

Frail aged persons residing in South African homes for the aged who require hospitalisation

Part I. Urban areas

S. WHITTAKER, F. R. PRINSLOO, C. L. WICHT, M. P. JANSE VAN RENSBURG

Summary

The numbers and characteristics of white residents identified by medical and nursing staff as requiring more staff time and/or expertise and/or medical equipment than is available in homes for the aged were assessed. Only 27 out of 2447 (1.1%) extremely infirm aged persons resident in 93 homes for the aged would, in the opinion of institutional staff, benefit by admission to a long-term care hospital catering for chronically ill. The conditions affecting these residents are described and recommendations relating to their management made.

S Afr Med J 1991; 79: 39-44.

Community services provide benefits that are appropriate up to a certain level of dependence, thereafter in many cases it is beneficial and more cost-effective for the person to move to a home for aged. Similarly, in some cases it is more appropriate for the dependent person to move from a home for the aged to a hospital, since the care they require can only be provided there.¹

The services should be linked in a logical pattern and be available at the right time, in the right place and in the right quantity. They should also be economically feasible for the elderly person.²

The Department of Health Services and Welfare: Administration House of Assembly, is concerned about the implications of the increased demand for services by the elderly as they increase in numbers and has, in association with the Department of Community Health of the University of Stellenbosch, embarked on a number of studies to determine the types and magnitude of services that should be available to provide an effective service for the elderly.

The studies were designed to assist with the planning and development of an integrated continuum, including an equitable distribution of funds, between the nursing-home component and the variety of other services that could reduce the need for institutional care.

The continuum of care can be thought of as a view of the elderly person in the context of an organised system of services needed to prevent regression, to encourage maximum independence and social and physical functioning.

In South Africa 8.84% of white aged live in subsidised institutions compared with 2% in Britain and 5% in the USA.³ This represents approximately 30 000 people and it is essential

that the facilities for accommodation and medical and nursing treatment are of an acceptable standard. In order to assist with evaluating health services provided in homes for the aged and in planning and developing a cost-effective and efficient service, a study was carried out during 1989 to determine the proportion of residents with subeconomic means (i.e. whose income is less than R450 per month) at present living in homes for the aged, who require more staff time and/or expertise and/or medical equipment than can be supplied and who might benefit from admission to a hospital.

Subjects and methods

The study was based on an evaluation of the medical and nursing services from the providers' perspective, i.e. the doctors and nurses who provide regular medical and nursing care to residents of homes for the aged with subeconomic incomes. This approach utilises the hypothesis suggested by Pilpel and Naggan:⁴ that the evaluation of primary health services can be based on the providers' satisfaction with the service.

The study was limited to elderly people with subeconomic incomes residing in homes for the aged subsidised by the Department of Health Services and Welfare in which medical and nursing services are rendered. It was carried out in the following larger centres: Cape Town's northern and southern suburbs in the south-western Cape, East London and Port Elizabeth in the eastern Cape, Johannesburg in the southern Transvaal and Durban in Natal. The sample included the majority of homes for the aged catering for frail aged in these larger centres.

In the study the doctors and nurses who provide regular medical and nursing care to residents with subeconomic incomes in a sample of old-age homes were asked to identify residents who: (i) owing to the severity of their physical or mental condition required more resources in terms of staff time and expertise and medical equipment than was available — the residents could not be, in the staff members' opinion, managed effectively in the home and required management in a general hospital with facilities catering for chronically ill patients; and (ii) owing to their physical and/or mental condition would require long-term hospitalisation because of their impairments if it were not for the facilities available in the home for the aged.

Extremely infirm (frail) aged persons are defined as aged persons whose mental and/or physical infirmity has reached the stage where extreme and constant demands are made on the staff for assistance in mobility and personal hygiene, dressing or undressing and feeding; and who require constant trained nursing of at least 30 minutes per day on a permanent basis, in addition to periodic medical treatment.⁵ The study was limited to such residents.

Staff were asked to base the selection of residents who met the above criteria on their clinical knowledge of the residents' physical and mental state, including their clinical requirements, and their knowledge of the available resources in the home in terms of staff numbers and expertise, medical equipment and accommodation.

