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A randomised controlled trial of a care home rehabilitation service to reduce long-term institutionalisation for elderly people

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Abstract

Objectives: to evaluate the effect of a care home rehabilitation service on institutionalisation, health outcomes and service use.
Design: randomised controlled trial, stratified by Barthel ADL index, social service sector and whether living alone. The intervention was a rehabilitation service based in Social Services old people's homes in Nottingham, UK. The control group received usual health and social care.
Participants: 165 elderly and disabled hospitalised patients who wished to go home but were at high risk of institutionalisation (81 intervention, 84 control).
Main outcome measures: institutionalisation rates, Barthel ADL index, Nottingham Extended ADL score, General Health Questionnaire (12 item version) at 3 and 12 months, Health and Social Service resource use.
Results: the number of participants institutionalised was similar at 3 months (relative risk 1.04, 95% confidence intervals 0.65–1.65) and 12 months (relative risk 1.23, 95% confidence intervals 0.75–2.02). Barthel ADL Index, Nottingham Extended ADL score and General Health Questionnaire scores were similar at 3 and 12 months. The intervention group spent significantly fewer days in hospital over 3 and 12 months (mean reduction 12.1 and 27.6 days respectively, $P < 0.01$), but spent a mean of 36 days in a care home rehabilitation service facility.
Conclusions: this service did not reduce institutionalisation, but diverted patients from the hospital to social services sector without major effects on activity levels or well-being.

Keywords: *health services for the aged, rehabilitation, care homes, randomised controlled trial, elderly*

Introduction

Older people may move unnecessarily into long-term care because of inadequate rehabilitation after an acute illness [1]. Suitable rehabilitation is often limited because of a shortage of hospital beds [2]. In the UK, specific rehabilitation services, located in Social Services residential care homes, have been established to remedy this deficiency [3], especially since the promotion of Intermediate Care [4] as a means to deliver the National Service Framework for Older People [5]. Social Services residential care homes provide board, lodgings and personal care, without professional nursing or medical input.

Social Services departments are financially motivated to reduce the use of long-term institutional care, because they are responsible for funding it. Social Services care home rehabilitation services (CHRS) have the means to provide effective rehabilitation. Social Services care home staff are trained in the care of older people, Social Services occupational therapists can supervise and deliver rehabilitation, residents can have access to community-based rehabilitation

services, and Social Services administer the provision of home care services. However, rehabilitation effectiveness is sensitive to organisation [6] and residential Intermediate Care services can inadvertently institutionalise [7]. Care home rehabilitation services could therefore, paradoxically, increase dependency and institutionalisation. Little is known about the effectiveness of such services.

A CHRS in Nottingham and Nottinghamshire was established and targeted at older people apparently destined for long-term care after an acute illness, who wished to go home, but where confidence and capability seemed to be a major factor in them doing so. Residential rehabilitation for up to 6 weeks in dedicated units within Social Services old people's homes was provided.

We examined whether this CHRS had a major impact upon long-term care rates and improved rehabilitation outcomes (activity limitation and well-being), and the effect of the service on the use of health and social services.

Methods

A pragmatic randomised controlled trial was performed. The local research ethics committee approved the study.

Intervention

Over the recruitment period of the study (12 months from November 2000), the CHRS comprised 25 (rising to 40) beds in five (rising to six) units within Social Services old people's homes.

The CHRS units received input from 2.0 WTE Occupational Therapists, who assessed patients in the units and devised their treatment plans. There were 1.5 WTE Community Care Officers (Social Services employed staff with experience in the delivery of community care services for people with disability). Day to day staffing was by rehabilitation assistants: these were care assistants (workers without formal rehabilitation training) in the local authority homes in which the CHRS units were set, who had been trained by the Occupational Therapists. There were no dedicated physiotherapists: physiotherapy was provided by the existing community physiotherapy service. There was no dedicated medical cover: this was provided by the GP. There were no dedicated nurses: referrals were made to the District Nursing service.

