Record Status
This is a critical abstract of an economic evaluation that meets the criteria for inclusion on NHS EED. Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical assessment on the reliability of the study and the conclusions drawn.

Health technology
Needle-exchange programme to prevent HIV transmission among injection drug users (IDUs).

Type of intervention
Primary prevention.

Economic study type
Cost-effectiveness analysis.

Study population
Hypothetical cohort of injecting drug users (IDU).

Setting
Community. The economic study was carried out in California, USA.

Dates to which data relate
The main effectiveness analysis data on the use of needle-exchange programmes were taken from published sources dated 1993 and 1994. All other model data were obtained from published US sources dated 1991-95. The price year was not clearly reported.

Source of effectiveness data
Effectiveness data were derived from previously completed studies.

Modelling
The model was based on a formula to estimate the number of HIV infections that could have been prevented by the implementation of needle-exchange programmes. The formula included: the proportion of incident HIV infections among injecting drug users (IDU) from sexual transmission, the proportion of IDU’s who could have used a needle-exchange programme in each year, the proportionate reduction in HIV incidence among IDU’s because of needle-exchange programmes and the ratio of primary HIV infections among IDU’s plus secondary infections among the sexual partners and children to primary HIV infections among IDU’s.

Outcomes assessed in the review
The outcome assessed was the reduction in the incidence of primary HIV infections among IDUs due to the implementation of a needle-exchange programme.
Study designs and other criteria for inclusion in the review
Observational studies using a mathematical model to derive effectiveness estimates.

Sources searched to identify primary studies
Not stated.

Criteria used to ensure the validity of primary studies
Not stated

Methods used to judge relevance and validity, and for extracting data
Not stated

Number of primary studies included
Two studies were included in the review.

Methods of combining primary studies
Not combined.

Investigation of differences between primary studies
Not stated, except for the different geographical areas of the US represented in each study.

Results of the review
The reduction in the incidence of primary HIV infection in IDUs was 15% and 33% for the two studies reviewed.

Measure of benefits used in the economic analysis
The measure of benefits was the number of HIV infections that could have been prevented by the implementation of a needle-exchange programme. These estimates were derived from a model incorporating epidemiological and effectiveness data from Australia and the US. The benefits were estimated for the period 1987-1995.

Direct costs
Costs were reported as discounted. The direct costs of HIV infections that could have been prevented by the implementation of a needle-exchange programme were calculated by multiplying the number of preventable HIV infections by the lifetime cost of treating an infection. The costs were discounted into present value. The quantities/costs boundary adopted was the hospital. The costs in terms of human suffering and loss were not included, nor, more importantly, were the costs associated with the programme factored into the analysis.

Currency
US dollars ($).

Sensitivity analysis
A sensitivity analysis was not carried out.

Estimated benefits used in the economic analysis
The number of infections that could have been prevented by the implementation of a needle-exchange programme between 1987 and 1995 was estimated to be 4,394 at the lower estimate of the effectiveness of such a programme (15% incidence reduction) and 9,666 at the higher estimate of effectiveness (33%). 88% of these infections would have been prevented among IDU's with the remainder occurring among their sexual partners and children.

**Cost results**
While the discount rate used in the calculations was not reported, the costs of treating preventable HIV infections between 1987 and 1995 ranged from $244 million at the lower estimate of effectiveness (15% incidence reduction) of a national needle-exchange programme, to $538 million at the higher estimate (33% incidence reduction). The corresponding costs for 1996-2000 range from $287 million to $630 million.

**Synthesis of costs and benefits**
Costs and benefits were not combined because the intervention was the dominant strategy.

**Authors' conclusions**
The author stated that the failure of the US Federal Government to implement a national needle-exchange programme may have led to a high rate of HIV infection among IDU's, their sexual partners and their children relative to the scenario of implementing such a programme.

**CRD Commentary**
The comparator was the "do nothing" option. Adequate details of the lifetime cost estimates were not given. The costs associated with the programme were omitted. Appropriate comparisons were made with other studies. The issue of generalisability to other countries was not addressed.

**Source of funding**
None stated.

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**Other publications of related interest**
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