

Admission of nursing home patients to geriatric medical wards

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SUMMARY

Comparison was made between patients admitted from a nursing home and all other patients admitted to a geriatric medical unit in 1990 and 1993. The number of nursing home patient admissions rose from 26 in 1990 to 106 in 1993. Nursing home patients were frailer both physically and mentally with a dementia rate of 78% (in those who survived, 1993) and a mortality rate of 19.8% (1993), compared with a dementia rate of 19% and a mortality rate of 11.3% in all other admissions in 1993. Male patients admitted from a nursing home were more likely to die than females (33% versus 14.5%, 1993). Lengths of stay of nursing home patients were shorter, largely due to the availability of a 'safe environment' when discharged, but also related to shorter survival times. 61% of patient admissions from nursing homes in 1993 were considered 'unnecessary' and could have been avoided if specialist advice had been available before admission.

INTRODUCTION

Implementation of the Community Care Act 1990 on the first of April 1993, to assess need and maintain choice¹ occurred in a time of decreasing hospital based and increasing community based continuing care provision for elderly people. One of the main aims of the Act is to assess the need for admission to various forms of institutional care, including hospital and private and voluntary nursing homes.²

The number of hospital based continuing care beds for elderly patients has been decreasing since 1990 while nursing home beds in the Eastern Health and Social Services Board area have increased from 2182 in 1990 to 3671 in 1993.³

Has this move away from hospital based continuing care led to increasing numbers of nursing home patient admissions to geriatric medical units? If so, what are the characteristics of such patients and are such admissions necessary? The present study addresses these questions and suggests possible changes in nursing home care for elderly people:

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METHODS

The Department of Health Care for the Elderly in the Ulster Hospital is on continuous take-in for elderly patients. All patients admitted from nursing homes to the Department of Health Care for the Elderly in the Ulster Hospital in 1990 and 1993 who were under the care of the authors were studied. Patients who had been admitted to other wards or hospitals and transferred to the Department of Health Care for the Elderly were included. Data was also collected on all other admissions to the Department during 1990 and 1993 for comparison with the nursing home groups. The admission policy to the Department and its policy for transfer from other hospitals did not change during the study period.

Information was collected retrospectively from ward discharge letters with further recourse to the full case notes as required (nursing home patients especially), and entered directly on to a computer database. Age, sex, postal code, source of admission (accident and emergency, direct to the ward via the general practitioner), type of admission (emergency, booked), length of stay, abbreviated mental test score⁴ of survivors (1993 only), reason for referral, main diagnosis, presence of dehydration, treatment given, outcome or cause of death were recorded. Main diagnoses were divided into systems (respiratory, locomotor, vascular, cardiovascular).⁵ If no underlying cause was found the diagnoses of falls and poor mobility were recorded under the locomotor system. If there was no precipitating cause for confusion (such as a urinary tract infection) it was classified under 'psychiatric'.

An admission was classified as acute if the patient was admitted via the accident and emergency department or directly to the ward via the general practitioner (within hours), or directly from outpatients or the day hospital urgently, or within 24 hours of a domiciliary visit by one of the consultant geriatricians.

An estimate was made of the appropriateness of admission by considering admissions which might have been avoided if specialist advice had been available in the nursing home prior to admission. Patients who required intravenous fluids, blood transfusions or intravenous medication or who presented with an acute collapse, acute onset of symptoms, dehydration, abdominal pain (with suspicion of obstruction or a mass or pyrexia), those with need of further tests (other than routine blood tests, chest X-ray or simple bone and joint X-ray) or urgent referral to other specialties were classified as requiring admission. If, on reading the notes none of these conditions was met but the assessor (ICT) felt that any patient still warranted admission, they were also classified as requiring admission. Conversely, if the above conditions were met but the assessor felt that the patient's needs would have been better met in the nursing home (some patients with a stroke, those requiring terminal care or who were moribund on admission, patients whose families did not wish them to be moved) they were classified as not requiring admission. If the patient's family insisted that the elderly person should be treated in hospital they were classified as needing admission.

The abbreviated mental test score was not routinely recorded in the 1990 data or for patients who died, and was only entered for 1993 patients who survived. A score of less than 7 out of 10 was classified as dementia.⁴ Note of functional

ability was entered to determine if nursing home patients were appropriately placed.

Data were analyzed using STATVIEW on an Apple Macintosh computer using Chi-squared and unpaired t-tests.

