Rehabilitation in the Nursing Home: How Much, Why, and With What Results

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Synopsis

Although rehabilitation is considered an important component of long-term care, few studies have looked at the factors associated with the provision of rehabilitation in this setting. The authors examined one State's skilled nursing homes to gain information on their rehabilitation practices.

Data for this study came from a mail survey and from the licensing applications filed with the State Division of Facility Services. Sixty-nine percent of the State's nursing homes responded to the survey. All reported that they provided specialized physical therapy, occupational therapy, or speech therapy, or all three, but the numbers of patients reported to be enrolled in such therapies on a daily basis varied from 0 to 64 percent of the facility's census.

Factors positively associated with the provision of rehabilitation included the number of full-time registered nurses on the staff and the belief of the facility administrator that the purpose of rehabilitation is to restore function so that patients can be discharged.

Facilities that employed their own therapists rather than contract for these services reported significantly more patients enrolled in daily therapies. And a significant positive correlation was observed between the provision of daily rehabilitation services and discharge of patients in those facilities that hired their own rehabilitation staff.

These findings suggest that the provision of rehabilitation in nursing homes has different goals and outcomes and that there are facilities with identifiable characteristics that appear more successful in returning patients to their homes.

THE FEDERAL OMNIBUS BUDGET Reconciliation Act (OBRA) provides that specialized rehabilitative services be made available to allow each nursing home resident to "attain or maintain the highest practicable physical, mental, and psychosocial well-being" (*1*). A review of the literature on long-term care shows that rehabilitation typically is listed as a component of nursing home care, but its exact role has not been well-defined (*2–4*). Although previous nursing home surveys have examined reimbursement patterns that indirectly influence the provision of these services (*5*), further information on the present status of nursing home rehabilitation seems warranted in the planning of future geriatric care.

To investigate the degree of heterogeneity among facilities in one State with regards to administrative attitudes about rehabilitation and the actual delivery of these services, we conducted a survey in 1991 of all skilled nursing home facilities in the State of North Carolina.

Methods

A questionnaire was sent to the administrators of all 230 skilled nursing facilities identified by the North Carolina Division of Facility Services. Three weeks later, the questionnaire was sent again to those who had not responded. The questions, which were fill-in-the-blank and multiple choice, dealt with facility characteristics and professional staffing levels and also with the attitudes of the administrators on rehabilitation of nursing home patients. The survey was judged to have face validity by consensus of a group composed of nursing home administrators and rehabilitation therapists. Reliability of questionnaire data was ascertained by a repeat mailing of 10

questionnaires to facilities where we piloted an earlier version of the survey instrument. Answers to common questions between the two instruments (dealing with facility size and staffing practices) were examined and found to be in agreement.

The data obtained from completed surveys were complemented by health facilities data collected by the North Carolina Center for Health and Environmental Statistics. This information, compiled annually from nursing home facility applications, includes information on patient demographics and facility personnel.

Data were initially analyzed using multiple regression techniques with census as a weighting variable to identify predictors of nursing home discharge and provision of rehabilitation services. We defined our discharge variable as the percentage of a facility's patients discharged to home or to other independent living arrangements during a 6-month period. The dependent variable of percent of patients receiving rehabilitation was calculated for each nursing home by dividing the total number of patients receiving daily (5 times per week) rehabilitation services by the total reported census. Daily therapies is the standard for most inpatient rehabilitation programs. Coverage under Medicare part A for restorative rehabilitation in the nursing home is provided only if patients need and receive daily skilled nursing or rehabilitation services. The variable dealing with Medicare utilization was defined as Medicare days of care divided by total days of care provided by the facility.

Pearson correlation coefficients, *t*-tests, and chi-square analyses were used to examine differences further in groups of facilities with defining characteristics identified in the regression analyses.