Patients had single rooms, and had access to a dedicated rehabilitation kitchen. They were encouraged to practise the activities of daily living under the supervision of, or with the assistance of, the rehabilitation assistants. Home visits were encouraged, with the intention of increasing patients' confidence to return home. Treatment programmes were tailored to individual needs.

Study recruitment

The referral criteria used and developed by the CHRS were for hospitalised patients who

- were aged over 65
- lived in the Social Services districts served by the scheme
- wished to return to their own home
- no longer needed in-patient medical care
- were unable to return home due to activity limitation that might be improved for a period of short-term rehabilitation in a care home setting
- agreed to a period of rehabilitation in a care home setting
- met Social Services criteria for eligibility for residential home care

The exclusion criteria were:

- Those with dementia, depression or distress that interfered with rehabilitation
- Those requiring two or more people to mobilise or perform personal activities of daily living, or with severe incontinence

All referrals were initially discussed with the referrer to confirm eligibility. The trial co-ordinator then obtained consent, completed baseline data collection and allocated the patient. A CHRS Occupational Therapist then assessed participants allocated to the CHRS, and arranged their transfer to the nearest unit to their home. When the study researcher was not available, all referrals were passed to the CHRS Occupational Therapist directly and were not included in this study.

Outcomes

The outcomes of interest were:

- Place of residence
- Personal activities of daily living: Barthel ADL Index [8, 9]
- Instrumental activities of daily living: Nottingham Extended ADL scale [10] (NEADL)
- Psychological well-being: General Health Questionnaire (12 point version) (GHQ-12) [11]
- Hospital and CHRS bed days and re-admissions, use of day hospital and hospital out-patient departments, contacts with GPs and use of social services.

Health outcomes were recorded by post at 3 and 12 months from randomisation. Ambiguous replies were clarified by telephone by a trained trial secretary who was independent of clinical services and masked to allocation. Participants who did not respond by post despite a telephone prompt and repeat mailing were visited at home by a researcher who was independent of clinical services and masked to allocation. We have previously used this means of outcome assessment [12, 13] and have shown that observer bias is unlikely [14]. The use of health and social services resources were identified from routinely held service data, by a researcher who was independent of clinical services and masked to group allocation.

Sample size

We set a target of 250 participants, to be recruited over 1 year. We calculated that this would be sufficient (power 80%, significance 5%, loss to follow-up 20%) to detect a reduction in the rate of placement in long-term residential

and nursing home care from 60% to 30% (the latter being the level seen in pilot data).

Randomisation sequence generation

A telephone randomisation service was used for allocation using computer generated balanced randomisation within strata. Stratification was by Social Services area (Nottingham City/Nottinghamshire County), by Barthel Index at randomisation (≤ 14/20, >14/20) and by residential status (alone/not alone).

Statistical methods

Categorical outcomes were analysed using contingency table analysis on an intention-to-treat basis. Health outcomes were analysed using multiple linear regression, adjusting for baseline characteristics and stratification variables (gender, age, baseline Barthel, location (city/county), living situation, cognitive impairment or language problem) in those with completed questionnaires only. Continuous service data were not normally distributed and were compared using non-parametric tests.

Results

Figure 1 shows recruitment and patient flow through the trial. One hundred and sixty-five patients were recruited.

The groups were well-matched at baseline for risk factors for institutionalisation, and the prevalence of these factors was high (Table 1).

There was no significant effect of allocation to the CHRS upon survival, rates of residential or nursing care, or the proportion living at home, at 3 or at 12 months from randomisation (Table 2).

There was no significant effect of allocation to the CHRS upon the Barthel ADL Index, NEADL or GHQ-12 scores (Table 3).

Allocation to the CHRS reduced the time spent in hospital on the index admission (mean reduction 8.5 days), and non-significantly reduced re-admissions to hospital (Table 4). The mean number of hospital bed days saved rose from 12.1 by 3 months to 27.6 by 12 months. The CHRS group took significantly longer to return to their own homes after the index admission, and by 12 months had spent a mean of 19.1 more days in either a hospital or CHRS bed. There was no significant effect upon the use of other health resources. We were able to obtain limited data on Social Services resources only for those living within Nottinghamshire County Council's boundaries (51% of sample), where there was no significant impact of the intervention on the use of home care services.

