A cost-utility analysis of abdominal hysterectomy versus transcervical endometrial resection for the surgical treatment of menorrhagia

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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.

Health technology
Abdominal hysterectomy versus transcervical endometrial resection for the surgical treatment of menorrhagia.

Type of intervention
Treatment.

Economic study type
Cost-utility analysis.

Study population
Women suffering from menorrhagia.

Setting
A hospital. The study was set in the UK.

Dates to which data relate
Effectiveness and resource use data were collected from studies published between 1982 and 1996. Cost data were collected from a study published in 1993. The price year was 1994.

Source of effectiveness data
Effectiveness data were derived from a review of the literature and expert opinion.

Modelling
A two-year decision tree model was used to model the cost-utility of the two treatment strategies.

Outcomes assessed in the review
The review assessed the following outcomes: mortality risk, treatment failure probability, health state values, and duration of time in a given health state.

Study designs and other criteria for inclusion in the review
The main source of data was a randomised controlled trial undertaken in Bristol, UK.

Sources searched to identify primary studies
The sources searched to identify primary studies were not stated.

**Criteria used to ensure the validity of primary studies**
The criteria used to ensure the validity of primary sources were not stated.

**Methods used to judge relevance and validity, and for extracting data**
Summary statistics from individual studies.

**Number of primary studies included**
At least 9 studies were included.

**Methods of combining primary studies**
A narrative method was employed.

**Investigation of differences between primary studies**
It was not stated whether an investigation of differences between primary studies had been carried out.

**Results of the review**
The mortality risk per procedure was 0.1% for both TCRE and AH. The treatment failure probability was 0%.

The probability of complications after TCRE and AH was 8.1% and 38.1%, respectively. The subsequent prognosis after initial TCRE was TCRE2 (12.1%), AH (12.2%), or post TCRE (75.9%).

The number of weeks of convalescence with surgical complications was 4.71 for TCRE and 10.65 for AH: without surgical complications it was 2.32 for TCRE and 11.63 for AH.

The time until first repeat TCRE was 7.4 months, to hysterectomy following one repeat TCRE was 14.9 months, and to hysterectomy without prior repeat TCRE was 10.4 months.

**Methods used to derive estimates of effectiveness**
Scenarios of health state attributes were based on the opinion of a group of gynecologists and health service researchers with previous experience in the area of menorrhagia, and a convenience sample of 20 women. Health state values were elicited from a subsample of 60 women who had recently been referred to St Michael's Hospital in Bristol.

**Estimates of effectiveness and key assumptions**
Mean health states for menorrhagia were 0.50, for premenopausal following recovery from successful TCRE were 0.73, and for premenopausal following recovery from AH were 0.86. Mean health states for convalescence following TCRE or AH were 0.76 and 0.74, respectively.

**Measure of benefits used in the economic analysis**
Quality adjusted life years (QALYs) were used as the measure of benefits. The time trade-off method was used to value health states. QALYs were discounted at an annual rate of 6%.

**Direct costs**
Direct costs were discounted at 6%. Quantities and costs were reported separately. Quantities estimated included the
time in the operating theatre and number of days in hospital. Direct costs covered preoperative costs, costs of operating theatre, ward, complications, postoperative costs, general practice costs. The quantity/cost boundary adopted was that of the health service. The estimation of quantities and costs was based on actual data. Cost data were taken from the Bristol trial. The price year was 1994.

**Statistical analysis of costs**

Statistical analysis of costs was not relevant.

**Indirect Costs**

Indirect costs were not included.

**Currency**

UK pounds sterling (£).

**Sensitivity analysis**

One-way sensitivity analyses and analysis of extremes were conducted on model parameters.

**Estimated benefits used in the economic analysis**

AH generates an additional 0.23 QALYs than TCRE.

**Cost results**

The time in the operating theatre with surgical complications was 63.75 minutes for TCRE and 63.16 for AH. Without surgical complications it was 50.12 with TCRE and 62.75 for AH.

The number of days in hospital with surgical complications was 3.25 for TCRE and 6.64 for AH. Without surgical complications it was 1.99 for TCRE and 6.19 for AH.

The total costs were 794 for women initially undergoing TCRE, compared to 1,139 for women having an AH.

**Synthesis of costs and benefits**

Each additional QALY generated by AH had an incremental cost of 1,500. These results were most sensitive to the values of post-AH and post-TCRE health states and the cost of an inpatient day in hospital. Under the most pessimistic scenario, the conclusion that AH is more cost-effective was reversed.

**Authors’ conclusions**

AH is likely to be considered more cost-effective than TCRE if purchasers are willing to pay an additional cost of at least 6,500 per extra QALY generated by AH.

**CRD COMMENTARY - Selection of comparators**

A justification was given for the comparator used, namely that it represented traditional therapy. You, as a user of the database, should decide if these health technologies are relevant to your setting.

**Validity of estimate of measure of benefit**

The authors essentially used one principal study to derive effectiveness results for the model, these results being augmented with other parameters derived from the literature. More details could have been provided about the conduct
and design of the review, and the method of combining primary effectiveness estimates. Estimation of benefits was modelled. The instrument used to derive the measure of health benefit, the time trade-off method, was appropriate.

Validity of estimate of costs
All categories of costs relevant to the perspective adopted were included in the analysis. Costs of health services use related to other menstrual conditions, such as use of hormone replacement therapy were also included in the costs. Costs and quantities were reported separately. Sensitivity analyses were conducted on quantities and on costs. No charges were used to proxy prices. The price year was reported.

Other issues
The author did not make appropriate comparisons of their study findings with those from other studies and the issue of generalisability to other settings was not discussed. The authors did not, however, present their results selectively. The study considered women suffering from menorrhagia and this was reflected in the authors' conclusions. An important area of uncertainty remains the costs and benefits that will accrue in the future. The choice of how to value the health states is also likely to influence the final results - the present study used patients themselves to elicit health states which enhances the validity of the benefit results. The sensitivity analysis showed that the benefit estimates were sensitive to sampling variation in some of the health state values.

Implications of the study
AH is likely to be considered more cost-effective than TCRE if purchasers are willing to pay an additional cost of at least 6,500 per extra QALY generated by AH. Further analysis is required to explore whether preference-based treatment allocation has the potential to be cost-effective.

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The source of funding was not stated.

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