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# Geriatric medicine: the anatomy of change

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## SUMMARY

*We have studied workloads and patterns of care in geriatric medicine from 1982 to 1993 in the Ulster Hospital. There was a 137% rise in admissions, a 16% reduction in domiciliary visits and a 31% increase in ward assessments. The continuing care waiting list fell to zero in 1993. The number of new outpatients rose by a factor of 8.6 between 1987 and 1993. Between 1990 and 1993 there was an increased admission rate from nursing homes and of patients suffering from respiratory system diseases. Mortality rates fell from 27.8% in 1982 to 19.3% in 1990 and to 12.1% in 1993. Mean age and sex ratios remained unchanged over the years while the average length of stay halved from 43.3 to 22.6 days between 1990 and 1993. 81% of admissions in 1993 were emergencies. Care of the elderly in hospital and the interface with general medicine are changing.*

## INTRODUCTION

The specialty of Geriatric Medicine was introduced to Northern Ireland in 1948 through the work of Professor George Adams in the Belfast City Hospital, later consolidated and developed by Professor Robert Stout. From dealing primarily with continuing care and rehabilitation the specialty has changed rapidly, with a greater emphasis on acute care, investigation and rehabilitation.[1] This change has occurred at a time of movement from hospital to community based continuing care.[2] The Department of Health Care for the Elderly in the Ulster Hospital, which serves a population of 16,000 over the age of 65 years, adapted to these changes by reducing bed numbers and providing an acute continuous take-in service for the elderly (age related) from 1991, an orthogeriatric unit in 1992-3 and an acute stroke unit in 1994.[3]

The acute take-in service for the elderly at this hospital has been planned in co-operation with our general medical colleagues. Patients aged 65 years or over are accepted directly from the general practitioner and those aged 75 years or over are accepted from the accident and emergency department. At least half of general medical inpatients in Eastern Health and Social Services Board hospitals are aged 65 years or older, and more than one quarter are aged 75 years or older.[4] With two services providing medical care for the elderly, greater clarity, in respect of policies for the interface between care of the elderly and general medicine, is required.[4] We studied the changes in the pattern and delivery of care in a hospital department of Health Care for the Elderly over the past decade, to understand the present changes and to try to suggest how general and geriatric medicine might best relate to each other.

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## METHODS

Data was collected retrospectively on admissions, ward assessments, domiciliary visits and day hospital and outpatient attendances in the Department of Health Care for the Elderly from 1982 to 1993. Sources used included ward admission and discharge cards and books, medical case notes, monthly and yearly statistical summaries, ward assessment and domiciliary visit books. Full data was available for the years 1990 to 1993 and these two years formed the main comparison groups in the study. Pre–1990, data for the years 1982, 1985 and 1987 was used as it was the most complete. Data considered to be incomplete in these years was excluded from the study. Admission, discharge and domiciliary visit numbers were complete for all years.

For 1990 and 1993, during preparation for a separate study, more detailed information was collected from ward discharge letters and case notes. Age, sex, postal code, source of admission, type of admission, length of stay, main diagnosis, outcome of the admission and cause of death were recorded.[5] Main diagnoses were classified into systems.[6] An admission was classified as acute if the patient was admitted via the accident and emergency department, or urgently to the ward via the general practitioner, outpatients, day hospital or a domiciliary visit. Data was collected only on patients admitted under the care of the consultants (ICT & JGMcC) looking after the geriatric catchment area of East Belfast and Castlereagh, to enable comparison over the years. Patients were followed up to discharge from the ward or death. Analysis was by STATVIEW on an Apple Macintosh computer using Chi-squared and unpaired t-tests.

