Reduction of length of stay and cost of transurethral resection of the prostate by early catheter removal


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
Early catheter removal after transurethral resection of the prostate (TURP). Patient management after surgery.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
Patients, with a mean age of 66, having undergone TURP.

Setting
Hospital. The study was carried out at an Army Medical Hospital in Texas, USA.

Dates to which data relate
The effectiveness data were collected between 1990 and 1992 (early-catheter-removal group 1991-1992; control 1990-1991). The resource use and cost data were obtained from published information for the period 1989-1993.

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

Link between effectiveness and cost data
The costing was undertaken retrospectively on a different patient sample from that used in the effectiveness study.

Study sample
A total of 271 patients was included in the study. Of these, 119 were included in the intervention group (early catheter removal), and 152 in the control. The number of patients excluded from the study was not documented, and no power calculations were reported.

Study design
This was a non-randomised study with historical controls carried out in a single centre. The mean duration of follow-up was not reported, although the patients were followed-up, for symptoms of adequate urinary drainage, at least until hospital discharge.
Analysis of effectiveness
The analysis appears to have been based on intention to treat. The primary outcomes were rate of postoperative complications (transfusion, chest pain, TURP syndrome, inability to void, UTI, clot retention, fever of unknown origin) and length of stay. The mean weight of prostate resected and patient age of the groups (66.5 and 66.8 years, respectively, for intervention and control groups) were comparable.

Effectiveness results
The rate of complications was 5% for the intervention group and 6.6% for the control group (p>0.05). Hospital discharge was 1.28 days for the intervention (early catheter removal) and 3.1 days for the control group. Overall 92% of patients treated with early catheter removal had a hospital stay of 2 days or less.

Clinical conclusions
The lack of a difference in post operative complications, and the decrease in length of stay between the 2 groups lend support to the notion that the new policy may save hospital days without adverse consequences.

Measure of benefits used in the economic analysis
The primary outcomes were rate of postoperative complications (transfusion, chest pain, TURP syndrome, inability to void, UTI, clot retention, fever of unknown origin) and length of stay.

Direct costs
The quantities associated with length of hospital stay (LOS) were reported separately from the costs. The costs measured were those associated with the inpatient stay. For one of the sources employed (CHAMPUS database), the data included hotel, board, miscellaneous hospital, physician, and medical charges. The price year for these data was not clearly reported. For the other source of data (Medicare) the price year was 1989, with length of hospital stay data corresponding to patients attending hospital nation-wide across the USA for those reasons in that year. Annual cost savings achieved by the implementation of the intervention were estimated for the USA as a whole by using the difference in LOS obtained from the clinical study for the intervention group relative to the national averages found in turn out of Medicare and CHAMPUS data. For the calculation with the latter data, anaesthesia, laboratory, and radiology charges were assumed to be common to both strategies. No discounting was reported.

Currency
US dollars ($).

Sensitivity analysis
No sensitivity analysis was performed.

Estimated benefits used in the economic analysis
The rate of complications was 5% for the intervention group and 6.6% for the control group (p>0.05). Hospital discharge was 1.28 days for the intervention (early catheter removal) and 3.1 days for the control group. Overall 92% of patients treated with early catheter removal had a hospital stay of 2 days or less.

Cost results
The annual cost savings achieved using Medicare data (for patients younger and older than 70 years of age and using an estimate of 45.6% weighting factor for average data for patients aged less than 70 years) was found to be more than $209 million. The average length of stay in the intervention group (1.28 days) was, in turn, 70% less than the corresponding figures for the USA TURP patients aged under 70 and 80% less than those aged over 70 years of age.
The corresponding figure for selected Department of Defence beneficiaries younger than 65 years of age (mean age 60.1 years, CHAMPUS data) was 3.88 days. It therefore emerged that the savings associated with the implementation of the policy nation-wide would be $1,983 per hospital stay, implying a total of $5.4 million.

**Synthesis of costs and benefits**
Since the early intervention was the dominant strategy, costs and benefits were not combined.

**Authors’ conclusions**
Early removal of the catheter after TURP did not increase morbidity and maintained the efficacy of the procedure. If this practice were adopted nationally, the savings resulting from the reduction in hospital stay would be considerable.

**CRD COMMENTARY - Selection of comparators**
The reason for the choice of comparator is clear. The comparator was empirical patient management removal of the catheter in patients having undergone TURP.

**Validity of estimate of measure of benefit**
The validity of the estimate of measure of benefit may be questionable, given the lack of longer follow-up. The lack of both consideration of changes in TURP rate over time, and statistical control for possible differences in relevant patient characteristics between groups (AUA symptom score, flow rate, and duration of the operation) were noted by one commentator (Cranston, D, editorial within the paper), as important factors omitted in the study. The non-randomized and historical-control character of the study are important additional factors which should be considered.

**Validity of estimate of costs**
The cost analysis was based on nation-wide data from the USA which are likely to correspond to a different population from that represented in the clinical study. In particular, age distribution factors may be important. While prices were used as proxies for 'costs', the price year of the CHAMPUS data was not clearly reported.

**Other issues**
The conclusions reached by the authors were not fully justified given the uncertainties in the data (despite the statistical test for the overall difference in complications reported). The issue of generalisability was not addressed. The comparison with previous effectiveness studies supported the clinical conclusions of this study. The results were not presented selectively, although an economic evaluation of the local cost experience was not carried out. This in turn led to a disconnect between the cost and effectiveness analysis, which were based on nation-wide and local data, respectively.

**Implications of the study**
Further concurrently-controlled studies are needed, in which adequate length of follow-up and control for relevant differences in patient characteristics are considered besides the collection of economic data. Randomized studies might be desirable in this context.

**Source of funding**
None stated.

**Bibliographic details**