Fast-tracking (bypassing the PACU) does not reduce nursing workload after ambulatory 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.

Health technology
Fast-tracking (FT), that is, bypassing the post-anaesthesia care unit (PACU) after day surgery, was examined. Patients were transferred to the day surgical unit (DSU) (bypassing PACU) if they achieved a FT score of at least 12 within 10 minutes of discontinuation of general anaesthesia. If they failed to achieve this criterion they were transferred to the PACU.

Type of intervention
Other: Patient care management.

Economic study type
Cost-effectiveness analysis.

Study population
The study population comprised patients undergoing gynaecological laparoscopy, hysterectomy or arthroscopy procedures. Patients with significant cardiovascular, respiratory, renal, hepatic or metabolic disease were excluded, as were those with psychiatric illness, morbid obesity, or a history of substance abuse.

Setting
The setting was a hospital. The economic study was carried out in Canada.

Dates to which data relate
The dates to which the effectiveness data, resource use and prices related were not reported.

Source of effectiveness data
The effectiveness evidence was derived from a single study.

Link between effectiveness and cost data
The costing was carried out prospectively on the same sample of patients as that used in the clinical study.

Study sample
Power calculations were performed in the preliminary phase of the study. These showed that to detect a 20-minute difference in patient care hours between groups, 92 patients were required in each group. A sample of 207 consenting patients was enrolled. There were 110 patients (20 men) in the FT group and 97 patients (18 men) in the routine group. The mean age of the patients was 41 years (age range: 18 - 65) in the FT group and 42 years (age range: 20 - 63) in the routine group. It was not stated whether some patients refused to participate or were excluded for any reasons from the
study sample.

**Study design**
This was a prospective, randomised clinical trial that was presumably carried out at a single institution, the Toronto Western Hospital in Toronto (ON), Canada. Randomisation was based on a computer-generated random number table and was carried out before discontinuation of the general anaesthetic. The patients were followed until hospital discharge. No patient was lost to the follow-up assessment. Patients transferred to the PACU from either of the groups were discharged to the DSU when PACU discharge criteria were fulfilled. In the DSU, the post-anaesthetic discharge score was used to assess the patients' ability to be discharged home.

**Analysis of effectiveness**
The analysis of the clinical study was conducted on an intention to treat basis. The outcomes estimated were:

- patient care hours (determined using data recorded directly into a computer database by nursing staff in the PACU or DSU),
- recovery times (time to awakening, time to orientation, time to leaving operating room),
- FT score before the leaving operating room,
- patients who bypassed the PACU (only in the FT group),
- the time to discharge home,
- the average nausea score in hospital,
- the average pain score in hospital,
- nausea rescue in hospital,
- pain rescue in hospital,
- the incidence of nausea at home at 24 hours,
- pain medication at home at 24 hours, and
- satisfaction with recovery.

Postoperative pain and nausea were estimated using an 11-point verbal rating scale at 15-minute intervals until patient discharge. The study groups were comparable at baseline in terms of the demographics, ASA physical status, surgical procedures, duration of surgery and anaesthesia, intraoperative drug dosages, and fluid volumes.

**Effectiveness results**
The analysis revealed that no statistically significant differences between the groups were observed in most outcome measures. In the FT group, 81% of patients were successfully transferred from the operating room directly to the DSU.

Time to discharge home was significantly lower in the FT group than in the routine group (123 minutes versus 140 minutes; p<0.05).

Total patient care hours were also generally comparable between groups. The exception was time spent to measure vital signs, which was 0.2 (+/- 0.1) in the FT group and 0.3 (+/- 0.1) in the routine group, (p<0.05).
Clinical conclusions
The effectiveness analysis showed that the two interventions were comparable for most outcome measures. However, shorter times to discharge home were observed among patients in the FT group.

Measure of benefits used in the economic analysis
The health outcomes were left disaggregated and no summary benefit measure was used in the economic evaluation. In effect, a cost-consequences analysis was performed.

Direct costs
Discounting was not relevant because of the short timeframe of the analysis. The economic evaluation considered only the costs of nursing time. The unit cost was not reported, although the quantities of resources use were given. The cost/resource boundary of the study was unclear, but it could have been that of the institution. Resource use was estimated using patient-level data derived from the sample of patients included in the clinical study. The costs were obtained from the authors’ institution. The price year was not reported.

Statistical analysis of costs
Statistical analyses were used to test for statistical differences in the costs.

Indirect Costs
The indirect costs were not included in the economic evaluation.

Currency
Canadian dollars (Can$).

Sensitivity analysis
Sensitivity analyses were not carried out.

Estimated benefits used in the economic analysis
See the 'Effectiveness Results' section.

Cost results
The total costs were Can$249 (+/- 103) in the FT group and Can$269 (+/- 44) in the routine group.

The difference did not reach statistical significance. However, significant cost-savings with FT were observed in the sub-group of patients undergoing arthroscopy.

Synthesis of costs and benefits
A synthesis of the costs and benefits was not relevant since a cost-consequences analysis was performed.

Authors’ conclusions
Fast-tracking (FT) in outpatients after gynaecological laparoscopy, hysterectomy and arthroscopy procedures resulted in a reduced length of stay in comparison with routine recovery, without increasing postoperative side effects. However, the overall nursing workload and costs were not significantly reduced.
CRD COMMENTARY - Selection of comparators
The selection of the comparators was appropriate as conventional care was compared with a new approach for managing patients undergoing day surgery procedures. You should decide whether they are valid comparators in your own setting.

Validity of estimate of measure of effectiveness
The effectiveness analysis was based on a clinical trial, which was appropriate for the study question. The methods of randomisation and outcome assessment were reported. The use of power calculations carried out in the preliminary phase of the study represented a strength of the analysis. In addition, the patients were comparable at study entry and the basis of the analysis intention to treat. These issues enhance the internal validity of the analysis. There was limited information on the approach used to select the sample. The assessment of the outcome was not performed blind.

Validity of estimate of measure of benefit
No summary benefit measure was used in the analysis because a cost-consequences analysis was conducted. Please refer to the comments in the ‘Validity of estimate of measure of effectiveness’ field (above).

Validity of estimate of costs
The perspective adopted in the study was unclear and only nursing costs were included in the analysis. No details on the unit costs were given, although extensive information on resource consumption was provided. The cost estimates were specific to the study setting and no sensitivity analyses were carried out. The price year was not reported, which makes reflation exercises in other settings difficult. The data came from the authors’ institution.

Other issues
The authors made some comparison of their findings with those from other studies that achieved similar results. In particular, it was noted that it was difficult to reduce staff costs and nursing workload. The issue of the generalisability of the study results to other settings was not addressed and sensitivity analyses were not carried out, which reduces the external validity of the study. The analysis referred to patients undergoing day case surgical procedures and this was reflected in the authors’ conclusions.

Implications of the study
The study results suggested that the FT of outpatients undergoing day case surgery did not reduce nursing workload and costs, despite a faster time to discharge.

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Other publications of related interest
Dexter F, Macario A, Manberg PJ, et al. Computer simulation to determine how rapid anesthetic recovery protocols to
decrease the time for emergence or increase the phase I postanesthesia care unit bypass rate affect staffing or an ambulatory surgery center. Anesthesia and Analgesia 1999;88:1053-63.

**Indexing Status**
Subject indexing assigned by NLM

**MeSH**
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