Results

None of the 230 questionnaires sent were undeliverable. A total of 159 (69 percent) of the State's facilities responded to the survey (129 following the first mailing and an additional 30 following the second mailing). Examination of the available health facilities data showed there to be no significant differences between nonresponders and the responders in patients' ages and nursing staffing levels. The mean census for the responding facilities was larger than for the nonresponders, 103 ±51 (mean ± standard deviation) versus 87 ±47 for the nonresponders (P = .034).

Facility characteristics. Examination of facility-specific information revealed that more than 90 percent of the responding facilities were corporately owned. Of all the patients, 37 percent were older than age 75, and women outnumbered men by a ratio of 3:1. The mean full-time registered nurse (RN) to patient ratio was .06. Variation was noted in this and other facility and patient characteristics (table 1). Facility administrators were asked about their use of physical, occupational, and speech therapists, assistants, and aides. All of those responding to the survey reported hiring part-time or full-time therapists, assistants, or aides (table 2).

A substantial majority of facilities (130, or 82 percent) contracted with outside agencies or persons for their rehabilitation services, rather than directly employ their own therapists. In our analysis of factors affecting the provision and outcomes of therapy, we explored the hypothesis that facilities with their own therapy staff differ from nursing homes that contract for these services.

Rehabilitation provision and discharge. A multiple logistic regression model was assessed using percentage of patients receiving rehabilitation therapies as the dependent variable. The independent variables in the model were employment arrangements for therapists, nursing staffing levels, census, administrative

Table 1. Characteristics of 159 North Carolina nursing homes responding to a 1991 survey

Variable	*Mean*	*(± SEM)*
Patient census	125	±11
Patients in daily specialized rehabiliation	7.9	±.007 percent
Home discharges over 6-month period[1]	8.5	±.007 percent
Medicare days of care (percent of total)	4.3	±.36 percent
Nurse staffing[2]	.06	±.004

[1]Percent of census.
[2]Full-time equivalent registered nurses divided by patient census.
SEM = Standard error of the mean.

Table 2. Makeup of rehabilitation staffs in survey of 159 North Carolina nursing homes, 1991

Type of therapist	*Percent of facilities[1]*
Physical therapist	84.4
Licensed physical therapist assistant	68.9
Physical therapist aides	64.0
Occupational therapist	74.3
Certified occupational therapist assistant	23.4
Occupational therapist aides	5.8
Speech therapists	89.7

[1]Facilities using part-time or full-time therapists employed as staff members or by contract with an individual therapist or outside agency.

Table 3. Odds ratios and confidence intervals for factors associated with rehabilitation and with discharge to home or other independent living in 159 North Carolina nursing homes

Independent variable	Discharge			Rehabilitation		
	Odds ratio	95 percent confidence intervals		Odds ratio	95 percent confidence intervals	
Percent of Medicare-subsidized days	1.02	1.00,	1.03	1.12	1.11,	1.14
Nurse staffing[1]	1.04	1.02,	1.06	1.01	.99,	1.04
Administrative philosophy[2]	.58	.51,	.66	.67	.57,	.78
Therapist employment[3]	1.97	1.71,	2.27	1.23	1.09,	1.58
Patient census	.99	.996,	.999	.99	.992,	.996

[1]Full-time equivalent registered nurses divided by patient census.
[2]Functional maintenance as opposed to discharge, felt to be the goal of nursing home rehabilitation.
[3]Therapists employed by the facility as opposed to those hired under contract.

attitudes regarding rehabilitation, and the reimbursement arrangements for patients that previously have been associated with nursing home short stay and rehabilitation (*5,6*).

The likelihood that a patient in a given facility would be receiving daily physical or occupational therapy, or both, was associated with therapist employment, administrators' attitudes regarding rehabilitation, and the percentage of days of care subsidized by Medicare (table 3). A patient admitted to a facility where the physical or occupational therapists were directly employed was almost twice as likely to receive rehabilitation. Similarly, a patient admitted to a nursing home where the administrators believed that the main goal of nursing home rehabilitation was to maintain function (and not discharge) was only about half as likely to be receiving daily therapies (odds ratio –.58).