Administration House of Assembly, Department of Health Services and Welfare, Bellville, CP

S. WHITTAKER, B.S.C., M.B. CH.B., M.MED. (COMM. HEALTH), F.F.C.H. (C.M.) (S.A.)

M. P. JANSE VAN RENSBURG, M.B. CH.B., D.B.G., D.G.G.

Department of Community Health, University of Stellenbosch, Parowvallei, CP

F. R. PRINSLOO, B.S.C., M.B. CH.B., D.C.M., HONS B.S.C. (EPIDEMIOLOG.)

C. L. WICHT, M.B. CH.B., M.MED. (COMM. HEALTH), M.D., D.I.H.

TABLE I. ECONOMIC CLASSIFICATION OF RESIDENTS

Region	No. of homes for aged	No. of residents with economic income	Residents with sub-economic income		Total
			No.	%	
S. Transvaal	38	593	2 815	82,6	3 408
E. Cape	18	555	1 033	65,0	1 588
S.W. Cape	37	1 024	3 012	71,4	4 036
Total	93	2 172	6 860	75,9	9 032

A questionnaire was completed by the medical and nursing staff for each resident selected. This recorded demographic and clinical information relating to the patient's physical and mental status. Staff used their knowledge of the patient's physical and mental state and medical records to complete the questionnaires. The data collected included chronic illnesses — graded into most serious, second most serious and third most serious conditions, their effect on the patient's normal functioning; consultations with doctors; hospital admissions; and daily medical, paramedical, nursing and medication requirements. Activities of daily living (ADL) was measured using the scale developed by Katz *et al.*⁶ For those residents classified as 'requiring hospitalisation', the staff were requested to record the reasons for their decisions on the questionnaire.

In Durban the methodology differed from the above. In this area it was decided to identify a maximum of 100 extremely frail elderly persons in those homes for the aged which cater for frail aged. A frail person was defined as someone who required at least some assistance from a care-giver to forestall mental or physical decline. From these persons, those who required hospitalisation were identified and assessed, using the same criteria and evaluation processes described above. Consequently Natal data were used only in an evaluation of the conditions that staff felt could not be managed effectively in the home for the aged and not in calculations. Sixteen homes were included in the sample in the Durban area.

Results and discussion

Of the 9 032 residents in the 93 homes for the aged included in the study in the southern Transvaal, eastern Cape, and south-west Cape, 75,95% (6 860) had subeconomic incomes (Table I).

Of the residents with subeconomic incomes, 35,67% (2 447) were classified as extremely infirm aged (Table II).

Proportion of residents requiring hospitalisation

Table III shows that 27 out of 2 447 extremely infirm aged residents (1,1%) in the southern Transvaal, eastern Cape, and south-west Cape were classified by staff as 'requiring hospitalisation'.

TABLE II. EXTREMELY INFIRM AGED PERSONS WITH SUB-ECONOMIC INCOME

Region	No.	%	Total
S. Transvaal	1 040	36,9	2 815
E. Cape	395	38,2	1 033
S.W. Cape	1 012	33,6	3 012
Total	2 447	35,7	6 860

In Natal 14 out of 100 extremely frail residents selected from 16 homes for the aged were classified by staff as 'requiring hospitalisation'. This gave a total of 41 residents in the areas surveyed classified by institution staff as 'requiring hospitalisation'.

Table III also shows that there were 439 residents in southern Transvaal, eastern Cape and the south-west Cape who, in the opinion of the staff, would have required hospitalisation if it were not for the facilities available to them in a frail care section of a home for the aged. Of these 439 residents identified in Table III, 402 (91%) were assigned a Katz index of 'E', 'F' or 'G'. This implies that these residents were unable to carry out at least 4 of the following 6 functions: feeding, continence, transferring, going to the toilet, dressing and bathing.

Of those identified as requiring hospitalisation 34 out of 41 residents (83%) were assigned a Katz index of 'E', 'F' or 'G'.

The above results show that there was little difference in the dependency index between those patients classified as requiring hospitalisation and those who would have, if it were not for the facilities available in the home for the aged. They imply that very dependent people can be managed adequately in a home and do not require hospitalisation.

