Safety and hospital costs of Achilles tendon surgery: the serendipitous impact of a randomized clinical trial
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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
This study compared the costs and safety of two patient management protocols, for conducting surgical repairs of Achilles tendon ruptures. The authors concluded that out-patient surgery was safe and less costly than in-patient surgery. The study was based on a small sample, did not assess uncertainty, and omitted or did not report potentially important costs and outcomes. The evidence presented is of limited value for making decisions, and additional information is needed.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
This study compared the costs and safety of two patient management protocols for conducting surgical repairs of Achilles tendon ruptures.

Interventions
The patient management strategy from the Multicentre Achilles Tendon Treatment Study (MATTS; see Other Publications of Related Interest) was compared with standard surgical care, in Calgary, without the MATTS protocol. The MATTS protocol was routine out-patient treatment, with day surgery and hospital admission, if necessary. Usual care was admission to hospital for surgical repair.

Location/setting
Canada/out-patient and in-patient care.

Methods
Analytical approach:
The costs and consequences of the two patient management protocols were based on one clinical study. The authors stated that they took a hospital cost perspective.

Effectiveness data:
The effectiveness outcomes were the perioperative complication rate, hospital readmissions, and length of stay after surgery. These estimates were from one arm of a randomised controlled trial (MATTS), for the MATTS protocol, and from patients identified by a review of charts from three Calgary hospitals, for the same period as the trial, for usual care. The same inclusion and exclusion criteria, as used in the MATTS, were used as to identify patients in the chart review. All data were from between October 2002 and September 2005.

Monetary benefit and utility valuations:
Not relevant.

Measure of benefit:
There was no summary measure of benefit; the perioperative complication rate and hospital readmissions were reported.

Cost data:
The costs were those of consultations and surgery, including the hospital stay for MATTS and usual care. Consultation costs were calculated, for weekend and weekday consultations, using data from the Alberta government insurance plan. The costs for surgery were from unpublished data. All costs were reported in Canadian dollars (CAD).

Analysis of uncertainty:
No formal analysis of uncertainty was conducted.

Results
The MATTS patients had a complication rate of 9% (three out of 33 patients), while usual care patients had a complication rate of 7% (18 of 249 patients). The MATTS patients had no hospital readmissions, while the usual care patients had two readmissions.

Among MATTS patients 82% (27 of 33) had day surgery, 15.2% (five of 33) stayed one night in hospital, and 3% (one of 33) stayed for two nights. Among usual care patients 11% (27 of 249) had day surgery, 38% (95 of 249) stayed one night in hospital, 5% (12 of 249) stayed for two nights, and 46% (115 of 249) were admitted to hospital to await surgical repair. Hospital stay was between one and four days for usual care patients.

Per patient, the MATTS patients had average costs, for day surgery, of $682, and average costs, for an overnight stay, of $1,237. The usual care patients had average costs, for day surgery, of $669, and average costs, per night for admission for one or more nights, of $1,709.

If all overnight patients, in each group, had received day surgery the total cost savings would have been $236,436, between 2002 and 2005.

Authors' conclusions
The authors concluded that out-patient surgery, for Achilles tendon ruptures, was safe and less costly than in-patient surgery.

CRD commentary
Interventions:
Two patient management protocols, for Achilles tendon surgery, were compared. It seems that the MATTS protocol favoured day surgery, without admission upon attendance until surgery, but it was not clear if there were any differences in their management after surgery.

Effectiveness/benefits:
The inclusion and exclusion criteria for patients receiving MATTS were reported, and the same criteria were used to identify the cohort of usual care patients. It appears that the two cohorts were from the same three hospitals, over the same time period, but confounding was still possible. The follow-up time, for reviewing readmissions, was unclear, and it was unclear whether any data were censored. The sample for the MATTS was small and, as noted by the authors, adverse events only occurred in in-patients, in both comparators. No estimates of the statistical significance of the outcomes were reported, so it is unclear how certain the results were. The authors noted that there might have been differences in patient functioning between the two surgical management protocols, but the available data did not allow this to be evaluated.

Costs:
The cost per day in hospital was not given. A range of costs for an overnight stay was given, based on unpublished data; it was unclear what type of data was used and where it came from, but it was most likely that it was from the three Calgary hospitals, used for the usual care patients. Because the costs appear to be from a very specific setting, Calgary, and few unit costs were reported, it will be difficult to translate the analysis to other settings. It was unclear whether the cost of the hospital stay included treatment for adverse events. No costs were independently reported for adverse event data. The study did not record or report the costs for nursing, medication, and other direct and indirect costs for the patient or the health care system, as acknowledged by the authors. These costs were assumed to be the same between interventions, with no justification provided. The price year was not explicitly stated, but appears to have been 2006.

Analysis and results:
The primary focus of this paper was a cost analysis. The clinical outcomes were reported and may have influenced the cost results, but it was not clear if the costs of adverse events were included. The total costs per patient were not reported, and these would have been useful to compare the trial protocols. No estimates of the uncertainty in the results were reported, so it is unclear if any of the results were statistically significant.

Concluding remarks:
The study was based on a small sample, did not assess uncertainty, and omitted or did not report potentially important costs and outcomes. The evidence presented is of limited value for making decisions; additional information is needed.

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Other publications of related interest

Indexing Status
Subject indexing assigned by NLM

MeSH
Achilles Tendon /injuries /surgery; Adolescent; Adult; Alberta; Ambulatory Surgical Procedures /economics; Female; Hospital Costs; Humans; Length of Stay /economics; Male; Middle Aged; Orthopedic Procedures /adverse effects /economics; Patient Readmission /economics; Randomized Controlled Trials as Topic; Retrospective Studies; Rupture; Safety; Treatment Outcome; Young Adult

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