[65] Over the previous six months, activities significantly related to infection included prostitution, having multiple sexual partners, needle sharing, daily injecting, injecting cocaine or cocaine/heroin 'speedballs', and addiction treatment other than in a methadone programme. Disturbingly, infection was also more common in injectors who had attended an exchange at least weekly: over half had become newly infected but only a quarter of 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 *caused* infection. Probably it was just that frequent cocaine injectors were more likely to enter this 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 *caused* more infections. The same kind of result had previously been found for HIV and on closer inspection had proved a red herring.[148] However, HIV had been different: once other risk factors had been taken into account, there was no case left for needle exchange to answer; for hepatitis C, excess risk remained substantial.

Still there remained the possibility that a basket of *un*measured or imperfectly measured risk factors were more common in frequent attenders, making it look as if attendance itself was a risk – the magnet effect.

Unmeasured behaviours such as sharing equipment other than needles and syringes might have greatly increased the risk of hepatitis C infection but not HIV, helping to explain the disparity. Others behaviours were represented only by broad yes/no categories. For example, injection frequency was divided into either at least once a day or not, yet *very* frequent injectors were far more likely to regularly attend exchanges, and probably also to become infected.[148] Especially for women, markers of a highly risky and unstable lifestyle (frequent injecting, crime, prostitution, resort to shooting galleries) were more common in weekly attenders,[149] an array not fully captured by the hepatitis C analysis.

The likelihood was that, rather than needle exchange, it was this inadequately measured risk which caused the infections. One report directly confirmed that injectors who primarily sourced equipment from the exchange engaged more often in more risky behaviours than pharmacy users.[150]

Exchange did not cause HIV outbreak

Vancouver's hepatitis C study was a continuation of the study which documented a similar picture with respect to HIV. Despite the seemingly damning findings of the first HIV report,[113] a later study[148] confirmed what had been hinted at earlier: that needle exchange looked like a risk factor because the most infection-prone injectors regularly sourced their equipment from the exchange. New infections were linked to unstable housing, occupying hotel rooms in the deprived Downtown Eastside neighbourhood, injecting cocaine four or more times a day, and needing help from others to inject. Once these factors had been taken into account, infections were no more likely to occur in frequent than infrequent attenders. Years earlier a different kind of study had reached a similar conclusion.[151]

Among these ifs and buts, there was one unpalatable certainty. Even if attending the exchange at least weekly did not heighten viral risk, neither did it do anything noticeable to prevent risk continuing and culminating in infection. Each year probably about 40% of frequent visitors became infected with hepatitis C[65] and nearly 12% with HIV.

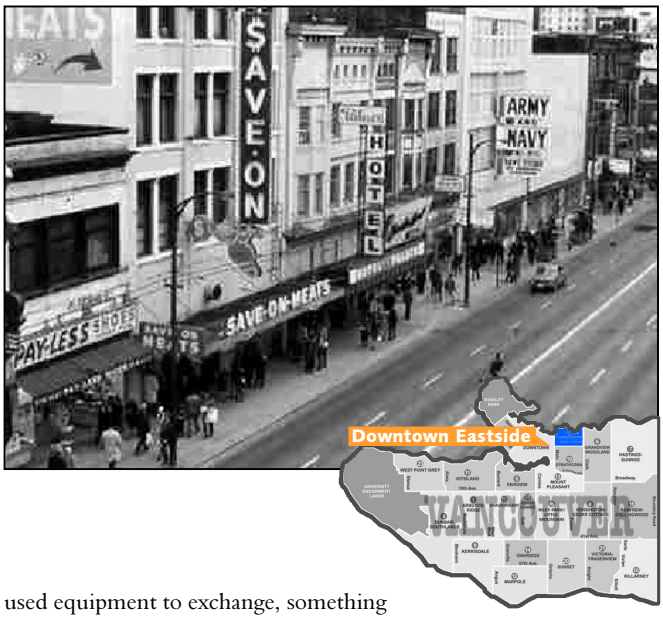
Vancouver

- ✓ Findings from this city did most to undermine confidence in needle exchange provision.
- ✓ Local hostility led the service to adopt a defensive posture.
- ✓ Strict one-for-one exchange and capped quantities were adhered to in the face of a cocaine injecting epidemic.
- ✓ Net result – despite handing out millions of syringes, major HIV and hepatitis C epidemics.
- ✓ Lack of decent affordable housing was a key factor.

Preview of conclusions

In later articles studies from Britain will be examined and found to provide limited evidence for the effectiveness of exchanges in reducing risk behaviour or curbing infection. The early pilot studies were flawed and since then there has been no comparable investigation. Rather than casting doubt on needle exchange, the overriding conclusion will be that we need far *more* – more exchanges, more syringes, better resourced services. More resources could also pave the way for a proactive working style which maximises opportunities for intervention. Attention could then be turned to extensions which harness drug user networks and take exchanges closer to the model of a one-stop, comprehensive harm reduction service.

Downtown Eastside was a sink into which the city's poor single population descended



"I think that with a stable house, if the person was on some kind of opiate therapy, if we gave them some real things to do that gave them some kind of life, that they would buy into it in a second. We're not animals. This isn't a party down here. It's a very shitty life ... they'd change it if they could. Some innovative programming could really change things down here."[193]

'Sid', a 40-year-old drug user from Downtown Eastside

Four in 10 had recently injected in shooting galleries and probably a similar proportion had re-used someone else's needle.[113 148] Over the course of attending, risk profiles changed little and not in ways which could be attributed to the influence of the exchange.[148]

Why so little impact?

Why Vancouver's exchanges failed to prevent the epidemics is one of the most contested topics in the addictions field.[152] One possible explanation[149] can be discounted. Local sharing networks were fluid and new sharing partners were commonly acquired – but not by meeting at the exchange.[148]

Another possible explanation lies in the methodology of the studies. Essentially they rested on comparisons between frequent and less frequent attenders. These differed by definition in how often they used the exchange, but not necessarily in how adequately it met their needs for injecting equipment, perhaps the more important variable.[76] Infrequent attenders probably collected fewer syringes per week but also needed fewer because they injected far less often and topped up from pharmacies.[148] If anything, weekly attenders were more likely to experience difficulty in obtaining sterile syringes.[149 153] Equality of ease in obtaining equipment translated into equality of risk.

Inadequate distribution

Despite having North America's most prolific exchange on their doorsteps, for both frequent and infrequent attenders, infection risk remained extraordinarily high. The exchange, it seems, 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.[113]

Frequent (especially cocaine) injecting and 'bingeing' created difficulty in obtaining sufficient sterile syringes.[153] Experiencing this difficulty was in turn linked to a tripling in the chances of someone sharing needles or syringes.[79] The upshot was that injectors who injected over four times a day were three times more likely to risk infection by using needles after other people.[154] Sharing was also associated with multiple re-use of one's own needles,[113 148] confirming the impression that it arose due to demand outstripping supply.

Quantity caps and one-for-one exchange could not have helped. On average just six syringes/needles were handed out at each visit.[155 156] Even a typical customer would have to visit at least three times a week, but a quarter injected over six times a day.[113] Their weekly needs will often have exceeded the exchange's quantity limit,[146] requiring several visits to the office carrying a basket full of used equipment to exchange, something most Vancouver injectors would wish to avoid.[157] Most had been stopped by the police and had needles confiscated.[154]

Users who needed the most equipment (frequent cocaine injectors) tended to rely on the vans, the source least able to supply in bulk[146] and one easily missed as they parked a short time in each location. As a result, van users had the greatest difficulty in meeting their needs.[150 153] Still, some may have preferred the vans to the office, where they feared police surveillance.[153 154] The police presence had been stepped up in response to the area's drug problem; personal experience of this pressure was linked to a near doubling in the odds of sharing needles.[50]

Risk-generating environment

Inadequate distribution was not the whole story. For example, 1 in 5 local injectors shared needles even when they had no problems getting fresh supplies[50] and though daily cocaine injecting and 'bingeing' did exacerbate equipment shortages, these behaviours also seemed to directly contribute to needle sharing.[79 158] The exchange in Downtown Eastside failed to prevent the epidemics not just because of its restricted service, but also because this became no match for the risks generated by the advent of cocaine injecting in a troubled population poorly served by welfare, housing and economic systems.

