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OUTCOMES OF GERIATRIC DISCHARGE PLANNING

A Quality Assurance Study from a Geriatric Rehabilitation Ward

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ABSTRACT. The outcome of a discharge planning procedure at a geriatric rehabilitation ward was studied with an interdisciplinary and multidimensional approach, where medical, nursing, functional and psychosocial factors were included. The patient's own expectations and attitude to functional performance and outcome were explored in an interview at the day of discharge and one month later in a follow-up telephone interview. Data were also collected from registers and medical and professional records. All the 36 patients discharged to their own homes, mostly after home assessment, or to old people's homes were followed up. The median rehabilitation stay was 30 days. Their medical status was stable over time and nursing interventions remained frequent. The functional level was unchanged for 18, and further enhanced for 10 patients. Most patients felt secure at home and received the home help they anticipated. Worries were expressed by one-third on realistic grounds, mainly medical or ideas on the accommodation. Some interventions were required and carried out by the team. Home living was as expected or better for two-thirds of the patients. The timing and the patient's situation at discharge seemed to have been well assessed, with an overall positive outcome after a month at home. Further development of practical multidimensional evaluations adapted to elderly patients is necessary in a quality assurance perspective.

Key words: geriatric rehabilitation, discharge planning, elderly, multidimensional assessment, functional level, follow-up, quality assurance, outcome research.

In recent years not only researchers both inside and outside Scandinavia but also Swedish media have devoted increasing attention to geriatric rehabilitation (1, 15, 20), a fact that may be partly explained by the growing proportion of old people in the 1990's (5). Demographic changes are likely to intensify demands made on the health system because health care consumption tends to become greater with increasing age (8, 5, 37). It is vital that resources be used in a more cost-effective way, while at the same time maintaining the high quality of health care (17). Several different projects aimed at quality assurance have been initiated in Sweden (32). It is of prime importance that health care given to the elderly offers both stability and, by enabling them to stay in their own homes whenever possible, the greatest possible independence (13, 15). This was also the specific goal for rehabilitation on the ward in the current study.

The geriatric approach to the elderly patient is that of multidimensional assessment, involving medical, nursing, functional, psychological and social factors (1, 15, 25, 26, 29). This is in keeping with the intentions of the Swedish Health Care Act (19) and together with multidisciplinary team work forms the basis of geriatric rehabilitation (26, 29). After assessment by each professional group the planning of the rehabilitation period is agreed upon at case conferences by the team as a whole. The objectives are then discussed with the patient and his/her next of kin who should also be able to influence the planning process, especially with regard to discharge (30, 36).

The discharge planning procedure is of prime importance when arranging safe and optimal discharge to the home (17, 33, 34, 36). The need for discharge planning was formally acknowledged in the USA in 1984 when it was introduced into the Medicare prepayment system using diagnosis-related groups (DRGs) (17). There is also a long tradition of discharge planning in Great Britain (29, 34). The procedure consists of four phases (17, 21): 1) Patient assessment, 2) Development of discharge plan, 3) Implementation in the form of provision of

services, including patient/family education and service referrals; other forms are adequate technical aids, home visits, housing adaptation and sometimes home training (1, 2, 23), 4) Follow-up/evaluation. In the current study the focus is on the evaluation phase.

The aim of this work was to study the outcome of a geriatric discharge planning procedure, including implementations by the team before and at discharge. The multidimensional aspects of the patient's situation are described from the patient's point of view one month after discharge.

MATERIAL AND METHOD

Method

During the rehabilitation period on the ward careful discharge planning was carried out by the team, implementing different objectives. The multidisciplinary team consisted of a physician, a ward nurse and nursing staff, physio- and occupational therapists, a clinical social worker and sometimes a speech therapist and a nutritionist.

The outcome of this discharge planning was reviewed in a study performed in the autumn of 1992, in which all patients were followed-up one month after their discharge from a rehabilitation ward with 24 beds in the geriatric hospital in Uppsala, Sweden.