The results also imply that homes for the aged, as structured at present, are capable of providing long-term care for the majority of frail elderly. The quality of care provided in homes for the aged is at present being evaluated by the authors.

Since large numbers of very frail elderly are cared for in South African old-age homes, the contribution that these organisations make to the care of the very frail aged appears to be substantial.

TABLE III. RESIDENTS REQUIRING HOSPITALISATION OR EXTENSIVE CARE, BY REGION

Region	No. of homes for the aged	No. of residents requiring hospitalisation	No. of residents requiring extensive care	Extremely infirm aged	% requiring hospitalisation
S. Transvaal	38	10	237	1 040	0,96
E. Cape	18	1	161	395	0,25
S.W. Cape	37	16	41	1 012	1,98
Total	93	27	439	2 447	1,10

Conditions affecting patients classified by institution staff as 'requiring hospitalisation'

The conditions institution staff regarded as being outside the scope of care that could be adequately provided in an old-age home can be classified as follows:

Physical conditions (Table IV)

These conditions may interfere greatly with normal functioning, are life-threatening and require stabilisation and/or rehabilitation.

Conditions	Associated conditions	No.
CCF	Dementia	4
CCF	Asthma	1
CCF	CVA + deafness	1
CCF	COAD + epilepsy	1
CCF	Hypertension, chronic leg ulcers	1
COAD	Biventricular failure	3
COAD	Dementia	1
COAD	Buerger's disease	1
Renal failure	Biventricular + hepatic failure	1
Parkinson's disease	CVA	1
Total		15

CCF = congestive cardiac failure; COAD = chronic obstructive airways disease; CVA = cerebrovascular accident.

Mental conditions (Table V)

In cases where both physical and mental conditions were present, the patient was assigned to the mental group unless the physical condition was life-threatening, in which case the patient was assigned to the physical group.

Dementia featured prominently. When associated with an additional condition that also required a great deal of individual care, the patient became difficult to manage effectively with the resources available in the normally equipped and staffed home. The aggressive demented patient, as well as the demented wanderer, were identified by institutional staff as requiring more supervision than is usually available in homes for the aged.

Condition	Associated conditions	No.
Dementia		3
Dementia	CVA	5
Dementia	CVA + epilepsy	1
Dementia	Chronic UTI	2
Dementia	Suicide attempt	2
Dementia	Aggression	3
Dementia	Visual impairment	2
Dementia	Parkinson's disease	1
Alcohol Abuse	Depression + peptic ulcer	1
Total		20

UTI = urinary tract infection; CVA = cerebrovascular accident.

Patients requiring terminal care (Table VI)

This is defined as the care of patients with incurable diseases in which death will not occur immediately, but usually within 3 months after admission to the institution. While many patients with terminal disease can die with dignity in a home for the aged, the study showed that there is a small number of residents who require more care, e.g. for the management of constant severe pain, than is normally available in an old-age home.

Condition	Associated conditions	No.
Brain tumour	Epilepsy + rheumatoid arthritis	1
Cancer of bladder	Aortic aneurysm + diarrhoea	1
Advanced cancer		1
Total		3

Residents requiring rehabilitation

Table VII gives examples of the types of conditions that doctors and nurses felt could not be adequately rehabilitated in a home. Adequate rehabilitation depends on appropriate staff and facilities, and in many cases will result in the patient achieving a higher level of independence than would have been possible without rehabilitation. This has obvious benefits for both the patient and his care-givers.

Condition	Associated conditions	No.
CVA	Dementia + PVD	1
CVA	Deafness	1
CVA	Mute	1
Total		3

PVD = peripheral vascular disease; CVA = cerebrovascular accident.

Nursing care

Among the 41 residents classified as 'requiring hospitalisation', there were 15 who were identified by the institution staff as requiring more nursing care than could be provided in a home for the aged.

Staff:patient ratios allow only a limited time per patient, e.g. for subsidy purposes 3 nurses are recommended for every 15 frail residents.⁵ This means that over a 24-hour period each frail resident may theoretically receive approximately 30 minutes' nursing care taking 8-hour shifts into account. Unfortunately, a nurse's time is taken up by many activities, in addition to the nursing of residents and it is for this reason that those patients who require intensive nursing are difficult to manage in a home for the aged.