Discussion

This CHRS did not reduce placement rates in long-term residential and nursing homes, nor did it have a major impact upon activity levels or psychological well-being. It diverted patients from in-patient settings, but at the expense of a longer stay in a CHRS unit.

We designed our sample size to detect a moderate or large reduction in the rates of use of institutional care but did not reach our target number, and one quarter of those allocated to the CHRS did not actually go to a CHRS unit. In fact, we observed a non-significant increase (RR 1.23, 95% CI 0.75–2.02) in the use of institutional care at 12 months in the group allocated to the CHRS. The 95% CI imply that an absolute reduction in the rates of institutional care of more than 6–8% was unlikely and on this basis we conclude that the study was adequately sized to exclude a clinically worthwhile benefit in terms of reducing institutional care rates. However, the study was inadequately sized to exclude the possibility of a clinically important increase in the rate of institutional care. More studies are needed to refute this possibility.

The means of outcome measurement used in this study are sensitive to rehabilitation intervention [13] and so the lack of effect of the CHRS upon activity levels and psychological well-being is unlikely to be due to insensitivity. The CIs shown in Table 3 show that moderate to large benefits or hazards were unlikely.

The number of appropriate referrals was less than we had anticipated. Large numbers of people were referred, indicating that social workers and clinicians were aware of the service. There were many inappropriate referrals, indicating that referrers may have been uncertain of the referral criteria. Some appropriate patients may not have been referred.

The generalisability of our findings depends upon what the new service was compared with, as well as what that new service comprised. Table 4 shows that patients in the usual care group received a slightly longer initial period of hospital care than the CHRS group, but they did not receive prolonged rehabilitation or extensive rehabilitation in another facility such as a day hospital. The CHRS was not staffed like a hospital-based rehabilitation unit: the level of dedicated rehabilitation staffing was low, and true multidisciplinary teams did not exist. Levels of active rehabilitation were likely to be low in both groups. Similar conditions are likely to be found in many other parts of the UK and in other health care systems.

However, our study's findings relate to the CHRS operating in Nottingham during 2000, and do not necessarily apply to differently staffed or organised CHRSs elsewhere. In both institutional and community settings, there is ample evidence that organised active rehabilitation improves outcomes in people with a wide range of disabling illnesses [15]. One explanation for our findings is that the levels of rehabilitation in this CHRS were insufficient to affect health outcomes. If so, we would expect other CHRSs with similar staffing levels to have similar effects.

The CHRS units in this study were set in long-term care institutions, and the independence-promoting rehabilitation efforts of the CHRS staff may have been offset by other institutionalising influences, such as the expectation that they were in the home for care rather than rehabilitation. Our results do not necessarily apply to CHRSs that are dedicated units, rather than units within long stay institutions.

