

**CHANGES IN SELF-EFFICACY AND FUNCTIONAL ABILITIES OF  
PATIENTS ON A GERIATRIC REHABILITATION UNIT**

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## Abstract

Geriatric Rehabilitation Units (GRUs) have been established to restore functional abilities of older hospitalized patients. GRUs aim to assist older patients achieve the highest level of functioning according to each patient's individual abilities. Although considerable health care resources have been allocated to these units, no evaluative outcome-based research has yet been reported on any New Brunswick GRU. A study to evaluate a GRU was conducted. Bandura's Theory of self-efficacy (Bandura, 1977; Bandura, 1997) provided the conceptual framework for the study through its description of the influence self-efficacy plays in determining the effort an individual invests in changing a behavior. Two instruments (Functional Independence Measure and the Falls Efficacy Scale) were used to measure changes in functional abilities and self-efficacy from time of GRU admission to time of discharge. Data was collected on 40 participants on admission to the GRU and on discharge. Participants in this study demonstrated statistically significant improvements ( $p < .01$ ) in functional ability and self-efficacy. Pearson product moment correlation demonstrated an insignificant correlation between self-efficacy and functional ability on admission and discharge from the GRU. Findings support the use of GRUs to promote older adults' functional abilities and self-efficacy. Further studies using instruments to measure functional ability and self-efficacy within the same context are needed to determine if self-efficacy theory can be applied to GRUs.

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*"The human mind, once presented with new ideas, never regains its original dimensions."*

*Wendell Olive Holmes*

## Table of Contents

Abstract.....	ii
Acknowledgments.....	iii
Table of Contents.....	iv
List of Tables.....	vii
Chapter 1: Introduction.....	1
Purpose of Study.....	4
Chapter 2: Literature Review.....	5
Older adults' health patterns.....	5
Older adults' patterns of hospitalization.....	7
Outcomes of hospitalization.....	8
Addressing the needs of older hospitalized patients....	10
Self-Efficacy.....	12
Conceptual Model.....	18
Chapter 3: Methodology.....	21
Design.....	21
Setting.....	22
Sample .....	22
Operational Definitions.....	23
Instruments.....	24
Procedure.....	28
Consent.....	29
Analysis.....	30

Limitations of Study.....	32
Rigor.....	32
Ethics.....	34
<b>Chapter 4: Results.....</b>	<b>36</b>
Setting.....	36
Sample Description.....	37
Functional Independence Measure.....	42
Total FIM.....	43
Subscale Function.....	44
Self-efficacy.....	46
Relationship between self-efficacy and Functional ability.....	49
<b>Chapter 5: Discussion.....</b>	<b>50</b>
Sample.....	50
Acute Care Hospitalization.....	51
Informal Supports.....	52
Self-Efficacy Theory.....	53
Behavioral Component.....	53
Personal/Cognitive.....	55
Relationship between self-efficacy and functional ability.....	56
Summary.....	58

<b>Chapter 6: Implications for Nursing.....</b>	<b>59</b>
<b>Recommendations.....</b>	<b>59</b>
<b>Nursing Research.....</b>	<b>59</b>
<b>Education.....</b>	<b>61</b>
<b>Nursing Practice.....</b>	<b>62</b>
<b>Conclusion.....</b>	<b>65</b>
<b>References.....</b>	<b>66</b>
<b>Appendices.....</b>	<b>78</b>

## List of Tables

<b>Table 1. Validity and Reliability testing of FIM .....</b>	<b>26</b>
<b>Table 2. Living arrangements prior to hospitalization.....</b>	<b>38</b>
<b>Table 3. Acute care admission diagnosis.....</b>	<b>40</b>
<b>Table 4. Support services for subjects who returned home .....</b>	<b>42</b>
<b>Table 5. Functional Independent Measure scores.....</b>	<b>43</b>
<b>Table 6. Falls Self-efficacy scores .....</b>	<b>47</b>



## List of Figures

Figure 1. Age distribution of subjects .....	38
Figure 2. Functional Independent Measure Subscale Changes.....	45
Figure 3. Total Mean Falls Self-Efficacy scores.....	46
Figure 4. Individual FES scores.....	49

## **Chapter 1**

### **Introduction**

**Older adults are the fastest growing segment of the Canadian population and, by 2020, are projected to comprise almost 20% of the total population (Elliot, Hunt, & Hutchinscn, 1996). As Canadians live longer, chronic illness, disability and dependency become increasingly common experiences (Alexander, 1990; Hebert, 1997). Compared to younger people, more individuals over the age of 65 have multiple comorbid health problems and are, therefore, more likely to be hospitalized (Alexander, 1990; Hebert, 1997; Palmer & Bolla, 1997). In fact, in 1997, 32.1% of all patients admitted to hospital at the Atlantic Health Sciences Corporation in Saint John, New Brunswick, were 65 years and older (A. Chisholm, personal communication, September 21, 1998). Nationally, compared to younger patient's average length of hospital stay of 5.4 days, the average length of stay for older hospitalized patients is 21.9 days (Statistics Canada, 1996).**

**Such long hospitalizations can result in functional decline and decreased self-care abilities and, therefore, can be extremely detrimental to older adults' quality of life. Research has suggested that up to 50% of older hospitalized patients experience functional decline, which is argued to be less related to the admitting diagnoses than as a result of hospitalization (Alexander, 1990; Bergman et al., 1997; Hebert, 1997; Rosenberg & Moore, 1997; Statistics Canada, 1996). Functional improvement is a critical factor**

in determining an older patient's likelihood of return to independent living. For example, functional decline can result in repeated hospital admissions or even permanent relocation to a nursing home (Government of New Brunswick, 1996). It is, therefore, imperative to develop strategies to maintain and restore functional abilities in hospitalized older patients. Such strategies will both improve older adults' functional abilities and decrease health care expenses.

Geriatric Rehabilitation Units (GRUs) have been recognized as one effective strategy to restore older, hospitalized patients' functional abilities. Characteristically, GRUs are distinct, in-hospital units staffed by interdisciplinary teams specializing in the management of the medical, social, physical, psychological and economic well being of older adults. The primary goal of GRUs is not to cure disease or eliminate disabling conditions. Rather, GRUs aim to assist older patients achieve the highest level of functioning according to each patient's individual abilities. Therefore, interventions are targeted at reducing the burden of the disease process and associated impairments, preventing secondary complications, and promoting optimal functioning within the limits of the diseases and any irreversible impairments (Gibbon, 1992; Hoenig, Nusbaum & Brummel-Smith, 1997). In addition, a fundamental principle underlying GRU care is that the subjective well being is an important determinant of physical functioning. Consequently, GRUs embrace a philosophy that emphasizes

both the physical and emotional aspects of patient care (Easton, Zemen, Kwiatkowski, 1995; Ellul, Watkins, Banes, 1993; Kneebone & Harrop, 1996; Matteson & McConnell, 1988).

Since 1989, six GRUs have been established throughout New Brunswick based on the expectation that improving patients' functional ability will decrease the risk of repeated acute care admissions and nursing home institutionalization, and increase quality of life (M. Flood, personal communication, August 5, 1998). While considerable provincial health care resources have, therefore, been allocated to these GRUs, no evaluative, outcome-based research has yet been reported on any New Brunswick GRU, nor has any financial projections been reported on potential savings to the health care system by the utilization of GRUs.

A comprehensive evaluation of a GRU would necessitate measurement of multiple medical, physical, psychological and social patient-outcome indicators. Such investigation is beyond the scope of this initial research. Therefore, to assess the effects of a GRU upon patient outcomes, this study focuses on the investigation of changes in patients' functional ability and feelings of self-efficacy.

