A cost-benefit and cost-effectiveness analysis 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 clinical and economic impact of a community supervised injection facility for injecting drug users. The authors concluded that this specific supervised injection facility was an effective and efficient use of health care resources, considering its impact on both human immunodeficiency virus (HIV) infections and overdose deaths. This study was based on estimates reported in other studies, the methods of which were not fully described and caution is required in interpreting the authors’ conclusions.

Type of economic evaluation
Cost-effectiveness analysis, cost-utility analysis

Study objective
The objective was to examine the clinical and economic impact of a community supervised injection facility for injecting drug users.

Interventions
The supervised injection facility was the Insite service established in Vancouver, British Columbia, Canada. This intervention was compared with the usual care, with no supervised injection facility.

Location/setting
Canada/community.

Methods
Analytical approach:
The analysis was based on a mathematical model that estimated the deaths avoided and cost savings associated with a supervised injection facility. The time horizon appears to have been lifetime and the authors did not explicitly state the perspective.

Effectiveness data:
The clinical analysis focused on the assessment of deaths prevented from the establishment of the programme. Two aspects were considered: deaths attributable to human immunodeficiency virus (HIV) and fatal overdoses. HIV deaths were based on official Coroners’ data and fatal overdoses were from official statistics. The approach used to calculate the deaths prevented by the Insite service was described and was based on published reports on the implementation of the programme and various published models. Some other clinical inputs were reported, but their sources were not described. The key clinical outcome was the reduction in deaths associated with the supervised injection facility.

Monetary benefit and utility valuations:
The expected value of a prevented death was calculated, using a published study that included tangible costs (lost wages and productivity, and medical costs) and lost quality of life, but only tangible costs were included in this analysis.

Measure of benefit:
The number of HIV cases and deaths prevented were the summary benefit measures and a discount rate of 3% was used.

Cost data:
The economic analysis included the operational costs of the Insite service and the lifetime medical cost of a new HIV
infection. Insite costs were from an interview with the Principal Investigator for Insite and the medical costs were from published literature; conservative assumptions were made. All costs were in Canadian dollars (CAD) and the price year was 2006.

Analysis of uncertainty:
The issue of uncertainty was investigated by considering different mathematical models and assumptions found in the literature.

Results
In the base case, the average annual number of HIV infections prevented was 35 (range 18 to 76, depending on the model assumptions) and this resulted in average savings of CAD 5.25 million (range 2.7 to 11.4 million). The cost-effectiveness ratio was CAD 42,857 (range 19,737 to 83,333) and the benefit-to-cost ratio was 3.56 (range 1.84 to 7.74).

When considering both HIV infections and deaths prevented, the average benefit-to-cost ratio was 5.12.

In all the models considered, the benefits were higher than the costs and the benefit-to-cost ratio ranged from 3 to 8.04.

Authors' conclusions
The authors concluded that this specific supervised injection facility was an effective and efficient use of health care resources, considering its impact on both HIV infections and overdose deaths.

CRD commentary
Interventions:
The selection of the comparators appears to have been appropriate, but little information was provided on the usual care.

Effectiveness/benefits:
The clinical evidence came from selected sources, which might have been known to the authors. Limited information on the characteristics of these sources was provided and this hinders the judgement of the validity of the clinical estimates. When available, data from Canada were used and the authors usually justified their selection of source for each model input and chose conservative estimates. The benefit measures were appropriate as they were the natural outcomes of the prevention programme, but they might not be directly comparable with the benefits of other health care interventions.

Costs:
The economic viewpoint was not clearly stated, but appears to have been that of the public payer. The costs were presented as overall categories, with no breakdown of cost items. This was due to the use of published estimates and an assessment of their methods of estimation was not reported. It was not clear that a discount rate was applied, but a rate of 3% was mentioned. The methods used to estimate the cost of death were described and appear to have been appropriate.

Analysis and results:
The authors reported the additional costs and benefits of the programme, without a clear definition of the outcomes associated with the two strategies. The incremental cost-effectiveness ratios and benefit-to-cost ratios were reported clearly. The variability in the clinical and cost estimates was assessed using ranges of values derived from published sources and models. The authors stated that conservative estimates were used to evaluate the cost savings and potential benefits associated with the programme.

Concluding remarks:
This study was based on estimates reported in other studies, the methods of which were not fully described. Caution is required in interpreting the authors’ conclusions.
Funding
Not stated.

Bibliographic details

PubMedID
19423324

DOI
10.1016/j.drugpo.2009.03.004

Original Paper URL
http://www.ijdp.org/article/S0955-3959(09)00060-7/abstract

Indexing Status
Subject indexing assigned by NLM

MeSH
British Columbia /epidemiology; Communicable Disease Control /economics /methods; Cost-Benefit Analysis; Drug Overdose /epidemiology /mortality /prevention & control; HIV Infections /epidemiology /mortality /prevention & control; Health Care Costs /statistics & numerical data; Humans; Incidence; Models, Theoretical; Needle-Exchange Programs /economics /statistics & numerical data; Substance Abuse, Intravenous /complications; Urban Population

AccessionNumber
22010000202

Date bibliographic record published
17/03/2010

Date abstract record published
12/05/2010