A programme of Enhanced Recovery After Surgery (ERAS) is a cost-effective intervention in elective colonic 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
The study examined the clinical and economic impact of the Enhanced Recovery After Surgery (ERAS) protocol for patients aged 15 years or more who underwent elective colorectal surgery. The authors concluded that the ERAS protocol improved clinical endpoints and reduced health care costs compared to conventional care for this patient population. The analysis had some potential methodological limitations and did not consider the issue of uncertainty so caution is required when interpreting the conclusions.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
The study examined the clinical and economic impact of the Enhanced Recovery After Surgery (ERAS) protocol for patients aged 15 years or more who underwent elective colorectal surgery.

Interventions
The ERAS protocol consisted of emphasised structured nursing care pathways within an environment focusing on early recovery and various perioperative strategies to improve patient functional recovery. Patients in the control group received conventional non-structured perioperative care.

Location/setting
New Zealand/hospital.

Methods
Analytical approach:
The analysis was based on a single study with a 30-day time horizon. The stated perspective was that of the health care provider.

Effectiveness data:
The clinical analysis was based on a prospective cohort study with historical control that took place at a single institution. Patients in the intervention group were identified consecutively between December 2005 and March 2007. Control patients were identified from September 2004 to September 2005 and were individually matched with those in the intervention group for the operation performed, disease severity and other clinical characteristics. Fifty patients were available for either group. Mean age and number of women were 65.6 years and 24 in the intervention group and 70.7 years and 22 in the control group. All patients were followed for 30 days after surgery. None of the patients were lost to follow-up. The primary endpoints were total hospital stay and frequency of complications; various other endpoints were reported.

Monetary benefit and utility valuations:
Not considered.

Measure of benefit:
No summary benefit measure was used.
Cost data:
The economic analysis included costs of programme development, hospital stay, outpatient visits, medications and readmissions. Unit costs and resource quantities were taken from the authors’ hospital database (including hospital management budget records, the hospital pharmacy and the hospital anaesthetic department). Costs for research fellows were taken from the University of Auckland. Costs were in New Zealand dollars (NZ$).

Analysis of uncertainty:
Not considered.

Results
Total costs were NZ$16,052.35 in the intervention group and NZ$22,929.74 in the control group. The cost of ERAS (NZ$102,000 or approximately NZ$2,000 per patient) was more than offset by reductions in costs of hospitalisations and complications.

Patients with one or more complications numbered 27 in the intervention group and 33 in the control group (p=0.221). Total hospital stay was four days in the intervention group and eight days in the control group (p<0.0001). There was a statistically significant reduction in duration of epidural analgesia and use of intravenous fluids in the intervention group.

Authors’ conclusions
The authors concluded that the ERAS protocol improved clinical endpoints and reduced health care costs compared with conventional care for patients who underwent elective colorectal surgery.

CRD commentary
Interventions:
The selection of comparators was appropriate because the proposed intervention was compared against the conventional approach before the implementation of the ERAS protocol.

Effectiveness/benefits:
Use of a historical and retrospective control group identified in a previous time period to that of the intervention group was the main limitation of the analysis. The authors stated that the two groups of patients were well matched at baseline but the lack of simultaneous assessment and the potential impact of time-related confounding factors might have affected the validity of the clinical comparison, so changes in factors other than the study intervention might have had an impact on the clinical outcomes. No power calculations were performed to show the appropriateness of the sample size. Evidence came from a single institution that might not be generalisable to other health care centres. No summary benefit measure was used as a cost-consequences analysis was performed. Several clinical endpoints were used but all of them represented intermediate measures of the impact of the programme on patient health.

Costs:
The perspective of the analysis was that of the health care provider and this was reflected by the included cost categories. A clear breakdown of cost items was reported and unit costs were presented separately from resource quantities which increased the transparency of the economic analysis. Resource use data were collected from patients included in the clinical study and reflected the authors’ institution. Costs were not varied in the sensitivity analysis and were treated deterministically. The price year was not reported and reflation analysis would not be possible. Discounting was not necessary given the short time horizon of the analysis.

Analysis and results:
The study results were presented clearly. There was no synthesis of costs and benefits as the authors carried out a cost-consequences analysis. The issue of uncertainty was not investigated and the external validity of the study appeared low. The authors acknowledged some limitations of their analysis mostly related to the design of the clinical analysis. Study findings should be considered specific to the authors’ setting and not transferable to other jurisdictions. The authors stated that very few economic analyses on ERAS had been published at the time of their study.

Concluding remarks:
The analysis has some potential methodological limitations and did not consider the issue of uncertainty so caution is
required when interpreting the conclusions.

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