

# Differences between “geriatric” and “medical” patients aged 75 and over

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## SUMMARY

*We analysed the characteristics of patients aged 75 and over admitted to the geriatric and general medical wards over a three month period in a teaching hospital. Patients admitted to the geriatric wards were slightly older, were more often female, more likely to be admitted during the day and during a week day, more likely to have been seen by their own general practitioner, had more chronic and multiple illness with non-specific presentations, and stayed longer in hospital. Referring doctors seem to discriminate between patients needing geriatric care and those more suitable for general medical care, but there is an overlap in the characteristics of the two groups.*

## INTRODUCTION

Departments of geriatric medicine specialise in the management of disease and consequent impairment, disability and handicap in older people in a more comprehensive way than the traditional medical model.<sup>1</sup> Specialists in geriatric medicine have particular skills in managing older people who have multiple medical problems and chronic disability and whose mental health and social circumstances influence their overall health. To manage these problems departments of geriatric medicine generally provide a range of services including acute medical care, rehabilitation, domiciliary assessment, respite care and long term care.

In the United Kingdom the style of provision of hospital services to older people depends on local traditions, resources and philosophy. Whatever the type of service available, it must respond to the needs of the elderly population appropriately, efficiently and without delay. The initial decision to refer the patient to a department of geriatric medicine is usually taken by a doctor who is outside the

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department — a general practitioner, accident and emergency doctor or other hospital doctor. It is, therefore, important to assess if appropriate referrals are made. If patients are selected appropriately, the patients admitted to the geriatric medical unit and to the general medical wards should differ in the ways described above. The aim of this study was to determine if patients referred to a geriatric medical service were different from those admitted to the medical wards of the same hospital.

## **METHODS**

All patients aged 75 years and over with acute medical problems admitted to the general medical wards and geriatric wards of the Belfast City Hospital were studied between November 1990 and January 1991. Excluded were patients admitted for planned investigations, treatment or respite care, patients transferred to the geriatric medical unit from surgical and fracture wards, and patients admitted from the day hospital or outpatient clinic.

Information was collected retrospectively on a standard questionnaire from the medical notes, nursing notes, nursing and medical staff. Demographic data included age, sex, marital status and residence before admission. Admission data included the admitting practitioner (patient's own doctor, partner or deputising service), mode of admission, time and day of admission. Daytime was defined as 09.00 – 17.00 hours, and public holidays were classified as weekends. The main diagnoses on admission were classified into several groups: cardiovascular disorders including myocardial infarction, heart failure, cardiac arrhythmias, and vascular lesions; respiratory disorders including respiratory tract infection, chronic obstructive airways disease, asthma and pulmonary fibrosis; malignancy of any type; stroke; other central nervous system disorders — mainly epilepsy; musculoskeletal disorders — mainly osteoarthritis; urinary tract disorders; gastrointestinal tract disorders; illnesses primarily due to alcohol, drugs or poly-pharmacy; falls with no acute precipitating illness; haematological diseases; endocrine disorders; and dementia. A patient with multiple disorders was defined by the presenting problem when a single diagnosis could not be achieved.

We identified whether the breakdown in health was due to monosystem or multi-system disease; details of the onset of illness — sudden, acute or acute on chronic; the length of time the patient had been unwell; the necessity for immediate admission (immediate admissions included all those with acute medical illnesses, and generally all those patients admitted to medical wards from the accident and emergency department; patients admitted the day after a domiciliary visit were not classified as requiring immediate admission). The accuracy of general practitioners' diagnosis was assessed. Admissions due to incontinence, immobility, confusion, or falls were only classified as due to one of these problems if there was no other immediate cause for the admission, so that immobility due to an acute stroke or acute confusion due to pneumonia would be classified under the disease.

Functional status on discharge (Barthel score<sup>2</sup>): in the geriatric wards all patients had been assessed by the occupational therapist, whereas in the medical ward information was obtained from the nursing staff by interview using a questionnaire.

Mental state on admission and discharge: all patients in the geriatric wards had a 10 point mental state questionnaire<sup>3</sup> recorded; a patient scoring less than seven points was classified as confused. Not all medical patients had a mental state questionnaire recorded, and patients with no score were classified as normal or confused according to comments in the notes or from the staff. Outcome: discharge destination, mortality and length of stay were recorded.

The data were analysed using SPSSX2.1<sup>4</sup> on an ICL mainframe computer and STATVIEW on an Apple Macintosh computer. Chi-squared and independent Student's t-tests were used.

## RESULTS

There were 198 eligible patients admitted during the study period, 133 to the 170 beds in the medical wards and 65 to the 10 beds in the acute geriatric wards. The records of 46 eligible medical patients and 8 geriatric patients were missing. The missing data were analysed for age, sex, length of stay and mortality using the ward registers. The medical patients whose notes were missing had a significantly shorter length of stay, younger age, and were more often male compared with those whose notes were available for study, whereas there were no differences in the characteristics of the geriatric patients whose notes were either missing or available. Inclusion of the medical patients whose notes were missing would thus have accentuated the differences between the medical and geriatric groups.

