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Selection of Postacute Stroke Rehabilitation Facilities

A Survey of Discharge Planners From the Northeast Cerebrovascular Consortium (NECC) Region

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Abstract: The process of determining the level of care and specific postacute care facility for stroke patients has not been adequately studied. The objective of this study was to better understand the factors that influence postacute care decisions by surveying stroke discharge planners.

Requests were sent to discharge planners at 471 hospitals in the Northeast United States to complete an online survey regarding the factors impacting the selection of postacute care.

Seventy-seven (16%) discharge planners completed the online survey. Respondents were mainly nurses and social workers and 73% reported ≥ 20 years healthcare experience. Patients and families were found to be significantly more influential than physicians ($P < 0.001$) and other clinicians ($P = 0.04$) in influencing postdischarge care. Other clinicians were significantly more influential than physicians ($P < 0.001$). Insurance and quality of postacute care were the factors likely to most affect the selection of postacute care facility. Insurance was also identified as the greatest barrier in the selection of level of postacute care (70%; $P < 0.001$) and specific postacute care facility (46%; $P = 0.02$). More than half reported that pressure to discharge patients quickly impacts a patients' final destination.

Nonclinical factors are perceived by discharge planners to have a major influence on postacute stroke care decision making.

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Abbreviations: IRF = inpatient rehabilitation facility, NECC = Northeast Cerebrovascular Consortium, SNF = skilled nursing facility.

INTRODUCTION

Rehabilitation is important for the recovery of individuals who survive a stroke. The "assessment of patients for rehabilitation" in the acute setting is recommended in clinical rehabilitation guidelines,¹⁻⁴ in regional consortia recommendations for stroke care⁵ and national standards for stroke care quality.⁶⁻⁸ A patient's discharge destination from the hospital, for example, inpatient rehabilitation facility (IRF), skilled nursing facility (SNF), or home, is associated with functional gains and rates of readmission to acute care.^{9,10} Despite these recommendations and research, the process by which level and specific postacute care facility is determined for patients with stroke has not been adequately studied, particularly within the United States.

Studies suggest that various clinical and nonclinical factors may influence the selection of rehabilitation settings post-stroke.¹¹⁻¹⁹ The findings, however, differ widely based on geographical region, organization of services, distribution of government-funded versus private facilities, payment schemes, data source (e.g., administrative, prospective cohort, electronic health records), and other factors such as the care team. Despite the research conducted to date, most studies have highlighted the need to better understand the decision-making processes at the time of hospital discharge.

The purpose of this study was to survey stroke discharge planners in the Northeastern United States regarding the discharge planning process and to examine the factors perceived to influence the selection of postacute level of care and specific postacute facility. We chose to study the perspective of discharge planners because they are typically responsible for institutional discharge and provide a view that has been less examined.

METHODS

The Northeast Cerebrovascular Consortium (NECC) (www.thenecc.org) was established in 2006 to improve stroke systems of care in the region (consisting of the 6 New England states, New York, and New Jersey).⁵ This study was conducted by the NECC Rehabilitation and Recovery Work Group and was considered by an Institutional Review Board to be minimal risk research and exempt from federal policy for the protection of human subjects.²⁰ There was no specific funding for this study.

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Participants

Hospitals within the NECC region (N = 471) were eligible to participate. The survey was sent to stroke coordinators or equivalent contacts at 471 hospitals in the Northeast who in turn were asked to provide it to their discharge planners most responsible for stroke patients. Only 1 discharge planner was invited to participate from each hospital. The online survey was accessible for 3 months (June to August 2013). Participation in this study was voluntary. Individual discharge planners and hospital sites did not receive compensation for their participation; however, each participant who completed the survey had the option to self-identify and be entered into a drawing to win a \$100 gift card after the close of the survey.

Survey Instrument

The 24 item survey was developed by the authors and pilot tested by 5 discharge planners. Revisions were made accordingly. The 1st section of the survey sought demographic information with 15 questions about the discharge planner responding and questions about the hospital. The 2nd section consisted of 9 questions regarding the factors that influence discharge planning. Respondents had to provide responses to all questions in the survey. A copy of the survey can be accessed in Appendix A, <http://links.lww.com/MD/A899>.

Based on their experience, discharge planners were asked to rank 11 types of individuals on their general influence in the stroke patient referral process. Each individual influencer was ranked independently on a scale of 1 to 10; 1 indicating lowest influence; 5 indicating moderate influence; and 10 indicating highest influence. The 11 individual influencers were grouped together for analytic purposes, resulting in 3 categories: patient and family; physicians (hospitalists, internists, neurologists, neurosurgeons, psychiatrists, and other physician); and other clinicians (nurse, case manager/social worker/discharge planner, physical therapist, occupational therapist, and speech/language therapist). Respondents were able to rank a self-selected "other" individual. These write-ins were then assigned to 1 of the 3 main categories for analysis.