Some risk-generating factors were personal. Experiences such as sexual abuse, suicide attempts, and depression were associated with continued resort to other people's injecting equipment despite the exchange.[154] Such histories were common among local injectors,[113 149 151 154] as was mental illness.[50] This vulnerable population also endured depressing living conditions and unenviable lifestyles featuring prison, crime and prostitution.[65 113 148] Exchange attenders were generally poorly educated[50 113] and very poorly housed, mostly in 'welfare' hotels.[50 113 148] To extricate themselves from equipment sharing and a drug-centred lifestyle, a third had to overcome the pull of a sexual relationship with another injector.[113 154]

At the heart of the problem was the loss of affordable and social housing in the city.[148] In the small Downtown area, thousands of tiny but relatively cheap, single-occupancy hotel rooms filled the housing gap, a sink into which the city's poor single population descended – "people who have few other choices", said a housing director.[159] In 1994, the year HIV took off, into this environment came an upsurge in cocaine injection.[148] Local drug users often injected it several times a day for days at a time,[155 153] an experience likely to disrupt rational decision-making in the most balanced of people. Not surprisingly, the cocaine roller-coaster was associated with high-risk sharing.[79]

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 inside. Communal binge injecting developed, especially when the injectors (the same day for them all) received their welfare cheques.[123] The tiny rooms were transformed into ad-hoc shooting galleries.[113 151] Sterile needle/syringe stocks would have become rapidly depleted at a time when access to fresh supplies was obstructed.[123 148] In any event, often the only source would have been the exchange's vans, whose schedules may not have coincided with need and which would not normally have dispensed enough equipment to keep the 'party' going safely. The ill-serviced rooms with no bathrooms or cooking facilities[159] also made hygienic injecting difficult. Augmented by the effects of the drugs, they also lent themselves to confusion over whose syringe was whose.[157]

Supported housing for substance misusers and replacing single-occupancy hotel accommodation with low-cost social housing are now firmly on Vancouver council's agenda. Progress is being made, but slowly and resources remain tight.[159 160]

page 28

Counterproductive exchange restrictions leave HIV spreading

Across the other side of Canada, however they analysed the figures, studies in the mid-90s found that attending Montreal's needle exchange was linked to much *higher* levels of HIV infection and to an *increased* chance of becoming infected. Rather than an indictment of needle exchange, Montreal is another example of what can go wrong when equipment supplies are limited and the trickle allowed out from an exchange feeds rather than floods high-risk sharing networks. It also confirms that simply making syringes and needles available does not transform high risk injectors into low-risk.

More exchange, more infection

The key study was based on a sample of injectors recruited mainly through their own social networks.[174] Nearly 1000 were at first HIV negative. At issue was whether those who used the exchange would be protected from becoming HIV positive over follow-up periods ranging from three months to five years. The opposite seemed the case. However, in statistically evening out all other risk factors, the first analysis also eliminated some of the mechanisms through which exchanges might have had a beneficial effect.

A later analysis[175] fixed this problem but still the outcome was alarming: the more someone relied on the exchange for injecting equipment, the more likely they were to become infected. At the apex, injectors who consistently attended the exchange were six times more likely to become infected than those who had never attended.

Technical problems might partly explain the results.[120 175] Foremost was a possible failure to fully adjust for the fact that the exchange attracted very high risk injectors. The vital missing ingredient was the infection rate among attenders *before* they started attending. Conceivably this was much higher than among non-attenders and then began to fall under the exchange's influence, but at first not down to the level of non-attenders.[176] The fact that by the last year of the study attenders were no longer at higher risk of HIV infection hints at such a process.[174]

A further analysis reinforced this impression.[123] It was based on the observation that the exchange's night-time opening hours[120] and the profiles of its attenders indicated that they formed a social network distinct from that of non-attenders, and one at far greater risk of HIV infection. Over the course of the study this should have resulted in five times more seroconversions than in the less risk-prone non-attenders. In fact, the figure was half this, suggesting that the exchange *had* reduced risk – not by reducing sharing, but by cutting the time infected needles and syringes remained in circulation.

Montreal

- ✓ No hepatitis C data but for HIV same story as Vancouver: more exchange use linked to more infection.
- ✓ Magnet effect at work – risk may have been reduced but not to the level of non-attenders.
- ✓ Shows again what can happen when cocaine injecting takes off but exchanges maintain equipment supply restrictions, in this case partly to encourage frequent visits.

page 27

Poor treatment access

Recurrent themes in the Vancouver reports are the need to connect the city's injectors to addiction treatment and the failure to do so.[113 148 149] Though willing to refer, the area's main needle exchange soon found itself blocked by two-month waiting lists and by the lack of programmes suitable for young people or for cocaine users.[161] Ten years and more later the "woefully inadequate"[148] access to treatment had improved little.[146 162]

But even had there been a cocaine clinic on every corner, the exchange may not have made the most of them. Management[161] and funders[146] saw its role as expediting "requests" for help "when a client is ready", not prompting them. While waiting for this change of heart, injectors became infected with life-threatening diseases. In retrospect, it seems clear that these depressed, mentally ill, often suicidal cocaine injectors, trapped in a destructive environment, were in no position to prompt their own recovery.

At first medical and treatment referrals were made very rarely[161] and though these later picked up,[156] only a small proportion resulted in treatment entry[162] or HIV test-

The 'magnet' effect

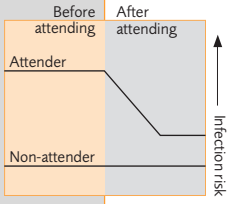
Perversely, if an exchange succeeds in attracting people at high risk of contracting disease, this desirable feature can make it look as if it is responsible for their heightened risk – the 'magnet effect'.[120] In fact, attending the exchange may have reduced their risk of infection but not yet down to the level of injectors who do not attend ◤ chart.

Studies consistently find that higher risk injectors are drawn to exchanges.[32 63 76 120 126 140 144] When statistical techniques are used to counter this bias, generally exchange use is found to have had a positive impact. For example, in a multi-site US study exchange attendance was typically sporadic, yet despite this and and despite the magnet effect, attendance was linked to a reduction in the use of previously used syringes, in turn linked to a reduction in the incidence of HIV.[126] In New York, injectors who were increasing their injection rate tended to visit exchanges more regularly, but regular attenders were three times less likely to become infected with HIV than non-attenders.[191]

The definitive confirmation of the magnet effect came from San Francisco. Here at last was the missing ingredient – evidence that *even before they attended*, injectors who later went on to use the newly opened exchanges were ten times more likely to become HIV positive than those who did not.[178] They injected more frequently and were more chaotic and destitute than non-attenders. High risk carried through to exchange attendance would have made it look as if the exchange was exacerbating the situation, even if the opposite was the case.[176] This is exactly what happened.[120] After attending, at most 3% a year became infected with HIV compared to under 1% of non-attenders, but *before* they had attended, 8% a year became infected.