### *Demographic data*

The mean age was 84.7 years (95% confidence interval (CI) 83.4 to 85.9 years) in the geriatric group compared with 83.2 (95% CI 82.2 to 84.1 years) in the medical group ( $p=0.07$ ). There were 10 males (15.4%) and 55 (84.6%) females in the geriatric group and 46 males (34.6%) and 87 (65.4%) females in the medical group ( $\chi^2=7.02$ ,  $p=0.008$ ). The percentage of males aged 75 and over in Belfast in the 1981 Census was 34.2%.<sup>5</sup>

There was no difference in marital status between the two groups. Approximately 60% were widowed and 20% still married in each group. There were no significant differences in place of residence before admission (although a greater proportion of those admitted to the geriatric ward came from residential or nursing homes).

### *Admission data*

Thirty-nine (60%) geriatric patients were admitted following a domiciliary visit, 11 (17%) following direct (telephone) discussion with the general practitioner, and 15 (23%) were admitted through the accident and emergency department. One hundred and eleven (83%) of the medical patients were referred by their general practitioner to the medical wards through the emergency medical "take-in" service which operates in Greater Belfast, and 22 (17%) were admitted directly from the accident and emergency department. It is not known how many patients had been in telephone contact with a general practitioner before presenting to the accident and emergency department. More patients in the geriatric group than the medical group had been referred either to the ward unit or the accident and emergency department by their own general practitioner (Table I).

TABLE I

*Differences in referring practice between patients admitted to the geriatric and medical wards*

<i>Referring general practitioner</i>	<i>Geriatric ward (n = 65)</i>	<i>Medical ward (n = 133)</i>
Patient's own doctor	45 (69.2%)	61 (45.9%)
Other doctor	5 (7.7%)	51 (38.3%)
None	15 (23.1%)	21 (15.8%)

$$\chi^2 = 20.234, p = 0.0001$$

There were significant differences between the groups for time and day of admission. 54 (83.1%) geriatric compared to 72 (54.1%) medical patients were admitted during the day, ( $\chi^2 = 12.85, p = 0.0003$ ). 59 (91%) geriatric admissions were admitted on weekdays compared with 104 (78.2%) medical admissions ( $\chi^2 = 4.74, p = 0.03$ ).

Of those patients who presented to the accident and emergency department with no referral by a general practitioner, most of the medical group had illnesses of sudden onset (seven had a stroke, five acute shortness of breath due to pulmonary oedema or airways disease, three had gastrointestinal haemorrhage and three were comatose). The geriatric group had more chronic problems, eight (53%) having had a fall as the major presenting feature.

#### *Details of illness*

Medical patients had significantly more monosystem illnesses, sudden onset illness, immediate admission was more often required and they were less likely to present with the classical 'geriatric' problems of incontinence, confusion, falls or immobility (Table II). General practitioners were more likely to have the correct diagnosis on the letter for medical patients — 83 (78%) with letters available, compared with 21 (48%) of geriatric patients ( $\chi^2 = 12.27, p = 0.0005$ ). Geriatric patients had been unwell for longer before admission (mean length of illness 22.6 days; 95% CI 9.8 to 35.4 days) compared to the medical patients (mean length of illness 8.9 days; 95% CI 6.6 to 11.3 days) ( $p = 0.04, t$ -test). Cardiovascular and respiratory disorders were the most common reasons for admission to the medical wards (53.4% of all admissions), with stroke being the only other diagnosis made in more than 10% of admissions. Cardiovascular disorders and falls were most common in the geriatric patients (33.8% of admissions) and only respiratory and musculoskeletal problems were found in more than 10% of further geriatric admissions.

The functional state on discharge (the Barthel score) was similar in both groups; the mean score for the geriatric group was 14.7 (95% CI 13.7 to 15.8) and for the medical group 15.4 (95% CI 14.5 to 16.4) ( $p = 0.37, t$ -test). There may be a bias in the scoring as all patients in the geriatric wards are assessed by occupational therapists, whereas in the medical wards occupational therapists are used more selectively and medical staff often underestimate or fail to recognise

TABLE II

*Differences in illness patterns between patients admitted to the geriatric and medical wards. 'Geriatric' reasons for admission were incontinence, confusion, falls or immobility*

	<i>Geriatric patients (n = 65)</i>	<i>Medical patients (n = 133)</i>	<i>p</i>
<i>Breakdown in health</i>			
monosystem	14 (21.5%)	73 (54.9%)	0.0001
multisystem	51 (78.5%)	60 (45.1%)	
<i>Illness onset</i>			
sudden	13 (20.1%)	54 (40.6%)	0.0001
gradual	43 (66.2%)	46 (34.6%)	
acute on chronic	9 (13.8%)	33 (24.8%)	
<i>Required immediate admission</i>			
yes	29 (44.6%)	119 (89.5%)	0.0001
no	36 (55.4%)	14 (10.5%)	
<i>'Geriatric' reason for admission</i>			
yes	49 (75.4%)	49 (36.8%)	0.0001
no	16 (24.6%)	84 (63.2%)	

functional disabilities in their patients.<sup>6</sup> There were no significant differences in the proportions of medical and geriatric patients confused on admission or discharge. 43.4% of all patients were confused on admission and 26.3% were confused at discharge.

