

## ***Executive summary***

# **Geriatric rehabilitation following fractures in older people: a systematic review**

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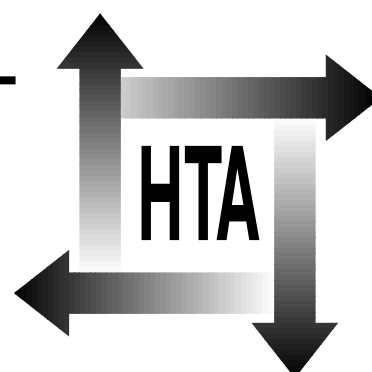
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## Executive summary

### Background

The prevalence of fractures in older people is increasing rapidly. Different types of programmes are available for rehabilitation after these fractures. However, the effectiveness of these programmes is uncertain.

### Objectives

These were to identify, critically appraise and synthesise the published evidence for the effectiveness and cost-effectiveness of programmes of care following the acute management of fractures in older people. The principal focus is on rehabilitative care after proximal femoral fracture.

### Methods

#### Data sources

- Electronic searching of MEDLINE, EMBASE and CINAHL databases.
- Search of bibliographies of all electronically identified studies.
- Search of databases of group members.
- Personal communication with experts in the field.

#### Study selection

The inclusion criteria for the review were any systematic review or randomised, quasi-randomised or controlled cohort study reporting the outcome of a programme designed to improve function or reduce hospital stay in older people who have sustained a fragility/fall associated fracture in the lower limbs, pelvis, upper limbs or spine. Economic evaluations of studies meeting the inclusion criteria were also eligible. Published audit data from the UK in the last 5 years were examined to provide an indication of current treatment and outcome.

#### Data extraction

Included studies were each sent to two reviewers for methodological appraisal and data extraction. Where reviewers differed on any item, each was asked to reconsider their decision. The two principal reviewers working together compiled the

quality scores and data derived from each individual study. A nine-item methodological quality score was derived for each included study.

### Data synthesis

Individual studies were grouped by the type of intervention programme into seven categories defined by the two principal reviewers. Where similarity of interventions and outcomes allowed, the data were pooled using the Cochrane Collaboration Review Manager software.

### Results

Forty-one comparative studies (of which 14 were randomised trials) and seven audit studies were included. The comparative studies were classified into seven groups on the basis of the experimental intervention being investigated:

- geriatric orthopaedic rehabilitation unit (GORU) – seven studies
- geriatric hip fracture programme (GHFP) – five studies
- early supported discharge (ESD) programme – six studies
- introduction of clinical pathways for treatment of hip fracture – three studies
- impact of the introduction of prospective payment systems (PPSs) – six studies
- miscellaneous hospital programmes – four studies
- specific types of therapy, nursing or medical care – 10 studies.

These studies were heterogeneous. Striking variation was found in the reporting of outcomes, the details of the ‘control’ interventions, and the case mix; this limited pooling of data. The very limited data that were available suggest that:

- GHFP, ESD and clinical pathways reduce total length of stay in hospital
- there is no evidence that length of stay in a GORU is less than in a conventional orthopaedic unit
- length of stay may be reduced by the introduction of a PPS

- readmission rate after ESD shows a statistically non-significant increase
- significantly higher rates of return to previous residential status are achieved by GHFP and by ESD
- PPSs have led to increased use of nursing homes in the USA
- there is no evidence that any of the programmes evaluated, nor the introduction of PPSs, are associated with changes in mortality
- there are insufficient data to assess the impact of any programme on level of function, morbidity, quality of life or impact on carers
- from a health and social services perspective, GHFP and ESD are likely to be cost-saving. The economic implications of GORU are less clear. Cost-saving associated with these programmes is achieved largely through the increased rate of return to previous residential status.

## Conclusions

Geriatric service interventions after hip fracture are complex: their form and outcomes are strongly influenced by local conditions. Comparative studies comparing different treatments and strategies are of poor to moderate quality, allowing only tentative conclusions. As an overall strategy for rehabilitation after hip and other lower limb fractures, GORUs are unlikely to be cost-effective, but some frailer patients may benefit in respect of reduced readmission rates and need for nursing home placement. GHFPs and ESD are probably cost-effective, since they appear to shorten the average length of hospital stay, and are associated with significantly increased rates of return to previous residential status. These programmes are not mutually exclusive; an optimal GHFP is likely to involve several elements. As ESD is suitable only for a subset of less disabled patients, an alternative programme for more disabled patients is needed; this is likely to require transfer following surgery, initially to an inpatient setting which might be provided in a GORU or a mixed assessment and rehabilitation unit (MARU). No direct comparison of GORUs and MARUs has been published. Both comparisons of packages of care (such as the GORU or MARU) and comparison of individual elements in these

packages may require further research. The adoption of an agreed outcome data set for audit and research would be justified.

## Implications for practice

The authors consider that:

- (1) ESD should be a component of GHFPs to maximise opportunities for suitable individuals to return to their own homes as soon as possible.
- (2) New GORUs should not be established unless their superiority over mixed assessment and rehabilitation units (MARUs) is demonstrated. However, acute units managing hip fractures should retain access to assessment and rehabilitation services in GORUs or MARUs for the more disabled but previously community-dwelling patients.
- (3) There are insufficient data to recommend the introduction of formal clinical pathways in association with these practices, although there is weak evidence that they may be advantageous.

## Recommendations for research

- (1) A study comparing the outcome of transfer of people previously living in the community unsuitable for ESD to a GORU or to a MARU should be considered. Given the paucity of cost-effectiveness information to date, this should include an economic evaluation.
- (2) Further studies of ESD and GHFPs to establish the evidence for best practice should be conducted. These should include evaluation of individual elements of care packages. Particular attention to methodological quality is required.
- (3) The adoption of an agreed outcome data set for research into and audit of rehabilitation after lower limb fractures in the elderly should be a priority, ideally before any new trials or new audit programmes are funded. Such a data set should include assessment of function, health-related quality of life, carer burden, and information allowing an economic analysis that takes a societal perspective and establishes the costs and savings of different models of care in relation to primary care services.
- (4) Adopted data sets/frameworks should be reviewed at least every 5 years.

# NHS R&D HTA Programme

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The Standing Group on Health Technology advises on national priorities for health technology assessment. Six advisory panels assist the Standing Group in identifying and prioritising projects. These priorities are then considered by the HTA Commissioning Board supported by the National Coordinating Centre for HTA (NCCHTA).

This report is one of a series covering acute care, diagnostics and imaging, methodology, pharmaceuticals, population screening, and primary and community care. It was identified as a priority by the Acute Sector Panel and funded as project number 95/36/02.

The views expressed in this publication are those of the authors and not necessarily those of the Standing Group, the Commissioning Board, the Panel members or the Department of Health. The editors wish to emphasise that funding and publication of this research by the NHS should not be taken as implicit support for the recommendations for policy contained herein. In particular, policy options in the area of screening will be considered by the National Screening Committee. This Committee, chaired by the Chief Medical Officer, will take into account the views expressed here, further available evidence and other relevant considerations.

Reviews in *Health Technology Assessment* are termed 'systematic' when the account of the search, appraisal and synthesis methods (to minimise biases and random errors) would, in theory, permit the replication of the review by others.

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