Once other risk factors had been accounted for, another study confirmed that compared to non-attenders, San Francisco's exchange users were much less likely to have recently shared needles[75] and when they did, they shared with fewer people.[179] They were also less likely to re-use their own syringes and more likely to have a stock of fresh equipment.[180 181] As elsewhere, risk-reducing behaviour change had been masked by the magnet effect; also as elsewhere, it was still not enough to prevent the spread of HIV, let alone hepatitis C.[76 178 64 179]

There is another reason why exchanges may wrongly seem ineffective. A study in Baltimore found that people who say they attend when they do not are very likely to become infected. They will wrongly be counted as needle exchange 'failures'. The reverse deception (denying attendance) was far less common.[192] The net result was an 18% underestimation of the degree to which attending an exchange protected injectors against becoming infected with HIV.



Exchange attendance can reduce risk but still leave it higher than among non-attenders

Misguided attempt to increase visits

Whether Montreal's exchanges increased or decreased risk – and the latter is the more probable – they did not reduce it enough to prevent rapid spread of HIV. Potential explanations echo findings elsewhere.

At the time Canadian pharmacists were reluctant to sell syringes to addicts.[129] In 1994 the total supply from Montreal's exchanges and pharmacies would have provided fresh equipment for just three out of every 100 injections.[177] The exchange was not geared up to addressing this shortfall: cocaine was the dominant drug among its visitors and a quarter injected over 100 times a month, yet it set a limit of 15 syringes at any one time in a one-for-one exchange. The limit was an attempt to induce frequent attendance but in 1995 was recognised as counterproductive and abandoned.[174]

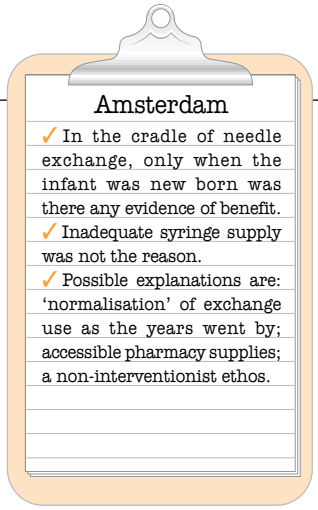
One-for-one exchange may also have impeded equipment supply because it meant users had to risk frequently carrying needles to and from the exchange in order to get sufficient new supplies.[140 157 175] As in Vancouver, extended availability of used syringes, more sharing, and more infections, were the likely and unwelcome results.

Early impact fades in Amsterdam

Amsterdam is the cradle of needle exchange, started there in 1984 to combat hepatitis B.[1] Yet the city's extensive methadone and needle exchange provision has not prevented high levels of infection with hepatitis C, and any beneficial impact at all on infection transmission has been hard to pin down.

'Low threshold' was and remains the ethos of Amsterdam's drug services including its exchanges.[182 183] The concept means not only easy access but also that care is taken not to deter attenders by making demands (for information, service engagement or commitment to change) or intervening in ways which might be interpreted as 'pressure'.

The exchange programme rapidly grew until by 1988 perhaps two-thirds of the city's injectors exclusively sourced their equipment from exchanges.[184] By 1990 these were giving out a million syringes from 14 sites. Large amounts could be supplied at each visit.[183] By 1997 the outflow had halved, but only because the number of injectors and injections also had fallen. The supply from exchanges alone remained enough to provide a fresh needle/syringe for every injection.[93 182]



Hepatitis C spread sounds a warning

From 1985 the Amsterdam Cohort Study tracked developments in disease transmission and risk behaviour among drug users, each year recruiting subjects from methadone clinics, an STD clinic for drug using prostitutes, and by word of mouth, an unusually long-term data series. Each recruit was asked to return every four months to be re-interviewed and retested for infection.

The study first threw up warning signs in

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ing.[50] Relatively few dependent drug users – cocaine users in particular – follow through on referral unless access to treatment is rapid and easy:[163 164 165 166] in Vancouver, it was neither. They can be supported and shepherded to the door,[167 168 169] but this was a role the exchange was neither resourced for nor inclined towards.

Defensive posture limits risk reduction

The exchange might have done more, but was itself tied by funding constraints and by rules which left it unable to meet its customers' needs. To appease hostility, effectively it prioritised community concerns and the very distant prospect of needle stick infection over the lives of injectors. Perhaps this was the only way to stay open. Perhaps, too, its 'light touch' was ill-suited to a situation which cried out for energetic intervention.

The emphasis was on attracting customers and gaining trust by being "accepting" and "non-intrusive" and by creating a "milieu in which the [injector] can feel free to function as he would".[161] It was hoped that customers would respond by becoming more responsible in their drug use. 'Responsibility' was, it seems, unachievable by this subtle route.

Very soon, even if the exchange had wanted to do more, it would have been held back by the combination of escalating client numbers and resource constraints.[161] Budgets and staff were stretched and client contacts were "cursory and on-the-run".[170] The vans saw in some ways the most needy injectors yet were least able 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, concluded by a well-meaning (but clearly often ineffective) injunction not to share.[155]

Budget restrictions limited opening hours,[153] forced cutbacks in the mobile service, and partly accounted for the cap on supplies.[148] The effect was to impede access to equipment and to prevent visitors passing on sterile syringes.[149] Under-resourcing reflected public and political opposition to the service but it was not the only problem. Limited hours were also a response to community concerns about drug users converging on the site late at night. Through these mechanisms, hostility to the exchange helped clear the way for the viruses.

The exchange sought to deflect hostility (of which it was acutely aware[161]) by actively choosing to restrict its service. As often the case in Britain, it was pressured into operating on the basis of worst case scenarios.[171] A "constant concern" was that users would re-sell its equipment, so at first usually just two syringes were handed out at each visit. The limit was later raised but not abandoned for many years. The one-for-one rule was at first flexibly implemented but later hardened, partly due to concerns over syringes being left in public.[146] There were also worries that supplying lots of free equipment would enable more frequent injecting.

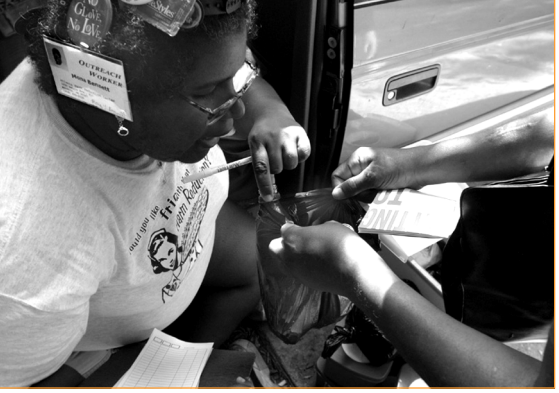
Lessons could have been learnt earlier

Perhaps the most dispiriting thing about Vancouver is that the lessons could have been learnt much earlier by just talking in depth to a few representative local injectors.

This is exactly what the researchers did before starting work in earnest.[172] Factors found later to elevate risk clearly emerged from the interviews. Oppressed, depressed, fatalistic and trapped in a skid-row environment, the 16 injectors were not well placed to value their lives and health sufficiently to prioritise these over immediate relief, and lacked the material and social supports to actualise health improvement.

High-volume, right-time, right-place equipment supplies flooding rather than trickling into their hotel rooms and alleyways might have made a difference, and beyond this a concerted attempt to improve 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. By the time this lesson had sunk in, many young people were heading for an untimely death.

Given the limitations of needle exchange in this environment, local experts have called for supervised injection rooms. In these Vancouver's addicts could receive not just needle exchange but also counselling, health care, drug treatment and practical services such as showers and laundry, promoting sustained contact with staff.[50 170] Just before Christmas 2002 local drug users and Vancouver's newly elected mayor met national health officials to plan such a facility, but political opposition remains strong.[173]



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A worker carefully counts returned needles. Insisting on strict one-for-one return is one way exchanges deflect community hostility but it can also mean supplies fall short.

1990 when the new test for hepatitis C revealed that it had been infecting about 1 in 10 "hard" drug users (70% of them injectors) each year from 1986 to 1989.[13 14] HIV and hepatitis B too were spreading at rates consistent with high levels of risk behaviour.

