

The decline in geriatric long stay beds: who remains?

ABSTRACT—A day census of all long-term hospital patients in the Canterbury geriatric service area was carried out in 1984 (when there were 127 beds) and repeated in 1989 (when there were 66 beds). The patients in the 1989 census were more confused and physically more dependent than those in 1984. Comparison with residents in local residential and nursing homes in 1987 shows that a higher proportion of long-term hospital patients had severe mental and physical disability. There is a hard core of patients who are difficult to place outside hospital. This has predictable resource implications and in Canterbury such patients will continue to occupy National Health Service beds as there are no practicable alternatives.

Long stay institutional care of the elderly has changed over the past few years. There has been a great increase in private sector residential and nursing homes [1] and the introduction of National Health Service (NHS) nursing homes [2]. Greater emphasis on community care has resulted in the support of many highly dependent patients at home with augmented care schemes.

These changes and the associated widespread reductions in the number of long stay hospital beds in geriatric departments throughout the United Kingdom have been such that some now question the need for designated long stay beds, while others suspect that the alternatives can jeopardise care [3].

The characteristics in 1984 of the Canterbury geriatric catchment area (32,600 people aged 65 and over) and its bed provision have recently been described [4]. In 1984 there were 127 geriatric long stay beds; by 1989 they had been reduced to 66. In the middle of this five-year period, a survey of residential and nursing homes for the elderly in Canterbury and Thanet characterised the people placed in the latter institutions [5].

The aim of the present study was to see whether the changes in long stay bed numbers between 1984 and 1989 have been associated with other changes in long stay patients' characteristics. All these patients had

been assessed by multidisciplinary conference prior to long stay placement and were reviewed every month by a consultant. No patient went to long-term hospital care unless all other alternatives, including private nursing homes, had been explored. While the placement decision is determined by many factors, including ability of carers to cope, community resources and each patient's means, long stay geriatric patients are known to be selected mainly on the basis of disability [3, 6]. We undertook a prospective assessment of the physical and mental state of all long stay geriatric patients on set dates in 1984 and 1989 and compared them to see if disability had changed. This has not been examined before in a similar group of patients.

Methods

A standard questionnaire was designed to evaluate several characteristics of patients. The information was obtained from the patient, the nursing staff and the medical notes. The survey took place on single days in the summers of 1984 and 1989.

Subsections of the questionnaire conformed to two instruments previously validated in elderly hospital inpatients. These were the Barthel activities of daily living score [7] and the Hodkinson abbreviated mental test score [8]. The Barthel score ranges from 0, which indicates complete dependency in bathing, dressing, toileting, transferring, feeding, grooming and mobility, to full independence in these activities with a score of 20. The abbreviated mental test score tests cognition with ten questions which, if answered correctly, score one point each. Further questions were asked to evaluate the Katz scale of activities of daily living [9]. This non-ordinal scale has seven subgroups classed from A (independent) to G (dependent) and 'other' (dependent in two functions not otherwise classified). In most individuals, functions are lost or regained in the progression A to G. The nursing staff determined the activities of daily living with respect to current ward activity level, which correlates well with true dependency level [7].

While the entire questionnaire was administered to all patients, the abbreviated mental test score could be calculated only for a subgroup. This is because the abbreviated mental test may be invalid in deaf, blind, depressed or dysphasic patients. Yet many such patients could communicate well enough to tell us which ward environment they preferred; if this was the case, their abbreviated mental tests were regarded as valid. Consequently only a small number of depressed

M. L. JENKINSON, MRCP, *Senior Registrar*
J. M. POTTER, MRCP, *Consultant*
M. HILDICK SMITH, FRCP, *Consultant*
Department of Geriatric Medicine, Nunnery Fields Hospital, Canterbury

patients and most of the dysphasic patients had to be excluded from mental test scoring. Comparison was made with the levels of disability assessed by an independent survey in 1987 within local residential and nursing homes [5] of which half the homes were located in our geriatric catchment area. This survey used the Katz scale.

