Specialist nurse supported discharge in gynaecology: a randomised comparison and economic evaluation


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
The study compared two approaches to discharge for women undergoing elective gynaecological abdominal and/or pelvic surgery for benign conditions. The approaches were specialist nurse-supported discharge (SNSD) and routine care (RC). RC consisted of conventional preparation of women for surgery, postoperative pain control, mobilisation, bladder, bowel, wound management and information on return to normal activities. Women were discharged on postoperative day 5 or 6. Under SNSD, women met with a specialist nurse who supplemented the advice routinely given and developed a discharge plan with each woman, planning for hospital discharge on postoperative day 3.

Type of intervention
Rehabilitation.

Economic study type
Cost-effectiveness analysis.

Study population
The study population comprised women undergoing elective gynaecological major abdominal and/or pelvic surgery for benign conditions. The principal operations were total abdominal hysterectomy, colposuspension and pelvic floor repair.

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

Dates to which data relate
The dates when the effectiveness and resource use data were gathered were not reported. The costs were evaluated using 2003/04 prices.

Link between effectiveness and cost data
The costing was carried out prospectively on the sample of patients included in the effectiveness study.

Study sample
Eligible women were identified from among all women booked for elective gynaecological abdominal and/or pelvic surgery for benign conditions. The exclusion criteria for the trial were domicile more than 25 miles (40 km) from the hospital, no telephone access at the discharge destination, the presence of another major illness likely to dominate the pattern of care, and the presence of significant physical and/or social barriers as determined through professional assessment by a consultant and/or nurse. Of the 111 women initially identified, 5 were withdrawn from the study (one had an unexpected malignancy, one was admitted as an emergency to another ward, two had cardiorespiratory disease...
and surgery was cancelled, and one withdrew consent). Therefore, the final study sample included 106 women, of which 52 were in the SNSD group and 54 in the RC group. The mean age was 46.8 (+/- 11.5) years in the SNSD group and 46.4 (+/- 12.6) years in the RC group. Power calculations were performed in the preliminary phase of the study. These suggested that a sample of 64 women in each group would be needed to detect a clinically important difference in the main clinical end point between groups with a level of significance of 0.05 and a power of 0.80.

**Study design**
This was a prospective RCT that was carried out at a single institution, the Western Infirmary in Glasgow, UK. Women were allocated to the study groups on the basis of random numbers in sealed envelopes, opened in numerical sequence on the day of admission. The length of follow-up was 6 weeks. At the end of the follow-up period, clinical data were available for 102 women of the initial 106 (50 of 52 in the SNSD group and 52 of 54 in the RC group). A nurse blinded to treatment allocation administered the questionnaires. However, it was not possible to conceal and fully blind the women and the specialist nurse to the type of care at hospital discharge.

**Analysis of effectiveness**
The primary clinical outcome was the change in quality of life, which was assessed using the SF-36 scale. The secondary clinical end points were:

- the hospital length of stay (LOS),
- satisfaction with LOS,
- symptoms experienced at home,
- complications,
- readmissions,
- the length of the operation,
- the receipt of information on return to normal activities,
- the receipt of information on lifestyle issues (such as hormone replacement therapy, osteoporosis prevention, diet, alcohol consumption, smoking cessation and self-breast examination), and
- visits to the general practitioners after discharge.

The analysis of the clinical study appears to have been restricted to treatment completers only. Clinical and demographic aspects of the study groups were comparable at baseline.

**Effectiveness results**
The same changes in SF-36 domains from baseline to the end of follow-up were observed in the two groups. Specifically, both groups showed improvements in physical functioning, role-emotional, mental health, energy/vitality, bodily pain and general health, while social functioning scores were slightly worse at follow-up.

Satisfaction with hospital care was high in both groups (94% in the intervention group and 93% in the control group).

The average LOS was 4.71 (+/- 1.64) days in the intervention group and 6.06 (+/- 1.41) days in the control group. The difference of -1.34 days (95% confidence interval: -1.88 to -1.09) was statistically significant.

Significantly more women in the intervention group reported more satisfaction with their LOS. Eighty per cent of women in the SNSD group felt that their postoperative length of stay in hospital was "about right" compared with 61% of women in the RC group, (p=0.005). Thirty per cent of women in the RC group thought that their discharge home
from hospital was "not soon enough" compared with 6% in the SNSD group.

There was no statistically significant difference in symptoms experienced at home, complications, readmissions, length of the operation, or the number of visits to the general practitioners after discharge.

There were statistically significant differences in the receipt of information on when to return to normal activities, with the exception of heavy lifting, which was similar between groups. In general, more information was provided in the intervention group. Similarly, more women in the intervention group received information on lifestyle, hormone replacement therapy, osteoporosis prevention, diet, alcohol consumption, smoking cessation and self-breast examination.