Analyses to establish the causes found that, unlike HIV, acquiring hepatitis C was not related to the number of times injectors had borrowed used needles or syringes.[14] As elsewhere, perhaps ease of transmission through occasional needle sharing and through sharing paraphernalia masked any extra impact of more frequent sharing.[13 23 45 56 65 66 69] The implication was that even if Amsterdam's exchanges *had* cut re-use of other people's needles and syringes, this might not have stopped the virus spreading. In fact, there were doubts over whether sharing had been reduced. If it had, the effect should have been to reduce the incidence of HIV among exchange attenders; in most years there was not even a hint of this happening.

The evidence came from 31 injectors who had become HIV positive between 1985 and 1991.[183] They were compared with randomly selected injectors who had remained HIV negative. Over 4 in 10 of the seroconverters had been relying on exchanges for all their needles and syringes, a reliance associated with a slightly *higher* chance of becoming infected. The margin for error was great and the results were not statistically significant, but certainly there was no indication that reliance on exchanges *reduced* risk.

However, this average hid a significant trend for the impact of exchanges to change over the years. In the early years (1986–1987), exclusively sourcing your needles from an exchange *was* associated with a reduced chance of becoming infected with HIV. Only in later years did this reverse into increased risk among exchange attenders.

Early infection impact fades

A later analysis using more sophisticated statistical techniques confirmed that needle exchange attendance had become less protective over the years.[51] The main advance was an adjustment for the effect of repeated interviews which made it possible to use data from all relevant subjects, not just those new to the study – 879 injectors, most of whom mainly injected heroin/cocaine speedballs.

An initial steep drop in HIV incidence over the first three years of the needle exchange era was followed by a stabilisation at about 4% a year, still too high. There was a parallel trend in the proportion of injectors who had recently shared syringes. Among new recruits to the study, unaffected by being repeatedly tested, counselled and interviewed, the proportion who had recently borrowed levelled out at 30%.

When these trends were averaged out over the full period of the study, using an exchange was not associated with less borrowing or lending of syringes. In fact, the relatively rare practice of sourcing some but not all of your equipment from an exchange was linked to a significant *increase* in both. The more meaningful comparison was between people who only sourced their equipment from exchanges (the majority) and those who never did. This too was not reassuring. Exchange devotees borrowed and lent just as much as the rest.

Again, this relationship changed significantly over time. At first far fewer exchangers shared, but over the years they made no further improvements, while among non-attenders syringe borrowing fell. By 1992 almost exactly the same proportions were borrowing in each group.

Impact on risk behaviours also fades

Other Cohort study reports confirmed that, after the first few years, using exchanges did not reduce needle/syringe sharing. Between 1985 and 1988 exchanges came to dominate syringe supply in the city yet the proportion of injectors who had recently borrowed used equipment remained static.[184] Data from 1989 and 1990 also indicated that injectors who relied on exchanges were now no less likely to re-use used needles and syringes than those who relied on other sources.[71] Where exchange users did seem to benefit is in not having to re-use their *own* syringes.

This too was the conclusion reached by a study outside the Cohort series.[185] In 1987, heavy exchange users among a sample of injectors were compared to the remainder, most of whom barely used exchanges. Exchangers were clearly more adequately supplied. Compared to 29% of the rest, during the previous six months over 80% could afford to use a needle only once. Just 3% daily found themselves with drugs but without clean needles, 27% of the remainder.

During this early period, enhanced supply also seemed to feed through to reduced borrowing of used equipment. In the past month, 10% of the injectors who relied on exchanges had borrowed compared to 23% of the rest. Still the possibility remained that, rather than exchanges fostering risk avoidance, people who were *already* more careful tended to be the early visitors to the exchanges, a possibility supported by an analysis which took into account other risk factors.

Risks knowingly taken

In 1992 to 1993 the Cohort study probed the reasons for risk behaviour among injectors who agreed to this extended interrogation.[93] Attention focused on the 96 who were HIV negative so could still become infected. Many were at substantial risk. Over the past five months at least a quarter and perhaps nearly 40% had re-used a syringe after someone else, each on average 19 times. Often they had done so without knowing that the donor was HIV-negative and without (though most tried) adequately cleaning the equipment.

Once other factors had been taken into account, how much they used needle exchanges made no difference to how often they knowingly borrowed used needles and syringes. There was one finding exchanges could cheer: sourcing all one's equipment from exchanges was associated with a greatly reduced risk of *accidental* re-use. This could simply mean that more organised injectors both planned their equipment supply better and were better at avoiding mishaps. Even if it was a real benefit of exchange attendance, the impact on infection would have been minimal. 48 injectors became HIV positive

Case studies not isolated examples

The case studies are atypical only in the degree of investigatation. Across the world, needle exchange services leave a residue of needle and syringe sharing and more frequent sharing of other equipment.[32 42 45 58 63 68 74 80 86 104 111 115 116 117 120 123 186 187 188 189 190] This residue is sufficient to form a perfectly adequate transmission route for viruses such as hepatitis C which are prevalent in the injecting population.

One of the the few studies to directly relate hepatitis C to needle exchange was conducted in Chicago in the late 1990s.[68] Injectors were tested for hepatitis C and asked about risk behaviour in the past six months. Half had begun injecting in the last two years and a third within the last year, so for many their recent behaviour was relevant to their infection status. The minority who had attended needle exchanges were significantly *more* likely to be infected. When other risk factors were taken into account, the tendency remained but was no longer statistically significant – the mark of the magnet effect, in this case perhaps due to frequent injectors being more likely to use the exchange and more likely to be infected.[120] However, as in some of the case studies, there is no indication that attending exchanges *reduced* the chances of hepatitis C infection.

during the study. Most admitted risky injecting with someone they *knew* to be infected. Accidental sharing was at best a minor factor.

Few injectors had re-used equipment while experiencing serious withdrawal symptoms. Perhaps related to the dominance of cocaine/heroin mixtures in this sample, a more common prompt was the urgent desire to experience the next hit. At the time they re-used over 70% were within 30 minutes of an exchange. Sharing often occurred during office hours so at least some of the services must have been operating at the time.

So what *does* work?

Though it was unable to show that needle exchanges curbed syringe sharing, by chance the Cohort study threw up an idea about what might – its own research interviews.

The finding emerged from analyses of the progress made by Cohort subjects who had returned for two or three follow-up interviews.[184] Effectively these were a thorough HIV risk assessment coupled with HIV testing and counselling.[71]

Before their first interview, half had borrowed used needles or syringes. After being interviewed once, this fell to a quarter, after two interviews, to 16%. Some of these falls may have been due to increasing reluctance to admit to 'misbehaviour',[183] but this could not account for the entire effect: a substantial drop in borrowing still seems to have occurred as research assessments were repeated.[51] Similarly, passing on syringes fell far more steeply among returning interviewees than among new recruits to the study, from 44% to just 8% after two interviews. This early data was confirmed by an analysis covering over a decade from 1986 to 1997.[51]

Why the diminishing impact?

What happened in Amsterdam will be familiar to the marketing experts of Intel and Microsoft. Like the 'early adopters' of any new technology, injectors who sought out the exchanges in the early years were an atypical minority particularly motivated to reduce risk. Later a pincer movement narrowed the gap between exchange users and non-users. As exchanging became commonplace, attenders came to differ little from other injectors in their desire or (given good supplies from pharmacies) their ability to reduce risk.[184] Exchanges became just another source of needles and syringes.[183] Simultaneously, the anti-sharing ethos spread to people who did not use exchanges, bringing them up to speed up with the vanguard who had sought out the first services.[51]

As a result, the exchanges came to have no noticeable extra impact on risk behaviour or infection rates. After 1991, whether someone re-used used equipment seemed related to factors other than their source of new needles and syringes. Sourcing adequate supplies from exchanges eliminated some reasons for borrowing (shortage of equipment or shortage of money to buy equipment) but left enduring factors such as personality, housing and drug use patterns to be tackled.[71]

Neither the pharmacies (they could not) nor the exchanges (energetic intervention was not their style) did much to address these influences. Equality of non-intervention led to equality of risk. What neither routinely provided – intensive and repeated risk assessment and HIV counselling – came instead from the Cohort study, and did seem to create added risk-reduction value.

