Optimal provision of needle and syringe programmes for injecting drug users: a systematic review
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CRD summary
This review concluded that there was a paucity of evidence for different approaches to organisation and delivery of needle and syringe programmes. This conclusion was supported by the small number of included studies, but should be interpreted with some caution due to the possibility of missing studies.

Authors' objectives
To determine which approaches to the organisation and delivery of needle and syringe programmes for injecting drug users were effective, based on three specific research questions:

What types of needle and syringe programmes were effective?

Which additional harm reduction services offered by needle and syringe programmes were effective?

Were needle and syringe programmes delivered in parallel with or alongside opiate substitution therapy effective?

Searching
Fifteen electronic databases (which included MEDLINE, EMBASE and PsycINFO) were searched to January 2008 for studies published in English. Search terms were reported. Reference lists of relevant reviews were screened.

Study selection
Studies that examined the distribution of needles, syringes and other injecting equipment for preparation and consumption of drugs to populations of injecting drug users (of opiates, stimulants, non-prescribed anabolic steroids and other performance and image enhancing drugs) were eligible for inclusion. Studies that assessed needle exchange in prisons were excluded. Primary outcomes were changes in drug-injecting behaviours and incidence and prevalence of blood-borne viral infections. Secondary outcomes included entry into drug treatment and utilisation of health services.

Studies included injecting drug users who had injected within the previous 30 days to six months or who met Diagnostic and Statistical Manual of Mental Disorders (DSM) IV criteria for a drug dependence disorder. Some studies were restricted to injecting drug users who were using needle and syringe programmes or were first-time users of needle and syringe programmes or who sought drug treatment. One study specified that patients had to be HIV and/or hepatitis C virus negative at entry to study. The proportion of men ranged from 58% to 80%. Studies were conducted in USA, France, Russia and the Netherlands. Interventions varied across studies.

Two reviewers independently assessed studies for inclusion. Disagreements were resolved through consensus or referral to a third reviewer.

Assessment of study quality
Studies were assessed for methodological quality using criteria set out in the National Institute for Health and Clinical Excellence (NICE) Centre for Public Health Excellence Methods Manual, where appropriate study design-related checklists were available. Where these were not available (cross-sectional studies and uncontrolled before-and-after studies) the Quality Assessment Tool for Quantitative Studies developed by the Effective Public Health Practice Project (Canada) was used.

Quality assessment was conducted by one reviewer and checked by a second.
Data extraction
Data were extracted to calculate odds ratios (ORs) or relative risks (RR), together with 95% confidence intervals (CIs), by one reviewer and checked by a second.

Methods of synthesis
Results were summarised in tables and a narrative synthesis was presented.

Results of the review
Sixteen studies were included in the review (n=6,985). Broad aspects of study quality were mentioned and no further details were supplied.

What types of needle and syringe programmes were effective? (11 studies): Two RCTs were included. One trial compared pharmacy sales only with needle and syringe programme plus pharmacy sales. The other trial examined differences between injecting drug users who attended hospital and community-based needle and syringe programmes. Neither study found an effect of setting on injection risk behaviours; one trial found that participants who attended hospital needle and syringe programmes had significantly improved access to health care services. Nine cross-sectional studies found no clear evidence of an impact of different needle and syringe programme settings and syringe dispensation policies on drug injecting behaviours. Two studies found beneficial effects of syringe re-use in studies where the number of syringes requested were supplied or in which there were fewer limits on the number of needle exchanges. Three of these studies found that mobile van sites and vending machines appeared to attract younger injecting drug users and injecting drug users with higher risk profiles.

Which additional harm reduction services offered by needle and syringe programmes were effective? (three studies): None of the included studies assessed any of the primary outcomes. Two RCTs examined interventions that aimed to encourage injecting drug users to enter into drug treatment. One RCT found that a case management intervention increased the likelihood of entering treatment compared to passive referral (OR 1.84, 95% CI 1.07 to 3.16). Further analysis showed that the active component of the intervention was the provision of transport to treatment. The other RCT found no effect of motivational interviewing on treatment interest or enrolment. A cohort study examined the impact of a Community Health Care Van that accompanied a needle and syringe programme outreach van. Use of the Community Health Care Van was associated with a significant reduction in the rate of emergency room use (RR 0.79, 95% CI 0.66 to 0.95).

Were needle and syringe programmes delivered in parallel with or alongside opiate substitution therapy effective? (two studies): A cohort study found that full participation in harm reduction (defined as receiving daily methadone in the previous six months and obtaining all needles through the needle and syringe programme if they reported injecting drug use) was associated with a lower risk of HIV (RR 0.32, 95% CI 0.17 to 0.62) and hepatitis C virus (RR 0.15, 95% CI 0.06 to 0.40). Receiving incomplete harm reduction showed no benefit. An uncontrolled before-and-after study was included.

Authors' conclusions
There was a paucity of evidence on different approaches to the organisation and delivery of needle and syringe programmes.

CRD commentary
The review addressed three broad research questions. Inclusion criteria were defined. The literature search was extensive. Restriction of the review to studies published in English risked language and publication biases. Appropriate steps were taken to minimise bias and errors at all stages of the review. Study quality was assessed using relevant criteria, but the results were neither presented nor considered in the synthesis. Therefore, the validity of the included studies was unclear. A narrative synthesis was appropriate given the differences between studies.

The authors' conclusion was supported by the small number of included studies, but should be interpreted with some caution due to the possibility of missing studies.
Implications of the review for practice and research

Practice: The authors did not state any implications for practice.

Research: The authors stated that further studies were required with stated aim of evaluating how setting and additional services provided at needle and syringe programmes impacted effectiveness. These studies should consider how the diversity of populations attending needle and syringe programmes and the influence of social, organisational and political context impacted effectiveness.

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