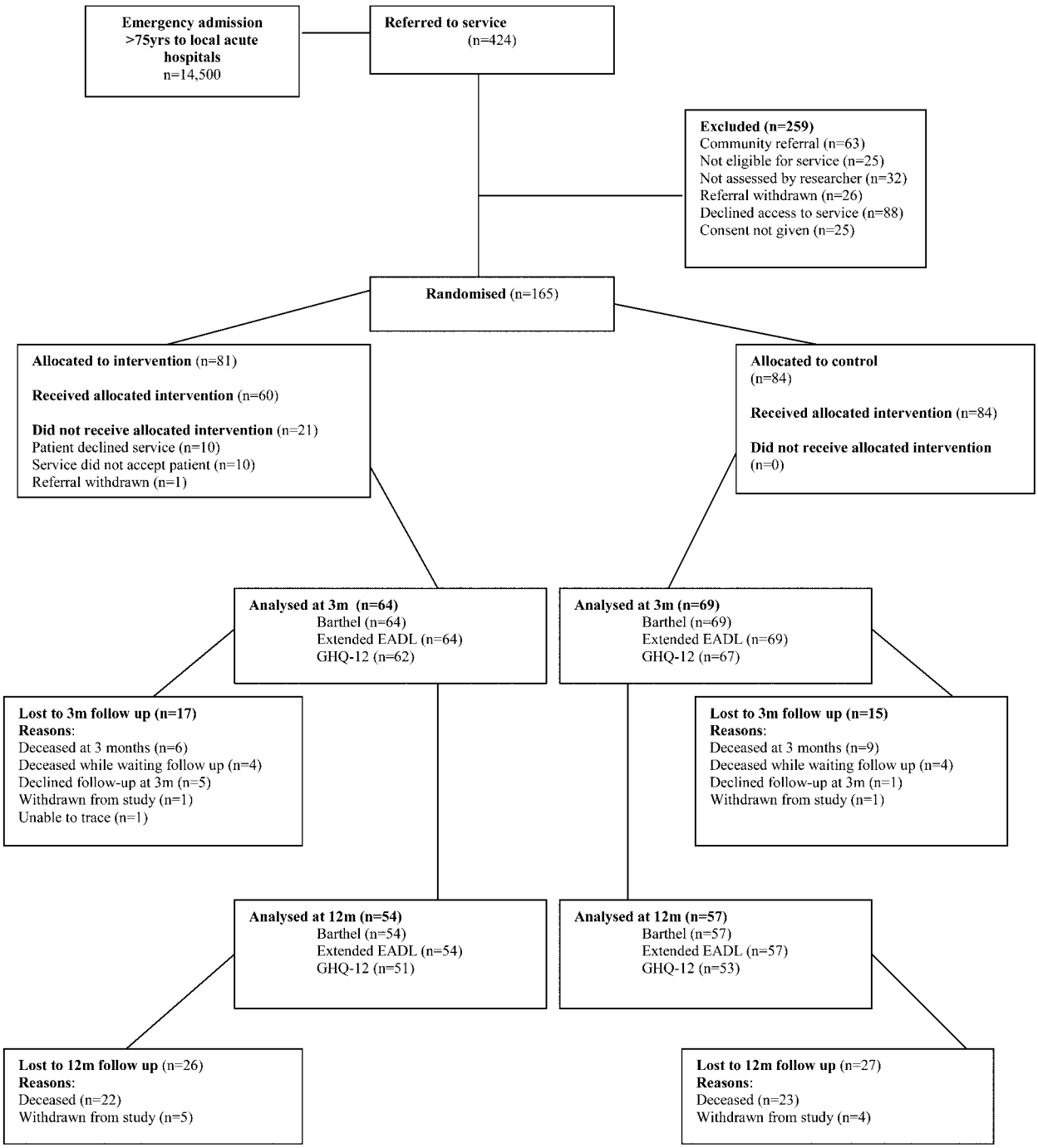


Figure 1. Recruitment and patient flow through the trial.

The randomised study did not assess patient satisfaction, nor could it examine further the clinical practice and organisational constraints that typified the CHRS, or identify possible means to improve outcomes. For the latter reasons, a qualitative study was also undertaken (reported elsewhere).

Although not its aim, the CHRS was successful at diverting old people from hospital, and doing so without doing harm other than delaying their return home. We saw a non-significant 10% short-term reduction in hospital readmission in the CHRS group, the consequence of which was an increasing number of hospital bed days saved over the year of follow-up (mean number of bed days saved at 12 months = 27.6). Where there are shortages of publicly-funded hospital beds, this reduction in their use will be welcomed. However, the CHRS shifted resource use considerably from the health to the social services sector. An economic analysis is required to examine the cost-effectiveness of this arrangement to the health service, the social services and to society.

