Cost effectiveness of revision total knee replacement
Rorabeck C H, Murray P

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
A revision total knee replacement versus a primary total knee replacement in patients undergoing knee replacement surgery.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
Patients undergoing either a revision or a primary total knee replacement.

Setting
Hospital. The economic study was carried out in Canada.

Dates to which data relate
The effectiveness and resource use data were collected in 1994. The fiscal year was 1994.

Source of effectiveness data
Effectiveness data were derived from a single study.

Link between effectiveness and cost data
The costing was retrospectively performed on the same patient sample as that used in the effectiveness study.

Study sample
Power calculations were not used to determine the sample size. There were 68 consecutive patients in the revision total knee replacement group versus 35 in the primary total knee replacement group.

Study design
The study was a non-randomised trial with concurrent controls, carried out in a single centre. The duration of follow-up was 1 year. No loss to follow-up was reported. The operations in both groups were performed by the same surgeon.

Analysis of effectiveness
It was not explicitly specified whether the analysis of effectiveness was based on intention to treat or treatment completers only. The primary health outcome was Knee Society clinical rating scores (KSCRS). Preoperative KSCRS showed that the levels of disability in the two groups were comparable.

Effectiveness results
KSCRS for the patients in the revision total knee replacement group increased from 75 preoperatively to 136 at one year after surgery. The corresponding value for the primary total knee replacement group increased from 71 preoperatively to 156 at one year after surgery.

Clinical conclusions
These data demonstrated that revision total knee replacement was extremely effective in improving function and quality of life. Within the first postoperative year it was not as effective as primary total knee replacement, but, nevertheless, there was still a dramatic improvement in function as well as patient satisfaction following the revision procedure.

Measure of benefits used in the economic analysis
Improvement in KSCRS from the baseline was used as the benefit measure.

Direct costs
Quantities were not reported separately from costs but cost items were reported separately. A detailed cost analysis covered operative costs, in-hospital costs, and postoperative costs in the first year after surgery. The perspective adopted in the cost analysis was that of a health care system. The source of postoperative resource use data was patients' diaries. The price date was 1994.

Indirect Costs
Not considered.

Currency
The currency is assumed to be Canadian (Can$) rather than US dollars but this was not explicitly stated in the paper.

Sensitivity analysis
No sensitivity analysis was performed.

Estimated benefits used in the economic analysis
Improvement in KSCRS from the baseline was 85 for the primary replacement versus 61 for the revision replacement at one year after surgery.

Cost results
The average total cost was Can$11,994.19 for the primary replacement versus Can$15,748.12 for the revision replacement for the first year after surgery.

Synthesis of costs and benefits
The average cost per 10-point change in KSCRS was used as the cost-effectiveness measure. The average cost per 10-point change in KSCRS was $1,411.08 for the primary replacement versus $2,581.66 for the revision replacement for the first year after surgery.
Authors' conclusions
This study demonstrated that revision total knee replacement was extremely cost-effective in improving the patient's quality of life.

CRD COMMENTARY - Selection of comparators
The reason for the choice of the comparator is clear.

Validity of estimate of measure of benefit
The internal validity of the estimate of the benefit measure is weakened by the non-randomised design adopted.

Validity of estimate of costs
Resource utilisation was not reported separately from the costs although adequate details of the methods of cost estimation were given. Only direct medical costs were determined in the analysis and costs to others in society, such as patients, could usefully have been included in the analysis.

Other issues
Given the lack of a randomised design, sensitivity analysis, and statistical analysis of the costs, the results need to be treated with some caution. The issue of generalisability to other settings or countries was not addressed.

Source of funding
None stated.

Bibliographic details

PubMedID
9143968

Indexing Status
Subject indexing assigned by NLM

MeSH
Cost-Benefit Analysis; Humans; Knee Prosthesis /economics; Length of Stay /economics; Longitudinal Studies; Ontario; Postoperative Care /economics; Preoperative Care /economics; Prosthesis Failure /economics; Reoperation; Surgical Procedures, Operative /economics

AccessionNumber
21997006890

Date bibliographic record published
31/05/1999

Date abstract record published
31/05/1999