## RESULTS

*Ward admissions to the Department of Health care for the Elderly.*

The proportion of admissions from home fell in 1993 (n=732, 79.4%) compared with 1990 (n=510, 85.4%) while that from private nursing homes rose ( 1993, n=106, 11.5% compared with 1990, n=26, 4.3%). 747 (81%) of the 1993 admissions were emergency. (Table 1)

TABLE 1

*Domicile at the time of admission in 1900 and 1993 to the Department of Health Care for the Elderly.*

| *Year* | *Total* | *Male* | *Home* | *Private nursing home*** | *Residental* accommo-dation* | *Sheltered dwelling* |
|---|---|---|---|---|---|---|
| | | % | % | % | % | % |
| 1990 | 597 | 31.5 | 85.4[a] | 4.3[c] | 7.2 | 3.1 |
| 1993 | 922 | 30.4 | 79.4[b] | 11.5[d] | 5.7 | 3.4 |

* Private, voluntary and Board residential accommodation.

** including elderly mentally infirm.

ab $X^2 = 8.85$, $p = 0.0029$

cd $X^2 = 23.29$, $p < 0.0001$

There was a significant decrease in mortality rates between 1987 (n=115, 26.1%) and 1990 (n=115, 19.3%) and between 1990 and 1993 (n=112, 12.1%) and an increased rate of discharge to private nursing home care between 1990 and 1993. There was a marked fall in the proportion of patients discharged home between 1987 and 1990, but numbers rose again in 1993 (n=541, 58.7%), compared with 1990 (n=307, 51.4%) (Table 2).

TABLE 2

*Discharge outcome of patients admitted in 1982-1993.*

| *Year* | *Total* | *Male* | *Died in hospital* | *Home* | *Private nursing home* | *Residential accommo-dation* | *Sheltered dwelling* | *To other ward or hospital*** |
|---|---|---|---|---|---|---|---|---|
| | | *%* | *%* | *%* | *%* | *%* | *%* | *%* |
| 1982 | 389 | 38.0 | 27.8 | 64.0 | 0.0 | 8.2 | | |
| 1985 | 346 | 31.8 | | | | | | |
| 1987 | 440 | 30.5 | 26.1[a] | 65.2 | 0.9* | 7.7 | | |
| 1990 | 597 | 31.5 | 19.3[b] | 51.4[d] | 13.4[f] | 7.7 | 3.4 | 4.7 |
| 1993 | 922 | 30.4 | 12.1[c] | 58.7[e] | 16.5[g] | 5.6 | 3.3 | 3.7 |

* 1987 was the first year patients were discharged to nursing homes.

** including hospice care.

ab $X^2 = 6.93$, $p = 0.0085$

bc $X^2 = 14.43$, $p < 0.0001$

de $X^2 = 2.66$, $p = 0.12$

fg $X^2 = 9.106$, $p = 0.0025$

The mean age of patients in 1990 was 81.6 years (95% CI 81.0 to 82.2 years) compared with 81.1 years (95% CI 80.7 to 81.4 years) in 1993 ($p = 0.17$, t-test). The ratio of males to females did not differ significantly over the years. Around 80% of all admissions in 1990 and 1993 were of people aged 75 years and over (Table 3).

TABLE 3

*Age bands of patients admitted in 1982, 1990 and 1993.*

| *Age band* | *1982* | *1990* | *1993* |
|---|---|---|---|
| Number | 389 | 597 | 922 |
| | *%* | *%* | *%* |
| < 65 | 3.3 | 0.5 | 0.8 |
| 65-74 | 21.4 | 15.1 | 15.6 |
| 75-84 | 50.6 | 43.5 | 51.4 |
| > 84 | 24.7 | 40.9 | 32.2 |

In 1990 1.8% of admissions were from other hospitals compared with 1.2% in 1993. In 1993, 351 (38.1%) of admissions were casualty, 30.8% from general practitioners, 13.2% from orthopaedics, 10.2% from domiciliary visits and 7.7% other. There was a marked increase in admissions from the Ards Hospital geriatric catchment area in 1993, 205 (22.2%) compared with 69 (11.6%) in 1990, through increased emergency and orthogeriatric admissions (Table 4).