Study group

The study group consisted of 36 patients discharged to their own home or to an old people's home during a 4-month period in 1992. That group represented 71% of all 51 patients discharged from the ward; 6 (12%) patients went to nursing homes and 9 (17%) died during these 4 months.

At discharge

On the day of discharge the occupational therapist did a structured interview with the patient and made an assessment of his/her functional level, also giving the patient him or herself an opportunity to assess this level. The patient's self-reported performance was stressed rather than his/her ability since the follow-up was to be done in the form of a telephone interview with the patient.

All 3 patients with speech difficulties due to stroke were assessed by the speech therapist in the team. In spite of their expressive aphasia they were all able to compensate for their handicap by good understanding and non-verbal communication and had received training in this field while in hospital.

The patient's functional level was measured by two different methods, the well-known Katz' Index of ADL (activities of daily living) (9, 10, 28) and a local hospital assessment scale devised by physio- and occupational therapists originated from the Norwegian Sunnaas Instrument (14).

Katz' Index of Independence in ADL is based on an evaluation of the functional independence or dependence of patients in six personal primary activities, namely bathing, dressing, going to the toilet, transferring, continence and feeding. These activities are formed as a cumulative scale into six grades from grade A (totally independent in all six activities) to grade G (dependent on other people's help in all six). A category Other is used when dependent in at least two activities but not necessarily in the prescribed cumulative order (9, 10). For example, incontinence is a physiological function rather than an activity and that item will not fit into this type of scale (28). For an elderly, often multi-diseased patient group this causes problems in assessing according to the Index.

Independence means without supervision or active personal assistance except for some well defined minor assistance in bathing, dressing and feeding. This is based on actual status and not on ability (9, 10). Assessments in our study were made by the occupational therapist both at discharge and from the patient's reports at follow-up.

The local hospital assessment scale permits better differentiation of minor changes of functional level than the Katz' Index. The scale includes seven variables, eating, dressing, grooming, toilet during the day, toilet at night, transfer to and from bed, mobility longer distances assessed on a four grade scale; 1) independent, 2) independent if preparation has been made or with aids, 3) partly dependent needing the help of one person, and 4) dependent of the help of two persons or lifting aids. Each variable is allocated 0–3 points. The eighth variable dependency on technical aids is grouped as follows: cane, walker, wheelchair, walking chair ("a high walker") and no technical aids.

The changes in dependency from discharge to follow-up were assessed as moderate improvement/deterioration when the points of one variable increased or diminished by one point, and as definite change when the difference was two points or more or if the patient became totally independent in the remaining variable for an overall total independence. Status quo meant that no change in any variable occurred.

This local scale has much in common with well known functional instruments (9, 3), at present under discussion in Sweden, like the Katz' Index (10, 11, 28), FIM (Functional Independent Instrument) (24, 7), RAI (Resident Assessment Instrument) (4) and Sunnaas Instrument as earlier mentioned (14). However, as far as we have found none of them have specified one important variable, namely toileting at night, even though it is covered in the variable toileting in some of them, for example in Katz' Index. Many years of clinical experience have shown that the night problems might be a major limitation of the elderly patient's ability to live at home alone or together with an elderly spouse. The nursing planning on the ward included an assessment of this and tests of different aids with evaluation and reports to the day nurse.

Data from hospital registers and the patient's medical record were examined for admission and discharge, length of hospital stay, diagnosis, residence after discharge, readmissions to any hospital and medical information. All practical measures taken in connection with the discharge procedure were documented.

The medical condition at discharge was assessed according to a global assessment (stable/unstable) done by the responsible ward physician and the research physician independently. At follow-up the research physician assessed the medical condition in a three graded scale: stable-unchanged, better or worse compared to discharge. If assessed "worse", the patients were promptly seen by the ward physician, who also validated the assessment.

