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The ageing of the population: implications for multidisciplinary care in hospital

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Abstract

Background: comprehensive geriatric assessment and multidisciplinary intervention are of proven benefit in the care of older people.
Objective: to determine whether patients' multidisciplinary needs in hospital can be met by current service provision.
Design: a comprehensive census assessing the multidisciplinary needs of an entire inpatient population compared to available multidisciplinary therapy time.
Setting: a large teaching hospital Trust, comprising six hospital sites.
Methods: on census day, the age, Barthel Index score and multidisciplinary needs of all adult inpatients were documented. Each therapist completed a questionnaire regarding their direct patient contact time on census day.
Results: 889 of 1,324 eligible patients (69%) had multidisciplinary needs on census day. These patients were scattered throughout all 46 acute wards, 14 rehabilitation and 4 continuing care settings. Mean age was 65.3 years in acute wards, 73.5 in rehabilitation wards and 80.8 in continuing care. Age correlated inversely with Barthel Index score ($r -0.255$, $P < 0.01$). The percentage of patients with multidisciplinary need increased with increasing age. The calculated number of minutes of therapy time per day available to each patient varied between therapies and across sites. Mean physiotherapy time available per patient needing physiotherapy on census day ranged from 17 minutes 41 seconds in acute wards to 26 minutes 24 seconds in rehabilitation wards.
Conclusions: a high proportion of inpatients, particularly older patients, across all care settings have multidisciplinary needs. This needs to be expressly considered in the planning of future health services if multidisciplinary needs of older people in hospital are to be met.

Keywords: *aged, inpatients, therapy, multidisciplinary assessment*

Introduction

Comprehensive geriatric assessment and rehabilitation are of proven benefit in the management of frail older people in hospital, resulting in improved mortality and functional status and reduced discharges to nursing homes [1–4]. In England, the National Service Framework for Older People (NSF) [5] has attempted to put in place national standards for best evidence-based practice, to ensure fair, high quality services for older people. The importance of ensuring access of older people to multidisciplinary care has been recognised by the NSF, Standard Four stating that older people's care in hospital be delivered 'by hospital staff who have the right set of skills to meet their needs.... making use of the available range of professional groups'.

The aim of this study was to determine whether NSF standards for general hospital care can be met by current multidisciplinary service provision. In a comprehensive

census, the multidisciplinary needs of an entire inpatient population were assessed and compared to available multidisciplinary therapy time.

Methodology

Cardiff and Vale NHS Trust in South East Wales provides secondary care to a population of 900,000 and tertiary referral services to 1.3 million. Population demographics are similar to the rest of the UK, with an average age of 36.6 years and 7.2% of the population aged over 75 years in Cardiff compared to an average age of 38.6 years and 7.6% over 75 years for England and Wales as a whole [6]. In an attempt to audit current service provision against NSF standards, a one-day census was undertaken of inpatients in all six hospitals of the Trust with the exclusion of patients on paediatric, obstetric and psychiatric units. A proforma was designed and piloted on two hospital wards, and clinical nurse specialists, senior nurses, consultants and specialist registrars were recruited as auditors. Training sessions for all personnel were held and the census was conducted on 20 June 2001. Each auditor was allocated one or two hospital wards, and completed one proforma per patient by interviewing the patient's named nurse. Information collected included the patient's age, length of stay, medical diagnoses and multidisciplinary needs. For the purposes of this audit, 'multidisciplinary need' was defined as needing assessment or intervention from one or more members of the multidisciplinary team on that day, other than a nurse, doctor or pharmacist. We also excluded social workers from our definition of multidisciplinary need to try and avoid the problem of older people's needs in hospital being misconstrued as entirely 'social'. Departmental heads of physiotherapy, occupational therapy, speech and language therapy and dietetics provided guidelines regarding the roles of their respective disciplines, the diagnoses and problems likely to require multidisciplinary assessment or therapy and the intensity of therapy likely to be required. For each patient with multidisciplinary need, the intensity of therapy required was categorised as more than once per day, once per day or less, or assessment only.

Each patient's current Barthel Index score was also documented. The Barthel Index [7] has been shown to be a valid, reliable and sensitive measure of functional ability [8] independent of the patient's diagnosis [9]. High scores reflect independence and scores of 0–8 out of 20 reflect medium to high patient dependency [10].

'Acute wards' numbered 46 and included critical care units (two intensive care, two high dependency and two coronary care units), tertiary referral wards (cardiothoracic, neurology and renal wards) as well as general medical, surgical and gynaecology wards. 'Rehabilitation wards' numbered 14, defined as wards designated to geriatric, neurological, orthopaedic or spinal injury rehabilitation where multidisciplinary team meetings occurred at least weekly. Four 'continuing care wards' comprised patients receiving slow stream rehabilitation and respite care as well as NHS funded continuing care.