The survey nature of our study did not permit us to examine objectively any change in functional status as an outcome of rehabilitation. Instead, we looked at discharge to home or other independent living setting as indicative of rehabilitation success. Overall, the surveyed facilities reported an average of 8.5 ± .007 percent (mean ± standard error of the mean) of their patients being discharged to home or other independent living setting over a 6-month period. Patient discharge to more independent living was found to be associated with the percentage of Medicare patients in the facility, the provision of therapy by staff therapists, and the attitudes of administrators regarding rehabilitation (table 3). A patient admitted to a facility that employed its own therapists was found to be 23 percent more likely to be discharged to home or other independent living.

In our regression model, interaction was noted between the variables dealing with therapist employment and Medicare. The positive discharge benefits of having facility-employed therapists was only observed in nursing homes with greater than 6 percent of their patient care days subsidized by Medicare. We went on to evaluate further any other distinctions between the facilities with different therapist employment practices (tables 4 and 5). Significant differences were found in the percentage of patients being cared for under Medicare and in the percentage of patients receiving daily rehabilitation. RN staffing and census were similar for the two groups. The percentage of days of care subsidized by Medicare was significantly more highly correlated with home discharge in those facilities providing therapies with their own staff compared with those with contract services (r = .795 versus .248; Z = 3.63; P <.001).

Administrator attitudes and nursing home rehabilitation. In response to the question regarding the primary role of rehabilitation in the nursing home, the majority of administrators (71.2 percent) reported that maintenance of functional abilities in long-term residents, rather than the improvement of function to allow discharge, is the main role.

In a multiple-choice question, nursing home administrators were asked what they thought was the principal limiting factor in the provision of rehabilitation services. Overall, 67 percent of the administrators stated that the lack of patients with fair or better rehabilitation potential limited their provision of services. We noted differences between the facilities with contract versus on-staff therapy provision. In facilities with contract therapists, 72.5 percent of administrators reported that lack of rehabilitation candidates limited therapy provision versus only 40 percent in nursing homes with on-staff therapists (χ^2 = 10.02, P = .007). Thirty percent of the administrators of staffed facilities felt that the unavailability of therapists limited their provision of services, while only 13 percent of those with contracted services gave this response. Finally, poor reimbursement was cited as a limiting factor by 14 percent of contract

facility administrators and 30 percent of those with staff therapists.

Asked about the impact of Omnibus Budget Reconciliation Act on their facility's rehabilitation programs, a slight majority (59.3 percent) of the administrators anticipated no change in their needs for specialized therapists, while 40 percent felt there would be an increased need. No difference was noted between the facilities presently using contract therapists and those using directly employed therapists.

Discussion

Rehabilitation in nursing homes appears to have two distinct missions: (*a*) to maintain functional abilities of long-term nursing home residents and thereby enhance their quality of life and (*b*) to regain the functional independence of patients admitted from hospitals, allowing them to be discharged to home or other independent living.

These dissimilar missions fit with the categorization of nursing home patients as "short or long stayers" based on the length of nursing home residence (*7,8*). Short stay admissions, defined as those of less than 6 months, would consist of patients who either enter the nursing home very ill with a short life expectancy or enter the nursing home for short-term rehabilitation after such things as hip fracture or stroke. With the implementation of hospital prospective payment, and the resulting earlier discharge of more functionally disabled patients, it has been felt that the needs for short-term nursing home rehabilitation have increased (*9*). At least one study, however, examining patients admitted to nursing homes after hip fracture, has suggested a trend towards even fewer of these patients discharged to their homes once they are admitted to the nursing home (*10*).

A variety of factors have been identified as being associated with the provision of rehabilitation therapies in the nursing home, including partial dependence in Activities of Daily Living (ADLs), clear mental status, improving medical status, and the method of reimbursement for the nursing home care (*5*). Few studies have examined facility-specific factors associated with rehabilitation provision and home discharge. A study by Fitzgerald and Dittus of institutionalized hip fracture patients did show that a nursing home's beds-per-nurse ratio was associated with home discharge, but interestingly, the number of beds per physical therapist was not found significantly associated with return home (*11*).

