The cost-effectiveness of counseling strategies to improve adherence to highly active antiretroviral therapy among men who have sex with men

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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 of the study was to examine the cost-effectiveness of counselling to improve adherence to highly active antiretroviral therapy (HAART). The authors concluded that counselling to improve HAART adherence cost substantially less than $50,000 per quality-adjusted life-year gained. The quality of the study methodology was appropriate and the results were reported in full. In addition, there was a full description of the model used to assess the impact of the intervention. The authors’ conclusions appear appropriate given the scope of the study.

Type of economic evaluation
Cost-utility analysis

Study objective
The objective of the study was to examine the cost-effectiveness of counselling to improve adherence to highly active antiretroviral therapy (HAART) in an open population of men who have sex with men.

Interventions
The study examined counselling to improve HAART adherence. The intervention consisted of individual counselling sessions provided by a registered nurse and given to all individuals prior to HAART initiation, and following all changes in HAART regimens. This intervention was compared with no counselling.

Location/setting
USA/outpatient care.

Methods
Analytical approach:
The authors developed a dynamic compartmental model of human immunodeficiency virus (HIV) transmission and progression. Two models were constructed, representing different HIV prevalence rates in US cities (i.e. moderate to 10% and high to 20%). The model incorporated infection transmission, disease progression, treatment and adherence to treatment. The model was simulated for 20 years, with costs and benefits beyond this timeframe estimated on the assumption that there was no further disease transmission or population growth. The authors did not explicitly report the perspective adopted in the economic analysis.

Effectiveness data:
The clinical and effectiveness data were derived from a large number of sources including published studies, trials, reviews of the literature and meta-analyses, and the authors’ own assumption. There were no details of the methods used to identify relevant sources. The authors did, however, report the base-case values for each model parameter and their sources. The main clinical effectiveness estimate was the impact of counselling on HAART adherence, which was derived from two recent systematic reviews examining the effectiveness of interventions aimed at improving HAART adherence.

Monetary benefit and utility valuations:
The utility data were derived from published studies. For uninfected patients, the authors assumed a quality of life of 1.00.
Measure of benefit:
The measure of benefit was the quality-adjusted life-years (QALYs) gained. The total QALYs gained for 100,000 individuals were reported.

Cost data:
The direct costs included were those relating to HIV testing, viral load monitoring, resistance testing, counselling, HIV treatment and non-HIV-related health care. With the exception of phone-in counselling costs, which the authors estimated, all costs and resource use were derived from published sources. The price year was 2004. All of the costs were reported in US dollars ($). The total costs for 100,000 individuals were reported. Since the costs could be incurred over a long time period, future costs were discounted at an annual rate of 3%.

Analysis of uncertainty:
A series of one- and two-way sensitivity analyses was performed by varying the costs and effectiveness estimates over a range of values. In addition, probabilistic sensitivity analyses were performed by modelling all rates and probabilities as beta distributions, all costs as normal distributions, and all other parameters as uniform distributions. The results from the probabilistic sensitivity analyses were presented using cost-effectiveness acceptability curves.

Results
The additional QALYs gained with the counselling intervention were 3,967 when assuming a moderate HIV prevalence rate and 6,920 when assuming a high prevalence rate.

The incremental costs associated with the counselling intervention were $29.3 million when assuming a moderate HIV prevalence rate and $60.1 million when assuming a high prevalence rate.

The costs and benefits were combined using an incremental cost-utility ratio (i.e. the additional cost per QALY gained). When compared with no counselling, the additional cost per QALY gained with counselling was $7,392 when a low prevalence rate was assumed and $8,682 when a high prevalence rate was assumed.

The results of the probabilistic sensitivity analyses showed that the counselling intervention had an 89% probability of costing less than $50,000 per QALY gained and a 97% probability of costing less than $100,000 per QALY gained.

Authors' conclusions
The authors concluded that counselling to improve HAART adherence increased life expectancy, reduced HIV transmission, and cost substantially less than $50,000 per QALY gained.

CRD commentary
Interventions:
The counselling intervention investigated in the study was reported in detail. Although no explicit justification was given for using no counselling as the comparator, it would appear to represent current practice in the authors' settings.

Effectiveness/benefits:
Although there were very few details of the methods used to identify the published sources from which the effectiveness estimates were derived, it is clear from the paper that an extensive review of the literature was performed. The authors included numerous clinical and effectiveness parameters in the model, reported the base-case values used, and also reported the sources from which these were derived.

Costs:
The perspective adopted in the economic analysis was not explicitly reported, but would appear to represent that of the health care system or third-party payer. Given this perspective, all the relevant major cost categories appear to have been included. The authors appropriately reported the sources of the cost data, and provided cost estimates for each parameter used in the model. In addition, the time horizon, price year and currency used were all adequately reported.

Analysis and results:
Appropriate details of the model were reported, along with a graphical representation. From the paper, the authors
appear to have modelled in detail the natural progression of HIV, modelling the impact of the intervention under study on transmission, disease progression and treatment resistance. The time horizon was in excess of 20 years and, as a result, the long-term costs and outcomes were captured. Uncertainty was investigated in detail, including the use of probabilistic sensitivity analyses, which are the most thorough way of capturing overall model uncertainty. The limitations of the study were adequately reported.

Concluding remarks:
The authors concluded that counselling to improve HAART adherence increased life expectancy, reduced HIV transmission, and cost substantially less than $50,000 per QALY gained. The quality of the study methodology was appropriate and the results were reported in full. There was a full description of the model used to assess the impact of the intervention. The authors’ conclusions appear appropriate given the scope of the study.

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Bibliographic details

Other publications of related interest


Indexing Status
Subject indexing assigned by NLM

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