TABLE 4

*Admissions by geriatric catchment areas in 1990 and 1993.*

| *Geriatric catchment areas* | *1990* | *1993* |
|---|---|---|
| Number | 597 | 922 |
| Ulster Hospital | 498 | 626 |
| Ards Hospital | 69 | 205 |
| Belfast City Hospital | 4 | 47 |
| Royal Victoria Hospital | 1 | 0 |
| Other | 25 | 44 |

Between 1990 and 1993 there was a greater than expected rise in admissions due to locomotor system disease, 16.4% (n=98) of 1990 admissions, compared with 22.9% (n=211) of 1993 admissions ($X^2 = 9.36$, $p = 0.0022$) and respiratory system disease, 11.7% (n=70) of 1990 admission, compared with 20.3% (n=187) of 1993 admissions ($X^2 = 18.875$, $p < 0.0001$). In the other systems observed figures were close to expected.

Between 1990 and 1993 there was a 32% decrease in domiciliary visits by the consultant geriatricians. Ordinary ward assessments (in general medical, orthopaedic and surgical wards) fell from 84 to 17 but this was more than offset by 87 'Assessment and Care Management' assessments in these wards. The number of new outpatients quadrupled from 1990 to 1993. The figure for the first four months of 1994 is 136. The number of new day hospital patients (30 place day hospital) remained steady at 450 to 550 per year (Table 5).

TABLE 5

*Assessment prior to hospital admission: domiciliary visits, ward assessments, continuing care waiting list and new outpatients, 1982 to 1993.*

| *Year* | *Domiciliary visits** | *Assessments in other wards* | *Continuing care waiting list* | *New outpatients* |
|---|---|---|---|---|
| | *%* | | | |
| 1982 | | | 178 | |
| 1984 | | | 147 | |
| 1985 | 100.00 | 79 | | |
| 1987 | 112.7 | 117 | 66 | 21 |
| 1990 | 122.6 | 84 | 15 | 47 |
| 1993 | 83.8 | 104 | 0 | 182 |

* 1985 – baseline level taken as 100%

Respite care was moved from the Ulster Hospital to Forster Green Hospital in 1991, where admissions rose from 172 in 1990 to 343 in 1993, largely due to this move. The number of beds available to the Ulster Hospital geriatric catchment area fell from 196 in 1990 to 124 in 1993, which included 52 beds in Forster Green Hospital for respite, continuing care and slow stream rehabilitation. Fifty of the 124 beds were designated as continuing care in 1992, and this figure is now only 31, 25 of which are occupied. Nineteen of 72 beds in the Department of Health Care for the Elderly are presently occupied by assessment and care management patients awaiting placement. Lengths of stay decreased between 1990 and 1993 (Table 6).

TABLE 6

*Bed usage in the Department of Health Care for the Elderly in the Ulster Hospital. Lengths of stay in 1990 and 1993.*

| *Length of stay* | *1990* | *1993* |
|---|---|---|
| Number | 597 | 922 |
| | *%* | *%* |
| 0-14 days | 36.7 | 51.7 |
| 15-31days | 30.5 | 27.6 |
| 32 days or more | 32.8 | *20.7* |

## DISCUSSION

The fall in the continuing care waiting list for the Department of Health Care for the Elderly in the Ulster Hospital was due to the increased availability of private nursing home beds from 1987 onwards. The number of nursing home beds in Northern Ireland rose from 347 in 1982 to 1564 in 1987,[7] but the number of continuing care patients in our wards did not fall markedly until a more active policy of discharge to private nursing homes was instituted in 1990. That year also marked the start of increasing numbers of admissions of patients from private nursing homes to the Department of Health Care for the Elderly.

At the end of 1991 a more active policy of acute admissions from the accident and emergency department and from general practitioners was pursued. (Patients with a suspected myocardial infarction or acute gastrointestinal bleeding were admitted directly to the cardiology and general medical units as the Department of Health Care for the Elderly is separate from the main hospital site). This amounted to a continuous acute take-in system of patients over the age of 65 years from general practitioners and over 75 years from the accident and emergency department, resulting in a 54% increase in admissions between 1990 and 1993.

