Admission avoidance

Debates continue on the issue of how to avoid emergency hospital admissions. Which interventions will be most cost effective? Will home interventions be more efficient and beneficial to the patient? Much time and energy is currently expended in the development of services with little evidence for eventual success. **Drs Eileen Burns and Alison Cracknell** examine the current models of admission avoidance and the evidence base for such services.

Nationally and internationally the current trend in healthcare is to develop community services with the aim of improving or maintaining patients’ health and avoiding hospital admission. These changes have been associated with a reduction in the number of hospital beds in the UK. This plan has been developed to reduce healthcare costs by saving hospital admissions, the incidence of hospital associated problems (eg, infections) and promote the well-being of patients by providing care closer to home. It is associated with a shift of health expenditure from hospitals to the community.

Admission avoidance strategies can be divided into those preventing admissions in patients presenting as emergencies or in need of urgent care, and into those in patients suffering from chronic diseases with repeated exacerbations. Reducing repeat admissions in patients with chronic diseases was a key priority in the 2004 NHS improvement plan, and the NHS is working to a target of reducing emergency bed days by five per cent by 2008. Many of the new service models come under the umbrella term of ‘intermediate care’ services. Intermediate care refers to services concerned with patients’ transitions between hospital and home, and from medical or social dependence to functional independence. Traditionally, a large proportion of intermediate care services has been used for the early discharge of patients from hospital (‘step down’), but increasingly services are being used as a crisis resolution or ‘step up’ facility to avoid hospital admission. The service provides management of patients for a limited time period. Current models of intermediate care operational in the UK include:

- rapid response teams in A&E or within the community;
- nurse-led inpatient units;
- supported discharge schemes;
- hospital at home; and
- short term rehabilitation within residential care, community hospitals or the patient’s own home.

Schemes to avoid admission in patients with chronic diseases adopt a longer term approach. They can be specific to certain conditions — for example, chronic obstructive pulmonary disease (COPD), heart failure or terminal care — or non specific, for example the use of community matrons. The focus is on the prevention and management of crises (which may otherwise precipitate hospital admission) within the community.

**Patients requiring urgent care**

*Rapid response teams*: Older people are frequent users of A&E departments. There is evidence that their attendance rate reflects a higher...
incidence of serious illness and accidents.

Many A&E departments provide rapid response teams or admission avoidance teams to provide assessment of the functional ability and care needs of elderly patients, with the aim of preventing admission by supporting recovery at home. This is frequently practised in the area of falls and accidental injury. Although widely introduced, there is very limited evidence to support this model. A study in Cambridge validated an approach using an admission avoidance team in A&E. Patients whose admission might be avoided with the support of a rapid response team in the community were targeted. Basic healthcare was provided to patients in their homes. The majority of patients were recruited directly from the A&E department or observation ward, although some patient meeting the criteria admitted to trauma or medicine for the elderly wards were also assessed. Two hundred fifty-seven patients were discharged using the scheme, with 149 meeting the initial criteria and forming the intervention group, and compared to controls. There was no difference in readmission rates (1.2 per cent intervention versus 1.5 per cent control) and average length of stay was 1.7 days in intervention group compared to 6.3 in controls. The service was felt to be potentially cost-saving by reducing bed days, but this was not fully evaluated, and the cost of care for patients where admissions were avoided was partly shifted to primary care.

Hospital at home: This is defined as a service that provides active treatment by healthcare professionals in the patient’s home of a condition that otherwise would require acute hospital inpatient care — always for a limited period. In the UK, the service focuses on nursing care and rehabilitation. Most of the evidence in this area comes from early discharge schemes, rather than admission avoidance based in the community or A&E departments. Hospital at home does appear effective and acceptable for a variety of conditions, but the cost effectiveness remains unclear. A recent Cochrane Review assessed the effects of hospital at home compared with inpatient hospital care and included 22 randomised trials. However, only two trials were included that evaluated admission avoidance schemes (as opposed to early hospital discharge schemes), recruiting elderly patients with a medical condition. One trial recruited from the community and the other from A&E. In these studies there was no significance difference in mortality or readmission rates between care in the acute hospital and hospital at home, but patients allocated to hospital at home reported significantly increased levels of satisfaction. The community trial of 199 patients reported a significant reduction in length of stay in those allocated to hospital at home, but failed to detect a difference in the cost of the initial episode of care at three months. When patients refusing their allocated place of care were removed from this analysis, a significant reduction in costs was detected in favour of those receiving hospital at home.

Nurse-led inpatient units: There is currently little evidence to support the use of nurse-led units for preventing admissions in patients directly from the community. Research about these units is based on post acute patients. The extent to which they are cost beneficial is limited. A recent Cochrane Review including 10 trials showed that nurse-led units for post acute care when compared to usual care are associated with a reduction in discharges to institutional care and an increase in functional status at the time of discharge. There was however a near significant increase in inpatient stay, which may have contributed to the above outcomes. The UK studies also showed costs may be greater for the nurse-led units.

Care home based intermediate care: This model of care offers patients a short term admission to a care home with enhanced facilities for personal and nursing care and rehabilitation as an alternative to acute hospital care. The supporting evidence for care home-based intermediate care is again weak and is limited to early discharge of hospital inpatients, rather than admission avoidance from the community. One study (principally recruiting post discharge patients) of care home and home-based intermediate care found no difference in outcomes between acute care and intermediate care in re-admission rates, or admission to long term care. Qualitative research found patients and their carers regarded intermediate care very highly (personal communication).

Care home acute care

Evidence from the America and from Australia suggests targeted support to care home residents
in the context of careful discussions about advanced care planning can maintain patients in care homes with a reduction in hospital admissions and similar health outcomes. The level of care and support available in care homes in these studies may not be directly comparable to those in the UK. No randomised trials have been reported.