Facilities needed for residents identified as 'requiring hospitalisation'

This study showed that the number of aged who cannot be managed in homes for the aged is small. However, these people represent an important group of residents who require a level of care that is not being provided satisfactorily in homes for the aged at present. The study showed that: (i) they often required more nursing time than could be provided; (ii) they often require more physiotherapy and occupational therapy than is available; (iii) their medical problems are difficult to manage with the resources available because the patients have life-threatening conditions that are often unstable and require constant monitoring; and (iv) those suffering from mental conditions frequently have behaviour patterns or levels of dependency that are difficult to manage with the staff and other resources available.

The type of resident identified as 'requiring hospitalisation' needs accurate medical, nursing, psychological and social assessment so that the appropriate treatment and placement in a long-term care facility can be determined. Special attention should be placed, during the assessment, on the person's rehabilitation potential.

The assessment and initial management of these patients should be carried out in a geriatric assessment unit and should be multidisciplinary. The goal of a geriatric assessment unit in this regard is to facilitate placement of frail elderly adults in long-term care settings that will provide optimal health care support and personal independence.⁷ The geriatric assessment unit concept originated in Britain in the 1930s. It has developed into an integral component of that country's health care system. Other countries with similar programmes include Sweden, Australia, Norway, Israel and the Netherlands.⁸

Ideally, the core team consists of a physician (with an interest in geriatric medicine) or a geriatrician, a nurse, a psychiatrist, an occupational therapist, a physiotherapist and a social worker. The reason for this development is that the quality of life and cost-effectiveness of extended care are usually improved measurably when there is a comprehensive multidisciplinary work-up of the elderly who require acute care and chronic care.^{9,10} The ultimate objective is to help the patient regain his independence to such an extent that he will be able to function at the maximum potential of his remaining abilities.

To date there has been considerable difficulty in establishing geriatric assessment units owing to financial and other constraints.¹¹ However Meiring¹² states: 'The provision of beds for acute geriatric assessment and slow rehabilitation are absolutely essential, at least in all major centres.'

Where possible, all residents with severe medical and psychiatric problems should be investigated in a geriatric assessment unit using the multidisciplinary approach described above. In addition to providing clinical assessment and advice on placement, geriatric assessment units should also have the facilities to provide moderate rehabilitation.

If a geriatric assessment unit is not available, this type of resident should be assessed in a hospital, once again utilising the multidisciplinary approach. The multidisciplinary team should include a geriatrician or a physician with an interest in geriatric medicine.

Management of the type of resident identified as 'requiring hospitalisation'

Analysis of the data revealed that residents identified in the study as 'requiring hospitalisation' could be classified into four groups:

A rehabilitation group. This group would include patients

who have, among other conditions, had strokes or fractures and have rehabilitation potential.

A maintenance group. This would include patients with conditions that often become unstable resulting in frequent admissions to hospital, such as severe congestive cardiac failure and other conditions the management of which is beyond the scope of the general practitioner or district surgeon.

A nursing group. This group includes patients, who may be bed bound, with severe dementia and other patients requiring more nursing time than can be provided in an old-age home.

A terminal group. This would include residents with terminal conditions requiring intensive nursing or other support that is in excess of what could be provided in a home.

Management of the rehabilitation group

The management of those patients allocated to the rehabilitation group would depend on their degree of impairment. Those with minor impairment, e.g. minor strokes, after assessment and initial management in a specialist geriatric facility, should be returned to the home for the aged and managed by the primary care team (provided sufficient occupational therapists and physiotherapists are available) with the consultative support of a geriatric assessment unit if required, and facilities for immediate readmission to hospital, if necessary.

Those assessed as having moderate impairment should be managed in a geriatric assessment unit or appropriate hospital facility, i.e. a rehabilitation unit. Once the patient has gained independence to an extent that he will be able to function at the maximum potential of his remaining abilities he should be discharged to a home for the aged or to a nursing facility (see below).

Those residents who have severe impairment, e.g. patients who have had severe strokes, patients with head injuries, neurosurgical patients and amputees should, after initial assessment in a geriatric assessment unit or other appropriate facility, be transferred to a rehabilitation hospital or unit. Patients who are successfully rehabilitated should be discharged back to an old-age home. Those who cannot be rehabilitated and require more resources than are available in an old-age home should be managed in the same way as the nursing group (see below).

