Cost-effectiveness of open versus arthroscopic rotator cuff repair
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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 open repair versus arthroscopic repair for moderate-sized rotator cuff tears. The authors concluded that the two surgical procedures had equivalent clinical outcomes, but the open repair was cheaper. The study had some methodological limitations that might affect the validity of the authors’ conclusions.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
The objective was to examine the cost-effectiveness of open repair versus arthroscopic repair for moderate-sized rotator cuff tears.

Interventions
The two surgical procedures were open repair versus arthroscopic repair of the rotator cuff.

Location/setting
UK/hospital.

Methods
Analytical approach:
The analysis was based on a single study, with a one-year horizon. The authors did not explicitly state the perspective adopted.

Effectiveness data:
The clinical evidence was from a prospective cohort study of 30 patients, who were followed up at six weeks, six months, and one year. The mean age was 54 years (range 34 to 78) in the arthroscopic group and 57 years (range 45 to 73) in the open group. The key clinical endpoint was the treatment efficacy, which was assessed using the Oxford Shoulder Score (patient completed) and Constant Shoulder Score (clinician completed) questionnaires.

Monetary benefit and utility valuations:
Not considered.

Measure of benefit:
The change in Oxford Shoulder Score from before surgery to one year after surgery was the summary benefit measure and the data were derived directly from the clinical study.

Cost data:
The economic analysis included the direct costs of consumables for the two procedures, including drapes, cannulae, connecting tubes, saline, arcomionizer, thermal probe, needle for suture passer, anchors, sling, saw blade, diathermy tip, Ethibond suture, and diagnostic arthroscopy. The resource use data were from the sample of patients in the clinical study. The unit costs were from the hospital finance department. The costs were in UK pounds sterling (£) and were also reported in US dollars ($), for the fiscal year 2004 to 2005.

Analysis of uncertainty:
Not investigated.

**Results**
The mean change in the Oxford Shoulder Score was 25.5 ± 8.2 for arthroscopic and 24.9 ± 6.7 for open repair (difference 0.6, 95% CI -6 to 6). The mean postoperative Constant Shoulder Score was 82 for arthroscopic versus 78 for open repair.

The cost difference between the two procedures was £675 ($1,248.75) in favour of open repair, which was the cheapest strategy. The arthroscopic procedures were more expensive due to the use of disposable cannulae, debridement tools, and suture anchors. The average cost per unit improvement in the Oxford Shoulder Score was £34.15 ($63.18) with arthroscopic repair and £7.48 ($14.50) with open repair.

**Authors’ conclusions**
The authors concluded that the two surgical procedures had equivalent clinical outcomes, but the open repair was cheaper.

**CRD commentary**

**Interventions:** The selection of the comparators was appropriate as the conventional approach was compared with the new minimally invasive surgical procedure. A description of the two treatments was given.

**Effectiveness/benefits:** Cohort studies have some methodological limitations, due to the lack of randomisation. The allocation of patients to study groups was based on the patient’s choice and this might have introduced selection bias. The authors pointed out that the two groups were comparable in their ages, sex distribution, and size of the tear. These patients were identified at a single institution, which limits the generalisability of the patient group, and a relatively small sample of patients was included and power calculations were not reported. The authors justified their use of a disease-specific benefit measure and no calculation of quality-adjusted life-years, as there was a lack of health-related quality-of-life data for these patients. The use of a disease-specific benefit measure does not allow cross-disease comparisons.

**Costs:** The economic viewpoint was not explicitly stated, but seems to have been that of the hospital. The cost categories were not clearly stated; it was unclear whether the reported total costs included the theatre costs or not. The unit costs were reported, but limited information on resource use was presented. The sources for costs reflected the UK setting. The price year was given, which will aid reflation exercises. The cost estimates were treated deterministically.

**Analysis and results:** The authors stated that a cost-minimisation analysis was best because the clinical efficacy of the two options was equivalent, but average cost-effectiveness ratios were calculated. The issue of uncertainty was not investigated and sensitivity analyses were not carried out. The study appears to have limited external validity and should be considered to be UK specific.

**Concluding remarks:** This study had some methodological limitations that might affect the validity of the authors’ conclusions.

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**Bibliographic details**