Follow-up

A telephone interview with the patient was performed by the clinical social worker one month after discharge with 31 of

Table I. *Characteristics of study group* ($n = 36$)

Sex	Female	19	53%
	Male	17	47%
Age	Range		50–96 years
	Median		80 years
Length of stay	Range		7–89 days
	Median		30 days
		$n = 36$	%
Main diagnosis	1. Stroke	11	31
	2. Neurological diseases (MS, Parkinson etc.)	1	3
	3. Orthopedic diseases	11	31
	4. Medical diseases incl. geriatric assessment	7	18
	5. Cancer	1	3
	6. Surgical diseases	1	3
	7. Dementia	–	–
	8. Other causes than above caring assessment etc.	4	11
			100
Living at discharge	In own home		
	together with relative	16	44
	alone	11	31
	In old people's home	9	25
			100

the 36 patients. In 2 of these cases the interview was complemented by a relative or staff at the old people's home because the patient was tired or because of impaired cognition. For the remaining 5 patients personal interviews were done because of impaired hearing or aphasia. The interview was of a structured type with open answers, allowing it to be held as a normal conversation. Some of the questions can be seen in Tables V and VI.

If the patient expressed any problem, an intervention was carried out by someone in the team. Examples of that could be a minor adjustment of technical aids or renewed discussion with local authorities about the home help service.

All 36 patients were assessed at discharge and at a follow-up interview. There were no missing data.

Table I shows the characteristics of the 36 patients. The median age was 80 years (range 50–96 years) and 53 % of the patients were women. The median length of stay was 30 days. On being discharged three-quarters of the patients returned to private accommodation, 16 of them with a relative (spouse) and 11 patients living alone. Nine patients moved to old people's homes.

The diagnoses that led to hospital admission were recorded; however, all the patients had more than one diagnosis (mean value 4.3, range 2–7 diagnoses). Stroke was a prominent cause of rehabilitation (one-third of the patients) as well as orthopaedic diseases such as hip fractures, amputation, etc (one-third), while the remaining third constituted a miscellaneous group. None of the patients had dementia as main diagnosis (which was according to the referral strategy of this ward in the hospital) but cognitive impairment was seen in 2 patients, both 90 years of age.

At admission to the ward 27 patients were transferred from acute hospitals where they had been judged as medically ready for discharge, and the remaining 9 patients were admitted from home (of whom 2 lived in an old people's home).

RESULTS

Medical factors

All 36 patients were discharged in a stable medical condition and alive at follow-up. After discharge 90% of the first medical controls were performed at the geriatric clinic after about 6–8 weeks (24 patients) or by other geriatric consultants (8 patients) at the geriatric day hospital or in old people's homes. The remainder (4 patients) were given medical examinations by primary health care professionals.

Table II shows the medical situation at discharge and at follow-up one month later. Home health care with nursing intervention was needed by nearly three-quarters of the patients, mainly for weekly distribution of medicine (26 patients). However, as many as one-third needed regular qualified nursing for the treatment of sores and injections, and one-third needed other specialized nursing, 2 in daily home nursing care and the rest mainly for assessments or blood tests once a week. Only 3 patients did not need any interventions.

After one month the number of patients receiving nursing intervention was about the same, but in some

Table II. *The medical condition one month after discharge compared to the condition at discharge*

	$n=36$	%
General medical condition		
At discharge		
Stable	36	100
At follow-up		
Better	2	6
Unchanged	31	86
Worse	3	8
		100
Nursing interventions		
At discharge		
Wound treatment/injections	12	33
Weekly medicine distribution	26	72
Special nursing needs	13	36
None	3	8
At follow-up		
Less	2	6
Unchanged	33	92
Increased	1	2
		100

cases the visits had become less frequent and relatives had taken over the weekly distribution of medicine to cut costs.

The general medical condition of the patients was almost unchanged. Two became better. Three became worse and were given prompt appointments with the ward physician. Two patients in the latter group developed new ailments, requiring new admission to acute hospital for a while, and the condition of the third deteriorated in an illness that was already known (cancer).