Fifteen different factors that might impact the selection of a specific postacute care facility were ranked by discharge planners in the same way. Respondents were again able to rank a self-selected "other" factor. These responses duplicated other selected options, thus were not included in the analysis.

Key barriers of the discharge process to both the level of care and appropriate facility were free text responses coded into 8 categories. Also assessed were the speed of discharging a patient as a factor influencing level of care and specific facility, and what the discharge planner perceived patients and families considered as the overall drivers of the discharge destination.

Statistical Analyses

Descriptive statistics are presented for survey response rate, respondent demographics, and hospital characteristics. Frequency is presented for influencers, factors that influence care, and barriers for postacute stroke care referral. Additional questions that addressed how time pressure to expedite discharge affects the discharge process and the perspective of the family members are also presented using descriptive statistics. Because the data on the individual influencer were not normally distributed and skewed toward higher ranking, we applied the Wilcoxon signed-rank sum test comparing the difference between medians for significance between the groups. For factors that impact selection of a specific facility, we compared

the differences between medians overall, then compared the top 4 factors with the highest rank sums against each other using the Wilcoxon signed-rank sum test. Further stratification by teaching versus nonteaching hospitals was assessed for each domain. Fisher exact statistics were used to test for significance. These data were analyzed using SAS Studio, a web-based SAS development environment.

RESULTS

Seventy-seven discharge planners responded to the survey representing 16% of hospitals in the NECC region. Respondents were predominantly nurses and social workers (82% and 20%, respectively, with 1 individual trained in both fields) and 73% of the survey respondents reported having >20 years of healthcare experience. Sixty-one percent of respondents had more than 10 years of experience as a discharge planner. Ninety-six percent of the respondents were female. Table 1 details all the discharge planner demographics and work characteristics.

The majority of hospitals were respondent identified as either in an urban or suburban setting (33% and 49%) with 18% located in a rural setting. There was a wide distribution of hospitals with varying bed size with the majority of hospitals (57%) having a bed size of 100 to 399 beds. Sixty-nine percent of hospitals had a designated stroke unit for the care of patient with stroke (as opposed to care being provided on a general medical floor). Ninety percent participated in a stroke registry or designation program. Fifty-seven percent of the hospitals were teaching hospitals. Table 2 further details the hospital characteristics.

The discharge process to postacute stroke care often includes many individuals from the clinical team along with the patient and their family. Responses ranking individual "influencers" categorized into the 3 groups showed that the

TABLE 1. Discharge Planner Demographics and Work Characteristics (n = 77)

Characteristics	n (%)
Gender	
Female	74 (96.1)
Male	3 (3.9)
Professional background*	
Nurse	63 (81.8)
Social worker	15 (19.5)
Physical/occupational/speech therapist	0 (0.0)
Other	4 (5.2)
Certification as a professional case manager	
Yes	20 (26.0)
No	57 (74.0)
Years of healthcare experience	
0–5	2 (2.6)
6–10	11 (14.3)
11–20	8 (10.4)
>20	56 (72.7)
Years as a discharge planner	
0–5	14 (18.2)
6–10	16 (20.8)
11–20	28 (36.4)
>20	19 (24.7)

*Multiselect field, where participants could choose more than 1 response.

TABLE 2. Hospital Characteristics (n = 77)

Characteristics	n (%)
Hospital location	
Urban	25 (32.5)
Suburban	38 (49.4)
Rural	14 (18.2)
Hospital size, beds	
<50	3 (3.9)
51–99	12 (15.6)
100–249	29 (37.7)
250–399	15 (19.5)
400–599	9 (11.7)
600–699	5 (6.5)
>800	4 (5.2)
Presence of a designated stroke unit	
Yes	53 (68.8)
No, patients are cared for on a general medical floor	24 (31.2)
Participation in stroke registry and/or designation program	
Yes	69 (89.6)
No	1 (1.3)
Not sure	7 (9.1)
Hospital type	
Voluntary/nonprofit	63 (81.8)
For-profit	13 (16.9)
Non-Federal Government (county or city hospital)	1 (1.3)
Veterans affairs hospital	0 (0.0)
Hospital academic status	
Teaching hospital	44 (57.1)
Nonteaching hospital	33 (42.9)

patient and family group (median 9; range 3–10) was more frequently ranked higher than other clinicians (median 9; range 4–10) or physicians (median 7; range 1–10). Figure 1 shows a distribution of responses for the 3 groups. Patient and family was significantly more influential than other clinicians ($P = 0.04$) and physicians ($P < 0.001$). Furthermore, other clinicians were significantly more influential than physicians ($P < 0.001$). Of the individual responses within the other clinician category, case managers/social workers and discharge planners, which were grouped together as 1 choice, had the highest rating (median 9; range 5–10) and nurses had the lowest rating (median 6; range 1–9). Teaching hospitals ranked patient and family higher than other clinicians and physicians (medians