Equality of supply in relation to need

Exchange and pharmacy users may also have differed little in the adequacy of their equipment supply. Pharmacy users injected less often so were more able to buy enough needles and syringes for their needs, matching the adequacy of the supplies given to more frequent injectors by the exchanges.

The context here is vital. As in the UK, in Amsterdam pharmacies were willing to sell syringes to injectors, providing a high background availability which exchanges were hard put to improve on. Elsewhere the mere fact of making syringes available through an exchange could have had an impact, regardless of whether more deep-seated influences were also addressed.[140]

In later years, the very ubiquity of exchanges could have masked their benefits. Non-attenders may have profited from their supplies in the form of sterile needles passed on by attenders. With the main load of heavy injectors diverted to exchanges, pharmacists were probably more willing and able to meet the remaining demand. Exchanges probably also contributed to a general awareness of HIV risk and how to avoid it. In these ways they could have reduced the risk profile of non-attenders as well as attenders, contributing to the 'no-difference' findings when the two were compared.

It is also worth speculating what might have happened without the exchanges. In this scenario heavy injectors (not universally welcome in retail premises) may not have been willing or able to pay for their supplies from pharmacies, and pharmacists may not have been willing to serve them, leading to even more sharing and more infections. The same speculation may also be applicable to Vancouver and other areas where, by relieving pressure on pharmacies, exchanges make themselves look ineffective in comparison.

But the bottom line is that Amsterdam's exchanges could not be shown to create extra benefit where it should have been most apparent – among the injectors who used them. Before accepting this verdict, we should acknowledge one limitation to all the studies: methadone programmes were their prime recruiting grounds. In Amsterdam this is less of a limitation than probably anywhere else on earth because such a high proportion of opiate injectors are in methadone treatment. Still, the samples must have been skewed away from stimulant-only injectors, from foreigners (who have limited access to Dutch methadone services), from younger and newer initiates to opiate use, and from injectors who did not wish to cross even the low threshold of the city's services.

Hostility to exchanges limits effectiveness by denying resources and forcing a defensive response. These nuns will not be doing much outreach.

LESSONS FROM THE CASE STUDIES: IT'S THE SYSTEM THAT COUNTS

What can we take from these six case studies? The most important lesson is to appreciate that needle exchange is a *system*, no one element of which is good or bad in itself. It all depends on how it relates to the other elements of the service and to the environment within which it operates.[140]

For example, strict one-for-one exchange can constrict supplies and counterproductively extend the circulation time of used syringes, but is less of a problem if large amounts can be handed out, and if the exchange is taken to the customer rather than the customer having to risk frequent return visits carrying used equipment. Long inter-visit intervals are not necessarily indicative of a poor service if enough supplies are given to bridge the gap and if injectors securely dispose of used equipment.

How these internal procedures relate to the customers and to the locality is also critical. In a city where opiate injecting dominates and injectors have stable accommodation, a 24-hour exchange located close to the drug use epicentre would be an ideal intervention; in another, it might fail to tempt cocaine injectors out of their locked hotels. Motivated, risk-conscious injectors will make good use of services which confine themselves to the simple exchange function, but much more intervention will be needed to stop others simply feeding the exchange's supplies into continued high-risk injecting. An upsurge in cocaine injecting can overwhelm exchange provision, demanding a rapid upgrade to much more active and

extensive distribution. Where supplies cannot be had from elsewhere, an exchange which does nothing more than hand out large quantities can make a substantial difference, but if the reverse is the case it will need to do more to justify its existence.

The availability of treatment services to refer to can also be a make or break issue. Similarly, where multiple deprivation obstructs positive behaviour change, the exchange will need housing, psychiatry, medicine and vocational rehabilitation all to pull their weight. On its own it may prove too little to make a difference.

In turn these considerations dictate that exchanges have systems which enable them to closely monitor what is happening in the locality and that they forge good links with treatment and other support services. Forming good relationships is, of course, a two-way responsibility. It will not help if exchanges are denigrated as supportive of continued drug abuse.

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For references 1–139 see part 1 of this review in issue 8.

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LINKS *Hepatitis C and needle exchange. Part 1*, issue 8 • Nuggets **8.5 5.8 1.8 1.7**

OFFCUTS

Recently published British studies linking release from inpatient **detoxification** and **prison** to **overdose deaths** will come as no surprise to FINDINGS readers – these were among the risk factors highlighted in our review ◤ Links. What they have in common is that abstinence and loss of tolerance occur in a protected environment which leaves the user vulnerable to overdose if they resume drug use on re-entry into their normal environment. The implication of both is that intensive follow-up care is needed in the aftermath of more or less 'enforced' tolerance reduction.

LINKS *Overdosing on opiates part I: causes*, issue 4

The first study followed up 137 opiate detoxification patients released from the Bethlem's inpatient unit. All three overdose deaths in the following four months were among the 37 who had 'successfully' detoxified; none occurred among patients whose 'unsuccessful' detoxifications meant they had maintained a degree of tolerance.[1]

The second study estimated that 1 in 200 young adult injectors released after at least a fortnight in Scottish prisons died from drug-related causes within the following two weeks.[2] The estimate derived from a study of 20,000 releases which showed that drug-related deaths were seven times more likely in the two weeks after leaving prison than at later times. The startling 1 in 200 estimate assumes that all these deaths were of injectors – perhaps a slight overestimate, but not so great as to vitiate the conclusion that leaving prison is a highly risky period for previously drug dependent inmates.

1 Strang J. *et al*. "Loss of tolerance and overdose mortality after inpatient opiate detoxification: follow up study." *British Medical Journal*: 2003, 326, p. 959–960.

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Blueprint 'not following a flawed evidence base'

Contrary to the title of your article in FINDINGS issue 8, STAR is not coming to England, but now is a good time to update readers on Blueprint, the national evaluation of drug education in England. While your article was being developed, we continued to explore the evidence base for drug education to see which approaches have been shown, through rigorous evaluation, to be effective or ineffective. We are interested in the structure and processes for the mobilisation of drug prevention provided by STAR – which remains one of the most rigorously evaluated initiatives – and by other promising approaches. However, the language and cultural relevance of specific programmes require adaptation to the UK context. Therefore, Blueprint is based on a distillation of the key principles of effective drug education and not on the direct implantation of materials from one country to another.

Blueprint is Britain's first major evaluation of drug education based on systematic reviews and analyses of materials for their degree of fit with the UK context. We have looked at the relative weighting of normative education, decision-making, and social interaction skills found in effective programmes, and adapted PSHE lesson plans accordingly. Blueprint is in fact a pilot study designed to test the adoption and sustainability of an evidence-based approach to drug education. This includes an assessment of: the knowledge, attitudes and behaviour of young people; the quantity and quality of communication between parents and young people; cost; the reactions of teachers, pupils and parents; and the ease of adoption by community education and prevention practitioners.

We would challenge a view that poor behavioural outcomes could undermine support for drug education in Britain. Young people have the right to accurate information about tobacco, alcohol and drugs and should expect to have the opportunity to develop their values and opinions regarding substance use. The national drug strategy requires, through Blueprint, an assessment of the potential role of drug education in reducing the prevalence of drug use. We also aim to develop curricular materials which are an asset to teachers and maximise the credibility and utility of drug education for young people.

