Hospital-at-home

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Abstract

Hospital-at-home schemes are becoming an increasingly popular way of delivering health care world-wide. Schemes differ in the type of patients they cater for and in the intensity and complexity of treatment they provide. Although they have been in existence since 1961, there have been few randomized controlled studies to determine their effectiveness as an alternative to standard hospital care. Furthermore, some studies have produced conflicting results. Although there is accumulating evidence that they produce satisfactory patient outcomes and are acceptable to patients and carers, their cost-effectiveness is still uncertain. Further randomized controlled studies incorporating prospective cost analyses are needed. This paper discusses the evidence to support hospital-at-home as an alternative and complementary model of health care particularly for older people.

Introduction

Hospital-at-home schemes provide nursing and medical care in the home to people who would otherwise be in hospital, with the aim of preventing admission or facilitating early discharge. Hospital-at-home originated in 1961 in Bayonne and Paris initially to provide terminal care, but the pattern of service was extended to other patients including elderly and disabled people [1]. The Santé Service Bayonne et Region, inspired the first (and most quoted) UK scheme in Peterborough, which was established in 1978, with the help of charitable funding [2]. The Peterborough scheme has been used to treat diverse client groups including children, elderly people and elective surgery and hip fracture patients, the latter being the subject of much detailed study [3–6]. Hospital-at-home schemes are becoming an increasingly popular alternative to standard hospital care world-wide [7, 8]. A UK survey identified 139 established and a further 100 planned schemes [7]. In some countries, hospital-at-home is referred to by alternative names such as ‘extra-mural hospital’ or ‘hospital in the home’ [8, 9].

The complexity of schemes varies enormously. Some provide high levels of intervention in the home, such as ventilation, nutrition, antibiotic and anticoagulant therapy [7–10]. A recent Australian study has shown that hospital-at-home offers a safe alternative model of care for the treatment of a variety of potentially life-threatening medical conditions, including infection necessitating intravenous antibiotics and deep venous thrombosis [9]. Others (particularly in the UK) focus on nursing care and rehabilitation. Some schemes cater for particular client groups e.g. children or hip fracture patients, whilst others are generic. Hospital-at-home schemes may be community based (which retain strong links with the primary care team) or outreach schemes (with responsibility and involvement in patient care being retained by hospital consultants) [7]. Outreach schemes are discussed in detail elsewhere in this supplement [11].

There are many potential benefits of hospital-at-home. These can be broadly divided into benefits to the health service and those for the individual.

Potential benefits to the health service

- Hospital bed-days can be saved by reducing or avoiding hospital stay.
- A reduction in elective surgical waiting lists. With earlier discharge, more patients can be treated in the same number of beds.
- A reduction in the cost of care, as hospital overheads are avoided.

Potential benefits for patients [12]

- Fewer hospital-associated problems e.g. pressure sores, falls and nosocomial infections.
- The changing need for aids and adaptations can be detected and addressed in the home, thus maximising independence.
- Improvement in morale and well-being by involving patients in decision-making in their own home.
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However, there are also potential disadvantages of domiciliary treatment [12]. Elderly people may be denied access to professional opinion and the full range of investigation, treatment and equipment. It is therefore essential that in providing treatment at home we ensure the rights and well-being of older people are respected and maintained and we do not merely provide care which is cheaper but of a lesser quality. There is also a risk of increasing the burden on informal carers and an already stretched community work force, by discharging patients ‘sicker and quicker’ from hospital.

Hospital-at-home schemes should fulfil the following criteria if they are to be as effective as standard hospital care:

- Patient outcomes (e.g. independence, mortality, institutionalisation rates) must be as good if not better than standard care.
- The total treatment cost should be no more and ideally less than standard care, and costs should not be merely shifted from secondary to primary care.
- The schemes must be acceptable to patients and carers, and not greatly increase the burden on carers.

Although there have been many descriptive, observational studies of hospital-at-home, there have been surprisingly few controlled studies and even fewer randomized controlled comparative studies with routine in-patient hospital care [13–24]. The evidence that hospital-at-home offers a cost-effective alternative to standard care is conflicting.

The Peterborough scheme

Although the Peterborough hospital-at-home scheme has been extensively studied, particularly for the treatment of patients with hip fracture, these studies have been non-randomized [3–5]. Patients who lived outside the catchment area of the scheme were used as a control group. Though some investigators have defended the fact that the element of bias is remote [25], concerns remain regardless of how well-matched the study and control patients were. Ironically, the only attempt at a randomized controlled study of the Peterborough scheme founded because of its success [26]. Patients, their carers and general practitioners were reluctant for randomization to hospital treatment, knowing that treatment at home was possible and apparently successful.

Even though these studies were non-randomized, much valuable information can be gleaned from these schemes for treating hip fracture patients. These studies included many elderly people (mean age about 75 years), and found that the total treatment time for these patients (hospital-at-home plus days in hospital) was much shorter than for those patients treated in hospital alone [3, 4]. Furthermore, at a 6 week assessment more patients had returned to their original place of residence and to their pre-morbid level of independence, though this difference was lost by 3 months [3, 4]. Hollingworth et al. analyzed the cost-effectiveness of the Peterborough scheme for treating hip fracture patients and found that hospital-at-home offered a cost-effective alternative to hospital care for these patients [6], a view that was confirmed by O’Cathain in a study of a hospital-at-home scheme in Southern Derbyshire [27]. O’Cathain found no significant difference between the total treatment time of hospital-at-home treated patients and those receiving standard care, but did find that hospital-at-home was cheaper.