According to Bandura (1996), a leading behavioral theorist, self-efficacy is "a person's belief about his or her capabilities to organize and execute courses of action required to attain designated types of performance" (p.391). Feelings of self-efficacy are also suggested to be

domain-specific and pertaining to specific behaviors in a particular context, such as recovery from an acute illness on a rehabilitative unit, and do not necessarily generalize to other behaviors or other contexts. While not previously researched within the context of a GRU, feelings of self-efficacy have been positively correlated with increased functional abilities (Kaplan, Wurele & Gillis, 1996). The variable of self-efficacy is, therefore, germane to this investigation on the effects of a GRU upon patient outcomes.

### **Purpose of Study**

The purpose of this study is to investigate the relationship between GRU patients' functional abilities and self-efficacy.

Specifically, this study will explore the following questions;

- 1. Does a patient's functional ability change following admission to a GRU?**
- 2. Does a patient's self-efficacy for performing essential, nonhazardous activities of daily living change following admission to a GRU?**
- 3. What is the relationship between functional ability and self-efficacy in performing essential nonhazardous activities of daily living following admission to a GRU?**

## **Chapter 2**

### **Literature Review**

As described, older adults make a significant impact upon utilization of acute care health services. Consequently, over the past decade, focused investigation on the utilization of health care services by older patients has significantly increased. In particular, research has focused on efforts to reduce older adults' rates of hospital admission and promote more positive outcomes when older adults are hospitalized. One strategy to meet the special needs of older patients in hospital has been the development of GRUs, in-hospital units staffed by interdisciplinary teams specializing in the management of older adults' health challenges. While GRU's have been established throughout North America, research findings on their effectiveness are inconsistent. The following discussion reviews literature relevant to the health of older adults, including their patterns of hospitalization, previous efforts to evaluate the effectiveness of GRUs, the role of self-efficacy as a predictor of health outcomes and their needs during hospitalization.

#### **Older adults' health patterns**

Aging is often accompanied by increased illness (Alexander, 1990; Hebert, 1997; Patterson & Feightner, 1997; Rosenberg & Moore, 1997; Statistics Canada, 1996), reflecting older adults' physiological changes and decreased adaptability of vital organs (Hendriksen, Lund & Stromgard,

1989; Matteson & McConnell, 1988). The body's ability to exert normal control and to readily respond to stress is also influenced by the aging process (Rosenberg & Moore, 1997). For example, decreased adaptability of the renal, cardiovascular, pulmonary, immunologic, and intellectual functions have been reported to predispose the older adult to acute illnesses. Such changes influence a patient's clinical presentation and response to interventions and represent a real challenge to health care professionals (Rosenberg & Moore, 1997).

Fifty percent of persons 65 years and older experience at least one chronic illness (Alexander, 1990; Statistics Canada, 1996) and many older adults report multiple and overlapping chronic illnesses. Chronic conditions such as arthritis, hypertension, heart disease, cataracts, and hearing loss predominate in the senior population (Rosenberg & Moore, 1997; Schmidt, 1989) and can greatly impact physical, psychological and social functioning (Alexander, 1990; Anderson, 1990; Patterson & Feightner, 1997; Schmidt, 1989) and quality of life (Taal, Rasker, Seydel & Wiegman, 1993). For example, functional decline associated with chronic illness often prevents the older adult from carrying out activities of daily living, such as ambulation, dressing, bathing, toileting, and eating (Alexander, 1990; Hebert, 1997; Mendes de Leon, C., Seeman, T., Baker, D., Richardson, E., & Tinetti, M., 1996). In addition, chronic illness is associated with psychological problems like depression and anxiety (Callahan et al. 1994). Chronic illness

has also been found to precipitate major changes in family relationships and social activities (Cole, & Bellavance, 1997; Flint, 1997), and cause financial problems due to direct and indirect costs associated with illness (Government of New Brunswick, 1996).

#### Older adults' patterns of hospitalization

Interest in the utilization of health services by individuals over the age of 65 has heightened over the past decade. Specifically, concern over hospital admissions and outcomes of hospitalizations have received particular attention. In a Canadian study by Johansen, Nair, and Bond (1994), analysis of hospital utilization in two provinces revealed that approximately 25% of patients were admitted more than once and 4% were admitted four or more times during a one year period. Furthermore, 50% of all hospital days were consumed by 1% of the total population. In New Brunswick, two-thirds of these high users were aged 60 or over. These older New Brunswickers were five times more likely to have two or more procedures performed during a single admission. Data also indicated that 17% of older patients died in hospital, however it is not clear if these deaths occurred during a first admission or a repeated admission. Results of this investigation are consistent with other studies, which suggest that seniors utilize a disproportionate percentage of health care resources (Alexander, 1990; Wilkins & Park, 1997).

In a similar American study, Mor, Wilcox, Rakowski, and Hiris (1994)



also examined patterns of hospital utilization of 7527 persons 55 years of age and older. Data were collected at 4 intervals; baseline, 2 years, 4 years, and 6 years, and included both hospital admission and self-reported health status and self-care abilities. Subjects who rated their health as less than excellent were more likely to be disabled, institutionalized, or dead in 6 years, even when controlling for functional abilities and the presence of serious disease. The researchers concluded that self-rated health may predict functional abilities, institutionalization, and even death. Although not reporting any reliability estimates on the data collected, nor considering periodic fluctuations in health and functional status, these findings are consistent with studies that demonstrate significant relationships between feelings of self-efficacy and health outcomes.

#### Outcomes of Hospitalization

Several quantitative studies have documented the negative consequences of hospitalization for older adults. Indeed, even with resolution of the acute problem, hospital admission for older adults has often been reported to result in physical and psychological difficulties (Lamont, Sampson, Matthias, & Kane, 1983; Pheby & Thorne, 1994; Rosenberg & Moore, 1997). For example, in a quasi-experimental study of 83 subjects with heart disease aged 65 years and older, Roberts and Fitzpatrick (1994) compared perceived demands of physical illness and perceived coping resources between hospitalized and nonhospitalized

elderly persons. The study sample included two groups: 39 subjects with heart disease in an acute care hospital and 44 subjects with heart disease living in a nursing home. The Margin of Life questionnaire was administered to measure each subject's perceived demands of the physical illness and perceived coping resources. Although the two groups did not differ significantly in age, race, marital status, or health status, significant differences were reported in perceived stress. The researchers concluded, therefore, that hospitalization causes considerable stress for older individuals and that acute care interventions should focus on assisting older patients' faster recovery from acute illness, preventing further functional decline, and reducing hospital length of stay (Roberts & Fitzpatrick, 1994).

In a descriptive study of hospital admissions for the elderly, Lamont et al., (1983) studied patients aged 75 years and older discharged from general medical units of a hospital with no designated geriatric services. For the 205 study participants, the most frequent admitting diagnoses were pneumonia, hip fracture, cerebrovascular accident, and urinary tract infection. During hospitalization, almost 15% of study participants died and 45% developed cognitive impairment. In addition, participants discharged to nursing home facilities were hospitalized twice as long as those discharged home. For all participants, 53% required a higher level of care at discharge than that required on admission. The researchers concluded that hospital admission for older patients has significant negative outcomes and

proposed that geriatric interdisciplinary teams could reduce the length of hospital stay and significantly improve the prognosis of hospitalized, older patients.