Blueprint will run in four LEA areas (Cheshire, Derby, Derbyshire and Lancashire) and will involve 30 (not 50) secondary schools at level two or three of the National Healthy School Standard. This autumn the programme features teacher training and the baseline pupil survey, before implementation in 2004 and 2005 and post-implementation surveys in 2005 and 2006.

The revised drug strategy is underpinned by the available evidence base, and development of the Blueprint programme has responded to reviews of evidence, including your own article and others. In relation to the closing remarks of your article, the role of drug education in an overarching strategy and the ease of transfer of evidence are not well established. We confidently expect Blueprint to make a valuable contribution to the debate.

Paul Baker
Blueprint Research Manager

We are pleased to have been able to contribute to Blueprint's change of direction and agree that it promises to provide valuable lessons. References to Blueprint in our article (including that it was to be based on STAR and Life Skills Training and would involve 50 schools) were correct as far as we knew, included in an early draft sent to the Blueprint team, confirmed in a response from Blueprint, and not subsequently corrected. Editor

OFFCUTS

Evaluations of substance misuse treatment rarely forefront what probably matters most to the patient – their **quality of life**, a yardstick often applied to other patients. Especially for illegal drug users, the focus instead is on the outcomes that matter most to the wider society.

Recently a few studies have started to redress this balance. What they find is that the patient's own assessment of their well-being is often poorly related (and sometimes not at all) to conventional outcome measures such as substance use, abstinence and severity of drug problems. Using quality of life as a yardstick would often give a very different impression of well a client has progressed, how well a service is performing, and whether one treatment is better than another. For example, in one US study, at the end of treatment a third to a half of the clients who had sustained abstinence nevertheless had a poor quality of life, while around half who had 'lapsed' felt they had a good quality of life. In another, clients were more often abstinent after 12-step based group therapy, but also experienced reverses on dimensions reflecting quality of life. In contrast, more or less the opposite was the case for a therapy focused less on abstinence than on changing irrational beliefs thought to underlie dependence. Satisfaction with treatment, another measure taken from the client's point of view, is also inconsistently related to substance use outcomes but may (there is very little evidence) be more closely related to quality of life.

In methadone and other substitution treatments too, conventional indicators of success (such as reaching the point where a patient no longer tops up their prescription with heroin) are not necessarily related to the patient's own assessment of their well-being and functioning. The likely explanation is that some addicts do not enter treatment to abandon a heroin-based lifestyle but in order to manage it better by gaining 'time out' before returning to the street and reducing hassle and expenditure, or to have a taster of what life without heroin might be like. They may see the treatment episode as a success even though they continue to use heroin and dip in and out treatment in ways which make the service's retention and urine test records look poor. The same kind of motivation provides an alternative explanation for what is often criticised as the under-dosing of methadone patients: for many this is precisely what they want – to restrain their methadone dose so they can continue to 'enjoy' heroin.

References and fuller text available on request from da.findings@blueyonder.co.uk – ask for the quality of life dossier.

New literature reviews, meta-analyses, and evidence-based resources

TREATMENT

ADDICTIVE DISORDERS IN CONTEXT: PRINCIPLES AND PUZZLES OF EFFECTIVE TREATMENT AND RECOVERY. Moos R.H. Psychology of Addictive Behaviors: 2003, 17(1), p. 13–19. DS
One of the world's most experienced addiction researchers distills the evidence into seven broad principles underlying effective treatment.

DRUG ABUSE TREATMENT AND REHABILITATION. A PRACTICAL PLANNING AND IMPLEMENTATION GUIDE. Marsden J. et al. 2003.

INVESTING IN DRUG ABUSE TREATMENT. A DISCUSSION PAPER FOR POLICY MAKERS. McLellan A.T. 2003.

CONTEMPORARY DRUG ABUSE TREATMENT. A REVIEW OF THE EVIDENCE BASE. McLellan A.T. et al. 2002.
United Nations International Drug Control Programme.
Reports in the UN's toolkit for policy makers and practitioners with the accent on clear communication of the most important research evidence and cross-cultural applicability.
Download from www.unodc.org/unodc/treatment_toolkit.html.

PREVENTION OF RELAPSE IN ALCOHOL DEPENDENCE. HEALTH TECHNOLOGY ASSESSMENT ADVICE 3. 2002. EIU

PREVENTION OF RELAPSE IN ALCOHOL DEPENDENCE. HEALTH TECHNOLOGY ASSESSMENT REPORT 3. Slattery J. et al. 2003. EIU
Health Technology Board for Scotland.
Advice for commissioners and providers based on (second entry) a comprehensive literature review, views of service users, and economic analyses.
Download from www.htbs.co.uk/publications.

GUIDELINES FOR THE TREATMENT OF ALCOHOL PROBLEMS. National Drug and Alcohol Research Centre.

THE TREATMENT OF ALCOHOL PROBLEMS. A REVIEW OF THE EVIDENCE. Shand F. et al.
[Australian] Commonwealth Department of Health and Ageing, 2003.
Practice guidelines for the Australian national alcohol strategy aimed at generic and specialist health workers, plus the review on which these were based.
Download from www.health.gov.au/pubhlth *or fax 00 61 6289 7837.*

TREATMENT MATCHING IN ALCOHOLISM. Babor T.F. et al, eds. Cambridge University Press, 2002. BS
The definitive account of the state-of-the-art Project MATCH study of which treatments are best for which drinkers.

INTEGRATED CARE PATHWAYS. GUIDE 1: DEFINITIONS AND CONCEPTS. 2003. EIU

DEVELOPING AND IMPLEMENTING INTEGRATED CARE PATHWAYS. GUIDE 2: DEVELOPING INTEGRATED CARE PATHWAYS. 2003. EIU

INTEGRATED CARE FOR DRUG USERS. DIGEST OF TOOLS USED IN THE ASSESSMENT PROCESS AND CORE DATA SETS. Rome A. 2003. EIU
Guides to the sequence and timing of interventions to optimise the continuum of care for drug misusers.

COMORBIDITY OF MENTAL DISORDERS AND SUBSTANCE USE. A BRIEF GUIDE FOR THE PRIMARY CARE CLINICIAN. Holmwood C.

COMORBIDITY OF MENTAL DISORDERS AND SUBSTANCE USE IN GENERAL PRACTICE. McCabe D. et al.

CURRENT PRACTICE IN THE MANAGEMENT OF CLIENTS WITH COMORBID MENTAL HEALTH AND SUBSTANCE USE DISORDERS IN TERTIARY CARE SETTINGS. Siggins Miller Consultants.
[Australian] Commonwealth Department of Health and Ageing, 2003.
First is a succinct practice guide for GPs; second the report on which it was based; third, review and recommendations for mental health and substance misuse services. Produced for Australia's national drug and mental health strategies.
Download from www.health.gov.au/pubhlth *or fax 00 61 6289 7837.*

DUAL DIAGNOSIS GOOD PRACTICE GUIDE. Department of Health, 2002.
Covers alcohol and other drugs. For commissioners and providers of mental health and substance misuse services.
Download from www.doh.gov.uk/mentalhealth/dualdiagnosis.htm.

A GUIDE TO WORKING IN PARTNERSHIP: EMPLOYABILITY PROVISION FOR DRUG USERS. McNab E. et al. 2003. EIU
How training, education and employment can promote and sustain recovery from drug addiction and how to forge the inter-agency partnerships needed to deliver these benefits.

OFFCUTS

Two new services aim to help you choose prevention resources and develop the evidence base. The **Drugs Education and Prevention Information Service** (DEPIS) and the **National Drug Prevention Development Team** (NDPDT) can both be accessed via www.doh.gov.uk/drugs.