Functional factors

An optimal discharge procedure demands the preparation and realization of certain practical measures. Table III gives an overview of these.

Technical aids for mobility were tested or renovated when necessary. Almost all patients (34 out of 36) were dependent on some sort of technical aid for mobility. At follow-up minor adjustments, mostly of wheel-chairs, were required in 5 cases.

Home assessment visits were done to adapt the training at the hospital to the requirements of the patient after discharge and to analyze the need for technical aids or devices and housing modification. Visits were deemed unnecessary for 12 patients, 7 of whom had moved to old people's homes and service houses; telephone instructions to the staff were sufficient in these cases.

Half of the patients needed housing modification, mostly consisting of minor changes. In 4 cases the community-based occupational therapist did the necessary work. As mentioned above, 12 persons were already living in accommodation suitable for the handicapped, 9 in old people's homes and 9 in similarly modified accommodation in service houses,

Table III. *Practical actions prior to discharge made by occupational therapist (OT) and/or physiotherapist (PT)*

		$n=36$	%
Technical aids for mobility tested	Wheelchair	12	33
	Walker	16	45
	Wheelchair/Walker	3	8
	Cane	3	8
	No technical aid for mobility	2	6
			100
Home assessment visit by OT and PT	Performed	18	50
	Earlier performed	6	17
	Not required	12	33
			100
Housing modifications	Performed	15	42
	Earlier performed	2	6
	Not required	19	52
			100
Home training by OT and/or PT	Yes	6	17
	No	30	83
			100

while the remaining 12 were able to manage in their own homes.

Six patients were chosen to receive home training during hospital stay to enhance the functions and abilities achieved during training or to improve their safety at home and to study housing modifications. Another aim was to give psychological support to the patients and often also to relatives in the transition to home living.

After discharge, one-third of the patients needed further rehabilitation at the geriatric day hospital, or as out-patients by the physical-, occupational- or speech therapists. Three received functional maintenance training in community day care.

Fig. 1 presents the functional level according to Katz' Index of ADL for all 36 patients at admission, at discharge and at the follow-up after a month. As expected, the main differences are to be found between admission and discharge. Fifteen patients (42%) were classified as being totally independent, and in all 19 patients (53%) (grade A and B) needed only help once a week for bathing but could manage daily hygiene independently at discharge compared to 5 and 6 respectively at admission. Only minor changes were seen between discharge and follow-up.

When concentrating on the three prominent variables feeding, toileting and transfer, we found that 24 out of 36 patients (66%) were totally independent on other people's help at discharge. This outcome reflects a remarkable improvement during the rehabilitation period in hospital, since at admission only 5 of the patients (14%) were independent in these three variables.

Three of the patients were cathegorized as Other, where the cumulative Katz' scale was not applicable. An example of this was an elderly woman with an orthopedic disease and incontinence due to an acute urinary tract infection, needing help in transfer in and out of bed but could then manage by herself in dressing and bathing (showering) at admission but became later a "C-patient". The 2 other patients in category Other had that classification at all three measure points. Their dependence varied between different variables at each time, but not following the cumulative order.

The more differentiated local hospital assessment was used to evaluate the stability of functional level on an individual basis one month after discharge compared to Katz' Index of ADL (Table IV). We noted that 10 out of 36 patients had improved functionally at home. Half of the patients were at the same level of function as at discharge. Eight patients were found to have deteriorated functionally for different reasons. In 2 cases there were medical reasons for the decline and in one case the explanation was overgenerous help by relatives, despite the patient being

