A clinical and economic evaluation of fast-track recovery after cardiac surgery
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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 aimed to evaluate the clinical and economic outcomes of a fast-track recovery programme for patients who had undergone cardiac surgery. The authors concluded that fast-track recovery reduced the length of stay in intensive care, reduced intubation time, and was associated with cost-savings compared with conventional care. The study methods seemed appropriate, although some aspects could have been more extensively reported. The authors' conclusions appear appropriate.

*Type of economic evaluation*
Cost-effectiveness analysis

**Study objective**
The objective was to evaluate the clinical and economic outcomes of a fast-track recovery programme for patients who had undergone cardiac surgery.

**Interventions**
The intervention was a fast-track recovery programme after cardiac surgery; this consisted of a theatre recovery unit with one-to-one nursing immediately after surgery, followed by transfer on the same day to intermediate care (in a progressive care unit) before transfer to a general ward. This was compared with usual treatment, which consisted of at least one day in a cardiac intensive care unit followed by transfer to a general ward or progressive care unit.

**Location/setting**
UK/hospital.

**Methods**
Analytical approach:
This was a prospective six-month observational study of patients undergoing cardiac surgery. The economic evaluation was based on data collected on patients eligible for fast-track recovery and those receiving usual treatment.

Effectiveness data:
The clinical effectiveness estimates came from a single observational study of 136 patients who underwent cardiac surgery and were followed until their discharge. Outcomes were compared between patients eligible for fast-track recovery (84 patients) and those who received usual treatment (52 patients). Patient characteristics and outcomes were compared using parametric and non-parametric two-sample tests. The main clinical estimates were the length of stay in different postoperative units, wards, and the total intubation time.

Monetary benefit and utility valuations:
Not relevant.

Measure of benefit:
The primary clinical outcomes considered were the duration of intubation, length of stay in the intensive care unit and length of hospital stay.

Cost data:
The cost categories included were the average cost per patient-day; this was estimated using a top-down method with data from the finance department of the treating hospital.
Analysis of uncertainty:
One-way and multi-way sensitivity analyses were run on the calculated cost estimates. Each category was set to plus or minus 50% separately in the one-way sensitivity analysis. All categories were set to plus 50% or minus 50% in the multi-way sensitivity analysis.

Results
The mean total length of stay in intensive care unit was 14.4 hours in the fast-track recovery group compared with 26.8 hours in the usual treatment group (p<0.001). There was no significant difference (p=0.645) in total mean length of hospital stay between fast-track (8.5 days) and usual treatment (8.2 days) groups. Total intubation time was reduced (p<0.001) in the fast-track group (3.4 hours) compared with the usual treatment group (4.1 hours).

The mean total cost per patient of fast-track care was UK £4,182 compared with £4,553 for conventional care (p<0.001), which gave an average saving of £371 per patient. Sensitivity analyses suggested that the cost-differences ranged from £166 to £1,324.

Authors’ conclusions
The authors concluded that fast-track recovery reduced the length of stay in intensive care units and the duration of intubation. Fast-track care was associated with cost-savings compared with conventional care.

CRD commentary
Interventions:
The level of reporting was good; the fast-track intervention and conventional care were fully described. Usual care in the study setting was an appropriate comparator. These comparisons may be relevant to other settings.

Effectiveness/benefits:
The study used to derive effectiveness estimates was adequately described and highly relevant to the study setting. It would have been useful to know a little more information about the recruiting centres and their representativeness to assess the generalisability of the study results. The time horizon of the analysis was not stated explicitly by the authors but appeared to be the time from hospital admission to discharge, including the postoperative in-patient period.

Costs:
The authors did not explicitly state a study perspective but appeared to adopt a method of measurement and included costs which were consistent with a hospital payer perspective. Costs were reported in UK £. The price year was not stated but appeared to be 2009 to 2010 which was the period covered by the study. No discounting was performed; this appeared appropriate given the short time horizon of the analysis.

Analysis and results:
The reporting of results was adequate. Uncertainty was investigated through one-way and multi-way sensitivity analyses. It would have been useful to see whether adjustment of analyses for patient characteristics explained any variation in costs. The total mean length of hospital stay was incorrectly reported in hours rather than days (table 3). The authors acknowledged some limitations of their results, such as the non randomisation of patients to management groups and the small sample size.

Concluding remarks:
The study methods seemed appropriate, although some aspects could have been more extensively reported. The authors’ conclusions appear appropriate.

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Bibliographic details