DEPIS is run for the Department of Health by DrugScope. At its core is a searchable database of resources and projects with evaluation reports and expert assessments. DEPIS also offers the chance of free consultancy on the evaluation and dissemination of prevention projects – visit www.drugscope.org.uk. NDPDT supports the development and dissemination of the drug prevention evidence base. To come are information packs on how to set up and evaluate a prevention project, a bank of useful documents and policies, and practitioner forums.

DRUG COUNSELING FOR COCAINE ADDICTION: THE COLLABORATIVE COCAINE TREATMENT STUDY MODEL. Therapy manual 4. Daley D.C. et al. US Department of Health and Human Services, 2002.
The group counselling approach developed for a multi-site clinical trial.
Download from www.drugabuse.gov.
See also manuals 1–3 for cognitive, community reinforcement and individual counselling approaches to cocaine addiction.

INTERINDIVIDUAL VARIABILITY OF THE CLINICAL PHARMACOKINETICS OF METHADONE: IMPLICATIONS FOR THE TREATMENT OF OPIOID DEPENDENCE. Eap C.B. et al. Clinical Pharmacokinetics: 2002, 41(14), p. 1153–1193. DS
Argues that differences in how patients metabolise methadone mean that treatment must be individually adapted to each patient.

GUIDANCE FOR THE USE OF BUPRENORPHINE FOR THE TREATMENT OF OPIOID DEPENDENCE IN PRIMARY CARE. Ford C. et al, eds. Royal College of General Practitioners, 2003.
Copies from mmurnane@rcgp.org.uk *or Mike Murnane on 020 7173 6091.*

BUPRENORPHINE THERAPY OF OPIATE ADDICTION. Kintz P. et al, eds. Humana Press, 2002. BS
Comprehensive review drawing on the extensive French experience with buprenorphine.
To order direct contact publisher, http://humanapress.com, *fax 00 1 973 256 8341.*

REDUCING HARM

POLICY FROM A HARM REDUCTION PERSPECTIVE. Lenton S. Current Opinion in Psychiatry: 2003, 16, p. 271–277. DS
Menu of harm reduction options from law reform and macro-policy to services such as needle exchange.

DRUG CONSUMPTION FACILITIES: AN UPDATE SINCE 2000. Kimber J. et al. Drug and Alcohol Review: 2003, 22(2), p. 227–233. DS
International experts assess the lifesaving potential and social acceptability of injecting rooms.

CRIMINAL JUSTICE

SUBSTANCE ABUSE TREATMENT FOR CRIMINAL OFFENDERS. Springer D.W. et al. American Psychological Association, 2003. BS
Evidence-based, practical guide for workers involved in prison treatment and diversion programmes.
Order direct from www.apa.org/books *or* order@apa.org.

ARREST REFERRAL. A GUIDE TO PRINCIPLES AND PRACTICE. Russell P. et al. 2002. EIU

EVALUATION GUIDE 11: EVALUATING ARREST REFERRAL SCHEMES. 2003. EIU

DRUG ARREST REFERRAL SCHEMES: A CASE STUDY OF GOOD PRACTICE. O'Shea J. et al. Home Office, 2003.
Learning points from four English schemes with different methods.
Download from www.drugs.gov.uk.

PREVENTION

SCIENCE-BASED PREVENTION PROGRAMS AND PRINCIPLES, 2002. Steven S. et al. [US] Center for Substance Abuse Prevention, Substance Abuse and Mental Health Services Administration, 2002.
Latest catalogue highlighting what the US health department's expert assessors agree are model, effective, or promising prevention programmes.
Download from www.samhsa.gov.

LONGER-TERM PRIMARY PREVENTION FOR ALCOHOL MISUSE IN YOUNG PEOPLE: A SYSTEMATIC REVIEW. Foxcroft D.R. Addiction: 2003, 98, p. 397–411. AC
Authoritative review of long-term, rigorous evaluations of primary prevention of alcohol misuse identifying the most promising programmes.

PEER EDUCATION: FROM EVIDENCE TO PRACTICE. AN ALCOHOL AND OTHER DRUGS PRIMER. McDonald J. et al. [Australian] National Centre for Education and Training on Addiction, 2003.
Literature review, theoretical models, and a user-friendly guide to implementing peer education.
Download from www.nceta.flinders.edu.au.

SOURCES

AC Alcohol Concern, phone 020 7928 7377, or write to Alcohol Concern, 32–36 Loman Street, London SE1 0EE, England.

DS DrugScope, phone 020 7928 1211, or write to DrugScope at address above.

EIU Published by the Scottish Executive's Effective Interventions Unit. Copies from http://drugmisuse.isdscotland.org/eiu, e-mail eiu@scotland.gsi.gov.uk, or write to EIU, St. Andrew's House, Edinburgh, EH1 3DG, Scotland.

F FINDINGS – phone/fax 020 8888 6277, editor@drugandalcoholfindings.org.

BS Available through bookshops.

Attribution A judgement on whether one event was caused by another. Usually whether an *impact* was caused by an *intervention*. Will depend on whether other explanations can be eliminated and whether the *intervention* can credibly be seen as the cause.

Attrition The degree to which a study fails to include all the intended subjects due to factors such as drop-out or inability to contact them. May threaten the comparability of *treatment* and *control groups* and how far these remain representative of the *target group*.

Audit A quality assurance process that checks actions and procedures against guidelines and standards.

Blinding See *double-blind*.

Comparison group See *control group*.

Control group A group of people ('controls'), households, communities or other *units of analysis* who do not participate in the *intervention* being evaluated. Instead, they usually receive an alternative *intervention* (in which case the term *comparison group* may be preferable) or no *intervention* at all. Observations made on the controls are used to decide whether the *intervention* had an *impact* on the *treatment group*(s).

Cost-effectiveness One *intervention* is more cost-effective than another if it achieves more of a desired *objective* for a given expenditure.

Cost-benefit In a cost-benefit analysis both the costs and the benefits of *interventions* are expressed in monetary terms. This enables us to assess whether an *intervention* gained more than it cost and whether an alternative *intervention* achieved greater benefits for each £ spent.

Double-blind Research designs in which neither the subjects nor those taking measures from them know which *intervention* (if any) the subject received. Eliminates bias due to expectations or preconceived views. For the same reason, researchers may also be 'blinded' to other variables, such as characteristics thought to make subjects more or less receptive to *interventions*. See *placebo*.

Drop-out See *attrition*.

Effectiveness The degree to which an *intervention* produces the desired *objectives* under everyday conditions typical of those in which it will usually be applied. Contrast with *efficacy*.

Efficacy The degree to which an *intervention* produces a desired *objective* under relatively optimal or ideal conditions. A measure of its potential benefits rather than what we can expect from it in normal conditions. Contrast with *effectiveness*.

Evaluation A systematic assessment of whether and/or how the *aims* and *objectives* of an *intervention* have been acheived. May also assess unintended *outcomes* or other *impacts*.

Experimental group See *treatment group*.

External validity The degree to which what is evaluated in a study (and the conditions under which it is evaluated) permit us to assume that similar *impacts* will be observed in everyday practice. Can be maximised either by limiting the claims made for the study's *generalisability* or by employing more *naturalistic* research designs. Contrast with *internal validity*.

Generalisability How far an *evaluation*'s findings will be replicated in similar situations. Normally the main issue is whether the results will apply outside the research context to everyday conditions.

Hypothesis A formal prediction about what will happen as a result of an *intervention*. Such predictions are tested by the *evaluation*.

Impacts All the consequences of an *intervention* including intended and unintended *outcomes for* the *target group*.

Inputs The resources used to deliver an *intervention*, whether human, financial or physical.

