Best place of care for older people after acute and during subacute illness: a systematic review.

Authors' objectives
To assess the evaluative literature on the costs, quality and effectiveness of different locations of care for older people.

Searching
Twenty-five databases were searched using unique strategies for each (see Other Publications of Related Interest no.2), following which the main searches were performed (from 1988 onwards). MEDLINE and EMBASE were re-searched in April 1999 to identify any newly published material. Additional studies were identified by examining reference lists of retrieved articles and by handsearching key journals.

Study selection
Study designs of evaluations included in the review
Only studies which were described as randomised or pseudo-randomised, and had a clear comparison of the location of care, were selected for the data extraction and review stage.

Specific interventions included in the review
The review looked at: services that adjusted skill mix, i.e. admission avoidance, nurse-led beds and early discharge; increased condition-specific expertise in hospital settings such as stroke units, hip units, geriatric assessment units (GAU), and acute care for elders (ACE) units; and rehabilitation (in-patient, community-based, and day hospitals).

Participants included in the review
Participants were elderly people aged at least 65 years, receiving acute, post- and sub-acute rehabilitation care.

Outcomes assessed in the review
The article concentrated on four outcomes: mortality, readmission, destination outcome and costs to the health service. Data on other outcomes are available in the full review (See Other Publications of Related Interest no.1)

How were decisions on the relevance of primary studies made?
The studies were selected independently by pairs of reviewers. Any disagreements were resolved through discussion and, where necessary, recourse to a third reviewer and a simple majority 'vote'.

Assessment of study quality
Two sets of quality assessment tools were applied to included studies: the quality of trials algorithm of Jadad et al. (see Other Publications of Related Interest no.3), but excluding the double-blinded assessment of outcome, and the criteria of the Cochrane Effective Practice and Organisation of Care (EPOC) Group (see Other Publications of Related Interest no.4). The maximum number of achieved criteria on each quality measure was three and seven, respectively. The authors state how the papers were assessed for quality, but do not state how many of the reviewers performed the quality assessment.

Data extraction
The authors do not state how the data were extracted for review, or how many of the reviewers performed the data extraction. Data were extracted on the following: bibliographic details, quality scores, model of care or study, time of final follow-up, mortality rates, readmission rates, destination by time of follow-up, odds ratios (ORs) and 95% confidence intervals (CIs).
Methods of synthesis

How were the studies combined?
The analysis was predominantly qualitative; the opportunities for performing a meaningful meta-analysis were limited. Individual study ORs were reported for mortality and destination outcome at final follow-up, and a weighted pooled OR was reported for each location of care. ORs were calculated using the Mantel-Haenszel (fixed-effect) method for binary data. Where significant heterogeneity was evident, ORs were recalculated using a random-effects model.

How were differences between studies investigated?
Heterogeneity was not investigated formally, but important differences in the interventions were discussed in the text, and some study details were presented in tables.

Results of the review

Eighty-four papers were identified, selected and included in the review. These reported findings from 45 separate trials. Fourteen trials addressed adjusted skill mix schemes (n=2,283); 20 trials addressed specialist expertise schemes (n=5,213); and 19 trials addressed rehabilitation (n=3,946).

Twenty-one trials received a maximum score of 3 on the Jadad scale; 4 trials received a maximum score of 7 on the EPOC scale. The weighted pooled ORs for mortality at time of final follow-up were: for admission avoidance, 0.88 (95% CI: 0.53, 1.47); nurse-led beds, 1.00 (95% CI: 0.62, 1.60); early discharge, 0.97 (95% CI: 0.71, 1.32); stroke unit, 0.74 (95% CI: 0.61, 0.88); hip unit, 0.93 (95% CI: 0.65, 1.33); GAU and ACE, 0.98 (95% CI: 0.78, 1.23); in-patient rehabilitation, 0.71 (95% CI: 0.56, 0.90); community-based rehabilitation, 1.07 (95% CI: 0.73, 1.58); and day hospital, 1.30 (95% CI: 0.96, 1.76).

The weighted pooled ORs for destination (at home) at time of follow-up were: for admission avoidance, 1.10 (95% CI: 0.63, 1.93); nurse-led beds, 2.01 (95% CI: 1.37, 2.94); early discharge, 1.58 (95% CI: 1.16, 2.14); stroke unit, 1.83 (95% CI: 1.42, 2.35); hip unit, (random-effects model), 1.07 (95% CI: 0.52, 2.18); GAU and ACE, 1.26 (95% CI: 1.04, 1.53); in-patient rehabilitation, 1.61 (95% CI: 1.20, 2.15); community-based rehabilitation (random-effects model), 1.01 (95% CI: 0.42, 2.46); and day hospital 0.60 (95% CI: 0.27, 1.37).

Due to heterogeneity between studies, data on readmission rates could not be pooled. Most studies of location did not report significant differences in readmission.

Cost information
Health service costs per patient were reported for each service of interest. Cost data obtained from individual articles could not be pooled.

Authors' conclusions
The authors concluded that, despite considerable recent development of different forms of care for older patients, evidence regarding effectiveness and costs is weak. Services that adjusted skill mix had some potential for reducing costs without worsening outcomes, but evidence is sparse and, for nurse-led beds, of poor quality. They also state that stroke unit care appears to deliver better outcomes in terms of mortality and return home in the short term, although the reasons for this cannot be fully explained by the current evidence. There is insufficient evidence to make firm conclusions about the impact of hip unit care, and there is no evidence to suggest that GAU care results in lower mortality than 'normal' care.

The authors further state that there was evidence for lower mortality in specialist in-patient rehabilitation units, compared with conventional care, and improved destination outcomes. No studies of community-based rehabilitation showed a significant difference in mortality, readmission rate or destination outcomes. The day hospital has not been shown to deliver any significant advantage in terms of mortality. There is, in fact, some suggestion of poorer outcome: the costs are higher and there is no impact on subsequent hospital bed use. Throughout their conclusions, the authors stress that there is a clear need for further research in these areas.
CRD commentary
On the whole, this was a methodologically-sound review which was fairly well reported. The study selection criteria were appropriate to the review question, the literature search was exhaustive, and validity assessment was carried out using two published checklists. Details of the individual studies were presented in tables, and the pooling and summary of these studies was appropriate. However, it is unclear from this article how the quality assessment and data extraction processes were carried out. Nevertheless, the authors’ conclusions seemed appropriate and follow from the evidence presented in the review.

Implications of the review for practice and research
Practice: The authors did not state any implications for practice.

Research: The authors state that this review has identified substantial gaps in the literature. They did not find a single trial of 'hotel' wards in acute hospitals or of community hospital beds. They also state that recent service developments, such as admission avoidance schemes, are also under-evaluated.

Bibliographic details

PubMedID
11556369

Other publications of related interest

Indexing Status
Subject indexing assigned by NLM

MeSH
Acute Disease /rehabilitation; Aftercare /standards; Aged; Cost-Benefit Analysis; England; Geriatric Assessment; Health Services for the Aged /standards; Hospital Units; Humans; Quality of Health Care; State Medicine; Subacute Care /standards; Treatment Outcome

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Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.