Table 1. Baseline characteristics

Characteristic	Intervention *n* = 81	Control *n* = 84	Both groups *n* = 165
Median age (IQR)	83 (78–89)	80 (76–87)	81 (77–88)
Female	55 (68%)	58 (69%)	113 (69%)
Living alone	72 (89%)	74 (88%)	146 (89%)
Pre-admission Oxford Handicap Scale			
No symptoms	19 (24%)	12 (14%)	31 (19%)
No significant disability	9 (11%)	3 (4%)	12 (7%)
Slight disability	9 (11%)	16 (19%)	25 (15%)
Moderate disability	41 (51%)	51 (61%)	92 (56%)
Moderately severe disability	3 (4%)	2 (2%)	5 (3%)
Median AMTS (IQR, mean) at randomisation*	7 (5–8, 6.7)	7 (6–9, 7)	7 (6–8, 6.9)
Median (IQR, mean) Barthel score at randomisation	14 (11–16, 13.8)	14 (12–17, 14.4)	14 (12–16, 14.1)
Median (IQR, mean) days in hospital at randomisation	20 (12–47, 37.2)	20 (12–41, 32.4)	20 (13–44, 34.8)
Principal diagnostic condition**			
Cardio-respiratory disorder	11 (14%)	15 (18%)	26 (16%)
Gastroenterology disorder	7 (9%)	4 (5%)	11 (7%)
Infection	1 (1%)	2 (2%)	3 (2%)
Neurological disorder	12 (15%)	11 (13%)	23 (14%)
Orthopaedic disorder	15 (19%)	14 (17%)	29 (18%)
Peripheral vascular disease	4 (5%)	1 (1%)	5 (3%)
Non-specific condition	28 (36%)	36 (43%)	64 (40%)

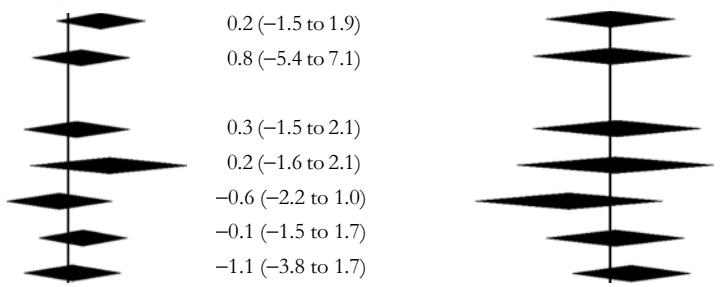
*Adjusted Abbreviated Mental Test Score [total score = 9] (*n* = 151, 14 scores not obtained due to language problems).
**Summary of medical notes classified into these empirical categories (by JRG, geriatrician) who was blind to group allocation.

Table 2. Overall outcomes at 3 and 12 months

	Intervention *n* = 81	Control *n* = 84	Relative risk (95% CI)
3 months			
Dead	6 (7%)	9 (11%)	0.69 (0.26–1.85)
In institution, including hospital	25 (31%)	25 (30%)	1.04 (0.65–1.65)
Dead or in institution	31 (38%)	34 (41%)	1.11 (0.84–1.46)
12 months			
Dead	22 (27%)	23 (27%)	0.99 (0.47–2.07)
In institution, including hospital	25 (31%)	21 (25%)	1.23 (0.75–2.02)
Dead or in institution	47 (58%)	44 (52%)	1.11 (0.84–1.46)

Table 3. Health outcomes at 3 and 12 months

Scale (range: worst to best score)	Mean difference [B] at 3 months (95% CI)	Difference: % of scale range at 3 months — Intervention Worse ← / Intervention Better →	Mean difference [B] at 12 months (95% CI)	Difference: % of scale range at 12 months — Intervention Worse ← / Intervention Better →
Barthel (0–20)	1.1 (−0.2 to 2.4)		0.2 (−1.5 to 1.9)	
Extended ADL total (0–66)	1.3 (−3.3 to 6.0)		0.8 (−5.4 to 7.1)	
Extended ADL sub-sections:				
Mobility (0–18)	0.2 (−1.1 to 1.6)		0.3 (−1.5 to 2.1)	
Kitchen (0–15)	0.8 (−0.8 to 2.4)		0.2 (−1.6 to 2.1)	
Domestic (0–15)	−0.2 (−1.5 to 1.2)		−0.6 (−2.2 to 1.0)	
Leisure (0–18)	0.4 (−0.8 to 1.7)		−0.1 (−1.5 to 1.7)	
GHQ-12 (36–0)	−0.2 (−2.6 to 2.2)		−1.1 (−3.8 to 1.7)	



Factors entered into all regression analyses included: Age at entry to trial, gender, stratifying variables [location at baseline (City or County), living arrangements at baseline (Alone/Not Alone), Barthel Index at baseline (cut-off ≤ 14)], cognitive deficit or language impairment at baseline (yes/no), randomisation group (Intervention/Control).