Instrument An organised method for consistently collecting information such as questionnaires, guidelines for interviews and making observations, and protocols for testing urine and saliva. Because evaluations depend critically on how well they measure *outcomes* and other variables, instruments should be *objective*, *reliable* and *valid*.

Internal validity The extent to which the research design enables us to decide whether the *intervention* caused the observed *impacts*. The controls needed to achieve high internal validity often distance a study from real-world conditions, threatening its *external validity*. Internally valid studies are usually best suited to demonstrating *efficacy*. Contrast with *external validity*.

Intervention A policy, programme, service or project designed to bring about specified change to *target* areas or *groups*.

Longitudinal Research designs which aim to assess and reassess the same subjects at several time periods. For *evaluations*, the benefit of such designs is that they permit changes in each subject to be assessed against earlier measures taken from the same subject. See *prospective*.

Mediating (or intermediate) **variables** Variables affected by the *intervention* which help cause the *outcomes*. For example, ability to refuse drug offers is increased by some prevention programmes and in turn is thought to lead to reduced drug use. When *outcomes* are hard to measure, changes in mediating variables may be used as a proxy for assessing the *intervention*.

Meta-analysis A study which uses recognised procedures to amalgamate results from several studies of the same or similar *interventions* to arrive at composite *outcome* scores.

Milestones Key stages in the *intervention* process which underpin later *outcomes* and which can be documented and monitored. For example, numbers attending for assessment or retained for a set period or the proportion of the target group reached by a campaign.

Monitoring An ongoing process involving the continuous or regular collection of key information about an *intervention*'s *inputs*, *outputs* and *outcomes*. This data may feed into a broader *evaluation*.

Naturalistic Describes a study of an *intervention* in 'real-world' conditions with minimal research interference, eg, without specially selecting subjects or controlling the quality of the *intervention*. Most appropriate to *effectiveness* trials. Often the only feasible approach in the light of resource constraints and ethical considerations which preclude allocating subjects to potentially inappropriate *interventions* or to none at all.

Null hypothesis The assumption tested by *statistical* procedures that a set of observations occurred purely by chance. In the current context, the null hypothesis usually amounts to the assertion that an *intervention* produced no *outcomes* or that there was no difference in the *outcomes* produced by two or more *interventions*.

Objectives Intended *outcomes* of an *intervention* which indicate that it has acheived its *aim*. Ideally specific, measurable, and attached to a timescale, in which case they can be expressed as targets.

Objectivity With respect to an *instrument*, the degree to which different people applying or scoring it in the same circumstances on the same subjects would register similar values. An aspect of *reliability*.

Odds ratio An odds ratio of 1 (the break-even point) suggests that the intervention is no better and no worse than doing nothing, below 1 that it is worse, above 1 that it is better.

Outcome evaluation An *evaluation* (or the element of an *evaluation*) which systematically records the *outcomes* of an *intervention*. Colloquially, whether the *intervention* 'worked'. Contrast with *process evaluation*.

Outcomes Intended or unintended end product of the *intervention* in the *target group*, eg, changes in substance use, infection control, reduced crime. If these match the *objectives* the *intervention* has worked.

Outputs Records or indicators of the level of throughput or activity of a service such as counselling sessions provided, level of occupancy of a residential service, training sessions provided. To be distinguished from *outcomes*.

Placebo A dummy *intervention* which mimics but lacks the presumed active ingredient of the *intervention*. Used to prevent subjects' expectations or preconceptions of the *intervention* systematically biasing *outcomes*. It is often impossible to construct a placebo condition when testing psychosocial *interventions*. See *double blind*.

Process evaluation An *evaluation* (or the element of an *evaluation*) which systematically documents the planning, implementation and delivery of an *intervention*. This may be as part of an attempt to establish its practicality (a feasibility study) or to elucidate how and why any observed *impacts* may have occurred. Colloquially, *how* the *intervention* 'worked' or why it did not. Contrast with *outcome evaluation*.

Prospective A study in which the subjects are recruited (and normally baseline measures taken) before the *intervention* takes place. Advantages usually include enabling *attrition* to be accounted for and *impacts* to be assessed by comparing measures taken after the *intervention* with those taken before.

Randomised controlled trial A study in which subjects are allocated at random to different *interventions* and/or to *intervention* and *control* groups. The intention is to eliminate the possibility that any *impacts* arose due to differences between the subjects in these groups rather than the *intervention*. Such studies are rare and (since self-selection or referral to *interventions* are the rule in practice settings) may suffer from low *external validity*.

Reliability A highly reliable *instrument* will deliver near identical results when applied repeatedly to the same subjects under the same conditions, and will do so even when different people administer and score the test. An *instrument* is unreliable to the degree to which measures taken with it may vary even when what it is supposed to be measuring has stayed the same.

Sensitivity In relation to a test, the proportion of people with the condition being tested for who are correctly identified. An aspect of *validity*. Contrast with *specificity*.

Specificity In relation to a test, the proportion of people *without* the condition being tested for who correctly test negative. An aspect of *validity*. Contrast with *sensitivity*.

Spontaneous remission Also termed 'regression to the mean'. The tendency for extreme or unusual behaviour (or attitudes, etc) to revert to more usual levels without formal *intervention*. Particularly relevant to therapeutic *interventions* as people often seek help when their problems have become unusually severe.

Statistical significance The findings of a study are accepted as statistically significant when they are very unlikely to have occurred by chance. The cut-off point is normally set at less then 1 in 20, expressed as a probability of less than 0.05 or '$p<0.05$'. If lower probabilities emerge we assume that something other than chance caused the results.

Statistical tests Accepted arithmetical methods to determine the probability that a set of observations occurred by chance. When this probability is below a certain level the observations are accepted as *statistically significant*. Such tests are important as unexpected causes of variation in *outcomes* could lead to unjustified conclusions about how well an *intervention* worked.

Target group The people, households, organisations, communities or other identifiable entities which an *intervention* is intended to affect. The degree to which the changes occur in this group constitute the *outcomes* of the *intervention*.

Treatment group People, households, organisations, communities or any other identifiable entities which receive an *intervention* as opposed to the *control group*. The term 'treatment' does not imply a medical or therapeutic *intervention* and may be replaced by 'experimental' or '*intervention*'. Contrast with *control group*.

Unit of analysis What constitutes a 'case' or 'subject' in the study. Usually an individual, but may be a group, a service, a family, a class or a school. To avoid mistaken conclusions, units *randomised* to *treatment* and *control* groups should correspond to those used to measure *outcomes*.

Validity With respect to an *instrument*, the degree to which it measures or otherwise reflects what it is supposed to measure. With respect to an *evaluation*, the degree to which conclusions drawn from the data correspond to reality; see *internal validity*, *external validity*.

Technical terms relating to evaluation

Standard definitions may have been adapted to fit the context of evaluations of interventions in the drug and alcohol fields. Terms defined elsewhere are italicised.

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1

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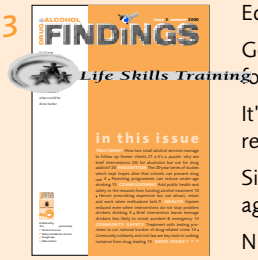
3



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4

Overdosing on opiates. Part I • causes

Force in the sunshine state: court-ordered treatment in California

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5

Overdosing on opiates. Part II • prevention

The Cycle of Change

Prevention is a two-way process: interactivity in drug education

Monitoring with the Maudsley Addiction Profile

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6

Alcohol screening and assessment

First test for the drug treatment and testing order

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7

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8

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Published by
The FINDINGS Partnership,
c/o Alcohol Concern, 32–36 Loman Street, London SE1 0EE, England
Layout and design **Mike Ashton**. Printed by **RAP**, Clock Street, Oldham OL9 7LY, England, phone 0161 947 3700, fax 0161 947 3729, e-mail rapltd@easynet.co.uk.