In a separate arm of the study, each therapist completed a questionnaire regarding their direct patient contact time and the location of patients treated on census day. In order to estimate patient contact time available, activities associated with the general management of a patient such as liaison with families, administrative duties and case conference discussions were excluded from calculations.

The available therapy time was divided by the number of patients in need of each therapy to estimate the time available per patient with need.

Data were analysed using the SPSS statistical package. Data were expressed as mean (standard deviation) and Barthel Index scores, which were skewed, expressed as medians. The strength of the linear relationship between age and Barthel Index score was explored using the Pearson correlation coefficient (r). The percentages of patients in different age groups (65 years or less, 66–75 years, 76–85 years and 86 or over) needing multidisciplinary input were compared using a chi-squared analysis.

Results

The total number of eligible inpatients on the day of the census was 1,324: 620 male and 704 female. Nine hundred and fifty-five patients were in acute wards, 288 in rehabilitation wards (154 within acute hospital sites, 134 in designated rehabilitation hospitals) and 81 in continuing care. Rehabilitation needs were assessed in 1,321 patients (99.8%).

The mean age (standard deviation) of patients in all care settings was >65 years and was significantly different across care settings: 65.3 years (18.4) in acute wards, 73.5 (16.8) in rehabilitation wards and 80.8 (9.9) in continuing care ($P < 0.005$). Sixty-one per cent of patients in acute wards were aged 65 or over. The mean age in rehabilitation wards was only 73.5 years because of the inclusion of 67 younger patients, mean age 52.8 years (18.9), in the regional spinal and head injuries unit. The other rehabilitation sites comprised 42 patients in stroke units, mean age 76.6 years (9.6), and 179 patients on geriatric rehabilitation wards, mean age 80.3 years (9.6).

On the day of the census, 889 patients (67%) had multidisciplinary needs, defined as needing assessment or therapy from one or more of the multidisciplinary team. Five hundred and eighty-four patients with multidisciplinary needs were in acute wards (61% of the acute population). Two hundred and forty-five patients in rehabilitation wards (85% of the rehabilitation population) had multidisciplinary needs and 60 (74%) in continuing care. Barthel Index scores were recorded in 1,317 patients (99.5%). There was a significant negative relationship between age and Barthel score ($r -0.255$, $P < 0.01$). The percentage of patients with multidisciplinary needs increased with increasing age: 56.4% of patients aged 65 years or less, 67.6% of patients aged 66–75 years, 74.9% of patients aged 76–85 years and 77.7% of patients aged 86 or over ($P < 0.005$).

The median Barthel Index scores and mean ages for those with rehabilitation needs and those without in each care setting are given in Table 1.

The total hours of therapy time available in each care setting varied between 0 hours of speech and language therapy in continuing care wards and 142 hours 3 minutes of physiotherapy time in acute wards (Table 2).

Table 1. Median Barthel scores and mean ages of patients with and without multidisciplinary need by location

	Acute wards		Rehab setting		Continuing care	
	Multidisciplinary need	No multidisciplinary need	Multidisciplinary need	No multidisciplinary need	Multidisciplinary need	No multidisciplinary need
Number (% per site)	584 (61%)	371 (39%)	245 (85%)	43 (15%)	60 (74%)	21 (26%)
Median Barthel score	12	20	9	14	3	1
Mean age (years)	68.2	60.4	73.6	72.4	80.2	82.5

Table 2. Total therapy time available (time available per patient with needs)

	Acute wards	Rehab setting	Continuing care
Physiotherapy	142 hours 3 mins (17 mins 41 s)	97 hours 42 mins (26 mins 24 s)	13 hours 30 mins (20 mins 15 s)
Occupational therapy	36 hours 1 min (7 mins 30 s)	61 hours 15 mins (20 mins 25 s)	18 hours 30 mins (44 mins 24 s)
Speech and language therapy	11 hours 15 mins (7 mins 25 s)	11 hours (9 mins 42 s)	0 (0)
Dietetics	57 hours 15 mins (11 mins 51 s)	13 hours 45 mins (7 mins 10 s)	1 hour 30 mins (2 mins 18 s)

Table 3. Number of patients with therapy needs

	Acute wards No. of patients (% of total in acute wards)	Rehab setting No. of patients (% of total in rehab wards)	Continuing care No. of patients (% of total in continuing care)
Physiotherapy	482 (50%)	222 (77%)	40 (49%)
Occupational therapy	288 (30%)	180 (63%)	25 (31%)
Speech and language therapy	97 (10%)	68 (24%)	22 (27%)
Dietetics	290 (30%)	115 (40%)	39 (48%)

The percentages of patients needing each therapy on census day (Table 3) ranged from 10% for speech and language therapy on acute wards to 77% for physiotherapy on rehabilitation wards. Patients with needs were scattered widely, with patients needing multidisciplinary input located on each of the 46 acute wards, the percentages varying from 11% of patients on an ophthalmology ward to 92% of patients on a general medical ward. One hundred per cent of patients in critical care units had multidisciplinary needs.