#### Addressing the needs of older hospitalized patients

Recognition of the special needs of older hospitalized patients has prompted a variety of program initiatives. For example, some acute care hospitals have attempted to promote geriatric care through the use of geriatric consultation teams to address the rehabilitative needs of older patients. However, the effectiveness of such teams is questionable. In a quasi-experimental study of 178 hospitalized men 75 years and older admitted to medical, surgical, and psychiatric services of a Veteran's Hospital, reported no significant difference between patients receiving services from a geriatric consultation team and those receiving the usual care (McVey, Becker, Saltz, Feussner and Cohen, 1989). Upon admission, all subjects were assessed for functional abilities and the experimental group was assigned regular geriatric consultation team services, which included weekly team conferences and regular communication with the patient and family. At discharge, all subjects' functional abilities were re-assessed by an evaluator blinded to the initial assessment results. No significant difference in the experimental and control groups' functional abilities were found. Nor were any significant statistical differences noted between the two groups related to demographic characteristics, health

status, medications, cognition, marital status, or age. The authors concluded that the specialized geriatric consultation team had no significant effect on patient outcomes.

Another intervention strategy designed to address the needs of older, hospitalized patients is the GRU, a distinct, in-hospital unit staffed by specialized geriatric, interdisciplinary teams. In a landmark study, Rubenstein et al. (1984), evaluated the effect of admission to a 15 bed GRU by comparing a variety of variables, including changes in functional abilities between patients admitted to a GRU and patients on general acute care units. Study results indicated that the GRU patients had significantly improved functional abilities and morale, used fewer institutional services both at discharge and 12 months post discharge, and experienced a significantly lower mortality rate 12 months post discharge.

In a prospective study, Gregor, McCarthy, Chwirchak, Meluch, and Mion (1986) assessed if older patients who were discharged from a 28-bed GRU were able to maintain gains in functional abilities. Using an instrument developed specifically for this study, functional abilities were assessed on admission, at 2-week intervals throughout admission to the GRU, at discharge, and 2 months post-discharge. Data analysis revealed significant long-term gains in functional ability following hospital admission. Although the research reported no reliability or validity data, these results are consistent with other studies (Liam, Chernoff & Carter, 1986; Mason & Bell,

1994). Indeed, while less rigorously implemented, several other studies have documented that GRU patients are more likely to return and remain home for longer periods of time than older patients who do not receive GRU services (Aptaker, Roth, Reichhardt, Duerden, & Levy, 1994; Daly, Adelman, & Resnick, 1992; Hamilton & Lyons, 1995; Harris, Mion, Patterson, & Frenley, 1988; Lefton, Bonstelle, & Frenley, 1983; Mulrow et al., 1994).

### Self-Efficacy

One factor which has been suggested to positively influence functional abilities is self-efficacy. As a concept, perceived self-efficacy has been the focus of considerable amounts of research in social psychology (Bandura, 1977; Bandura, 1986; Bandura, 1997) and health sciences (Scherer & Schmieder, 1996; Zimmerman, Brown, & Bowman, 1996). Perceived self-efficacy refers to a person's belief in his or her performance capabilities with respect to a specific task (Bandura, 1977; Bandura, 1997). As Bandura (1996) explains, self-efficacy is "a person's belief about his or her capabilities to organize and execute courses of action required to attain designated types of performances" (p.391). More precisely, perceived self-efficacy is concerned with belief in one's capabilities to mobilize the motivation, cognitive resources, and courses of action required to perform a specific task (Bandura, 1977). Perceived self-efficacy is also suggested to be domain-specific and pertaining to specific behaviors in a particular

context. For example, an individual who reports high self-efficacy in the cognitive domain would not necessarily report high self-efficacy in the psychomotor domain. Specific measures of self-efficacy, must, therefore, be determined according to the domain or context of interest, such as ability to perform specific activities (answering telephone) within a specific environment (patient's home).

According to Bandura and Adams (1977), the strength of an individual's feelings of self-efficacy will influence the amount of time and effort expended on a particular behavior. The stronger the perceived self-efficacy, the more active the efforts. Individuals with strong perceived efficacy will persist in subjectively threatening activities, with any degree of success reinforcing their sense of efficacy, thereby diminishing their defensive behavior. Those who fail to persist and do not master the attempted activity will retain their negative expectations and fears for a long time. Yet, as Bandura (1977; 1997) cautions, self-efficacy is not necessarily based on true capabilities. Rather, self-efficacy reflects perceived capability that directly influences motivation and performance.

Perceived ability alone is not, however, the sole determinant of behavior. Indeed, to successfully perform a specific task perceived ability would not produce the desired result if the individual lacks the required skills. Furthermore, even if the individual does have the required ability to successfully perform a given task, he or she may still not perform if

motivation or incentives are lacking.

Perceived self-efficacy has been found to arise from four major sources: performance, vicarious experiences, verbal persuasion, and emotional arousal or physiological feedback (Bandura, 1977; Bandura, 1986; Bandura, 1997). Performance has been argued to be the most powerful source of efficacy as repeated success has been found to increase perceived self-efficacy while failure diminishes self-efficacy. Vicarious experiences, comparing one's situation with that of another, have also been found to influence personal beliefs. When exposed to persons with similar capabilities who are successfully performing a task, an individual's efficacy expectations increase. In addition, perceived self-efficacy is increased with verbal persuasion, the influence of suggestions made by other's efficacy beliefs. In particular, self-efficacy is influenced by individuals perceived to have special knowledge, such as registered nurses on the GRU who encourage and reinforce individuals for successful accomplishments. Physiological cues, such as strength, energy, and stamina, are also cues individuals rely on to judge their capabilities (Bandura, 1997; Gage & Polatajko, 1994; Resnick, 1998).

Bandura suggests that self-efficacy is "a powerful psychosocial variable capable of predicting the enactment of health-related behaviors" (Hurley, 1990, p.29). As described, perceived efficacy will determine "the effort put forth and how long an individual will persist in the face of obstacles

and adverse experiences" (Bandura, 1977, p.194).

Individuals with strong perceived efficacy will persist in subjectively threatening activities, with any degree of success reinforcing their sense of efficacy. Those who fail to persist and do not master an attempted activity tend to retain negative expectations and fears. (Bandura, 1977; Bandura, 1997; Gage & Polatajko, 1994; Jeng & Braun, 1994). According to Bandura, older adults are particularly likely to have low levels of self-efficacy and underestimate their abilities to execute specific tasks. The prevalence of low self-efficacy in older adults is partially attributed to the influence of negative social stereotypes of aging (Kurlowicz, 1998).

In recent years, self-efficacy has emerged as a strong predictor of health behaviors for individuals of all ages. Several studies have reported that perceived self-efficacy is an important predictor of health status and patient outcomes. For example, in a review of the relationship between self-perception and actual performance, Gill, Robinson and Tinetti (1997) reported a positive correlation between self-efficacy and patients' recovery of functional abilities. In a sample of 213 individuals aged 72 years, all subjects reported performance problems in at least one area of usual daily activities. Self-efficacy was assessed using the Falls-Efficacy Scale and additional data was collected on sensory abilities, cognitive status, and depressive symptoms. Over a period of 3 years, 28% of subjects recovered their functional abilities. Factors significantly associated with this recovery



included disability in only one area of functioning and a high self-efficacy score, demonstrating low self-efficacy impedes functional recovery regardless of physiologic capacity. Although the researchers did not describe the etiology of subjects' functional problems and used self-rated reports of functional abilities, the relationship between self-efficacy and functional recovery has been supported in additional studies.