**Clinical conclusions**
The effectiveness analysis showed that similar improvements in quality of life and other clinical end points were observed in the two groups. As planned, a shorter LOS and higher patient satisfaction were observed in the intervention group.

**Measure of benefits used in the economic analysis**
No summary benefit measure was used in the economic analysis as a cost-consequences analysis was carried out.

**Direct costs**
The analysis was carried out from the perspective of the NHS. It included the costs associated with surgical operation, hospital stay, additional surgery, readmissions, intensive care unit stay and blood transfusions. The unit costs were not presented separately from the resource quantities. Resource use was based on data derived from the sample of women included in the effectiveness analysis, using case records. The costs were derived from the Scottish Health Service Costs Book Manual 2003/2004 for inpatient gynaecology at the Western Infirmary, as well as from other published sources. Discounting was not relevant as the costs were incurred during a 6-month period. The costs were evaluated using 2003/04 prices.

**Statistical analysis of costs**
The costs were presented as mean and median values. The Mann-Whitney test was carried out to assess whether cost-differences between groups were statistically significant.

**Indirect Costs**
The productivity costs were not included.

**Currency**
UK pounds sterling (£).

**Sensitivity analysis**
A sensitivity analysis was carried out to test the robustness of the total cost results to variations in resource use or unit cost estimates. Specifically, two alternative scenarios were considered. In the first sensitivity analysis, costs were derived from the Scottish Health Service Costs Book Manual 2003/2004 for all other Scottish hospitals. In the second sensitivity analysis, it was assumed that the SNSD group or the RC group could decrease their LOS by 1 day.

**Estimated benefits used in the economic analysis**
See the 'Effectiveness Results' section.
Cost results
The mean total costs per patient were 4,253 (median 3,643) in the intervention group and 4,981 (median 4,824) in the control group. The cost-difference in favour of the intervention was -728 and was statistically significant. Thus, the extra cost associated with specialist nurses (415) was more than offset by the reduction in other costs, mainly a reduction in hospital stay (savings of 1,060 for the intervention group).

The sensitivity analysis showed that, if RC were reduced by 1 day, the mean savings for the SNSD group would fall to 72 compared with a saving of 1,530 if a reduction of 1 day was assumed for specialist nurse care. Other assumptions did not alter the conclusions of the base-case analysis.

Synthesis of costs and benefits
A synthesis of the costs and benefits was not relevant as a cost-consequences analysis was carried out.

Authors' conclusions
The introduction of a specialist gynaecology nurse for women undergoing elective gynaecological abdominal and/or pelvic surgery for benign conditions led to a significant reduction in hospital stay and health care costs without introducing any adverse physical or psychological effects.

CRD COMMENTARY - Selection of comparators
The choice of the comparators (i.e. the new model of care versus conventional care) was appropriate and reflected the pattern of care at the authors' institution. You should decide whether they are valid comparators in your own setting.

Validity of estimate of measure of effectiveness
The clinical evidence came from a randomised study, which was appropriate for the study question. Randomisation and sample selection were clearly described. The authors noted that a weakness of the study was the limited sample of patients recruited, although it almost reached the planned size. Recruitment, however, was difficult as women expressed a preference for earlier hospital discharge. Also, the authors noted that recruitment was stopped because of potential contamination of the control group and staff. A further limitation of the analysis was the fact that the clinical evidence came from a single institution, which might limit how representative the patient population was. However, the characteristics of the women enrolled in the study were reported clearly and the study groups were comparable at baseline, which is a strong feature of the analysis. Further, some form of blinding was performed, although full concealment was not feasible. These issues should be considered when assessing the validity of the analysis.

Validity of estimate of measure of benefit
No summary benefit measure was used in the analysis because a cost-consequences analysis was conducted.

Validity of estimate of costs
The analysis of the costs was consistent with the perspective of the analysis. The sources of the data were reported and the cost items were broken down. Details of resource consumption were given but the unit costs were not presented. This might limit the possibility of replicating the analysis in other settings. Statistical analyses of the costs were carried out and the use of alternative cost estimates was investigated in the sensitivity analysis. The prices used in the analysis were reported, which will assist reflation exercises in other time periods.

Other issues
The authors stated that their findings were consistent with those from other studies evaluating strategies for shorter LOS. The issue of the generalisability of the study results to other settings was partially addressed in the sensitivity analysis, in which alternative assumptions about the LOS and costs were made. The conclusions of the analysis reflected the scope of the study. The authors reported some limitations of their analysis in the discussion; these have been
reported above. The results of the analysis were presented in detail.

**Implications of the study**
The study results suggest that earlier hospital discharge at 48 hours after major abdominal and pelvic surgery is a safe, acceptable and cost-effective alternative to current routine practice.

**Source of funding**
None stated.

**Bibliographic details**

**Other publications of related interest**
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**Indexing Status**
Subject indexing assigned by NLM

**MeSH**
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