However, the cost-effective argument is uncertain. Hensher et al. studied three hospital-at-home schemes in west London which provided intensive domiciliary care for the early discharge of orthopaedic patients [28]. They found that these schemes were not cost-effective though this was largely because there was a much longer total treatment time for hospital-at-home patients.

There are two major problems in drawing comparisons of cost-effectiveness from studies such as these. Firstly, comparisons are inevitably made with treatment in a district general hospital (where there are high overheads and costs) whereas treatment in a smaller local community (‘cottage’) hospital might be much cheaper [29]. Secondly, many of the earlier analyses of cost-effectiveness were not prospective and the costs of each component of treatment and care were not accurately quantified, a factor which has been better addressed in more recent studies [15, 17, 19].

Randomized controlled trials of hospital-at-home

There have been few randomized controlled studies of hospital-at-home. Two earlier studies were designed to provide support for patients recovering from elective surgery [20, 21]. More recent studies have either exclusively treated elderly patients, or include many elderly subjects [14, 16, 18, 22–24]. Martin et al. randomized elderly medical patients to a home treatment team or routine hospital care and support from standard community services [22]. They found that more patients treated by the team remained at home during the 12 month study period, and that home treatment patients spent more days at home rather than in hospital (delayed discharge or readmission) compared to controls. They found no differences in the mental state or level of independence of patients in the two arms of the study.

Donald et al. randomized 60 elderly medical patients to hospital-at-home or conventional discharge and support [23]. Patients discharged to hospital-at-home were discharged on average 5 days earlier. The same proportion of patients remained at home at the 6 month follow-up, and the number of days spent at home were similar in the two groups. Levels of independence and
morale were no different in the two groups, but there was a trend in favour of the hospital-at-home group.

In the USA, Hughes et al. randomized terminally ill patients (mean age 64 years) to a home care team or conventional care and found no difference in outcome but a greater level of patient satisfaction in those receiving home care [24].

In Bristol, Shepperd et al. did a comparative randomized study of hospital-at-home patients with a variety of conditions: hip and knee replacement, hysterectomy (for non-malignant conditions), elderly medical patients, and patients with chronic obstructive pulmonary disease (COPD). Except for women having a hysterectomy, all patients were over 60 [14]. They found few differences in outcome between hospital-at-home and conventional hospital treatment. Hip replacement patients reported a greater improvement in quality of life. Because of post-operative complications, the authors felt hospital-at-home was inappropriate for knee replacement patients. All patients preferred hospital-at-home—except those with COPD, who had no preference. The total treatment time for elderly patients was significantly greater for those treated with hospital-at-home.

Richards et al. did a randomized controlled trial to determine the effectiveness and acceptability of a hospital-at-home scheme to treat elderly patients in Kettering [16]. They found no differences in mortality, quality of life or independence. However, they too found that the total treatment time of hospital-at-home treated patients was much greater than those randomized to standard care.

These studies were of early discharge hospital-at-home schemes, though Shepperd et al. did include some elderly medical patients and chronic obstructive pulmonary disease patients recruited directly from the community, but these were not analyzed separately. More recently Wilson et al. conducted a randomized controlled trial of hospital-at-home to avoid hospital admission in Leicester [18]. All but two patients in the study were aged over 55 (median 84), patients were randomized to treatment at home with hospital-at-home or admission to hospital. They found no difference in health status or independence of the two groups but hospital-at-home was associated with a lower total duration of treatment without a higher rate of subsequent admission to hospital.

The Bristol, Kettering and Leicester studies all incorporated a detailed prospective cost-minimization analysis in their design, with differing findings [15, 17, 19]. Shepperd et al. found no difference in total treatment costs between hospital-at-home and hospital treatment for hip and knee replacement or elderly patients, but hospital-at-home was more expensive for hysterectomy and COPD patients [15]. Hospital-at-home increased general practitioners’ costs for elderly and COPD patients, suggesting there may be some budgetary shift to primary care for these groups. In contrast, Coast et al. found that hospital-at-home was a cost-effective alternative for the elderly patients in their study, despite the greater total treatment time [17] and Jones et al. found hospital-at-home could provide care at a similar or lower cost than admission to an acute hospital [19].

Most studies of hospital-at-home have focused on patient outcomes and cost but some have also addressed the question of carer strain [23, 24, 30, 31]. Though there is some evidence that for certain patients hospital-at-home may increase burden on carers [26] randomized studies to date have not found this to be great [23, 24, 30].

Conclusion

There is accumulating evidence that hospital-at-home schemes are an effective and acceptable alternative to standard hospital care for a variety of conditions, but the evidence that they are cost-effective is still uncertain.

Further randomized controlled trials are needed [32]. These studies should include large numbers of patients, use similar measures of outcome and incorporate a prospective economic analysis in their design. This will ensure that the cost of each aspect of treatment and care in hospital and the community is apportioned as accurately as possible. It would also be interesting to compare hospital-at-home with care in community hospitals.

Key points

- Hospital-at-home schemes are an increasingly popular way of delivering health care.
- There have been few randomized controlled trials which have compared hospital-at-home with standard hospital care.
- Outcomes for selected patients seem to be as good as standard hospital care, though studies have used different outcome measures.
- The cost-effectiveness of hospital-at-home schemes remains uncertain.
- Hospital-at-home schemes should be the subject of further randomized controlled studies

References