In a similar study, Tinetti, Mendes de Leon, Doucette, and Baker (1994) demonstrated the impact of self-efficacy in a group of 1103 community living persons 72 years and older. Using the Falls-Efficacy Scale and self-reported activities of daily living, a significant relationship was also found between efficacy and physical functioning. The large sample size and stratified probability sampling method strengthened these findings.

Further research by DeLeon, Seeman, Baker, Richardson, and Tinette (1996) reported a direct, positive relationship between self-efficacy, and functional ability in community-dwelling older persons. Using a prospective design, 87 subjects 72 years and older were interviewed at home. Data collected at baseline and approximately 18 months later, included assessment of each subjects' functional abilities, chronic conditions, falls history, feelings of self-efficacy, and availability of social support. Univariate analysis demonstrated that self-efficacy had a direct positive relationship with functional abilities. No other variables were found

to be significantly related to changes in functional ability.

In summary, it is well recognized that older adults consume a disproportionate amount of hospital resources, which often result in negative health and social outcomes. Research has also reported on the effectiveness of GRUs, those units developed specifically to address the special needs of this age group. To date, these studies have focused primarily on functional and social outcomes. Although a number of additional studies have supported self-efficacy to be a consistent predictor of functional performance, this relationship has not been explored within the context of a GRU.

## **Conceptual Model**

**Bandura's self-efficacy theory will be the conceptual model used to guide this study. The model was developed within the framework of social cognitive theory and provides a comprehensive analysis of the determinants of behavior change (Lev, 1997). A major underpinning of self-efficacy theory is that an individual's perceived ability to effectively perform a given behavior is a significant predictor of the performance of that behavior (Bandura, 1986).**

**Self-efficacy theory is based on an interactional model of human behavior and the theory posits that three interacting elements: (i) behavior, (ii) cognitive and other personal factors, and (iii) environmental influence operate interactively (Appendix A). Although each a distinct concept, all three elements operate either singly or in combination with one another as determinants of each other (Hurley, 1990). The relative influence of the three elements will vary according to the specific behavior and the context in which the behavior is to take place.**

**According to Bandura, this triadic reciprocal determinism explains human behavior as a continuous, reciprocal, interactive process between cognitive, behavioral, and environmental determinants. By this, each one of these factors has an impact on the others. If an individual believes transfer to a GRU will improve their functional ability, it may impact their level of participation in the rehabilitation process and result in increased**

independence. On the other hand, if an individual observes others who are not benefiting from rehabilitation, they may conclude that they are unable to benefit, which may alter their participation in the rehabilitation. Within the process, it is recognized that many influences are required to promote a desired outcome. Triadic reciprocal determinism can be applied to any setting and the theory has been useful in predicting behavioral and functional changes in older adults (Gage, Noh, Polatajko, & Kaspar, 1994; Jeng & Braun, 1994; Resnick, 1998; Strauser, 1995). However, to date, there have been no documented studies of self-efficacy theory applied to a GRU.

Yet self-efficacy theory can theoretically be applied to the GRU setting (Appendix B). Within the GRU environment, health care professionals aim to enhance self-efficacy through interventions designed to promote efficacy expectations. Expectations of personal efficacy are based on four major sources of information; performance accomplishment, vicarious experiences, verbal persuasion, and emotional arousal (Bandura, 1977). The GRU environment is designed to provide patients with all four sources of information, and therefore, should increase expectations of personal efficacy. Interacting with other patients on the unit who have successfully dealt with similar issues has been found to positively impact on a patient's confidence and ability to cope with disability (Strauser, 1995). Verbal persuasion provided by staff on the GRU, perceived as having

special knowledge, may also promote successful accomplishments.

Interventions targeted at diminishing depression and anxiety, not uncommon experiences in this population, can also facilitate self-efficacy (Bandura, 1977; Bandura, 1986).

As described, self-efficacy theory provides a sound theoretical base for improving geriatric rehabilitation. In addition, self-efficacy theory provides a well substantiated framework for better understanding the needs of the GRU patient. For the purpose of this study, "environment" will be conceptualized as the GRU environment in which the study is to take place. "Behavior" will be represented by the degree of change in functional ability from admission to the GRU to discharge from the GRU. The element of self-efficacy theory "personal/cognitive factors" will represent the subjects' feelings of self-efficacy.

## **Chapter 3**

### **Methodology**

The study investigated the relationship between GRU patients' functional abilities and self-efficacy. Specifically, this study explored the following questions:

1. Does a patient's functional ability change following admission to a GRU?
2. Does a patient's self-efficacy for performing essential, nonhazardous activities of daily living change following admission to a GRU?
3. What is the relationship between functional ability and self-efficacy in performing essential nonhazardous activities of daily living following admission to a GRU?

### **Design**

The study utilized an exploratory, one group, longitudinal design that involved no experimental manipulation of the independent variable (care provided on the GRU). For each subject, data was collected on admission to and discharge from the GRU using two instruments: the Functional Independence Measurement System (FIMS)(Research Foundation of the State University of New York, 1987) and the Falls Efficacy Scale (FES)(Tinetti, Richman, & Powell 1990). Statistical analysis was performed to determine differences between functional ability and self-efficacy at admission and discharge to the GRU and the relationship between these

two variables.

**Setting.** The setting for this study was an urban center in a southeastern province in Canada. Specializing in older adults, this hospital has three geriatric inpatient units, including a 21 bed Restorative Care Unit (a unit characteristic of the previously described GRUs). This hospital is part of a twelve facility hospital corporation, with the tertiary care center located 10 km away.

For the purpose of this study, the terms GRU and Restorative Care Unit (RCU) will be used interchangeably. Patients are selected for admission to the RCU after the family physician requests consultation to the department of Geriatric Medicine. To be eligible for admission, a patient must be considered at risk for nursing home placement, and/or have a potentially reversible functional impairment. Patients are not considered for RCU admission if they have unstable medical problems or if a nursing home placement appears inevitable.

**Sample.** This study utilized a convenience sample to access subjects meeting the sample criteria. Inclusion criteria for the sample was limited to patients:

- 1) admitted to the RCU for the first time
- 2) over 65 years of age
- 3) English speaking
- 4) able to provide informed consent.

The probability of committing a Type 1 error (wrongly rejecting a null hypothesis) at an alpha of 0.05 (criterion for significance) and an effect size (gamma) of 0.40 was established, yielding a power of .928. Using this formula an adequate sample size for this study was 40 subjects. A statistical consultant (S. Beau, personal communication, March 6, 1999) verified this calculation.

Recruitment of subjects began July 21, 1999 and was completed January 20, 2000. A total of 76 patients were admitted to the RCU during the study. Forty-five patients agreed to be approached about participating in the study and provided informed consent. Written permission to access the study sample and involve staff in data collection was obtained from hospital administration.

Operational Definitions. For the purposes of this study, the following operational definitions are provided.

- 1) Older adult: individuals 65 years and older.
- 2) Functional ability: activity representing 16 self-care abilities including feeding, grooming, bathing, dressing upper and lower body, toileting, bladder and spincter control, transfers ability to bed/chair/wheelchair and toilet, communication (comprehension and expression), social interaction, problem solving, memory, and locomotion.
- 3) Independence: representing 7 levels in which individual



functional activities can be performed; complete independence, modified independence, supervision, minimal contact assistance, moderate assistance, moderate assistance, maximal assistance, total assistance.

- 4) Falls efficacy: the individual's self-confidence at avoiding a fall during performance of essential, nonhazardous activities. These non-hazardous activities are operationalized as ten common activities and reflect extensive research linking low perceived efficacy to functional decline (Bandura, 1982 as cited in Tinetti et al.).