### *Outcome*

The mean length of stay for geriatric patients was 24.1 days and for medical patients 18.5 days ( $p=0.11$ ). Median stays were 17 and 12 days respectively. A greater proportion of medical patients were discharged early and the missing data would have accentuated this difference (Table III). Eight geriatric patients died (12.3%) compared with 26 medical patients (19.5%). The discharge

TABLE III

*Proportion discharged by 14 and 28 days*

	<i>Geriatric patients (n = 65)</i>	<i>Medical patients (n = 133)</i>
Length stay < 14 days	24	79
Stay 14 to 28 days	14	33
Discharge after 28 days	20	16
Still in hospital	7	5

$$\chi^2 = 16.409, p = 0.0009$$

destinations of the two groups were not different, 45–50% of patients were discharged home; 40% of geriatric patients were discharged to either residential, nursing home or other supervised non-family care compared to 26.3% of medical admissions ( $\chi^2 = 3.67$ ,  $p = 0.16$ ).

## DISCUSSION

This study has shown some differences between elderly patients admitted to general and geriatric medical units in a large general hospital. Geriatric patients stayed in hospital longer, had more chronic and fewer acute problems, and were more likely to have been referred by their own general practitioner than medical patients. The fact that differences were found between the groups implies that general practitioners and accident and emergency staff are in general differentiating between patients for referral to geriatric or to medical departments. However, there was overlap between the groups. Among the medical patients 49 (37%) presented with one (or more) of the geriatric problems of incontinence, immobility, confusion and falls, 46 (35%) had a gradual onset to their illness, 60 (45%) had a breakdown in their health due to multisystem disease, 34 (26%) were confused at discharge and 22 (17%) were living in residential or nursing home care. Some of these admissions to the medical wards will have occurred because there were no empty beds in the acute geriatric ward. The fact that a greater proportion of medical patients were not seen by their own general practitioners, or were admitted at night or at weekends means that emergency services are less good at discriminating between geriatric and medical patients.

The two major teaching hospitals in Belfast, the Royal Victoria and Belfast City Hospitals, admit medical emergencies from the Greater Belfast area on alternate days. On its 'take-in' day, a hospital will admit a large number of patients to the medical ward on duty, some of the patients having attended the other hospital for a previous illness. In general, patients are referred for acute admission to the medical ward through the ambulance service, without direct contact between the general practitioner and the hospital medical staff. In contrast, the geriatric services operate on a catchment area basis, close relationships with the general practitioners in the area are developed, and domiciliary visits are used much more often. However, this service is only available from 9.00 am to 5.00 pm on weekdays. While some of the differences which this study identified between elderly 'medical' and 'geriatric' patients may have resulted from structural differences in the two services, a general practitioner faced with a serious medical illness in an elderly patient has the choice of arranging for the patient to be admitted via the "take-in" service or making direct contact with the geriatric service. One of the aims of this study was to try to identify differences in the patients referred by the two routes.

In a previous study<sup>7</sup> of patients aged 70 and over admitted to acute medical wards, admission factors associated with prolonged length of stay were advanced age, stroke, confusion and falls, while incontinence and loss of independence for everyday activities were also important. Although the factors were interrelated, the most important influence on length of stay was the medical reason for admission. An age related admission policy in which all patients over 75 years old would be admitted to the geriatric wards would have ensured that all these patients would have received "geriatric" care from the time of their admission to

hospital.<sup>8</sup> However, studies in the United Kingdom<sup>1</sup> and in the United States of America<sup>9</sup> have also found that roughly half of patients admitted to hospital aged 75 and over have uncomplicated medical illnesses. Such a system would have high sensitivity but low specificity as it would have meant that the geriatric unit would have admitted a large number of patients who had uncomplicated medical illnesses and who could be effectively managed in medical wards.

Although this study suggests that referring doctors discriminate between patients requiring geriatric care and those requiring medical care, some geriatric patients were admitted to medical wards. Early involvement of the geriatric multidisciplinary team in the management of such patients results in decreased length of stay<sup>10</sup> and better discharge arrangements.<sup>11, 12</sup> Selective referral combined with close liaison between geriatric and general medical wards would provide an effective way of meeting the needs of elderly patients for hospital care. Rotation of junior medical staff between the medical and geriatric wards also aids the dissemination of expertise.

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