RESULTS

There were 26 nursing home admissions included in 597 ward admissions in 1990 compared with 106 out of 922 ward admissions in 1993 ($X^2 = 23.29$, $p < 0.0001$). There were 6 males in 1990 and 30 in 1993 (NS). The average length of stay in 1990 was 32.7 days (95% confidence interval (CI) 10.3 to 55.2 days) compared with 15.2 days in 1993 (95% CI 11.7 to 18.7 days, $p = 0.007$, t-test). Six 1990 patients died compared with 20 in 1993 (NS). The mean age of 1990 patients was 84.6 years (95% CI 81.9 to 87.2 years) compared with 83.8 years (95% CI 82.5 to 85.1 years) in 1993 (NS). Because of the small number of patients in 1990 comparison of admission types or diagnoses between the two groups was not made. All nursing home patients were dependent for activities of daily living; there was no evidence of inappropriate placement.

1993 nursing home patients, admission data.

96 of 106 admissions were classified as emergency. Of these, 42 patients were admitted directly to the ward by the general practitioner, 41 were admitted directly from the accident and emergency department, 12 were admitted from domiciliary visits and one was admitted from the day hospital. Seven of the 10 non-emergency admissions were from orthopaedic wards.

Non-diagnostic reasons for referral from the general practitioners' letters were as follows :- general deterioration ($n=16$, 15%), confusion ($n=12$, 11%), falls ($n=10$, 9.4%), acute collapse ($n=3$) and immobility ($n=2$). Twenty-one patients needed intravenous fluids, 19 were dehydrated, 15 required intravenous antibiotics and three needed intravenous diuretics. Details of the main diagnosis on admission are given in the table.

TABLE

Classification of the main diagnosis on admission for 106 patients admitted in 1993 from a nursing home

<i>System</i>	<i>Number</i>	<i>Details</i>
Respiratory	20	Chest infection (15), chronic obstructive airways disease (3), lung carcinoma (2)
Locomotor	17	Fractured neck of femur (7), falls (5), osteoporosis (2), poor mobility (2), osteoarthritis (1)
Gastrointestinal	9	Cholecystitis (2), pseudo-obstruction (2), colonic carcinoma (1), dysphagia (1), abdominal pain (2), diarrhoea (1)

<i>System</i>	<i>Number</i>	<i>Details</i>
Cardiovascular	9	Congestive heart failure (6), left ventricular failure (2), postural hypotension (1)
Genitourinary	9	Urinary tract infection (5), drug induced acute renal failure (3), prostatic carcinoma (1)
Vascular	4	Gangrene (2), pressure sores (2)
Psychiatric	2	Dementia (2)
Skin	1	Herpes zoster (1)
Metabolic	1	Hyperosmolar non-ketotic coma (1)
Other	34	Anaemia (8), dehydration (5), overmedicated (4), septicaemia (3), lymphoma (1), postural leg oedema (1) multisystem disorder (12)

1993 nursing home patients, assessment of need for admission to hospital.

65 of the 106 patients were assessed as not requiring admission to hospital because the problem could probably have been dealt with in the nursing home following specialist advice. Fourteen of these 65 died compared with seven of the 41 classified as requiring admission (NS). Of the 14 who died, three required terminal care, two were moribund, three had a severe stroke, three were extremely frail and three had severe dementia. Thirty of the 65 not requiring admission were admitted directly from the general practitioner, 33 from the accident and emergency department and two following a domiciliary visit.

There was no significant difference in the age or sex of those assessed as requiring admission compared with those not requiring a admission. In general those not requiring admission were less ill but diagnostic categories were similar between the two groups. These 106 patients used 1613 (7.8%) out of a total of 20,649 occupied hospital bed-days. The 41 assessed as requiring admission used 652 bed-days.

1993 nursing home patients, compared with all other patients admitted in 1993.

Of the nursing home patients, ten of the 30 men died compared with 11 of the 76 women ($X^2 = 6.10$, $p = 0.013$). Overall 19.8% of the nursing home patients died compared with 11.3% of all other patients ($X^2 = 5.86$, $p = 0.013$). There was no significant difference in the mean age of the nursing home patients who survived and those who died.