Table 4. Use of resources

	Intervention $n = 81$	Control $n = 84$	Comparison
Hospital and CHRS use			
Median (IQR, mean) days in hospital from randomisation to discharge	8 (7–15, 16.3)	18 (8–34, 24.8)	Median difference −7 (95% CI −11 to −2)
Median (IQR, mean) days in hospital from randomisation to 3 months	13 (7–25, 20.4)	26.5 (13–49, 32.5)	Median difference −10 (95% CI −17 to −5)
Median (mean) hospital bed days used from randomisation to 12 months	16 (8–35, 20.4)	34.5 (18–60, 48.0)	Median difference −12 (95% CI −20 to −5)
Number of patients re-admitted to hospital from randomisation to 3 months	22 (28%)	32 (38%)	RR 0.71 (95% CI 0.46–1.12)
Number of patients re-admitted to hospital from randomisation to 12 months	41 (51%)	46 (55%)	RR = 0.92 (95% CI 0.69–1.24)
Median (IQR, mean) days in CHRS facility from randomisation to 3 months	36 (0–54, 34.7)	0 (0–0, 0.0)	–
Median (IQR, mean) days in CHRS facility from randomisation to 12 months	38 (0–54, 35.0)	0 (0–0, 0.4)	–
Median (IQR, mean) days either in hospital or in CHRS facility from randomisation to 3 months	50 (31–78, 55.2)	26.5 (13–50, 32.9)	Median difference 22 (95% CI 13–31)
Median (IQR, mean) days either in hospital or in CHRS facility from randomisation to 12 months	60 (34–87, 67.6)	34.5 (18–63, 48.5)	Median difference 19 (95% CI 8–30)
Community resource use			
Median (IQR, mean) hospital out-patient visits from randomisation to 12 months	2 (1–6, 3.8)	4 (1–6, 4.6)	Median difference 0 (95% CI −1 to 0)
Number attending geriatric day hospital over 12 months	11 (14%)	13 (16%)	RR = 0.88 (95% CI 0.42–1.84)
Median (IQR) (mean (SD)) GP visits from randomisation to 3 months	1 (0–3, 1.9)	2 (0–3, 2.1)	Median difference 0 (95% CI −1 to 1)
Median (IQR) (mean (SD)) GP visits from randomisation to 12 months	3 (1–6, 4.0)	4 (0–6, 4.3)	Median difference −1 (95% CI −2 to 0)
Number in receipt of social services home care services from randomisation to 12 months	39 (93%) ($n = 42$)	35 (83%) ($n = 42$)	RR = 1.11 (0.95–1.31)

RR = relative risk, CI = confidence intervals.

Key points

- The care home service in this evaluation provided low levels of rehabilitation, which was delivered in dedicated units within existing long-term care institutions. Contrary to expectation and intention, it did not reduce unwanted institutionalisation or produce better health outcomes than ordinary hospital and Social Services aftercare.
- The care home rehabilitation service diverted patients from hospital to social services settings. Similar services may not improve the health of elderly people, but they may reduce the length of hospital stays and increase demands upon the social services.

Source of funding

Trent NHS Executive.

Conflicts of interest

Helen McCloughry was project manager for the CHRS during the study.

