The cost-effectiveness of Vancouver's supervised injection facility

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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.

CRD summary
The objective was to examine the cost-effectiveness of a supervised facility for injection drug users and persons infected with human immunodeficiency virus and hepatitis C virus, in comparison with no such facility. The authors concluded that the implementation of Vancouver's supervised facility improved clinical outcomes and reduced health service costs. On the whole, the study was well conducted and reported. The authors’ conclusions appear to be valid.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
The objective was to examine the cost-effectiveness of a supervised facility for injection drug users and persons infected with human immunodeficiency virus (HIV) and hepatitis C virus (HCV) in comparison with no such facility. The population was aged between 15 and 64 years.

Interventions
The supervised injection location was a safe and hygienic place where people injected their previously obtained illegal drugs under supervision. The location without this facility had other interventions, such as needle-exchange programmes or methadone maintenance treatment.

Location/setting
Canada/community care (supervised facility).

Methods
Analytical approach:
This economic evaluation was based on a dynamic state-transition model intended to simulate the natural history of the population of injection drug users, non-users, and those with HIV or HCV infection, as well as combinations of these states, in Vancouver, British Columbia. The time horizon of the analysis was 10 years. The authors stated that the perspective of the health care system was adopted.

Effectiveness data:
The bulk of clinical evidence was Vancouver-specific including both published and unpublished data from cohorts in the Vancouver Injection Drug Users Study and the Scientific Evaluation of Supervised Injecting (SEOSI) study. These data were supplemented with estimates from the literature and authors’ opinions. Some information on the published sources was provided in a technical appendix, in which the authors justified the selection of their estimates. In general, the data from North American studies were selected. Three measures of the efficacy of the intervention were considered: decreased needle sharing; decreased needle sharing and increased use of safer practices when sharing injections; and decreased needle sharing, increased use of safer practices, and increased referral for methadone treatment.

Monetary benefit and utility valuations:
Not relevant.

Measure of benefit:
Life-years (LYs) were used as the primary benefit measure. A 5% annual discount rate was applied. Cases of HIV or HCV infections averted were also considered.
Cost data:
The costs included those of treatment for HIV infection and HCV infection, health services for injection drug users (with or without methadone therapy), methadone maintenance treatment, operating costs of the supervised facility, and usual care for the general population (non-users without HIV or HCV infections). The costs were reported as macro-categories and the unit costs and resource quantities were not presented separately. The sources used were described in the technical appendix. In general, Canadian studies were used. The cost of the supervised facility was derived from the SEOSI study. The price year was 2008 and all costs were in Canadian dollars (CAD).

Analysis of uncertainty:
A deterministic sensitivity analysis was undertaken in order to consider the impact on the cost-effectiveness ratios of variations in the model inputs. The ranges of values were based on confidence intervals derived from the literature or based on authors’ opinions. Wider ranges were also considered when the authors were concerned about biased estimates.

Results
In the eligible Vancouver population, the implementation of the supervised facility saved CAD 13,963,700 and gained 920 LYs assuming the minimum effect of the intervention (decreased needle sharing). More favourable findings were achieved when all the potential beneficial effects were included (savings of up to CAD 20 million and LYs saved of up to 1,175). Thus, under the base-case assumptions, Vancouver's supervised facility was dominant (i.e. less expensive and more effective).

The sensitivity analysis identified three influential model inputs, which were the rate of injection drug use and needle sharing, the effectiveness of both the facility and other interventions in decreasing injection-related risk, and the cost estimates.

Authors’ conclusions
The authors concluded that Vancouver’s supervised facility improved the clinical outcomes and reduced health service costs. These clinical and economic benefits were due mainly to averted cases of HIV infection.

CRD commentary
Interventions:
The rationale for the selection of the comparators was clear. The proposed intervention, which was implemented in Vancouver, was compared with the usual pattern of care for the specific population. The authors acknowledged that they did not include other more expensive comparators such as residential care.

Effectiveness/benefits:
The clinical data came from multiple sources, the full details of which were presented in a technical appendix. The authors did not provide a detailed description of the design of the sources used, but justified the selection of specific estimates. Uncertainty was investigated in the sensitivity analysis. The use of data from programme implementation reports represents a further strength of the analysis as it was real-world data. Epidemiological data were appropriately taken from Canadian sources. The use of disease-specific benefit measures (HIV and HCV infections averted) allows comparison with similar studies and LYs are a more generalisable benefit measure.

Costs:
The analysis of costs was consistent with the perspective. However, a breakdown of cost items was not provided. The unit costs and quantities of resources used were not presented. Thus, it is not possible to judge the validity of the cost categories. Similarly, the sources used to derive these macro-costs were not described. The price year and the use of discounting were reported. The sensitivity analysis showed the importance of a correct evaluation of the costs.

Analysis and results:
The synthesis of costs and benefits was appropriately performed and reported. The issue of uncertainty was addressed by means of a deterministic analysis which focused on individual model inputs. The use of a more comprehensive approach would have been more appropriate but the authors investigated in depth the role played by the most influential model inputs. The analysis focused on the Vancouver area, thus caution is required if generalising the study findings to
other settings. In general, the authors made conservative assumptions, which are likely to have underestimated the cost-effectiveness of the intervention. For example, the impact of the programme on crime and transmission of the hepatitis B virus was not considered. However, they also pointed out that the fact that regular users of the facility were considered may have favoured the cost-effectiveness of the programme.

Concluding remarks:
On the whole, the study was well conducted and reported. The authors’ conclusions appear to be valid.

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