There were 922 admissions to the Department of Health Care for the Elderly in 1993. 78% of the 85 survivors of those admitted from a nursing home had dementia (abbreviated mental test score of $< 7/10$), compared with 19% of the survivors of all other patients ($X^2 = 143.6$, $p < 0.001$). The mean age of the nursing home patients was 83.8 years (95% CI 82.5 to 85.1 years) compared

with 80.7 years (95% CI 79.3 to 81.2 years) for all other patients ($p < 0.0001$, t-test). The mean length of stay of nursing home patients was 15.2 days (95% CI 11.7 to 18.8 days) compared with 23.5 days (95% CI 21.7 to 25.4 days) for all other patients ($p = 0.002$, t-test). The mean length of stay (survival) of nursing home patients who died was 14.7 days compared with 19.9 days for all other patients (NS). The equivalent figures for survivors were 16.2 days (nursing home) and 23.9 days (all others) ($P = 0.005$, t-test). There was no significant difference in the ratio of males to females between the two groups.

Of the 106 nursing home patients 32 were admitted in the first quartile of 1993, 29 in the second, and 22 and 23 in the third and fourth quartiles. Community care assessments were introduced on the first of April 1993.

DISCUSSION

This study shows that between 1990 and 1993 there was a 400% increase in the number of nursing home patients admitted to the Department of Health Care for the Elderly, while the number of nursing home places in the Eastern Health and Social Services Board rose by 68% and the total number of admissions to the Department by 74%. The rise in total admissions is a reflection of the change in Hospital Care of the Elderly from continuing care and rehabilitation to acute care and rehabilitation.

The marked rise in nursing home patient admissions may also reflect an increase in the number and frailty of elderly patients admitted to nursing homes, although the 1993 quartile admissions did not increase following the introduction of the more rigorous assessment for prospective nursing home patients on April 1st 1993. Mortality rates of nursing home patients did not differ significantly between 1990 and 1993, although care must be taken in interpreting this because of the small number of 1990 admissions. There is clear evidence from this study that male patients admitted from a nursing home are more likely to die than female, but all nursing home patients are more likely to die than patients admitted from home or residential care.

Nursing home patients admitted to geriatric medical units are an 'at risk' group, as shown by their higher death rates, poorer functional ability and increased rate of dementia compared with all other patients. The shorter length of stay of nursing home patients compared with other patients is related to the availability of a safe environment when discharged, although the shorter survival times for nursing home patients who die, compared with other patients who die (average 5 days less), also contributes.

It is a difficult decision for the casualty officer to send a frail elderly person, whom he has never seen before, home. There are and will continue to be inappropriate admissions to general and geriatric medical wards. While one cannot judge precisely the number of 'unnecessary' admissions the present study suggests that a significant saving in bed-days, perhaps of up to 1,000 in each average geriatric medical unit catchment area, might be possible if specialist advice and help were more readily available to general practitioners. This would come most appropriately from a hospital or community based geriatrician with access to acute beds. It would have to be a 24 hour, seven days a week service, although there is evidence from this study and others⁵ that there is a slower onset of illness in patients admitted to geriatric medical units rather

than general medical units. There may also be a delay in referrals, since 18% of nursing home (1993) patients were dehydrated on admission. Two patients were admitted unnecessarily following a domiciliary visit by a consultant geriatrician, emphasising the need for a critical appraisal of admissions of patients from nursing homes by all grades of medical staff.

Nursing homes provide a protected environment and recommended nursing levels⁶ are not dissimilar to those in geriatric medical units. They lack the medical cover and equipment available in hospital (such as specialized beds). If simple equipment improvements and treatment, in the form of intravenous fluids and antibiotics (first dose given by the general practitioner), were available in nursing homes it is likely that hospital bed-days could be saved while maintaining a better quality of life for the patient. Input from professions allied to medicine may also be required. The concept of a 'hospital wing' of one to two beds is not a new one; it already exists in the voluntary sector.

The type of treatment and the decision to treat should not be dependent on a patient's age. However there are patients who have been admitted inappropriately from nursing home to hospital care who could have been more appropriately and comfortably cared for in the nursing home, provided specialist advice or assessment had been sought. We would recommend a pilot scheme, based on one nursing home, to assess the feasibility of the geriatrician and general practitioner working in closer harmony to try to maintain elderly people in nursing homes rather than admitting them to hospital.

'Effectiveness of treatment must be combined with the least disruptive solution for the elderly person in social, psychological, medical and functional terms.'⁷

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