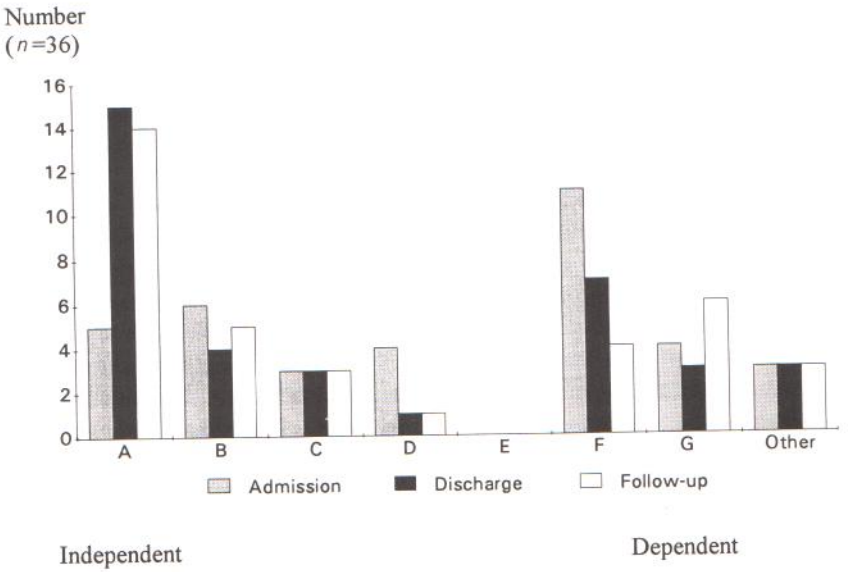

Fig. 1. Patients' functional level at admission, discharge and follow-up after one month according to Katz' Index of ADL (9, 10).

Table IV. *Outcome of functional level one month after discharge measured by local hospital assessment done by OT/PT compared to Katz' Index of ADL (n=36)*

	Local hospital assessment		Katz' Index of ADL	
	n	%	*n*	%
Improvement	5	14	0	0
Some improvement	5	14	1	3
Status quo	18	50	30	83
Some deterioration	3	8	5	14
Deterioration	5	14	0	0
		100		100

able to cope on her own. Domiciliary services provided more resources than necessary (two helpers instead of one) in 4 cases. For the last patient the team had assessed and asked for a higher level of care and housing at discharge than the local authorities could give.

According to Katz' Index only 6 patients had differed in functional grades, one became better (from C to B) and 5 got more dependent, namely from A to B, B to C and 3 patients from F to G, needing also help in feeding. Of the last 3 patients two lived in an old people's home and one in a service house.

The variable toileting at night at discharge showed problems for one-third of the patients. Six patients needed the help of one person, often many times every night and 2 were dependent on two helpers, while 6 could manage by themselves when different aids had been tried. Twenty-two patients were independent of help at night. At follow-up 3 patients had deteriorated and needed personal help, while one had become totally independent.

Table V. *Patient's opinion about discharge expectations and discharge outcome (n=36)*

The following questions were asked:	*n*	%
At the day of discharge		
"How do you think you will cope at home?"		
Well	28	77
Both well and poorly	5	14
Uncertain	1	3
Don't know	2	6
		100
One month after discharge		
"How has it been at home during this month?"		
Better than expected	4	11
Good—as expected	22	61
Worse than expected	9	25
Much worse than expected	1	3
		100

Psychosocial factors

Table V shows a global assessment of the overall expectations of each patient about returning home and of the outcome as found in the follow-up interview. Two patients with cognitive impairment were unable to answer these questions.

At the day of discharge more than three-quarters (78%) of the patients expected to cope well at home. At the follow-up one month later 26 out of 36 (72%) patients said that they had coped as expected or better than expected at home. The negative opinions were expressed by 3 persons with new medical problems, one with a visual problem and one with impaired cognition who became more confused and in need of a different level of care. Two had not expected to be so isolated in their accommodation, having difficulty in coping with stairs.

Information of a similar kind was given when this global question was followed-up in more detail with regard to the patient's views on the discharge procedure, presented in Table VI, together with some of the questions asked. Two-thirds of the patients said they had felt no worry after discharge, while the rest gave adequate reasons for their worries including economic comments on the cost for formal care. Most patients had felt secure in the first month at home, the exceptions being those 3 who would have liked accommodation with a higher level of care.

