Optimal provision of needle and syringe programmes for injecting drug users: a systematic review.

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This thorough review formed the evidential basis for recent guidance from England's National Institute for Health and Clinical Excellence on how best to distribute sterile syringes. Maximising the proportion of injections done with sterile equipment is the key objective.

SUMMARY The featured article was based on an extensive review of the effectiveness and cost-effectiveness of syringe distribution programmes for injectors, itself conducted to underpin policy recommendations for England from the National Institute for Health and Clinical Excellence (NICE). The most commonly studied programmes are needle (or syringe) exchanges which collect used equipment as well as distributing new sets. In 2013 the same authors updated their review; see panel to the right for their conclusions.

Rather than addressing whether such services are effective overall, the review sought to determine which types of programmes are most effective, which additional harm reduction services are helpful, and whether it is beneficial to integrate needle and syringe provision with the prescribing of substitute drugs like methadone to opiate addicts. The main outcomes of interest were impacts on blood borne viral infections such as HIV and hepatitis, and on injecting practices which risk these infections. Other outcomes investigated included entry into treatment and use of health care services.

Conclusions of 2013 update review

There is good evidence that a high coverage of needle and syringe programmes may reduce sharing behaviours and that the combination of a high coverage of needle and syringe programmes and uptake of opiate substitution therapy can reduce the risk of transmission of hepatitis C. Strategies are therefore required that increase drug treatment enrolment among people who inject drugs. There is evidence that treatment engagement and re-engagement may be enhanced through the use of motivational approaches and incentives. A range of services should be available that meet the needs of people who inject drugs with different risk profiles and this review identified evidence that people who inject drugs may have a preference for particular types of needle and syringe programme. Needle and syringe vending machines and outreach schemes (including mobile outlets) play an important role in out of hours provision for needle and syringe programmes and attract people who inject drugs with higher risk profiles than may commonly use mainstream services such as fixed-site or pharmacy-based programmes. The evidence base on which to draw conclusions about the effectiveness of additional harm reduction services offered by needle and syringe programmes is fragmented. While there is evidence that uptake of injecting paraphernalia appears to be associated with safer injecting practice, evidence for whether the distribution of drug-taking equipment via needle and syringe programmes promotes non-injecting modes of drug administration is lacking. Evidence is also lacking on effective and cost-effective interventions that link people who inject drugs to other medical and social support services through referral at needle and syringe programmes; though there is evidence that programmes may provide a cost-effective setting for delivering hepatitis B vaccination. Trusting relationships between people who inject drugs and needle and syringe programme staff appears to be key to facilitating engagement in additional harm reduction services, and a lack of trusting relationships may be a barrier to the expansion of services in non-specialist settings such as pharmacy-based programmes. There is evidence that some people who inject drugs are as concerned as other people about discarded needle and syringes in communities and that they may change their disposal behaviour in response to the availability of safe disposal options. As such the wide scale installation of drop boxes appears to be an effective means of reducing discarded needles and syringes.

Which types of programmes work best?

A comprehensive search yielded 16 relevant studies. Of these, 11 explored the effectiveness of different sites and settings for syringe distribution programmes, or of different policies on the supply and return of injecting equipment. However, none enabled an assessment of the impact of differing degrees of availability and accessibility of services, different geographical settings, or the supply of different types of injecting equipment. From these 11 studies it seems that setting (hospital, pharmacy, or specialist exchange) has an inconsistent impact on injection practices which risk infection, that mobile vans and vending machines may attract younger and more risk-prone injectors, and that more liberal syringe distribution policies can reduce re-use of one's own equipment and (less consistently) also reduce the risk of contracting or transmitting infection between injectors. Details below.

Two US trials which minimised case-mix differences by randomly allocating injectors to different settings (hospitals or pharmacies versus free-standing exchanges in the community) found that drug use and/or injecting practices which risked infection decreased after the services were made available, but to roughly equivalent degrees regardless of the setting. However, in one study siting the exchange in a hospital did improve access to health care services.