With patients no longer remaining in hospital for continuing care until death and more patients being admitted for rehabilitation and acute treatment, death rates and length of stay fell from 1990 onwards. 51.7% of patients stayed less than 14 days in 1993 and 27.6% stayed between 15 and 31 days. In a study in Canterbury equivalent figures of 70% and 19.7% were reported.[8] While there

was a significant fall in death rate between 1990 and 1993 the difference between the number of deaths plus nursing home discharges was not significant (195 versus 264 respectively, $X^2 = 2.719$, $p = 0.0948$). Further inroads need to be made into reducing lengths of stay through weekend discharges, more rapid placement of patients who have been 'care managed' and increased use of innovative schemes such as the 'Home from Hospital' scheme.

The rise in locomotor system admissions in 1993 was largely due to the opening of orthogeriatric beds. Of 211 such admissions, 119 came from the orthopaedic wards, of whom 8.4% had been admitted from nursing homes: 57% were subsequently discharged home, 20.1% were discharged to nursing homes and 8.4% died. The rise in respiratory system disorders between 1990 and 1993 is a reflection of the increasing numbers of acutely ill elderly people admitted. Pneumonia in the over 75's is 15-20 times more frequent than in younger adults[9] and usually occurs in the setting of chronic chest disease.[10]

The increased in-patient admissions was mirrored by a modest but significant rise in new out-patient numbers through general practitioners becoming more aware of short waiting times (1-2 weeks) and that a consultant geriatrician saw all patients and determined the need for review.[11] In the first third of 1994 new out-patient figures reached 75% of the total for 1993. Transport, space and staffing limitations will affect further increases.

While the number of continuing care beds dropped from 50 to 31, these were 'replaced' by 19 patients currently awaiting placement in nursing homes. In effect these are 'continuing care' patients in transit and underline the need to keep sufficient continuing care beds in hospital.

Although day hospital figures remained steady throughout the years and we believe that it performs a useful service, facilitating earlier ward discharge and maintaining elderly people at home, the function, effectiveness and costeffectiveness of day hospitals has been called into question by researchers from Cardiff.[12]

The fall in ward assessments in the general medical, surgical and orthopaedic wards, carried out in the past for continuing care and rehabilitation transfers to the Department of Health Care for the Elderly, has been more than matched by assessments for nursing home and residential placement. There is concern, in view of bed losses, nursing and medical staffing limitations and the increasing demands of the changing service, that fewer patients are being considered for transfer for rehabilitation and trials of rehabilitation, especially from the medical wards. This is an area which needs further investigation with our general medical colleagues since the need for rehabilitation for the elderly should increase. [13, 8]

The fall in domiciliary visits by the consultant geriatricians was achieved by general practitioners being able to admit patients directly and urgently from home by telephoning, by providing an active out-patient service with urgent referrals being seen within 24 hours and by providing immediate access to the day hospital. Domiciliary visits remain important in management of the elderly as it is only in the home situation that one can gain full insight into the social circumstances influencing illness and disability and the patient's ability to cope.

Geriatrician's input into 'orthogeriatric' care is now standard practice, with many patients in our unit requiring extended rehabilitation and care management. Such care can be provided in an orthogeriatric unit [14] or through an orthogeriatric liaison service. [15] While acute care for the elderly on an age related basis has proved a success in terms of numbers, consideration must be given to those elderly patients admitted to medical wards whose rehabilitation needs would be best met in a geriatric medical ward [4,8] and the early recognition and referral of those patients requiring assessment and care management.