Our study did not confirm the observation of Fitzgerald and Dittus that nursing staffing levels were associated with discharge, but we did identify modes of therapy provision and administrative attitudes regarding rehabilitation as possible predictors. Given the difficulty in interpreting the number of therapist full-time equivalents in facilities using contracted services (where support is usually provided "as needed"), we did not feel we could examine fairly the beds-therapist ratio as a predictor of discharge.

Our survey response was very good (69 percent), yet nonresponders did differ from responders at least as far as census (nonresponding facilities were slightly smaller). It is difficult to say how this may impact on our results. In our regression model, facility size does not appear to be a major factor in predicting the provision of rehabilitation, and there was no difference in census between facilities with payroll therapists and those without.

Our study demonstrated that a great deal of heterogeneity in the delivery of nursing home rehabilitation exists with regards to staffing practices, numbers of patients enrolled in daily therapies, facility discharge rates, and administrative attitudes toward rehabilitation in long-term care settings. There are facilities that appear more adept at discharging patients to home, and conversely, facilities that clearly are geared, almost exclusively, towards the

Table 4. Comparison of 130 North Carolina nursing homes that contract therapists with the 29 that employ their own

Variable	*Contract (N=130)*	*Employ (N=29)*	*P-value*
Daily rehabilitation[1]	6.7 ±1	12.7 ±2.5	.03
Percent Medicare	3.6 ± .32	7.05 ±1.22	.01
Percent discharge	7.4 ±1.3	13.9 ±3.7	.10
Nurse staffing[2]	.06 ± .004	.06 ± .004	.54
Patient census	106 ±3.9	116 ±7.8	.26

[1]Percentage of census engaged in daily physical therapy, occupational therapy or speech therapy, or both.
[2]Full-time equivalent registered nurses divided by patient census.

Table 5. Observed correlations of discharges between contract and employed therapist staffs in 159 North Carolina nursing homes

Correlation	*Contract*	*Employed*	*P values*
Percentage of rehabilitated patients and discharges[1]	[2].069	.385	.46, .05
RN staffing and discharge	.18	−.147	.05, .47
Percentage Medicare patients and discharges	.248	.795	.01, .0001

[1]Discharge variable defined as total number of patients discharged over a 6-month period divided by facility census.
[2]Pearson correlation coefficient.

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provision of chronic care. Our findings suggest that administrators' attitudes regarding rehabilitation dictate or are dictated by these different missions.

In North Carolina, as well as in most States, Medicare supports the majority of restorative rehabilitation programs in the nursing home. Although only about 3 percent of the Medicare budget goes to finance long-term care, that amount still totals more than $2.2 billion nationally per year (*12*).

Our findings that the receipt of Medicare and the provision of daily rehabilitation correlated more with discharge in that group of facilities with their own therapy staffing has several possible explanations including (*a*) facilities with their own therapist staff are more effective in achieving rehabilitation goals or in selecting candidates likely to improve in function, (*b*) the goals of Medicare-subsidized rehabilitation in the contract-staffed facilities are to maintain function in long-term residents rather than improve function to allow discharge, or (*c*) Medicare patients accepted into contract-staffed facilities are admitted for purposes other than rehabilitation, such as, for example, a need for skilled nursing, and therefore may be less likely to be discharged. Future studies examining more specific patient characteristics may help to clarify this finding. It should be noted that while these overall group differences existed in Medicare and discharge correlations, some of the contract-staffed facilities were successful in discharging patients.

Rehabilitation in the long-term care setting will likely gain more attention as the nursing home population continues to grow. Forty percent of our surveyed facilities felt that the Omnibus Budget Reconciliation Act would lead to an increase in their provision of specialized therapies. Expansion of existing specialized nursing home rehabilitation likely will be limited by costs and the availability of therapists. Further studies are warranted to look at the short- and long-term outcomes of nursing home rehabilitation programs aimed not just at restoring lost function but in maintaining function as well.

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