Instruments. For the purpose of measuring functional ability and self-efficacy, two instruments were administered: the Functional Independence Measurement Scale (Appendix C) and the Falls Efficacy Scale (Appendix D).

(1) Functional Independence Measure (FIM) is a widely used assessment instrument of functional status (Kidd, & Yoshida, 1995). Developed by the American Academy of Physical Rehabilitation and the American Academy of Physical Medicine Task Force, the FIM is an interdisciplinary tool to easily measure everyday activities. Approval to use the instrument has been preauthorized by its authors (Appendix E).

Although the FIM measures 18 categories of functional ability, nurses on the RCU were only able to measure 16 categories. Nurses were unable

to measure patient's ability to walk up and down stairs, as this was done exclusively by the physiotherapist. A patient's ability to transfer into a tub was also not possible for nursing staff to assess since the unit had a large whirlpool tub that required the use of a hooyer lift to enter or exit.

Each item in the FIM was rated according to a seven level scale ranging from completely dependent to completely independent. Patients at level 1 were totally dependent, total assistance was required or the activity was not performed. Patients who were rated at a level 4, for example, included those who required help with more than 50% of their feeding, such as buttering bread or cutting food and having utensils placed in their hands. Patients who could safely feed themselves and required no assistance were considered completely independent and received a rating of 7.

Ratings were accumulated across items and a total FIM score was calculated. Total FIM scores could range from 16 for complete dependency in all areas of functional ability, to 112 for independence in all measures (Hinkle & Forbes, 1996). The higher the FIM score, the higher the level of independence (Hamilton & Granger, 1992).

Validity and reliability of the FIM have been extensively reported (Kid & Yoshida, 1995). Content validity was evaluated by 114 expert clinicians from 8 different disciplines. Between 1984 and 1987, reliability, validity, and generalizability of the instrument was evaluated in over fifty American facilities (Research Foundation of the State University of New York, 1987).

Validity and reliability has also been established specifically with the senior population. Heinemann et al. (1993), using Rasch analysis, supported earlier findings and verified validity of the FIM within the geriatric population. Reker, O'Donnell, & Hamilton (1998) reported establishing content and face validity through descriptive analysis and comparisons across 37 Veteran Affairs GRU's. Reliability as measured by Cronbach's alpha, was consistently high across GRU's ( $\alpha=.90$ ) and overall ( $\alpha=.95$ ). In addition, Segal, Gillard and Schall (1996) assessed validity and reliability of telephone administration to geriatric patients and their caregivers and reported an intraclass correlation of 0.91. Table 1 illustrates a summary of the validity and reliability testing of the FIM.

Table 1

Validity and reliability testing of FIM

Investigators	Population	Reliability Testing	Validity Testing
Research Foundation of the State University of New York, 1987	All ages N= 127	Interrater Reliability Correlations 0.83-0.96	Content Validity Established
Heinemann et al. (1993)	Mean age 62.1 years N= 27, 669		Rasch analysis
Reker, O'Donnell & Hamilton (1998)	American Veterans 65 years and older N=3,575	Cronbach's alpha Across GRU's $\alpha = .90$ Overall $\alpha = .90$	Content and Face validity established
Segal, Gillard & Schall (1996)	65 years and older N=25		Intraclass correlation 0.91

(2)The Falls Efficacy Scale (FES) was developed by Tinetti et al. (1990) to measure fear of falling and is based on the operational definition of fear of falling as "low perceived self-efficacy at avoiding falls" (Tinetti et al., 1990, p. 239). Items chosen for the FES were based on input from 10 physical therapists, occupational therapists, rehabilitation nurses and physicians. These content experts were asked to identify 10 activities essential to independent living that, while requiring some position change or walking, would be safe and nonhazardous to most elderly people (Tinetti et al, 1990, p. 239). Agreement of the identified activities was validated with a second group of 10 content experts. The final 10 items were converted into efficacy statements. Confidence in completing each activity without falling is rated on a 10 point scale ranging from "not confident at all" to "completely confident". The total FES score is the sum of scores on each of the 10 activities, and may range from 10-100.

The FES has been psychometrically tested on cognitively intact individuals over the age of 65 (Tinetti et al., 1994) and demonstrated satisfactory internal reliability (Cronbachs alpha = .91) and test-retest reliability ( $r = .71$ ). When assessed for validity, Tinetti et al (1990) found the FES was significantly associated with both performance-based assessment of physical skills involved in most self-care activities (such as gait) and with past experiences predicted to affect self-care activities related to feelings of

self-efficacy. Tinetti et al., also determined the criterion-related validity of the FES for use with older adults. In the same study, the mean total FES scores decreased progressively from respondents who denied fear of falling ( $\bar{X}$ = 91.2; S.D.=15.1), to those who acknowledged fear of falling but denied restricting their activity due to this fear ( $\bar{X}$ = 81.7; S.D.=20.7), to those who reported being so fearful of falling they restricted their activities ( $\bar{X}$ = 69.3; S.D.=25.1). Approval to use the FES for this study was obtained (Appendix F).

Procedure. Data was collected for this study according to the following procedure:

1. The resource nurse of the RCU notified the hospital admitting clerk of all patients who met eligibility criteria. The admitting clerk asked potential subjects if they would be willing to be approached about participating in a study. The admitting clerk was the initial contact only and did not obtain consent.
2. If a patient agreed to be approached about participating in the study, the admitting clerk immediately left a voice-mail message on the researcher's work phone.
3. Within 72 hours of the patient's admission to the RCU, the researcher: (i) met all patients who agreed to be approached to participate in the study, (ii) explained the purpose and design of the study to eligible patients and reviewed the consent form (Appendix

G), emphasizing that refusal to participate would not alter RCU care and that subjects had the right to terminate involvement in the study at any time, (iv) obtained written consent for participation, (v) completed the FES in collaboration with the subject, and (vi) collected participant demographic data (Appendix H).

4. Within 72 hours of the patient's admission to the RCU, the resource nurse completed the FIM in collaboration with the patient's primary nurse.
5. Within 72 hours of the patient's discharge from the RCU, the researcher completed the FES in collaboration with the subject.
6. Within 72 hours of the patient's discharge from the RCU, the resource nurse completed the FIM in collaboration with the patient's primary nurse.
7. Interrater reliability was established during educational sessions prior to data collection and after subject number 20 had been enrolled in the study.

**Consent.** The admitting clerk of the hospital asked all patients admitted to the Restorative Care Unit who met eligibility criteria if they would be willing to be approached about participating in a study. The admitting clerk notified the researcher of only those patients admitted to the unit who had agreed to be approached about participating in the study. The researcher then discussed, with the resource nurse on the RCU, the eligibility of the

patient to participate in the study. Patients who were judged by the resource nurse as capable of providing informed consent for hospital procedures met the inclusion criteria of being able to provide informed consent to participate in the study. The researcher approached only those patients who verbally agreed to be approached and who met admission criteria for the study.

During the researchers initial contact with potential subjects the purpose and design of the study was outlined. The researcher clearly outlined what would be expected of the patient if he/she agreed to participate. The researcher explained to potential subjects that they would derive no personal benefit from participating in the study. Potential subjects were also encouraged to ask questions about their involvement in the study and were reassured that failure to participate would not effect their care on the RCU in any way. They also received the name and phone number of the researcher and her UNB thesis supervisor, if they had any questions or concerns. A written consent was obtained from those who agreed to participate (Appendix G). All participants received a copy of the consent form.

**Analysis.** Research data was analyzed according to the following statistical measurements:

1. FIM items were recorded on a 7-point interval scale indicating the

level of functional dependence. Summated FIM scores were obtained for the scale as a whole and for each subscale.