10, 9, and 7, respectively). Nonteaching hospitals ranked patient and family the same as other clinicians but higher than physicians (medians 8, 8, and 7, respectively). A larger proportion of teaching hospitals considered patient and family as most influential compared to nonteaching hospitals ($P = 0.04$). There was no association between teaching and nonteaching status and physician or other clinicians' ratings.

Multiple factors were perceived to influence the selection of a specific postacute care facility. Figure 2 shows the distribution of responses to the ratings for all the factors. A patient's insurance, quality of the postacute facility, prognosis for functional improvement, and stroke severity were ranked the highest (medians: 10, 9, 9, and 9, respectively). Of the 4 top rated factors, insurance was significantly more influential than both prognosis ($P = 0.02$) and severity ($P = 0.04$), but not statistically different from quality of postacute care ($P = 0.20$).

Hospital teaching status was not associated with any factors likely to affect postdischarge care, except for immigration status and hospital affiliation with the postacute care facility. It was more common for respondents from teaching hospitals to rate immigration status as a greater influence than nonteaching hospitals (median 8 vs 1, respectively, $P = 0.01$). Teaching hospitals were also more likely to rate facility affiliation as having a greater influence on discharge destination (median 7 vs 5, respectively, $P = 0.03$).

In addition to ranking factors that influence care, respondents were asked to identify the single greatest barrier to postacute care delivery. In this case, insurance was identified by 69.8% as the single greatest barrier in referring stroke patients to the most appropriate level (i.e., inpatient rehabilitation, skilled nursing, and home) of postacute care. Insurance was chosen significantly more than any other barrier ($P < 0.001$). Other barriers were patient/family preference (8.2%), bed availability (8.2%), stroke severity (8.2%), proximity to rehabilitation services (4.1%), and paperwork burden (1.4%).

Insurance remained the single most significant barrier to referring patients to the most appropriate specific facility for postacute care (as opposed to level of care), but to a lesser degree than for level of care ($P = 0.02$). Insurance as a barrier was reported by 46.1%, followed by bed availability (19.7%), proximity to rehabilitation services (13.2%), patient/family preference (11.8%), meeting specific facility requirements (6.6%), stroke severity (1.3%), and perception of quality of care in the community (1.3%). Hospital teaching status was not associated with barriers to either level of care or specific facility.

More than half the respondents (54.6%) reported that “the speed with which you are able to discharge a stroke patient” impacts patients' final destination “frequently” (36%), “very frequently” (13.3%), or “always” (5.3%). The remainder of the respondents stated that speed affected their discharge decision “rarely” (38.7%) or “never” (6.7%). These responses did not differ by teaching versus nonteaching hospitals.

Finally, we queried respondents about what preferences patients and/or families had in their selection of a postacute care setting (see Figure 3). The key drivers reported for patients and families were location (proximity to a patient or family) (39.7%), patient family preference (i.e., general preference for a place) (23.3%), bed availability (15.1%), followed by reputation (8.2%), physician recommendation (6.8%), other (most comments were insurance) (4.1%), and case manager recommendation (2.7%). Once again, responses did not vary by hospital teaching status.

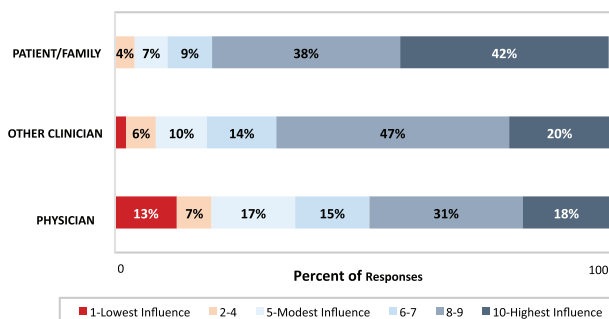


FIGURE 1. Level of influence on patient referral to postacute care. Percent of responses, on a scale of 1 to 10, to 3 categories of influencers of patient referral to postacute care.