Eleven patients in the long stay hospital population were surveyed twice and, to examine for bias as a result of this factor, we carried out a subgroup statistical analysis of patients who had been resident in long stay beds for less than 5 years.

Results of the study were analysed using unpaired *t* tests for continuous variables with a close to normal distribution or those whose log transformation approximated a normal distribution. Barthel and abbreviated mental test scores were compared using a two-sample Wilcoxon test with Kendall's *S* statistic to derive the standard normal deviate [10]. Groupings based on the Katz scale were compared using the chi-squared test on proportions of two samples.

Results

Long stay patient numbers fell from 127 to 66 in this five-year period. We found no significant difference in age, sex distribution or length of stay of patients 5 years apart (Table 1). However, there was an increase in dependency between 1984 and 1989 as shown in Fig. 1 and this was highly significant (Wilcoxon, Kendall's *S* standard normal deviate = 3.7, $p < 0.001$).

It was possible to estimate on our criteria the abbreviated mental test score in 114 patients in 1984 and 60 in 1989; four were excluded in 1984 and one in 1989 because of depression, and the other excluded patients (nine in 1984 and five in 1989) were severely dysphasic owing to strokes. The increase in confusion between the 1984 and 1989 patients (as determined from the decrease in the abbreviated mental test score) (Fig. 1) was highly significant (Wilcoxon, Kendall's *S* standard normal deviate = 2.9, $p < 0.005$).

The relationship between activities of daily living

and abbreviated mental test changed during the five-year period. The predominant trend was towards greater dependency, rather than increasing confusion. In 1984, 63% (80 patients) had a Barthel score of less than 6, compared with 89% (59 patients) in 1989. Of those with a measurable mental score, 49% (56 patients) scored less than 5 in 1984, compared with 73% (44 patients) in 1989. The subgroup with a Barthel score less than 6 and abbreviated mental test score less than 5 numbered 42 patients (37%) in 1984 and 39 (65%) in 1989. In the patients whose abbreviated mental test score could not be evaluated, 11 out of 13 had a Barthel score less than 6 in 1984 and in 1989 all six patients had a Barthel score less than 6.

It was necessary to determine whether the 11 patients who were present in both surveys could have distorted the results. However, when the analysis was confined to the 114 patients in 1984 and 55 patients in 1989 who had been resident in a long stay bed for less than 5 years, the decreases in activities of daily living and abbreviated mental test remained highly significant.

The dependency of the long stay patients in both of our surveys is greater than that of residents in local residential and nursing homes (Fig. 2). Both our long stay populations have significantly different Katz group distributions compared with local private nursing home residents [5] (both $p < 0.001$).

The medical problems determining admission to our long stay wards are listed in Table 2. Between the two surveys most of them changed in proportion to the number of available beds. The exceptions were arthritis (from 22% to 36%; $\chi^2 = 3.8$, $p < 0.05$) and stroke (from 29% to 55%; $\chi^2 = 10.8$, $p < 0.001$). The absolute numbers with these two conditions showed little change.

Discussion

With the reduction in the number of beds there has been a highly significant increase in the proportion of patients who are physically heavily dependent and, to a

Table 1. Demography of survey populations; figures are means (range) unless stated otherwise.

	1984 (<i>n</i> = 127)	1989 (<i>n</i> = 66)	95% confidence interval for difference in means	<i>p</i> value
Age, men (years)	78.0 (<i>n</i> = 20)	80.1 (<i>n</i> = 14)	—	—
Age, women (years)	85.9 (<i>n</i> = 107)	84.7 (<i>n</i> = 52)	—	—
Age (years)	84.7 (62–100)	83.7 (63–97)	–1.4 to 3.4 *	NS*
Length of stay (days)	790 (7–6,992)	822 (2–3,588)	–0.16 to 0.68†	NS†

* *t* test. † *t* test on log transformation.