2. FES items were recorded on a 10-point interval scale indicating the level of self-efficacy. Summated FES scores were obtained for the scale as a whole.
3. Data from the FIM and FES were treated as interval in nature and aggregate data sets were developed from the total FIM and FES admission and discharge scores.
4. Paired *t*-tests were used to identify significant differences between the means of the summated FIM and FES scores and the FIM subscale scores.
5. Pearson product-moment correlation was used to analyze the bivariate relationship between FIM and FES scores of subjects on admission and discharge. As an improvement in both functional ability and self-efficacy was expected, a one-tailed *p* value of 0.05 was used in all statistical analyses.
6. Participant demographic data were analysed to identify patterns in living arrangements prior to the acute care admission, acute care admission diagnosis, RCU admission diagnosis, discharge disposition, support services for participants who returned home, and length of stay on the medical or surgical unit and the RCU.



### **Limitations of Study**

The following factors are recognized as study limitations;

1. The use of a convenience sample limits generalizability of study findings.
2. The majority of subjects were over 80 years of age and female further limiting generalizability of the findings.
3. Only 2 variables (functional ability and self-efficacy) were measured. It is recognized that multiple other physical, psychological, and social variables such as cause and onset of functional disability may influence the effects of a GRU upon patient outcomes.
4. The one group study design weakens inferences that can be made about the effect of admission to the GRU and the variables under investigation.

### **Rigor**

In quantitative research, rigor addresses the internal and external validity of the study. Related to this study, internal validity addresses the question if the care received on the RHU, the independent variable, really made the difference in functional outcome and self-efficacy discharge. Because this study is longitudinal and exploratory in nature, no attempts were made to control the independent variable.

Attrition is always of concern to the internal validity of a quantitative

study as subjects have the right to withdraw at anytime during the study. In addition, the majority of subjects in this study were recovering from an acute medical or surgical experiences and, therefore, more likely to withdraw due to re-occurring medical problems. Consequently, attrition was recognized as posing a significant threat to the study's internal validity. Although re-occurrence of medical problems could not be controlled, regular contact and establishment of a meaningful relationship between the researcher and each subject was a useful strategy to reduce attrition.

For this study, interrater reliability was established at two points. First, prior to data collection, FIM educational sessions were provided to all nursing staff pre-data collection. A total of 5 education sessions were offered over a 2-week period. Facilitated by the researcher, these educational sessions explained the use of the FIM instrument and provided opportunity to complete standardized case studies that accompany the official FIM user guide (Appendix I). Each nurse completed the case study independently. FIM scores obtained on these case studies yielded a kappa value of .9948.

In addition, to further enhance interrater reliability, admission and discharge FIM scores were compiled twice on subject number 20: (i) with the researcher and a primary nurse and (ii) with the charge nurse and another primary nurse. Both admission and discharge scores for subject 20 obtained a kappa value of 1.00, with an overall kappa of 1.00.

In this study, each subjects' FIM scores were compiled by 2 administrators: the primary nurse and the charge nurse. The primary nurse provided expert knowledge of each subject's functional ability and the charge nurse provided consistency in interpretation of the instrument for all subjects. For completion of the FES, each subject completed the instrument independently in collaboration with the researcher. This strategy ensured accurate representation of each subject's functional ability and self-efficacy.

The internal reliability of both instruments was measured using Cronbach's alpha coefficient . For the FIM admission and discharge scores, reliability coefficients were consistently high at  $r = .82$  and  $r = .95$ , respectively. For the FES, reliability coefficients were also high with  $r = .82$  on admission scores and  $r = .79$  on discharge scores.

External validity refers to the generalizability of the research findings to other settings or samples. It must be recognized that this study utilized a small, convenience sample, selected non-randomly from an accessible population. Generalizability of study results to the target population of GRU patients must, therefore, be cautiously applied.

### Ethics

Ethical approval for the study was obtained from University of New Brunswick Research Ethics Committee (Appendix J), and Research Services Ethical Review Committee, Atlantic Health Sciences Corporation (Appendix K). The basic values of respect, confidentiality, and the

principles outlined in the Canadian Nurses Association Code of Ethics guided this entire research process. To avoid subjects' feelings of coercion, the admitting clerk of Saint Joseph's Hospital, rather than the researcher, initially approached eligible subjects. Patients were approached only after they were admitted to the RCU, reducing the possibility that potential subjects perceived participation in the study would effect their transfer to the RCU and/or their subsequent care.

During the initial encounter with the potential subjects, the researcher explained the nature and purpose of the study. Potential subjects were provided with ample opportunity for reflection or to ask questions and were informed of their right to refuse to participate without any repercussions. Therefore, consent was voluntary and informed.

Written consent was obtained and subjects received a copy of the consent form with the telephone numbers of the researcher and her thesis supervisor if any further questions or concerns arose.

Data gathered throughout this study was maintained in strict confidence. The names of subjects were removed and destroyed from all data collection tools. Demographic information, consent forms, and research instruments were assigned code numbers and kept in separate locations so that names could not be associated with any identifying data. Subjects interested in learning the results of the study will be sent a summary of the findings.

## **Chapter 4**

### **Results**

**This chapter will present study findings. Specifically, a description of the study sample, and changes in functional ability and self-efficacy from RCU admission to RCU discharge. The relationship found between functional ability and self-efficacy will also be presented.**

#### **Setting**

**The setting for this study was a 21 bed geriatric rehabilitation unit in an acute care hospital. The unit was staffed by an interdisciplinary team of health care professionals, including nursing, medicine, dietary, pharmacy, speech language pathology, occupational therapy, physiotherapy, social worker, recreation and pastoral care, provided individual rehabilitative care to older adults. As determined by individual patient needs, the interdisciplinary team developed comprehensive plans of care to improve functional ability and increase the likelihood of independent living.**

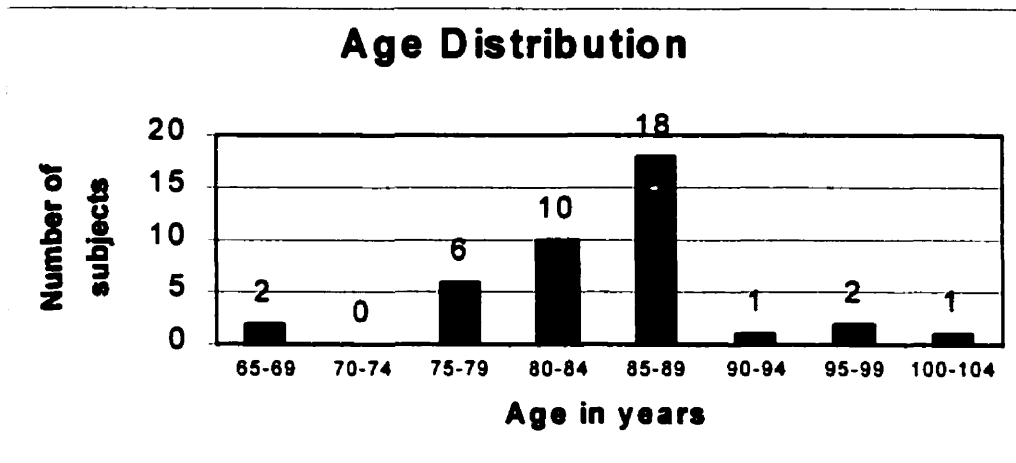
**Unlike traditional hospital units, patients admitted to the RCU were expected to dress in their own clothes each day, eat all meals in a dining room with other RCU patients, and participate in daily recreational activities as appropriate. Daily rehabilitative therapy, from each discipline, was based on individual patient needs. No restrictions were placed on visiting hours, in fact, families and informal supports were encouraged to visit and were recognized as active participants in the rehabilitation process. Formal and**

informal meetings with the interdisciplinary team, and with individual team members, occurred on a regular basis. Independence and autonomy was encouraged in all aspects of care, ranging from feeding, dressing, socializing with other patients, medication administration, and problem solving. Because the unit had registered nurses with experience in geriatric rehabilitation and was assigned a full time physician, physiotherapist, occupational therapist, pharmacist, social worker and recreational therapist, patients had continual access to comprehensive interdisciplinary rehabilitation by professionals with special knowledge in gerontology and rehabilitation.