Management of the maintenance group

Maintenance patients should be managed in a geriatric assessment group or other appropriate hospital facility. Examples of conditions affecting this category of patient are pulmonary oedema, pulmonary embolism, and congestive cardiac failure. As soon as the patient can be adequately managed by the institution staff, he should be referred back to a home for the aged with ongoing support, as required. Such a policy would have the additional advantage of providing ongoing training to the primary care team in the management of this type of patient and will ultimately lead to a higher level of care for all residents of the home.

An important group of patients requiring assessment are those suffering from acute confusional states that may be precipitated by medical conditions, such as pneumonia or carcinoma. These patients require a detailed work-up by a geriatrician and not sedation.

Another important group requiring assessment are demented patients. These patients have the following differential diagnoses: Alzheimer's disease; multiple infarct dementia; normal pressure hydrocephalus; vitamin B₁₂ deficiency; and hypothyroidism. Depressive pseudodementia may mimic dementia. In the assessment unit, routine examinations and laboratory tests, including computed tomography of the brain could be

carried out to enable a definitive diagnosis to be made. Once the diagnosis is made, placement of the patient in a home for the aged or other facility could be carried out (see below).

Management of the nursing group

This group includes those residents who cannot be rehabilitated, may be completely bed bound, demented and who require more nursing time than can be provided in a home for the aged. The proportion of such residents is small, but owing to the high nurse:patient ratio required to care for them, it is not cost-effective to care for them in a home for the aged.

It is also generally not cost-effective to utilise hospital beds for purely nursing reasons, particularly in urban areas, since the facilities available in a hospital, such as laboratories, radiology, pharmacy, are expensive and should be utilised maximally.

It is proposed that nursing care units be developed in selected homes for the aged or other suitable institutions in urban areas that are staffed with sufficient appropriately trained nurses to meet the requirements of this type of severely dependent patient. In addition, the facility should have adequate medical and psychiatric support.

Such special facilities would accommodate the relatively small number of residents who require more care than can be provided in a home for the aged from a large number of these institutions in an area. They would not only provide these patients with acceptable quality of care but would optimise the utilisation of scarce nursing staff, not only in these facilities, but also in homes for the aged where the quality of care provided for the remaining residents would be enhanced.

Recommendations

It is recommended that the following facilities are provided in all major centres in order to provide acceptable care and essential support for the primary care team responsible for caring for this major group of frail aged:

Beds for assessment, stabilisation and rehabilitation. Geriatric assessment units or geriatric departments in hospitals should be established in all major centres. These could accommodate residents from homes for the aged who require assessment and stabilisation, and if necessary rehabilitation, in order to provide acceptable care to the elderly in homes for the aged and support for the primary care staff working in these institutions. If no geriatric assessment unit exists in a major centre, consideration should be given to developing one as soon as possible. Communication channels should be established between the geriatric assessment units (or geriatric departments) and the home for the aged to facilitate the movement of patients between the various institutions in accordance with patient needs.

Nursing care units. Such units should be developed in all major centres in selected homes for the aged or other suitable institutions to cater for those who cannot be rehabilitated, are bed bound, who may be demented, and who require more nursing time than can be cost-effectively provided in a home.

Beds in rehabilitation units. Consideration should be given to the development of rehabilitation units as part of a comprehensive geriatric service in all major centres. Where such units already exist, provision of adequate beds for patients who normally reside in a home for the aged and who require major rehabilitation should be made.

Beds for patients with terminal disease in a hospice or in a general hospital. This facility would cater for persons requiring specialised terminal care that cannot be provided in a home for the aged. The provision of subsidies

for existing facilities would assist in the provision of such care.

Care in rural areas. The above centralised facilities would be appropriate in the larger centres but would be difficult to provide in rural areas. A study, using a similar methodology to this study, was carried out in the rural areas of the Orange Free State (see part II).¹³

Training. Medical and nursing staff in these facilities, should have regular in-service training and special courses in geriatrics in order to provide the quality of service required for the care of these patients.