References

1. Audit Commission. The Way to go Home. Rehabilitation and Remedial Services for Older People. London: Audit Commission, 2000. Available from URL: http://www.audit-commission.gov.uk/reports/AC-REPORT.asp?CatID=&ProdID=40CDDD97-4563–47A9-B8F7-D4BC9AA1E44E (accessed 25.6.03)
2. Department of Health. Shaping the Future NHS. Long Term Planning for Hospitals and Related Services. Consultation Document on the Findings of the National Beds Inquiry. London: Department of Health, 2000. Available from URL; http://www.doh.gov.uk/pub/docs/doh/nationalbeds.pdf (accessed 25.06.03)
3. Vaughan B, Lathlean J. Intermediate Care. Models in Practice. London: King's Fund Publishing, 1999.
4. Steiner A. Intermediate care—a good thing? Age Ageing 2001; 30 (Suppl 3): 33–39.
5. Department of Health. National Service Framework for Older People. London: Department of Health, 2001.
6. Stroke Unit Trialists' Collaboration. Organised inpatient (stroke unit) care for stroke (Cochrane Review). In The Cochrane Library, Issue 1, 2003. Oxford: Update Software.
7. Ishizaki T, Kobayashi Y, Tamiya N. The role of geriatric intermediate care facilities in long-term care for the elderly in Japan. Health Policy 1998; 43: 141–51.
8. Mahoney F, Barthel D. Functional evaluation: The Barthel Index. MD State Med J 1965; 14: 61–5.
9. Collin C, Wade DT, Davies S, Horne V. The Barthel ADL Index: a reliability study. Int Disabil Stud 1988; 10: 61–3.
10. Nouri FM, Lincoln NB. An extended activities of daily living scale for stroke patients. Clin Rehabil 1987; 1: 301–5.
11. Goldberg D. General Health Questionnaire (GHQ-12). Windsor: NFER-NELSON, 1992.

12. Parker CJ, Gladman JRF, Drummond AER *et al.* A multi-centre randomised controlled trial of leisure therapy and conventional occupational therapy after stroke. Clin Rehabil 2001; 15: 42–52.
13. Cunliffe AL, Gladman JRF, Husbands SL, Miller P, Dewey ME, Harwood RH. Sooner and healthier: a randomised controlled trial and interview study of an early discharge rehabilitation service for older people. Age Ageing 2004; 33: (in press).
14. Parker CJ, Dewey ME on behalf of the TOTAL study group. Assessing research outcomes by postal questionnaire with telephone follow-up. Int J Epidemiol 2000; 29: 1065–9.
15. Turner-Stokes L ed. The effectiveness of rehabilitation: a critical review of the evidence. Clin Rehabil 1999; 13 (Supplement 1).

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Using targeted risk factor reduction to prevent falls in older in-patients: a randomised controlled trial

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Abstract

Background: falls and related injuries are known to be a significant problem for older people. There is evidence that identifying and addressing individual risk factors can reduce the incidence of falls in the community but no evidence of the effectiveness of targeted risk factor reduction methods applied to hospital in-patients.
Objective: to test the efficacy of a targeted risk factor reduction core care plan in reducing risk of falling while in hospital.
Design: a group (ward) randomised trial.
Setting: elderly care wards and associated community units of a district general hospital in the North of England.
Subjects: all elderly patients who received care in eight wards and community units during a 12-month study period.
Methods: matched pairs of wards were randomly allocated to intervention or control groups. In the intervention wards, staff used a pre-printed care plan for patients identified as at risk of falling and introduced appropriate remedial measures. Numbers of falls in each group were then compared.
Results: after introduction of the care plan there was a significant reduction in the relative risk of recorded falls on intervention wards (relative risk 0.79, 95% CI 0.65–0.95) but not on control wards (RR 1.12, 95% CI 0.96–1.31). The difference in change between the intervention wards and control wards was highly significant (RR 0.71, 95% CI 0.55–0.90, $P = 0.006$). There was no significant reduction in the incidence of falls-related injuries.
Conclusion: the use of a core care plan targeting risk factor reduction in older hospital in-patients was associated with a reduction in the relative risk of recorded falls.

Keywords: *falls, risk of falling, falls assessment, fall intervention, risk factors, falls prevention, randomised controlled trial, elderly*

Introduction

Studies consistently report that more than 30% of people over 65 years of age fall in the community each year and the numbers falling in institutions are much higher [1–3]. Injuries from falls are up to the third commonest reason for hospital bed occupancy [4]. Data on in-patient falls are limited, although they suggest that about 2% of older patients fall during their hospital admission [5]. Several major systematic reviews on prevention of falls and related injury in