We believe that a 'mixed economy' of patients is better than selecting out specific elderly patients for admission to geriatric medical units, although there is evidence in Belfast that the casualty officer and general practitioner pre-select prior to referral.[6] The geriatrician should have access to beds on the main acute hospital site[1] as this would greatly help integrated care of the elderly and early assessment for rehabilitation or care management. Geriatricians must be closely involved with general physicians in caring for the elderly.[6]

In the midst of these changes it is a matter of concern that 'geriatric medicine' does not become 'general medicine for the elderly' but that due care and attention are paid to those needing more complex social and functional rehabilitation or continuing care in hospital or the community. Our clinical experience is that nursing homes have difficulty coping with patients with severe pressure sores or swallowing difficulties. The ability of nursing homes to cope with those in a high dependency category has been questioned.[16] Services and training of staff in nursing homes will have to be improved to contend with increasing numbers of such patients. Private nursing home care may then turn out to be as expensive as care in National Health Service nursing homes or continuing care hospital units.[17]

Geriatric medical units must retain, improve and impart expertise which has not yet been developed in nursing homes. Such units should provide a continuing care hospital service for patients with complex medical and nursing needs and should train medical students, doctors and nurses in their care. In the new NHS 'Trust' and 'Fundholding' efficiency savings climate elderly people should not be denied proper access to medical care.[18]

## REFERENCES

1. Care of the Elderly: present provision and future developments. Geriatric sub-committee, Eastern Health and Social Services Board, January 1992.
2. Bernard J. Whither community care? *Care of the Elderly* 1993; **1**: 23-25.
3. Taylor I C, McConnell J G. Philosophy and operational policy of the Department of Health Care for the Elderly, Ulster North Down and Ards Hospitals Trust, 1993.
4. Report of the working group of the medical sub-committee of the area medical advisory committee on acute general medical admissions. Eastern Health and Social Services Board, 21 March 1994.
5. Taylor I C, McConnell J G. Admission of Nursing Home patients to Geriatric Medical Wards. Ulster Med J, 1994; **63**: In press.
6. Differences between "geriatric" and "medical" patients aged 75 and over. Todd M, Crawford V, Stout R W. *Ulster Med J* 1993; **62**: 4-10.

7. Consultative paper on the registration and inspection of private and voluntary nursing homes. Department of Health and Social Services. November 1988.
8. Stevens R S, Potter J M, Hildick Smith M. Effect on a geriatric service of opening a 25-bed ward on the district general hospital site: an audit. *J Roy Coll Physns Lond* 1990; **24**: 107- 111.
9. Woodhead M. Pneumonia. *Care of the Elderly* 1994; **6**: 62-70.
10. Marrie T J, Haldane E V, Faulkner R S, Durant S, Kuram C. Community acquired pneumonia requiring hospitalisation. Is it different in the elderly? *J Am Geriat. Soc* 1985; **33**: 671-80.
11. Donald I P, Berman P. Geriatric outpatient clinics: an audit of clinical action, transport and general practitioners' views. *Age Ageing* 1989; **18**: 253-7.
12. Vetter N J, Smith A. Geriatric day hospitals. *Age Ageing* 1989; **18**: 361-3.
13. Tallis R. Rehabilitation of the elderly in the 21st century. *J Roy Coll Physns Lond* 1992; **26**: 413-22.
14. Murphy P J, Rai G S, Lowy M, Bielawska C. The beneficial effects of joint orthopaedic-geriatric rehabilitation. *Age Ageing* 1987; **16**: 273-8.
15. Harrington M G, Brennan M, Hodkinson H M. The first year of a geriatric–orthopaedic liaison service: an alternative to 'orthogeriatric ' units? *Age Ageing* 1988; **17**: 129-33.
16. Campbell H, Crawford V, Stout R W. The impact of private residential and nursing care on statutory residential and hospital care of elderly people in South Belfast. *Age Ageing* 1990; **19**: 318-24.
17. Donaldson C, Bond J. Cost of continuing care facilities in the evaluation of experimental National Health Service nursing homes. *Age Ageing* 1991; **20**: 160-8.
18. Grimley Evans J. Dangers of ageism. *Care of the Elderly* 1993; **5**: 217.