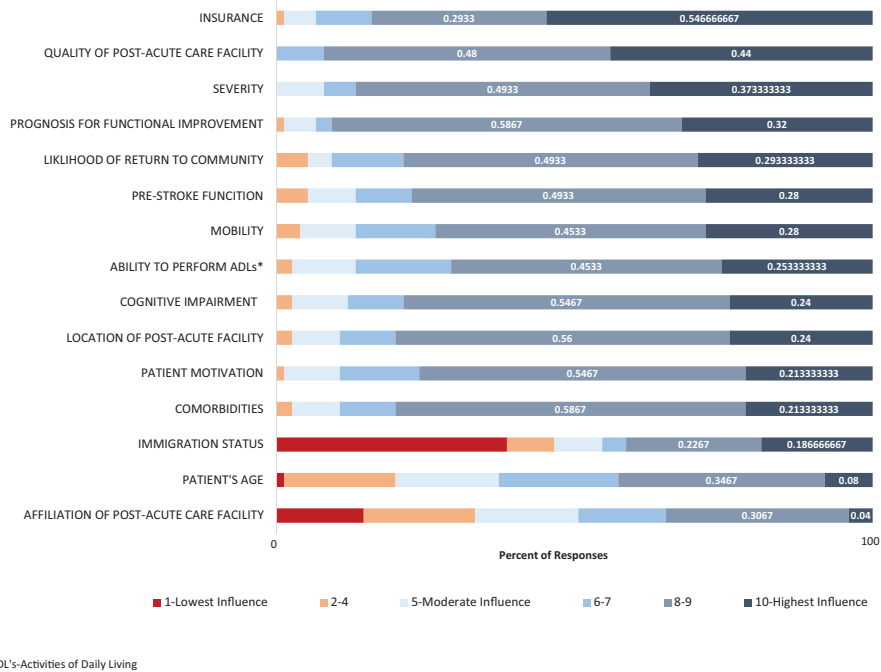


FIGURE 2. Factors that affect the selection of postacute care facility. Percent of responses, on a scale of 1 to 10, to various factors that affect the selection of postacute facility.

DISCUSSION

Postacute care plays a significant role in the recovery of patients with stroke. Our study had 3 main findings that are interesting to examine in the context of current literature on the selection of postacute care in the United States.

First, patients and families and other clinicians were identified as having a more influential role in determining postacute care as compared with physicians. The patient and family influence should be examined in the context of care delivery. In the United States, acute care hospitals must offer and educate patients or individuals acting on behalf of patients a range of realistic postacute care options.^{21,22} Options must include consideration of patients’ capacity for self-care, availability or appropriate services and facilities, but patients’ preferences as well. Discharge planning typically involves individuals from multiple disciplines who understand the social,

physical, and functional needs of the patient. The discharge planner identifies the appropriate level of care as well as a list of specific facilities which are shared with patients and/or those acting on their behalf. This emphasis on the role of patients and families may explain our results.

The finding regarding other clinicians having greater influence than physicians appears consistent with changes in care delivery in the United States, and studies demonstrating the value of team-based discharge planning.^{16,18,23,24} Patient mobility plays a major role in the criteria for admission to rehabilitation facilities and decisions regarding the feasibility of returning directly home. This factor likely underlies the large influence that physical therapists have in the assessment process. Having an advanced practice nurse as the center of the discharge planning team has also shown positive outcomes.²³ Additionally, physicians report high comfort levels with the concept of team-based/shared decision

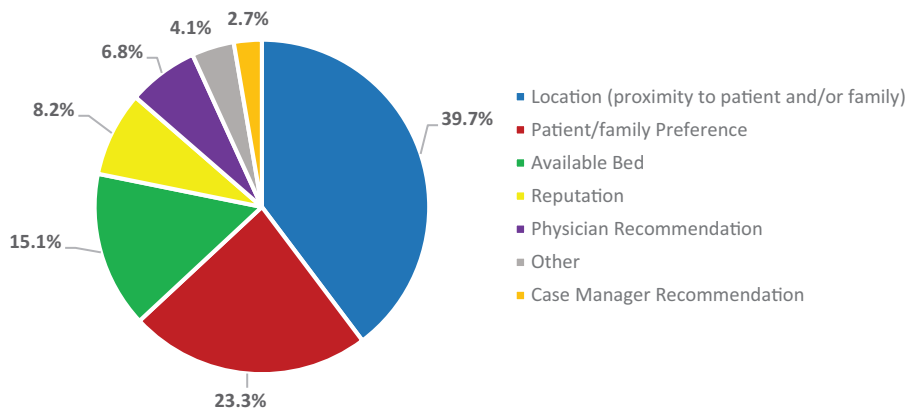


FIGURE 3. For patients and their families, what is the number 1 driver in discharging patients to a postacute care provider? Depicts which factors have the most influence on the selection of discharge destination from the patient and family perspective.

