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

Type of intervention
Treatment and secondary prevention.

Economic study type
Cost-effectiveness analysis.

Study population
One hypothetical 20-kg HIV-infected child with AZT-related anaemia.

Setting
The study was based on a tertiary care Canadian Paediatric Hospital Model at the Children’s Hospital of Eastern Ontario, Ottawa, Canada.

Dates to which data relate
Effectiveness data were collected from two studies published between 1992 and 1994. Resource use and cost data were collected from 1992 sources. The price year was 1994.

Source of effectiveness data
Effectiveness data were derived from a review of previously published studies.

Modelling
A decision analytic model was constructed to derive the incremental cost-effectiveness of options A and B.

Outcomes assessed in the review
The review assessed the following outcomes: the number and probability of repeated transfusions, the number of admissions to a medical day unit, the number of anaemic subjects receiving r-HuEPO that failed to become transfusion-independent, and the effectiveness of r-HuEPO in preventing repeated transfusion.

Study designs and other criteria for inclusion in the review
Not stated.
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
Summary statistics from each study.

Number of primary studies included
2 studies were included.

Methods of combining primary studies
The results of primary studies were not combined.

Investigation of differences between primary studies
Not stated.

Results of the review
Those who require transfusions need an average of 1 transfusion per month for the 1-year period of the analysis. The number of repeated transfusions was expected to be less in option A relative to option B. The number of admissions to a medical day unit was expected to be greater in option B. 57% of anaemic subjects on AZT receiving r-HuEPO failed to become transfusion-independent, compared with 82% of placebo recipients. 37.5% of subjects receiving r-HuEPO required 0 to 1 transfusions of PRBC over a mean study period of 31.5 weeks. The probability of repeated transfusions was estimated to be 0.82. The effectiveness of r-HuEPO in preventing repeated transfusion was derived to be 0.3.

Measure of benefits used in the economic analysis
The number of episodes averted by option A was used as the measure of benefits. This equals the expected number of episodes in option B minus the expected number of episodes in option A.

Direct costs
Costs were not discounted given the short time frame of the study (1 year). Quantities and costs were reported separately. Direct costs included laboratory costs, costs of r-HuEPO, transfusion costs, medical day unit visit costs, physician costs and costs of post-transfusion events. The quantity/cost boundary adopted was that of the health service. The estimation of quantities and costs was based on actual data. The costs of hospital services were determined with the assistance of the Chedoke-McMaster Corporate Cost Model. The cost to determine the r-HuEPO level was based on the unit cost per test at the St. Joseph Hemostasis Laboratory, Hamilton, Ontario. The cost of a unit of PRBC was supplied by the Canadian Red Cross, Ottawa, Canada. Physician costs were based on the Ontario Schedule of Benefits for Physician Services. The costs of post-transfusion events was derived from an economic analysis of r-HuEPO among haemodialysis patients. The price year was 1994.

Statistical analysis of costs
Not reported.
Indirect Costs
Not included.

Currency
Canadian dollars (Can$).

Sensitivity analysis
Sensitivity analysis was conducted on the following parameters: the cost of r-HuEPO, the costs of blood and attendance in the medical day unit, and the number of units transfused.

Estimated benefits used in the economic analysis
The number of episodes averted by option A (r-HuEPO) was 5.91 over a 1-year period.

Cost results
The total expected costs per subject per year were Can$11,246 for option A and Can$3,130 for option B.

Synthesis of costs and benefits
The incremental cost per transfusion averted by option A (r-HuEPO) relative to B (no r-HuEPO) was Can$1,373. These results were not significantly affected by changes in any of the assumptions used for the cost estimates or baseline probability values.

Authors' conclusions
From the perspective of the health care system, the incremental cost-effectiveness of an r-HuEPO treatment programme relative to a transfusion programme for Canadian children with ZDV-related anaemia is Can$1,373 per transfusion episode averted.

CRD COMMENTARY - Selection of comparators
Rationale for the choice of the comparator was clear. You, as a user of this database, should verify whether these health technologies are relevant to your setting.

Validity of estimate of measure of benefit
Effectiveness measures were derived from only two studies. More details about the literature review could have been provided. The authors did not analyse post-transfusion infections due to the transmission of blood-borne pathogens in the measure of benefit (although it was clearly discussed). Moreover, quality of life (QOL) was not taken into account. The decision analytic model did not include all possible management scenarios which may be encountered in clinical practice. The authors acknowledged that the estimation of certain variables was associated with varying degrees of uncertainty.

Validity of estimate of costs
Direct costs were included. The following costs were not included: the cost of r-HuEPO toxicity, cost for attendance in the HIV clinic on the day of the short-stay visit and costs incurred as a result of service utilisation due to regular HIV care. The costs were derived from different sources and are likely to be specific to the local setting.

Other issues
Generalisability of the results to other settings or countries was partially addressed by carrying out a sensitivity analysis.
Good comparisons with other studies (particularly relating to the US) were made. Given the above limitations, the authors did adopt a rigorous methodology in conducting this study and reported their findings in a clear and concise manner.

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None stated.

**Bibliographic details**

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11361510

**Other publications of related interest**

**Indexing Status**
Subject indexing assigned by NLM

**MeSH**
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