Two-thirds of the patients had home help service. Some of the patients had declined offered help. Almost all patients had the help they anticipated. Only 3 patients were dissatisfied and wanted more home help service.

The social contacts with relatives had been as expected for all patients but one who had anticipated more visits from relatives but also stated that she was too tired to have coped with any more visits.

At the follow-up intervention was carried out by the team in 11 cases, 3 on medical grounds and another 3 needed help by the social worker in accommodation problems and home help services already discussed in the hospital. The remaining 5 had minor problems

Table VI. *Psychosocial aspects on discharge procedure according to patient's own opinion one month later (n = 36)*

		n	%
Have you been worried after discharge?	Yes	12	33
	No	24	67
			100
If yes, for what?	Pain	3	
	Relatives endurance	3	
	Not getting enough help	2	
	Not being independently able to get outdoors	1	
	Confusion	1	
	Can't say	2	
Have you felt secure about your situation?	Yes	33	92
	No	3	8
			100
If no, why not?	Wrong level of accomodation	3	
Do you have regular home help service?	Yes	23	64
	No	13	36
			100
Are you satisfied with that?	Yes	31	86
	No	3	8
	No answer	2	6
			100
Have the social contacts with relatives been as you expected?	Yes	35	97
	No	1	3
			100

with technical aids requiring adjustments by the occupational therapist, which occurred during the first month of the study period when the turn-over of the ward was very high.

DISCUSSION

To achieve good in-patient geriatric rehabilitation in hospital the patient should be discharged at an optimal time. What is considered to be the optimal time depends on many factors. The professional team as a whole assesses the patient's total state and level of function but the discharge decision is ultimately in the hands of the responsible physician (15, 26, 34). The patient and the patient's relatives also have opinions (12, 19, 36) and there are practical aspects to be taken into consideration before and after discharge.

If considerations of efficiency and productivity are given too much importance in an attempt to reduce bed days, the quality of care may be impaired. This leads to adverse effects both for the individual patient and for society as a whole, for example in the form of increased demand for care by local authorities and possibly the need for rehospitalization (12, 21, 35).

In our study on the outcome of discharge planning we selected those patients actually discharged to their own home or to an old people's home and excluded those referred to nursing homes and those who died on the ward. We chose a descriptive approach without any attempt at experimental design. There are difficulties attached to finding suitable control groups within geriatric hospitals because of the great importance already attached to discharge planning in that speciality, despite differences in practice (34, 36). It is not reasonable to compare patients with those in acute hospital wards, since diagnoses and the situation of the patients involved differ too much (16, 34). Earlier studies in Sweden have indicated a lack of rehabilitation and discharge planning, particularly where elderly patients are concerned (16, 31). Follow-up as telephone interview of the elderly has been used in other studies (12, 16, 17, 21).

The rehabilitation objective was as good and as stable a state of health as possible for the patient,

together with maximal autonomy of function and security in both the physical and social environments, also taking possible aid requirements into account (13, 15, 33). New admissions to acute hospital occcurred in only two cases on other grounds than the main diagnosis in our study.

Elderly people often suffer from multiple diseases of a chronic nature (1, 2). The distribution of diagnoses in this study is one that is common in geriatrics, with stroke and orthopaedic diagnoses representing about one-third each and a miscellaneous group the remaining third. Dementia as main diagnosis, however, was not represented due to local referring strategy for this rehabilitation ward (2, 15, 21). We found that there was a considerable need for nursing following discharge, which has been confirmed in other studies of elderly patients at discharge (31). The majority of patients received help from district nurses with the distribution of medicines as well as help with injections and with changing dressings (8, 34, 35). In our study patients tended to abstain from help after a month on account of the cost involved, even though the help was still needed. However, the necessity of special nursing may be overestmated in this particular study group compared to others (8, 34, 35); this may be a subject for further studies.