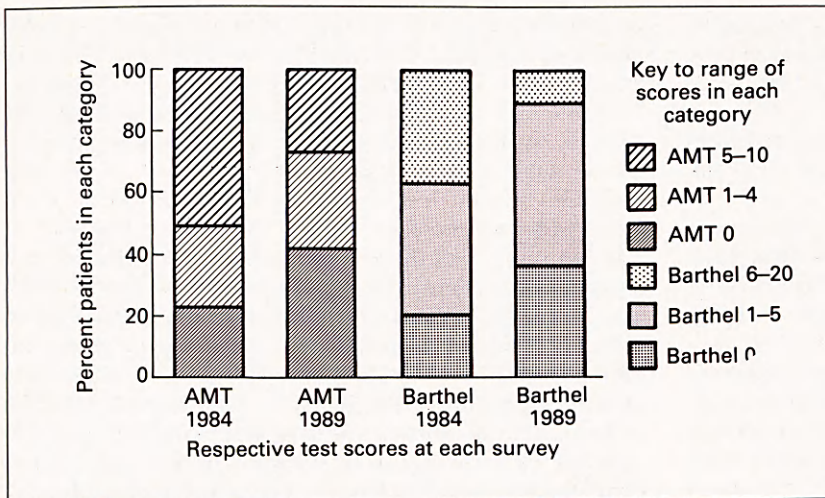


Fig. 1. Change in activities of daily living (Barthel) scores and Hodkinson abbreviated mental test (AMT) scores in long stay patients five years apart. An AMT score less than 5 suggests severe confusion; a Barthel score less than 6 indicates high dependency.

lesser extent, in the proportion of patients who are confused. But in absolute terms the number of patients severely dependent both physically and mentally has remained almost unchanged. Age is the major determinant of physical and mental impairment [11]. However, in this study significant deterioration in both these characteristics was noted without any change in the mean age of the patients between the surveys.

The less dependent patients are no longer being cared for in geriatric long stay wards. They are more likely to be placed in residential or nursing homes in the private sector, or within their own homes helped by the community nursing, local authority and social services. Many patients who require continuing care and supervision are no longer supervised by geriatric medical and nursing teams, with their well established procedures for monitoring and managing such cases [3]. While the new options may well have some advantages over the traditional long stay ward, effective supervision and management must be maintained within the disparate sites in which these patients receive their care. This is important not only for the patient's well-being but also to prevent unnecessary acute admissions to hospital.

Despite the great increase in registered nursing home places in the Canterbury geriatric catchment area (from 228 in 1984 to 445 in 1989) our study emphasises that in our community there remains a hard core of highly dependent patients for whom satisfactory alternatives to long stay hospital care are not available. With our multidisciplinary assessment and good but cash-limited social and health services, we are confident that we are maximising the number of patients supported in the community. We distinguish carefully between patients who can be managed in residential and nursing homes, and there is a clear gradation of dependency between those living in residential and nursing homes in our locality [5].

So far as hospital long stay patients are concerned, our 1984 group was physically more dependent than

those in our local nursing homes 3 years later. The patients in nursing homes who had a previous address in our catchment area (37%) are physically more disabled, and more of them are placed in a nursing home from hospital (54%) than those from elsewhere [5]. Only 25% of the local nursing home residents were severely confused [5] compared with 49% of our 1984 inpatients and 73% of our 1989 inpatients.

By implication, our local nursing homes restrict placement of those who are both severely confused and physically highly dependent even though they

Fig. 2. Percentage of Canterbury institutionalised elderly in Katz dependency groups A to C (arbitrarily selected to represent low physical dependency) and in the other dependency groups. There is a highly significant trend towards higher dependency in the progression from residential home (R.H.) to dual registered home (D.R.H.) to nursing home (N.H.) and to long stay (L.S.) placement.

