Home rehabilitation after stroke: reviewing the scientific evidence on effects and costs

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Authors' objectives
To assess whether organised rehabilitation at home after a stroke is better or less expensive than more conventional treatment strategies.

Searching
The following databases were searched from 1966 to December 1999: MEDLINE, the Cochrane Library, CINAHL, EconLit, ArbSprise, ABI/Inform and Sociological Abstracts. The search terms used were ‘stroke’, ‘rehabilitation’, ‘home care services’, ‘domiciliary services’, ‘economics’, ‘randomized’ and ‘controlled studies’. Additional published and unpublished studies were located by examining the reference lists of identified papers, overview articles and meeting summaries, and by sending letters to experts.

Study selection
Study designs of evaluations included in the review
Only randomised and quasi-experimental controlled studies were considered.

Specific interventions included in the review
Home rehabilitation was defined as ‘specific training strategies, usually managed by a team of professionals, to rehabilitate stroke patients in their own homes’. The treatments included were: home rehabilitation versus conventional rehabilitation or day care; and home rehabilitation with self training versus conventional rehabilitation. Studies were excluded where both the experimental and control groups received ‘conventional’ treatment, but one group also received extra time with nurses or social workers at home. No further details were provided on the types of interventions, or the personnel involved in these treatments.

Participants included in the review
The study participants were stroke patients, rehabilitated in their own homes directly after acute hospital stay. The mean ages of the participants ranged from 68 to 74 years. Trials where patients represented mixed disease groups (not defined) were excluded.

Outcomes assessed in the review
Results were reported for both patients and their family members. For patients, this included functioning in activities of daily living (ADL), ability to manage alone, quality of life (QOL), depression and levels of social activity. For family members, this included levels of satisfaction with care, stress, depression and QOL. These functions were measured using various well-validated instruments: for ADL, the Barthel and Katz Index; for QOL, the Nottingham Health Profile (NHP) and the Sickness Impact Profile; for depression, a NHP score greater than 30 and the Wakefield Depression Inventory; for anxiety and stress, a general health questionnaire, or a hospital anxiety and depression scale; and for social activities, the Frenchay Index.

How were decisions on the relevance of primary studies made?
The authors state that two reviewers selected papers independently.

Assessment of study quality
The validity of the studies was assessed on the appropriateness of the randomisation procedure, and whether or not the studies had been subject to ethical review. The authors stated that the quality of the economic estimates was evaluated using a 3-grade scale, based on weighing the quality factors described by Drummond and Jefferson (see Other Publications of Related Interest). The authors do not state how judgements of validity were made.
Data extraction
The authors do not state how the data were extracted for the review, or how many of the reviewers performed the data extraction. Data were extracted on the following: follow-up time; study design; the number of patients; patient characteristics such as age, ADL, independence, length of hospital stay; differences in effects between treatment and control groups for patients (ADL, independence, depression, social activities, motor, QOL, death or institutionalisation, handicap) and carers (stress, social activities, QOL, satisfaction, depression); the assessment scales or measurements used; treatment; and whether the assessment was blinded.

Methods of synthesis
How were the studies combined?
The authors stated that they were unable to synthesise the results using a meta-analysis, due to the variation in the outcome measures. Instead, the studies were combined in a narrative discussion and in tabular format. The authors stated that they analysed 'non significant tendencies' toward differences between the intervention and control groups; no details of the methodology were provided. The results were described using these trends with a simple 'headcounting' method. The authors did not state the methods employed to pool the results of two trials.

How were differences between studies investigated?
The authors do not state how differences between the studies were investigated.

Results of the review
Seven studies (1,487 patients) were included: 6 randomised controlled trials and 1 non-randomised study with concurrent controls. Four of these (845 patients) included an economic analysis, and 5 included blind assessment.

There were no statistically-significant differences in outcomes between home rehabilitation and conventional care with respect to ADL functions, depression, QOL or social activities for patients, or for stress, social activities, satisfaction, depression and QOL for family members.

Cost information
Yes. Four of the studies dating from 1988 to 1997 provided cost information. The authors gave further details of comparative costs in these trials, although it should be noted there was some variation in how these costs were calculated in different studies. The findings should be viewed with some reservations because of the difficulty of comparisons across time and/or different countries. The authors stated that home rehabilitation appeared less costly than regular day care, possibly due to the reduced transport and personnel costs, but was more costly than conventional care. Home rehabilitation may be more economically advantageous if combined with early hospital discharge and offered only to patients when they are less functional and have more complex transportation needs.

Authors' conclusions
The outcomes and costs of home rehabilitation after stroke seem to be comparable to alternative treatment strategies.

CRD commentary
The aims of this review were clearly stated at the outset. The search involved a number of good sources, but relevant papers may have been missed due to the limited number of search terms used. In addition, there were no details of how the search terms were combined.

The authors did not state how data were extracted from papers, or how the differences between studies were investigated. In particular, there were no details of the components of home rehabilitation or comparator programmes in any of the studies. This made it difficult to judge whether the setting or other factors influenced the outcomes, and questioned the validity of between-study comparisons. The authors implied that methodological quality was used as a selection criterion, but this was inadequately explained in the methods section. A more in-depth description of the methodological quality of studies, such as a tabulated and systematic presentation, would have been useful.
The outcomes extracted from the studies were expressed as differences in outcomes between the treatment and control groups, and were described as 'non significant' (NS), 'NS negative' (negative tendency), 'NS positive' (positive tendency) or 'improved'. These terms were not defined satisfactorily, or given any weighting. This made synthesis of the results questionable, as did the 'headcounting' approach that was adopted for combining the results. In addition, there was some confusion over the way some results were evaluated: the authors stated that the results were not suitable for combining, but then went on to state that one of the studies showed significant improvement in the home rehabilitation group, which disappeared when the results were pooled with another study. In view of these methodological inconsistencies, caution should be used when interpreting the results.

**Implications of the review for practice and research**

Practice: The authors state that in certain circumstance home rehabilitation may be preferable to conventional care.

Research: The authors do not suggest further research. The reviewer, however, feels rehabilitation following stroke is of sufficient importance to merit further investigation.

**Bibliographic details**


**PubMedID**

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**Other publications of related interest**


**Indexing Status**

Subject indexing assigned by NLM

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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.