#### Sample Description

Of the 76 subjects admitted to the RCU between July 21, 1999 and January 20, 2000, 45 agreed to be approached about participating in a study. Informed consent was obtained from 43 potential subjects. Of the 43, data was completed on 40 subjects. Of the three patients excluded from the study, two patients were discharged unexpectedly from the hospital before the research instruments could be administered and a third patient was transferred to an acute care unit.

Patients ranged in age from 65 to 101 with a mean age of 83.8 years. Approximately three-quarters were 80 years or older (77.5%). The largest proportion between 84 and 89 years of age (45%)(See Figure 1).



**Figure 1.** Age distribution of subjects

Seventy percent of the patients were female ( $n=28$ ) and thirty percent were male ( $n=12$ ). Males were on average 81.7 years of age, while females had an average age of 84.8 years.

Prior to the acute care admission all patients lived in private homes, either alone or with others. Table 2 illustrates the characteristics of living arrangements prior to hospitalization.

**Table 2**

**Living arrangements prior to hospitalization**

Living arrangement	Number	Percentage (%)
Lived alone	23	57.5%
Lived with others	17	42.5%

The majority of subjects were admitted to the RCU following hospitalization for an acute illness (n=39), such as pneumonia, fractured hip and cerebral vascular accident. One subject was admitted to the unit directly from home. With the exception of the subject admitted from home, length of stay in the acute care setting, prior to the RCU transfer, ranged from 7 to 84 days, with a mean length of stay in the acute care area of 40.5 days. Table 3 illustrates the admitting diagnosis at the time of the initial acute care admission.

All subjects were consulted to Geriatric Medicine prior to the RCU admission. The subject who was admitted from home waited 10 days between the consult and the RCU admission. The remainder were transferred from a medical or surgical unit after resolution of the illness that necessitated the hospital admission. All subjects were admitted to the RCU with functional decline.



Table 3

Acute care admission diagnosis

Diagnosis	Number
<b>ORTHOPEDIC</b>	
Fractured Hip	5
Fractured humerous	1
Fractured hands	1
Compression fracture	1
Hip pain	2
<b>CARDIOVASCULAR</b>	
Myocardial Infarction	1
Congestive Heart Failure	2
Venous Insufficiency	1
<b>RESPIRATORY</b>	
Pneumonia	3
Shortness of breath	2
<b>NEUROLOGICAL</b>	
Cerebral Vascular Accident	5
Confusion	2
<b>GENERAL MEDICAL</b>	
Leg swelling	1
Depression	1
Dehydration	1
Diabetes	1
Weakness NYD	1
Cancer cecum	1
General disability	3
Bowel obstruction	2
Osteoporosis	1
Urosepsis	1

Length of stay on the RCU ranged from 9 to 84 days with a mean length of stay of 40.8 days (SD 19.17). The majority of patients were discharged to their own homes (n=32; 80%), while two (5%) were discharged to the home of their adult children, one (2.5%) moved into a more accessible apartment, two (5%) were discharged to a special care home and three (7.5%) went to a nursing home.

Of the 35 (87.5%) subjects who were discharged to private homes, 21 (60%) were planning on receiving homemaker services for personal care and housekeeping assistance. Almost all subjects (91.4%) felt they would be dependent on informal supports, such as family and friends, upon returning home. Table 4 illustrates formal and informal supports in place on discharge from the RCU.

Table 4

Support services for subjects who returned home.

Support Service	Number of participants	Percentage of Participants
Formal		
Homemaker services	21	60%
Primary Informal		
Support	3	8.6%
	2	5.7%
Spouse	19	54.3%
Siblings	2	5.7%
Son/Daughter	1	2.9%
Niece	2	5.7%
Grandchild	2	5.7%
Friend	1	2.9%
Neighbors	3	8.6%
Others		
None		

Functional Independence Measure

In answer to the research question “ Does a patient’s functional ability change following admission to a GRU?” this study found that functional ability does change from admission to and discharge from a GRU. Data collected from the FIM regarding subject's functional ability is presented in Table 5.

Table 5

Functional Independence Measure Scores

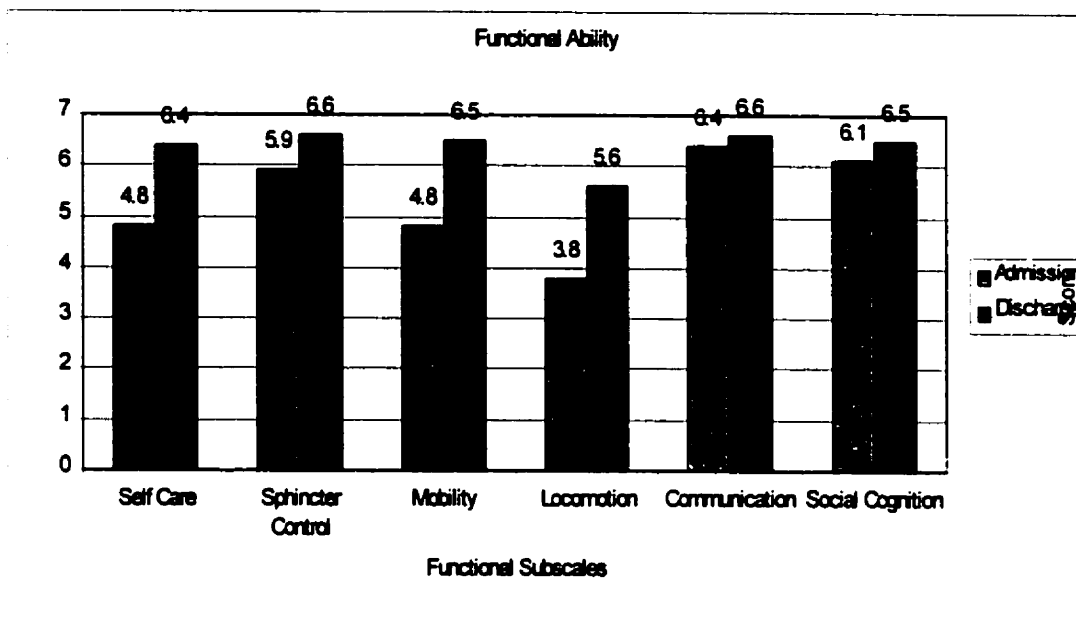
FUNCTIONAL ITEM	ADMISSION			DISCHARGE		
	MEAN	SD	RANGE	MEAN	SD	RANGE
<b>SELF-CARE</b>						
Feeding	6.6	1.1	1 to 7	6.9	0.8	2 to 7
Grooming	4.9	1.8	1 to 7	6.4	1.2	3 to 7
Bathing	4.0	1.8	1 to 7	6.1	1.3	3 to 7
Dressing-upper body	4.8	1.8	1 to 7	6.3	1.2	3 to 7
Dressing-lower body	3.8	1.9	1 to 7	5.9	1.5	2 to 7
Toileting	4.6	2.0	1 to 7	6.2	1.3	3 to 7
<b>TOTAL</b>	<b>28.7</b>	<b>8.1</b>	<b>13 to 42</b>	<b>38.1</b>	<b>5.7</b>	<b>17 to 42</b>
<b>SPHINCTER CONTROL</b>						
Bladder	5.8	1.9	1 to 7	6.5	1.3	2 to 7
Bowel	5.9	1.4	1 to 7	6.6	0.8	3 to 7
<b>TOTAL</b>	<b>11.8</b>	<b>3.1</b>	<b>3 to 14</b>	<b>13.1</b>	<b>1.9</b>	<b>6 to 14</b>
<b>MOBILITY/TRANSFERS</b>						
Bed, Chair,	4.7	1.9	1 to 7	6.6	0.9	4 to 7
Wheelchair	4.9	1.8	1 to 7	6.3	0.8	4 to 7
Toilet	9.6	3.4	2 to 14	12.9	1.6	9 to 14
<b>TOTAL</b>						
<b>LOCOMOTION</b>						
Walk/Wheelchair	3.8	1.9	1 to 7	5.6	0.9	4 to 7
<b>TOTAL</b>	<b>3.8</b>	<b>1.9</b>	<b>1 to 7</b>	<b>5.6</b>	<b>0.9</b>	<b>4 to 7</b>
<b>COMMUNICATION</b>						
Comprehension	6.3	1.3	2 to 7	6.5	1.1	1 to 7
Expression	6.5	1.1	3 to 7	6.7	1.1	1 to 7
<b>TOTAL</b>	<b>12.7</b>	<b>2.4</b>	<b>5 to 14</b>	<b>13.3</b>	<b>2.1</b>	<b>2 to 14</b>
<b>SOCIAL COGNITION</b>						
Social Interaction	6.3	1.2	3 to 7	6.7	0.7	3 to 7
Problem Solving	5.8	1.6	2 to 7	6.2	1.3	1 to 7
Memory	6.2	1.6	2 to 7	6.5	1.3	1 to 7
<b>TOTAL</b>	<b>18.2</b>	<b>3.9</b>	<b>7 to 21</b>	<b>19.4</b>	<b>3.1</b>	<b>5 to 21</b>