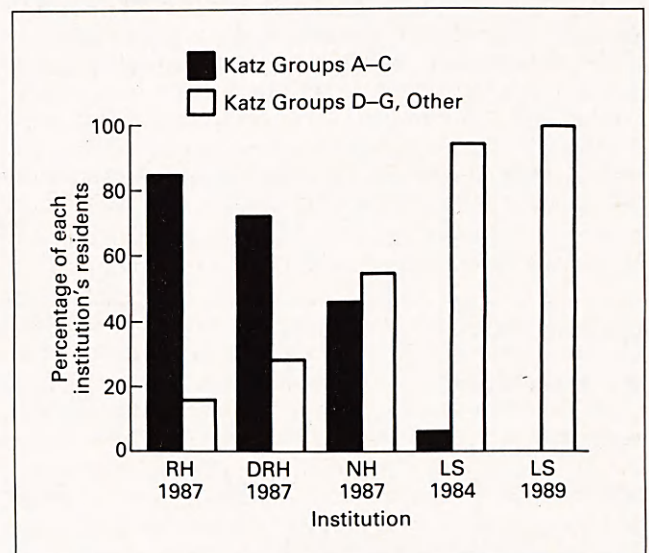


Table 2. Selected major medical conditions that were believed to have influenced placement decision; patients may have had more than one condition

Broad diagnostic category	1984		1989		<i>p</i>
	<i>n</i>	(%)	<i>n</i>	(%)	
Dementia	64	(50)	39	(59)	NS
Stroke	37	(29)	36	(55)	<0.001
Parkinson's disease	7	(6)	7	(11)	NS
Other neurological conditions	7	(6)	4	(6)	NS
Arthritis	28	(22)	24	(36)	<0.05
Fracture or trauma	33	(26)	18	(27)	NS
Lower limb amputation	2	(2)	1	(2)	NS
Depression	30	(24)	18	(27)	NS

accept a greater degree of dependence in local residents whose placement is influenced by our assessment policies. Various reasons for this restriction can be postulated and have been noted by others. Funding may be difficult; it may be uneconomic to care for these patients in the private and voluntary sectors, especially at the level of funding provided out of DSS income support for those who have no savings [3, 11]; homes may have no problem filling the available places with patients whose care would be more profitable for them; confused, physically dependent patients may be less acceptable to staff and other residents [5]; the homes may not have adequate levels of staff and equipment [11]; they may not be able to provide an appropriate degree of nursing and medical supervision [3, 11].

We acknowledge that with adequate resources and monitoring the high dependency elderly can be supported in diverse environments. Indeed it is likely that locally there are some individuals who are supported in their own homes but for whom we have no comparative information.

Placement and maintenance of highly dependent individuals should be acceptable to them, to their carers and to society. In Canterbury there is a group of such elderly people who continue to need the specialised equipment, the nursing skills and the medical monitoring available on a long stay ward. As the proportion of high dependency patients increases, higher nurse staffing levels are needed if standards are to be maintained.

Certain patients are more likely to need continued care, for example those with stroke, Parkinson's disease and Alzheimer's disease. While the prevalence of most conditions fell in proportion to the reduction in bed numbers, the absolute numbers of patients with stroke and arthritis remained unchanged. We suggest that for a given population one can estimate the number of patients who will be heavily dependent due to these conditions and who will require the equivalent of our long stay geriatric hospital care. In particular, high dependency stroke patients and severely con-

fused patients with high physical dependency will be difficult to place elsewhere.

Our study shows the changes in dependency that have occurred in geriatric long stay wards associated with a reduction in bed numbers. As a result of our study we have identified the need to maintain a nucleus of geriatric continuing care beds for the hard core of physically and mentally severely dependent elderly who require them. Despite the increase in nursing home placement and in other community care services, these demanding and heavily disabled patients did not reliably find the necessary expertise and facilities outside our hospital service. Wherever such patients are placed, it is essential to monitor the standard of care that is provided.

Acknowledgements

We are grateful to Mr R. A. Darton of the Personal Social Services Research Unit, University of Kent, for permission to use information from his survey of residential and nursing homes, and thank all staff who assisted with the assessment of elderly people in their care.