Nursing staff. Since insufficient nursing care was an important factor in residents being classified as 'requiring hospitalisation', nursing staff:patient ratios should be investigated with a view to optimising patient care in the most cost-effective manner.

Occupational therapists and physiotherapists. An important reason for residents being classified as 'requiring hospitalisation' may be attributed to insufficient occupational therapists and physiotherapists to cope with the needs of residents requiring rehabilitation (Table VII). In many homes for the aged, occupational therapists and physiotherapists are not available. Such personnel are indispensable in a geriatric service for maintenance therapy as well as for rehabilitation. Measures are urgently required to provide posts and personnel to remedy this serious shortfall in the health services — the use of physiotherapy assistants and occupational therapy assistants, under the supervision of qualified therapists, could do much.¹⁴

Applicability of organisational structure. The type of organisational structure described above can be applied to all elderly, regardless of race.

Conclusion

The proportion of residents in homes for the aged who require more staff time and/or expertise and/or medical equipment than can be supplied and who may benefit by admission to a hospital is small.

Centralised specialist geriatric facilities, with liaison between the primary care staff and specialist staff, would provide for effective management of patients and provide much needed support to institution staff.

Urgent attention must be given to staff:patient ratios and the provision of adequate nursing staff, occupational therapists and physiotherapists to facilitate the care of dependent elderly patients.

The incorporation of specialised geriatric assessment units, nursing and rehabilitative facilities into the long-term care health system would not only decrease the need for expensive long-term hospitalisation, but would improve the quality of care provided to the large group of elderly persons residing in homes for the aged.

REFERENCES

1. Kinnaird J, Brotherton J, Williamson J. *The Provision of Care for the Elderly*. Edinburgh: Churchill Livingstone, 1981: 104 - 105.
2. Abramovics B. *Long Term Care Administration*. London: Haworth Press, 1988: 15.
3. President's Council. *Report of the Committee for Social Affairs on the Socio-economic and Spatial Implications of Ageing* (P. C. 1). Cape Town: Government Printer, 1988: 73.
4. Pilpel D, Naggan L. Evaluation of primary health services: the provider perspective. *J Community Health* 1988; 13: 210 - 221.
5. Department of Social Welfare and Pensions. *Subsidisation of Homes for the Aged* (Circular No. 170), (Head Office Reference 51/6/3: 1-7). Pretoria: Government Printer, 1978.
6. Katz S, Ford AB, Moskowitz RW, Jackson BA, Jaffe MW. Studies in illness in the aged: the index of ADL, a standardized measure of biological and psychological function. *JAMA* 1963; 185: 914-919.
7. Rubenstein LZ. Geriatric assessment programs in the United States, their growing role and impact. *Clin Geriatr Med* 1986; 2: 99-112.

8. Mathews DA. Dr Marjory Warren and the origin of British geriatrics. *J Am Geriatr Soc* 1984; 32: 253-258.
 9. Rubenstein LZ, Josephson KR, Wieland GD, English PA, Sayre JA, Kane RL. Effectiveness of a geriatric evaluation unit; a random clinical trial. *N Engl J Med* 1984; 311: 1664 - 1670.
 10. Veterans' Administration Department of Medicine and Surgery. *Geriatric Evaluation Unit Guidelines for Development and Operation* (IB 185). Washington, DC: Veterans' Administration, 1986.
 11. Meiring PDeV. A system for rendering comprehensive health services to the elderly. *S Afr J Cont Med Educ* 1989; 7: 1137 - 1148.
 12. Meiring PDeV. Planning a service for the care of the aged in Cape Town and beyond. *J Dent Assoc S Afr* 1984; 39: 671 - 674.
 13. Whittaker S, Prinsloo FR, Wicht CL. Frail aged persons residing in South African homes for the aged who require hospitalisation: Part II. Rural areas. *S Afr Med J* 1991; 79: 44-47. (this issue).
 14. Wicht CL, Prinsloo FR, Skibbe A, Lombard CJ, Lombard E. *Sensorg (senior sorg) Onderzoek na die Gesondheidsdienste en Behoeftes van die Bejaardes: Gesaamlke Voorstelle*. Parow, CP: South African Medical Research Council Sponsored Project, 1989: 333.
-