A total of 744 patients (56.2% of the total population) needed physiotherapy. The intensity of physiotherapy required was documented in 739 (99.3%). Two hundred and seventy-seven patients (37.2%) needed therapy more than once on that day, 354 (47.6%) needed therapy once per day or less and 108 (14.5%) assessment only.

The calculated number of minutes of therapy time available to each patient in need varied between therapies and across sites (Table 2). Physiotherapy time ranged from 17 minutes 41 seconds available per patient needing physiotherapy in acute wards to 26 minutes 24 seconds per patient with need in rehabilitation wards. Occupational therapists would have had only 7 minutes 30 seconds per patient in acute wards, 20 minutes 25 seconds per patient in rehabilitation wards and 44 minutes 24 seconds for patients in continuing care. There was no speech and language therapy available for continuing care on census day, although 22 patients there may have needed assessment or therapy. The maximal amount of speech and language therapy time, 9 minutes 42 seconds per patient, was available in rehabilitation wards. Dietician time ranged from 2 minutes 18 seconds per patient with need in continuing care to 11 minutes 51 seconds in acute wards.

Discussion

Therapy time available was calculated as minutes available per patient per therapist on census day. Health and Safety Departments recommend that two physiotherapists initially assess a patient's mobility and many patients require ongoing therapy from two or more therapists. The amount of therapy time available to each patient was therefore overestimated.

The day chosen was mid-week in June, not a bank or school holiday, and did not clash with any major training courses. However, as a one-day census this study clearly has limitations. It only gives a 'snapshot' view and thus provides a limited reflection of overall service provision. For example, each patient needing occupational therapy in continuing care settings seems to have nearly 45 minutes of available therapy time. In fact, three occupational therapists work in continuing care, one full time and two part time, for 2 days per week. On census day, all three therapists were working. Therefore 45 minutes is an overestimate of the average daily occupational therapy time.

A further important limitation of the study is that therapy requirements were assessed by the nurse caring for each patient. Despite the guidelines provided, they may have underestimated the need for multidisciplinary care.

We feel that our results reflect reasonably on inpatient populations nationally. Cardiff does not have a particularly elderly population compared to the rest of the UK [6]. People over 65 years occupied 66% of acute hospital beds in the 2000 National Beds Inquiry [11] and 61% of beds on our acute wards.

The ageing and dependency of inpatient populations have implications not just for our own service provision as

geriatricians, but also for our roles as teachers and trainers of other staff. We cannot directly provide care for all older people admitted to our hospitals but we have a responsibility to ensure adequate standards of care and adequate access to appropriate specialist input and multidisciplinary services throughout the hospital. This is a particular challenge in the acute sector as the largest numbers of patients with needs are here, scattered across a large number of wards. It is easy to lose sight of the extent of service needs of older people in hospital, at a time when the national policy agenda is dominated by an emphasis on developing intermediate care and community services for older people [5, 12]. New models of geriatric care need to be developed, expanding and developing liaison services and developing educational programmes for non-geriatricians. Further work on frailty indicators and predictors of outcomes [13, 14] may help to target those older people most likely to benefit from intense geriatric and multidisciplinary input.

Even within designated rehabilitation wards, the actual direct therapy time available per patient is low, averaging 6–26 minutes of therapy input per patient per day for the various therapies. This is inadequate given the evidence from stroke rehabilitation that the intensity of therapy in terms of duration and frequency is related to the degree of functional recovery [15].

In conclusion, this census highlights that a high proportion of patients across all care settings, particularly older patients, need multidisciplinary care. This needs to be expressly considered in the planning of future health services and innovative ways of ensuring access to multidisciplinary and specialist geriatric expertise will have to be developed to provide optimal care to our older hospital inpatients.

Key points

- A high proportion of patients in hospital (69%) have multidisciplinary needs.
- These patients are scattered across all acute wards as well as rehabilitation and continuing care settings.
- The current inpatient population is quite elderly with mean age of 65.3 years in acute wards, 73.5 in rehabilitation wards and 80.8 in continuing care.
- Patient age correlates inversely with Barthel Index score and the percentage of patients with multidisciplinary needs increased with increasing age.
- There is insufficient therapy time to provide for all those assessed as having needs.

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