

Maintaining good health for older people with dementia who suffer a neck of femur fracture

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SUMMARY

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BACKGROUND

Hip fracture in the UK is a relatively common condition, accounting for more than 20% of orthopaedic bed occupancy in the UK (Royal College of Physicians 1999), and has been estimated to cost between £12,000 per fracture (1998) and £25,424, at a total cost to society estimated at almost £726 million a year in 2000 (Parrott, 2000). Treatment for fracture of a hip may be the first contact an older person has with the hospital system. Hip fracture can have devastating consequences, with mortality rates estimated at 33% to 31% in the year following the fracture (Roberts and Goldacre, 2003; Roche et al., 2005); the institutionalisation rate was estimated in one study to be 13% in those previously dwelling in the community in the year following the fracture (Nurmi et al., 2004).

Hip fracture has been studied as a 'tracer condition' for measuring health system responsiveness (Qureshi and Gwyn Seymour, 2003), and has been the subject of two Audit Commission studies (Audit Commission, 1995, 2000), which identified persistent problems such as delays in admitting patients with hip fracture from the A&E department within an hour, delays in carrying out operations within 24 hours of admission, and (in the majority of hospitals) not implementing joint ward rounds between physicians and orthopaedic surgeons.

Several guidelines of best practice in the management of hip fracture have been published in recent years. Early assessment and appropriate rehabilitation is one element of what is accepted as good practice (Scottish Intercollegiate Guidelines Network (SIGN), 2002).

It is therefore important to get a sense of the cost implications of (a) the current system for those older people with dementia who have fractured a hip, and (b) any strategies to improve outcomes for this group.

The study summarised here, funded by the National Audit Office, aimed to assess how much longer people with dementia. The task was then to estimate

the cost associated with delayed discharges from acute care and identify potential financial savings for the taxpayer if such delays could be reduced.

METHODS

We carried out an initial feasibility study in order to establish whether sufficient data existed to build a model of the patient pathway in the UK for those with and without dementia who have a fractured neck of femur (NOF). This consisted of a rapid review of the medical, nursing, allied health and social science databases for material relating to the average length of stay in an acute hospital and also admissions in the population of interest. The review identified those studies that could provide estimates of key parameters for the model, as well as evidence on 'best practice' in terms of the treatment and care of people with cognitive impairment or dementia who have suffered a fractured neck of femur. We concluded that there were sufficient data to allow us to construct a model of the care pathway.

We developed a cell-based macro-simulation model of the pathway from admission through discharge to post-discharge care. The base case ('usual care' scenario) draws on individual-level data from a prospective study of the outcomes of psychiatric illness within an older hip fracture population (Holmes and House, 2000) to determine the proportions of psychiatrically well and those with dementia progressing through a 'usual care' pathway from admission through to discharge. Data on post-discharge care were limited and a number of assumptions had to be introduced into the modelling. Unit costs were drawn from various sources.

We investigated the sensitivity of the costs and outcomes to data assumptions and various 'best practice' scenarios. These scenarios, based on findings from the literature review, centred on good practice in the preoperative and postoperative stages of the hospital stay. For instance, we examined the impact of adhering to good practice guidelines on maximum wait times from admission to

surgery. Other scenarios included several models of collaborative care between orthopaedic surgeons and specialists in medicine for older people for patients with hip fracture: the geriatric orthopaedic rehabilitation unit (GORU) model; and the geriatric hip fracture programme (GHFP) on an orthopaedic ward. We also considered the impact of psychiatric liaison services for patients in orthopaedic wards; integrated care pathways for fractured NOF; and the early supported discharge model.

We asked experts with backgrounds in geriatric psychiatry, psychiatric nursing, orthopaedic surgery and ortho-geriatrics to validate the base case and best-practice scenario assumptions.

FINDINGS

The model showed that higher expenditure was required to treat hip fracture patients with dementia than their psychiatrically well counterparts. From the base case model, we estimated that the average yearly expenditure on persons with dementia with a fractured neck of femur in England (£1.037bn) was some £0.4bn more than on those who were 'psychiatrically well' (£0.623bn). Sensitivity analyses on both the base case assumptions and the best practice scenarios found that in most cases the assumptions were reasonably robust. However, the base case model was sensitive to variations in the assumed number of outpatient sessions allocated to hip fracture patients, so that relatively small reductions in these numbers led to a marked reduction in the estimated overall expenditure. It was also sensitive to variations in unit costs. Average expenditure in the year after the fracture under the base case and scenarios is summarised in Table 1 overleaf.

The results demonstrated potential benefits in terms of cost savings arising from some models of good practice. For instance, early supported discharge schemes and GHFP schemes were estimated (using the most conservative assumptions from the sensitivity analyses of these scenarios) to decrease

Table 1. Summary of average expenditure by psychiatric state, £m

	Well (£m)	Dementia (£m)
Base case		
Hospital stay	121	282
Discharge care	502	756
Total	623	1037
Reduction in days to surgery to 24 hours		
Hospital stay	113	271–282
Discharge care	502	756
Total	614	1027–1037
Geriatric orthopaedic rehabilitation unit (GORU)		
Hospital stay	142–145	312–317
Discharge care	502	756
Total	644–647	1068–1072
Geriatric hip fracture programme (GHFP) on an orthopaedic ward		
Hospital stay	79–91	216–231
Discharge care	501	742
Total	581–592	957–973
Psychiatric liaison		
Hospital stay	123–129	270–279
Discharge care	502	756
Total	624–631	1025–1035
Hospital at home (HAH)		
Hospital stay	93	255–270
Discharge care	421	680–721
Total	514	935–991
Integrated care pathways (ICP)		
Hospital stay	115–137	273–300
Discharge care	501–502	748–756
Total	616–638	1029–1048

expenditure on people with dementia who fracture their hip by 4% and 6% respectively, in the year following the fracture. Other approaches such as psychiatric liaison services to orthopaedic wards were found to have a very modest impact on overall expenditure. However we note that there were potential benefits to the interventions modeled that were beyond the scope of the model – for instance the timely identification of delirium in order to plan appropriate management (liaison model); numbers

returning to pre-fracture function (GHFP); reducing caregiver burden (early supported discharge); and improvements in quality of life.

CONCLUSIONS

Some elements of good practice in the care of those who have dementia and have a fractured NOF are able to reduce the use of inpatient hospital care. As a result, they can reduce the consequent

costs in the year after the fracture. However we must caution that the evidence base from the UK on interventions within both hospital and community on how to improve outcomes for people with dementia after a hip fracture remains quite limited.

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Further information

The full report can be found at: www.nao.org.uk/publications/nao_reports/06-07/0607604_fractured_neck_of_femur.pdf.

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