The patient's medical condition affects his/her functional capacity and psycho-social factors, especially for elderly patients (2, 9, 14, 33). We found that at discharge after a median rehabilitation period of 30 days half to two-thirds of the patients were independent of other people's help depending on which ADL measurement we used, compared with 14% at admission. These figures in connection with the functional stability over time must be regarded as a good rehabilitation outcome when taken into account our highly selected multi-diseased aged patient group, even though comparison with other studies are difficult to make because of different patient groups. In a Swedish population study of 76-year-old persons, 90% of those living at home were independent in personal ADL (28).

Other studies have pointed out limitations in the Katz' Index on discrimination in changes in the more independent grades A and B (22, 28). We therefore also used the more differentiated local hospital scale for ADL changes and mobility. We focused our attention upon the patient's self-reported function and his/her performance and not simply upon objective capability (3, 9, 16, 27). This was partly to facilitate telephone follow-up and partly because this aspect is important for elderly patients. Our study confirmed earlier mentioned limitations of the cumulative order in the Katz' Index of ADL, especially when used on an elderly heterogeneous patient group.

The majority of the patients retained or enhanced their functions during the first month at home. This is in accordance with other studies (18, 26) although some have also argued the opposite view (35). Differing principles for patient selection, time of discharge and discharge planning activities could provide explanations for the divergent results. The time at which follow-up occurs may affect results (37).

Functional training is of the utmost importance for the elderly, if possible in the form of home training. Where that is not possible training should relate to the home environment, and be planned by occupational and physio-therapists in connection with home visits done at an early stage during the patient's stay in hospital (18, 29). The goal is the independence and security of the patient, with or without technical aids or compensating techniques, and verified in the patient's home environment. The significance of home visits has been described internationally (6, 8, 34). Home training of the elderly is a fairly new area that will probably attract more attention in the future as an alternative to hospital beds (1, 20).

Toileting at night was another target of interest in our study. This is an often neglected area in discharge planning and may not be specified in ADL scales, and can be the limitation for the elderly living at home. Sometimes technical aids can provide adequate help but often not even alarms and home care night patrols are sufficient for the security of the patient (and relatives). The delay involved tends to create anxiety and insecurity, which affects all activities throughout the day.

The psychosocial aspects of discharge planning are essential for the outcome of rehabilitation as a whole and is often connected with the issue of information (1, 30) even though there are methodological problems in measurements (9). The patient's subjective view is essential because he/she is the consumer of the health care provided. The results of this study imply that the elderly are often realistic in the expectations they attached to homecoming and accommodation standards. The few who expressed anxiety at follow-up generally had good reasons for this, such as new medical problems or housing problems which were foreseen prior to discharge. The patients

appreciated help in the form of interventions by the team at follow-up. The option to receive domiciliary help described in the current study is greater in Sweden compared with UK and Canada (8, 36). However, many of **them** had very modest expectations of both formal and informal care after discharge (8). The cost of formal help was a limiting factor and a source of some anxiety.

CONCLUSION

The discharge planning procedures in geriatric rehabilitation are of the utmost importance for maintaining the patient's independence and autonomy. With our limited patient material we had intended to create a practical multi-dimensional model for evaluation as part of a quality assurance process in a geriatric hospital. The participation of several professional groups in the team was the option, in this case a physician, an occupational therapist and a social worker. At other times other groups may be involved. We have tried to elucidate medical, functional and psychosocial aspects of the process in a patient perspective with follow-up one month after discharge and carried out interventions if necessary. We consider that we managed to fulfil our ambition to evaluate the outcome of the rehabilitation period and that the rehabilitation was of great benefit to the patients.

However, further development and research on measurements adapted to elderly multi-diseased patients are essential in the near future (17, 33, 37), with increasing demands for quality assurance and cost effective outcomes being placed on every day routines in the health care sector.

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