Admission avoidance in the chronic setting: Intermediate care services (such as those described above) may also be appropriate in the context of chronic diseases where short term interventions are required. However, the main strategies in this area aim to adapt a long term case management plan.

Case management: Case management has been defined as the process of planning, co-ordinating, managing and reviewing the care of an individual\(^16\). A recent area of development in the UK has been the role of the community matron. Statistics from the Department of Health state that two thirds of patients admitted as medical emergencies have exacerbation of chronic disease and 10 per cent of inpatients account for 55 per cent of inpatient days\(^17\).

In 2005 the Department of Health overhauled the way in which the NHS manages patients with long term conditions by recruiting 3,000 community matrons to provide individual case management closer to home. This has evolved from the American models of case management, despite differing target populations and health care policy in the two countries. A large study from the US evaluated Evercare case management in nursing home residents (providing nurse practitioners to residents) and reported a reduction in hospital admissions of almost 50 per cent in the intervention group. Despite an increase in community nursing care, overall costs were significantly reduced\(^18\). There was some evidence the use of similar models in the UK (with case managers co-ordinating care at home, advising and educating patients) can reduce unplanned admissions to hospital, by targeting older patients with chronic diseases and frequent hospital admissions or A&E attendances\(^19\). A more recent evaluation in the UK has reported a lack of evidence of effectiveness in prevention of hospital admissions\(^20\). The study was powered to detect a reduction in admissions of 25 per cent or more, so a smaller effect was not excluded by this work.

The different outcomes of community matron input may be explained by the different health care contexts the nurses worked in. Other research has suggested that casemix and the environment in which community matrons work is key to their effectiveness and that one model of care will not necessarily function in another care setting\(^21\). A King’s Fund Review in 2004 looked at the literature on case management for older people and the evidence base for the impact of case management on hospital admissions, lengths of inpatient stay, use of emergency facilities, healthcare costs and patients’ functional ability\(^22\).

Disease specific management

The role of specialist nurses in managing patients with specific chronic diseases is being widely developed with the aim of promoting care at home and preventing hospital admissions. There is increasing evidence this is effective in the areas of chronic heart failure and COPD. Community palliative care services have a role in predicting problems and managing them at home, preventing unnecessary admissions.

COPD: There is good evidence that ‘hospital at home’ schemes in acute exacerbation of COPD can be resource effective and clinically safe\(^23\). In 2003, a Cochrane Review was undertaken to evaluate the efficacy of hospital at home compared to hospital inpatient care in acute exacerbations of COPD\(^24\). This included seven randomised controlled trials with 754 patients. It concluded that one in four carefully selected patients presenting to hospital emergency departments with an exacerbation can safely and successfully be treated at home with support from respiratory
nurse specialists. There was no significance difference in readmission rates or mortality at three months. Cost analysis data from these randomised controlled trials suggest considerable cost savings with care at home.\textsuperscript{23,24} There is also evidence that pulmonary rehabilitation (exercise programmes in stable patients) improves respiratory function and patients’ perception of quality of life.\textsuperscript{25}

Heart failure: There is also strong evidence that multidisciplinary interventions in heart failure can significantly reduce hospital admissions. A recent systematic review including 30 randomised control trials found that home visit interventions significantly reduced hospital admissions by around 30 per cent and also reduced all cause mortality.\textsuperscript{26} Almost all the trials included used interventions, with one-to-one patient education, medication and dietary advice, as well as symptom monitoring. The interventions seemed most effective when at least partly delivered in a patient’s own home through visits and telephone calls. Home-based interventions have also been shown to be cost effective.\textsuperscript{27}

Terminal care: Community palliative care teams can effectively prevent hospital admissions, especially in last months of life.\textsuperscript{28,29} There is limited evidence on the cost effectiveness of this model, although there is suggestion that with the use of community palliative care teams cost savings can be made to the healthcare system.\textsuperscript{29} Many patients with terminal disease wish to remain in their own home and this service enables high quality input to patients in their preferred place of care. To date these services have tended to focus on the palliative care needs of patients with cancer.

Discussion
Clearly the gains to elderly patients in avoiding a hospital admission must not be at the cost of missed or delayed diagnoses. There is potential for fragmented care when strategies for preventing hospital admissions are implemented, and clear communication is a major challenge when patients are crossing organisational boundaries. Careful assessment of all patients is essential for these services to work and close links between primary and secondary care are vital. The evidence for the effectiveness of comprehensive geriatric assessment (multidisciplinary assessment, including specialist medical assessment) in community settings ought
to inform developments and supports the model of a community geriatrician working with intermediate care services.

Conclusions

There is strong evidence that home-based interventions in the areas of specific chronic diseases reduce hospital admissions and are potentially cost saving. The majority of the evidence to support interventions in the ‘urgent care’ setting comes mainly from early discharge approaches, rather than avoiding admission. Cost effectiveness in these areas has not been well established. The role of community matrons is currently being implemented within the NHS, although presently there is only weak evidence for their effectiveness in admission prevention. There is a huge need for more research into admission avoidance schemes.

Conflict of interest: none declared.

References


Key points

• There is increasing emphasis within the NHS on prevention of hospital admissions.

• Currently there is scarce evidence to support admission avoidance schemes for patients presenting as requiring urgent care.

• At present there is only limited evidence that care management schemes for patients with chronic diseases in the UK reduce hospital admissions and are cost effective.

• There is evidence that interventions by specialist nurses in specific conditions can reduce admissions, with potential cost savings.

• Patients and their carers regard the experience of community care (rather than hospital) highly.

• More research needs to be undertaken on admission avoidance strategies in the UK.