Rather than randomly assigning injectors to different types of programmes, another three US studies took advantage of natural variations in syringe distribution policies to assess the impact on injectors who accessed these different types of services in the usual way. All found that more liberal supply of injecting equipment was associated with potentially less risky injecting practices. In two cases the statistically significant benefits among users of the syringe distribution programme were limited to less re-use of one's own equipment rather than less 'sharing' with others. In one study this was associated with exchanges which gave users as much equipment as they asked for regardless of how much they returned, in another, with areas which did not set an absolute limit (other services set a limit of ten) on the number of syringes an injector could collect at a single visit. The third study found that out-of-treatment injectors in the study city curbed their use of potentially infected used equipment when newly opened needle exchanges supplemented pharmacy sales, and then again when the exchanges raised the ceiling on the numbers of equipment sets they would supply. In all three cases, however, other differences between exchanges or in the sample and environment locally may have accounted for the findings.

Ancillary services and substitute prescribing

Though only very patchily studied, such work has there has been suggests that combining needle exchange with methadone maintenance treatment can substantially protect against viral infection, that allying needle exchange with health care reduces the need for injectors to resort to emergency departments, and that helping needle exchange visitors think about what they might get from treatment and to overcome barriers does facilitate treatment entry more effectively than mere referral. Details below.

Two US studies randomly allocated needle exchange attendees to different ways of encouraging them to enter addiction treatment. The first assigned some attendees to case managers who helped them set treatment goals and manage their needs in order to achieve these goals. This was compared with simply giving attendees who had been referred to treatment an appointment reminder card. After adjusting for other influences, case-managed participants were nearly twice as likely to actually start treatment, seemingly largely because they were offered transport to the treatment programme. In contrast, in the second study a single, 50-minute motivational interview intended to motivate treatment entry among new needle exchange attendees was no more effective than an interview not focused on treatment entry at all, or simply telling anyone interested in treatment to ask at the exchange. Neither did the proportions retained in treatment for three months differ.

Another US study tried sending out a mobile health care unit alongside a mobile needle exchange. Before the unit was fully operational, exchange visitors

who later went on to become its patients required emergency care much more often than other visitors who did not go on to use the new service. But the patients' emergency department visits declined while those of other exchange visitors rose, until the two were about the same, suggesting that the van had helped reduce the need for emergency care.

Finally, two studies investigated the impact of substitute prescribing treatment programmes allied with needle exchange. In the USA, the siting of methadone maintenance programmes at two exchanges was associated with reductions in infection risk behaviour (including less injecting and less sharing of injecting equipment) among people who started treatment. In Amsterdam in the Netherlands, over the decade from 1985 to 2005 injectors who had more fully implemented harm reduction (were being prescribed at least 60mg daily of methadone and had either stopped injecting or injected only with needles from needle exchanges) were less likely to become infected with HIV or hepatitis C than continuing injectors who did not use exchanges and were not in methadone treatment. In contrast, less complete harm reduction access – lower doses of methadone and/or not fully relying on exchanges for one's syringes – did not significantly reduce the rate of new infections.

The authors' conclusions

There is very little evidence on which types of syringe distribution programmes work best, making it difficult to reach secure conclusions on how such services should be run. The most promising indication of benefit came from a long-term study of drug users in Amsterdam, where it appears that the combination of adequate methadone treatment and full participation in exchanges may have reduced the incidence of HIV and hepatitis C infections among drug injectors. However, further evidence is required from elsewhere to strengthen these findings.

FINDINGS COMMENTARY An important pair of studies from California not included in the review found that exchanges with more liberal syringe distribution policies were more likely to meet injectors' requirements for equipment, and that in turn the degree to which these requirements were met was associated with a lower risk of infection due to sharing equipment and less risk of other forms of damage due to re-using one's own equipment. These findings, those in the featured review, and in our own review of needle exchange and hepatitis C, highlight the importance of coverage – the extent to which exchanges approach the ideal of making a sterile set of equipment available for every injection.

Another later US study not included in the review built on the inconclusive study of motivational interviewing which was included. First the study intensified the motivational interviewing intervention to several sessions plus group sessions intended to foster readiness for treatment entry, then it supplemented these with financial incentives to attend these sessions and with payment of treatment entry and (some) attendance fees. Only when the motivational components were financially reinforced in these ways was there any advantage over simply encouraging interested needle exchange visitors to talk to the staff about referral to treatment. The study seems to confirm that merely motivating treatment entry – at least using motivational interviewing techniques – is in the US context an insufficient prompt.

For the policy implications of the featured review for the UK, see our analysis of the recommendations made by the National Institute for Health and Clinical Excellence (NICE) based partly on the review.

Thanks for their comments on this entry in draft to Helen Wilks of the Torbay Substance Misuse and Primary Care Alcohol Team. Commentators bear no responsibility for the text including the interpretations and any remaining errors.

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