References

- 1 Bennett J. Private nursing homes: contribution to long stay care of the elderly in the Brighton Health District. *Br Med J* 1986;**293**:867-70.
- 2 Bond J, Gregson BA, Atkinson A, Newell DJ. The implementation of a multicentred randomised controlled trial in the evaluation of the experimental National Health Service nursing homes. *Age Ageing* 1989;**18**:96-102.
- 3 Millard PH. Geriatric medicine beyond the hospital. *Age Ageing* 1989;**18**:1-3.
- 4 Stevens RS, Potter JM, Hildick Smith M. Effect on a geriatric service of opening a 25-bed ward on the district general hospital site: an audit. *J R Coll Physicians Lond* 1990;**24**:107-11.
- 5 Darton RA. *Private and voluntary residential and nursing homes in Canterbury and Thanet*. Personal Social Services Research Unit, University of Kent, 1990.

- 6 Stott DJ, Dutton M, Williams BO, MacDonald J. Functional capacity and mental status of elderly people in long-term care in West Glasgow. *Health Bull* 1990; **48**:17-24.
- 7 Collin C, Wade DT, Davis S, Horne V. The Barthel Index: a reliability study. *Int Disabil Stud* 1988; **10**:61-3.
- 8 Hodkinson HM. Evaluation of a mental test score for assessment of mental impairment in the elderly. *Age Ageing* 1972; **1**:233-8.
- 9 Katz S, Akpom CA. A measure of primary sociobiological functions. *Int J Health Serv* 1976; **6**:493-507.
- 10 Armitage P. *Statistical methods in medical research*. Oxford and Edinburgh: Blackwell, 1971:362-4.
- 11 Stout RW, Crawford V. Active-life expectancy and terminal dependency: trends in long-term geriatric care over 33 years. *Lancet* 1988; **i**:281-3.

Address for correspondence: Dr M. L. Jenkinson, Department of Geriatric Medicine, Nunnery Fields Hospital, Canterbury, Kent CT1 3LP.

Paperbacks available from The Royal College of Physicians

	Price
1991 *Pharmaceutical Medicine and the Law —legal responsibility—product liability—Europe (Based on a conference of the Royal College of Physicians of London and the Faculty of Pharmaceutical Medicine of the Royal Colleges of Physicians of the UK)	£23.00 (UK) £27.50 or US \$55.00 (overseas)
1991 The National Concept of Rehabilitation Medicine (Proceedings of a conference of the Disablement Services Authority and the Royal College of Physicians)	£6.00 (UK) £7.50 or US \$15.00 (overseas)
1991 Paediatric Specialty Practice for the 1990s (Based on a conference organised by the Royal College of Physicians)	£20.00 (UK) £22.00 or US \$46.00 (overseas)
1991 Medicine and the Law (Based on a conference organised by the Royal College of Physicians)	£6.00 (UK) £7.00 or US \$14.00 (overseas)
1990 Application of Molecular Genetics to the Diagnosis of Inherited Disease (Based on a conference organised by the Royal College of Physicians)	£11.00 (UK) £12.00 or US \$24.00 (overseas)
1990 Measuring the Quality of Medical Care By Anthony Hopkins FRCP	£7.00 (UK) £10.00 or US \$15.00 (overseas)
1990 Measuring the Outcomes of Medical Care (Based on a Conference organised by the Research Unit of the Royal College of Physicians and the King's Fund Centre)	£7.00 (UK) £10.00 or US \$15.00 (overseas)
1990 Osteoporosis 1990 (Based on a Conference held at the Royal College of Physicians)	£15.00 (UK) £22.00 or US \$45.00 (overseas)
1989 Appropriate Investigation and Treatment in Clinical Practice (Papers based on a Conference held at The Royal College of Physicians)	£7.00 (UK) £10.00 or US \$15.00 (overseas)
1989 Socio-Legal Aspects of Medical Practice (Papers based on a Conference organised by the Centre for Social-legal Studies, Wolfson College, Oxford)	£7.00 (UK) £10.00 or US \$15.00 (overseas)

Remittance with order to: The Royal College of Physicians, 11 St Andrew's Place, Regent's Park, London NW1 4LE
College Reports are listed elsewhere

*See page 68 for details.