Hospital at home or acute hospital care: a cost minimisation analysis

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
Hospital at home (home-based nursing and rehabilitation services) for medically stable elderly patients.

Type of intervention
Rehabilitation.

Economic study type
Cost-effectiveness analysis.

Study population
Medically stable elderly patients who had been admitted to the specialities of general medicine, care of the elderly, general surgery or orthopaedics who fulfilled the criteria for early discharge to a hospital at home scheme and who consented to participate, were included in the study.

Setting
Hospital and community. The economic study was conducted in Bristol, UK.

Dates to which data relate

Source of effectiveness data
Effectiveness data were derived from a single study.

Link between effectiveness and cost data
Costing was undertaken retrospectively on the same patient sample as that used in the effectiveness analysis.

Study sample
Power calculations were performed to determine the sample size: with a 2:1 randomisation ratio and a two-sided 5% significance level, a total sample of 250 was required to yield a power of 85% to detect a standardised difference of 0.4 standard deviations on outcome measures. The study sample consisted of 241 hospitalised, but medically stable, elderly patients who fulfilled the criteria for early discharge to a hospital at home scheme and who consented to participate. 160 were randomized to the hospital at home scheme, with a median age of 79 (interquartile range: 72 - 84) years. 81 were randomized to routine hospital care with a median age of 79 (interquartile range: 74 - 84) years. Of the 383 patients referred to the scheme, 246 were eligible for study and gave consent (78 were not eligible, and 59 did not consent). The patients who refused to participate had a similar age distribution to those who participated, with a higher
percentage of female in the 'refused' group. Of the 246 patients eligible for randomisation (203 emergency and 43 elective admissions), 4 withdrew due to ill health and 1 withdrew all information. Staffing of the hospital at home scheme was as follows: 1 whole time equivalent G grade district nurse coordinator; 1 whole time equivalent E grade registered nurse; 0.8 whole time equivalent senior 1 physiotherapist; 0.5 whole time equivalent senior 1 occupational therapist; 3 part time B grade support workers (20-27 hours each per week); and 1 occupational therapy technician as required (6-12 hours per month).

Study design
This was a pragmatic randomised controlled trial, carried out in acute hospital wards and the community in a region with a catchment population of about 224,000 people. For every patient randomised to hospital care, two patients were randomised to hospital at home. The duration of follow-up was 3 months and 15 patients were lost to follow-up (12 in the hospital group and 3 in the hospital at home group). By three months, information was available for 208 patients (86%). Randomisation (in blocks of six) was stratified by type of admission (elective or emergency) and was carried out by means of sealed envelopes produced independently of the research and clinical staff. It was not possible fully to blind patients and interviewer to the treatment assignments.

Analysis of effectiveness
The analysis was based on intention to treat. The main health outcomes considered were mortality, functional ability (Barthel scores), quality of life (EuroQol EQ-5D and COOP-WONCA chart with standard time frame), and satisfaction with care (the five point Likert scales). The groups were similar in terms of socio-demographic characteristics, but differences were reported between the two arms of the trial as regards the EuroQol EQ-5D score, with hospital at home patients reporting lower levels of overall health than the hospital patients. Furthermore, a higher proportion of patients in the hospital at home group had identified a main carer. Adjustments were made to correct these differences, as well as for the COOP-WONCA charts. A combination of self-completed and interviewer administered instruments was used.

Effectiveness results
The number of deaths was 12 in the hospital-at-home group versus 6 in the hospital group (95% CI for difference in mortality: -7% to 7%). The adjusted differences in Barthel score between the groups (hospital minus hospital at home) was -0.33 (-1.20 to 0.54) at 4 weeks and 0.17 (-0.76 to 1.10) at 3 months. There were no significant differences between the groups in terms of the EQ-5D and the COOP-WONCA charts. Only one of 11 measures of patient satisfaction was significantly different: hospital at home patients perceived higher levels of involvement in decisions.

Clinical conclusions
The two forms of care had similar outcomes in terms of mortality, functional outcome, quality of life and satisfaction with care.

Measure of benefits used in the economic analysis
Since the effectiveness analysis showed no difference in effectiveness, the economic analysis was based on the difference in costs only.

Direct costs
Costs were not discounted due to the short time span of the study. Resource use quantities were reported separately from the costs. Cost items were reported separately. The cost analysis was performed from the point of view of the NHS, social services and patients. The following direct costs were included in the analysis: NHS and social services staff’s time (hospital at home, district nurses, physiotherapists, chiropodists, health visitors, occupational therapists, GPs, hospital doctors, hospital nursing, home aid, home help, social worker), NHS and social services resources (hospital capital, loan equipment, hospital overheads, team travel, meals on wheels, day care) and patients’ resources (equipment, social services, and nursing care). Different data sources were used to estimate the quantities of particular items of
resource use. The estimation of costs was conducted using routine Integrated Community System (ICS) data, hospital cost records, GP and patient questionnaires, as well as published data (Netten & Dennett, 1996). 1995-1996 prices were used. The travel costs for community or social services staff (apart from hospital at home staff) was ignored since the relevant information was not available.

**Indirect Costs**
Not considered.

**Currency**
UK pounds sterling (£).

**Sensitivity analysis**
One-way sensitivity analyses were performed. It was assumed that resources released would be either 75% or 50% of the average costs. Aids and adaptations were assumed to have a 10-year product life, discounted at 6% per year. The effects of including community and social services travel costs and reduced cost per hour of client contact for the hospital at home team were also investigated.

**Estimated benefits used in the economic analysis**
The effectiveness analysis showed no difference in effectiveness so the economic analysis was based on the difference in costs only.

**Cost results**
The mean total cost for hospital at home patients over the 3 months was 2,516, versus 3,292 for hospital patients.

**Synthesis of costs and benefits**
Costs and benefits were not combined since, with the establishment of equal effectiveness, the study became a cost-minimisation analysis. Under all assumptions used in the sensitivity analysis, the cost of hospital at home care was less than that of hospital care. Only when hospital costs were assumed to be less than 50% of those used in the initial analysis was the difference equivocal.

**Authors' conclusions**
The hospital at home scheme is less costly than care in the acute hospital.

**CRD COMMENTARY - Selection of comparators**
Acute hospital care, as the standard care modality in the context in question, was regarded as the comparator. You, as a database user, should consider if this is typical of your own setting.

**Validity of estimate of measure of benefit**
Given the randomised design and the power of the study, plus adjustments made for the effects of factors not comparable between the study groups, the internal validity of the effectiveness results seems to be reasonably assured. As the effectiveness analysis showed similar effectiveness across the study groups, the authors carried out a cost-minimisation analysis.

**Validity of estimate of costs**
Quantities were reported separately from the costs. Sufficient details were provided about the estimation of costs and
comparisons were made with studies dealing with the same topic. It was reported that a time and motion study to estimate resource consumption was not feasible because of the varied nature of patients enrolled into the trial. It was noted that the costs associated with the informal care (identified by 55% of patients in the study) were not covered in the cost analysis because of their complexity and the limited resources available for the study.

Other issues
The authors’ conclusions appear to be justified given the sensitivity analyses performed. These results may be generalisable to schemes of similar size and scope, operating in a similar context of rising acute admissions. Appropriate comparisons were made with other studies.

Implications of the study
More research into the most appropriate case mix and size of hospital at home schemes is required. The context of rising emergency admissions in which this scheme is operating is also of importance whether the costs described here are applicable in other situations.

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Bibliographic details

Other publications of related interest


Indexing Status
Subject indexing assigned by NLM

MeSH
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