making.¹⁶ Most recently researchers have developed discharge planning simulations to improve team-based care.²⁴

The 2nd key finding is that discharge planners perceived insurance as a major factor and barrier to discharging patients to the appropriate postacute care level of care as well as specific facility. While this has surfaced in previous studies it is often cited as 1 of several barriers as opposed to the central barrier found in this survey.^{11,25} Other factors that influence where a patient may be referred to namely, quality of the postacute facility, prognosis for functional improvement, and stroke severity, seem to be similar to what at least one 2013 Australian study of “rehabilitation assessors” found.¹⁴ In this similar study where rehabilitation assessors completed questionnaires on patients that consisted of several clinical and nonclinical factors, rehabilitation assessors considered premorbid condition, premorbid mobility, and premorbid communication as the most important factors considered for postacute discharge. In contrast to our findings, Australian rehabilitation assessors did not find nonclinical factors including insurance to have a major role in their decision making. This may reflect differences in the Australian and US healthcare systems, and may reflect genuine differences in practice in these 2 countries.

Another 2012 Australian survey of 17 physicians focused on the role of nonclinical factors in discharge decisions.¹³ When presented clinical case scenarios, the nonclinical factors that were identified were prioritization of health service referrals (reflective of the setting of a universal healthcare system), patient’s residence, and workforce capacity. The authors, however, found that there was a high degree of variability among the respondents with high levels of agreement on certain cases and much less agreement on others.

The pressure to discharge patients rapidly was the last key finding from this survey, which has not been fully examined. The discharge planners in this study reported that this factor frequently influenced the discharge destination. While an efficient discharge planning system is important to manage costs, our results suggest that variations in the timeliness of the availability of certain discharge options are affecting the selection process. Further examination of this issue is warranted.

Patient/family preferences also pointed toward nonclinical factors. Proximity, general preference, and bed availability were the perceived patient desires which have been shown in other studies of patient preferences.²⁶

The results for the most part did not differ by teaching versus nonteaching institution. The areas where they did differ could be expected based on the population of patients that the hospitals serve. For example, immigration status and affiliation with a postacute facility may affect more teaching hospitals that are likely to be located in urban areas with high immigrant populations and affiliations with postacute care facilities.

Study Limitations

The response rate for this study was 16%, and it is likely that this introduced a selection bias. Teaching hospitals were over-represented in our response sample as 1 result, and other biases in favor of hospitals with better developed stroke programs (as indicated by participation in stroke registries/designation programs) may have been introduced as well. Furthermore, the vast majority of the respondents were female nurses and social workers, limiting how representative the results might be.

Since the study was conducted in the northeast region of the United States, it makes the results less representative of

other regions in the United States or other countries. Within this limitation, however, hospitals of varying type and size were well represented and the sample of respondents was highly experienced, adding strength to the findings. It is to be noted that access to care in the Northeast United States is quite different than other part of the United States and world. Most notably, the Northeast United States has more IRFs than other parts of the country changing the make-up and availability of rehabilitation options.²⁷ While perhaps not generalizable to other parts of the world, the Northeast United States proves to be an ideal geographic area to ask questions about influences and influencers, as proximity, which researchers Buntin et al²⁸ found to be the primary driver, becomes less of a factor. So, while there are regional differences in the availability of IRFs and SNFs, conducting this particular study in the northeast was advantageous as access due to geography was less of an issue.

An additional important limitation is that this study surveyed overall perceptions as opposed to examining the factors in individual patients. It is possible that this resulted in recall bias, perhaps with over-emphasis of emotionally salient issues, such as difficult discharges which created more work or frustration for the discharge planners (e.g., insurance issues). To further study what we learned in this survey, the study authors are conducting a study of 25 hospitals in the Northeast United States looking at discharge planner and physical therapist responses regarding factors that influence postacute care decisions using real patient cases. This new study will allow us to factor in real patient information and address the recall bias often found in surveys, which should provide an interesting perspective.

CONCLUSIONS

This study suggests that nonclinical factors often play a role in the selection of postacute care for patients with stroke, and provides insight into the roles of physicians, insurance, and perceived pressure to discharge patients quickly. In addition, we chose to survey a healthcare provider group, discharge planners, who have a unique vantage point within the care delivery spectrum that has not been fully explored in other studies in the United States. Since this study examined overall perception of the role of various factors, further studies are warranted to assess discharge planning processes in a series of patients with stroke. Our finding that nonclinical factors may disproportionately influence postacute care, suggests that there may be opportunities to revise the care system for stroke to greater emphasize clinical factors in the determination of postacute care.

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