Total FIM score. As reflected in Table 5, the mean functional level of subjects measured by FIM total score was 84.9 (S.D. 16.4) on admission, indicating functional dependency. In comparison, functional level on

discharge was 101.6 (S.D. 13.9), indicating modified functional independence. A paired *t*-test revealed mean total FIM scores were significantly higher on discharge ( $t_{(39;0.05)} = -3.258, p < 0.001$ ) than mean total FIM scores on admission to the RCU.

Subscale function. Based on paired *t*-tests, there were significant increases in self-care ( $t_{(39;0.05)} = -3.39, p < 0.001$ ), sphincter control ( $t_{(39;0.05)} = -1.29, p < 0.001$ ), mobility ( $t_{(39;0.05)} = -3.11, p < 0.001$ ), and locomotion ( $t_{(39;0.05)} = -3.41, p < 0.001$ ). Although an increase in subscale scores for communication and social cognition were noted, these were not statistically significant ( $t_{(39;0.05)} = -0.269, p < 0.001$ ;  $t_{(39;0.05)} = -0.732, p < 0.001$ ).

Because subscales did not contain the same number of items, comparison of total subscale scores does show where real functional gains were made. For example, self-care contains 6 items, sphincter control contains 2 items and locomotion contains 1 item. Therefore, the mean was obtained for the composite of items within each subscale and these item means compared between admission and discharge. These change scores are presented in Figure 2.



**Figure 2. Functional Independent Measure Subscale Changes**

As reflected in Figure 2, the largest gains were seen in locomotion (1.8), mobility (1.7), self-care (1.5) and sphincter control (0.7). On admission to the RCU, locomotion was at a level requiring moderate to minimal assistance and on discharge, locomotion had improved to a level requiring supervision or assistive devices. Mobility and self-care progressed from dependent on admission to independent on discharge. Sphincter control changed from dependent with supervision on admission to independent with assistive devices on discharge.

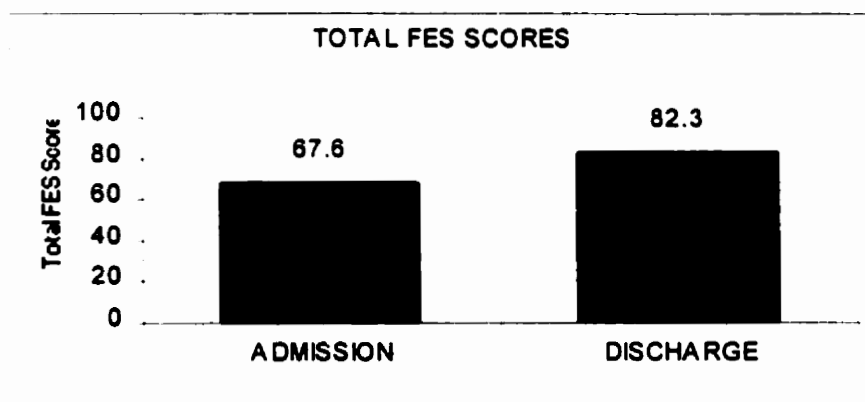
The lowest gains occurred in communication (0.3) and social cognition (0.5). On admission these subscales were independent with assistive devices and progressed to completely independent on discharge.

Although these areas were the highest functioning on admission, they had at least one half the gain of the other 4 subscales.

### Self-efficacy

In answer to the research question " Does a patient's self-efficacy for performing essential, nonhazardous activities of daily living change following admission to a GRU?" this study found that patient's self-efficacy does change following admission to a GRU.

As reflected in Figure 3, subjects' confidence in performing the 10 activities without falling increased following admission to the RCU. Paired *t*-test showed mean total FES scores on discharge (  $\bar{X}$ = 82.3, S.D. 12.7) were significantly higher ( $t_{(39;0.05)} = -4.101, p < 0.001$ ) than mean total FES scores on admission (  $\bar{X}$ = 67.6, S.D. 16.7).



**Figure 3.** Total Mean Falls Efficacy Scores

Falls self-efficacy scores related to performing everyday activities without falling are presented in Table 6.

Table 6

Falls Self-efficacy Scores

FALLS EFFICACY SCALE ACTIVITY	ADMISSION			DISCHARGE		
	MEAN	SD	RANGE	MEAN	SD	RANGE
Get dressed and undressed	7.1	2.6	1 to 10	9.0	1.3	5 to 10
Prepare simple meal	6.2	2.9	1 to 10	7.45	2.6	1 to 10
Take a bath or shower	6.7	2.8	1 to 10	8.4	2.2	1 to 10
Get in/out of a chair	7.8	1.8	4 to 10	9.3	1.3	6 to 10
Get in/out of bed	7.9	2.2	1 to 10	9.4	1.5	3 to 10
Answer the door or telephone	8.0	2.5	1 to 10	9.0	1.6	5 to 10
Walk around inside your home	8.1	1.9	4 to 10	9.4	1.7	6 to 10
Reach into cabinets/closets	5.9	2.9	1 to 10	7.1	2.5	1 to 10
Light house keeping	5.6	3.1	1 to 10	6.9	2.9	1 to 10
Simple Shopping	4.2	3.5	1 to 10	5.9	3.5	1 to 10
Total Falls Efficacy Scale Score	67.6	16.7	33 to 100	82.3	12.7	55 to 100

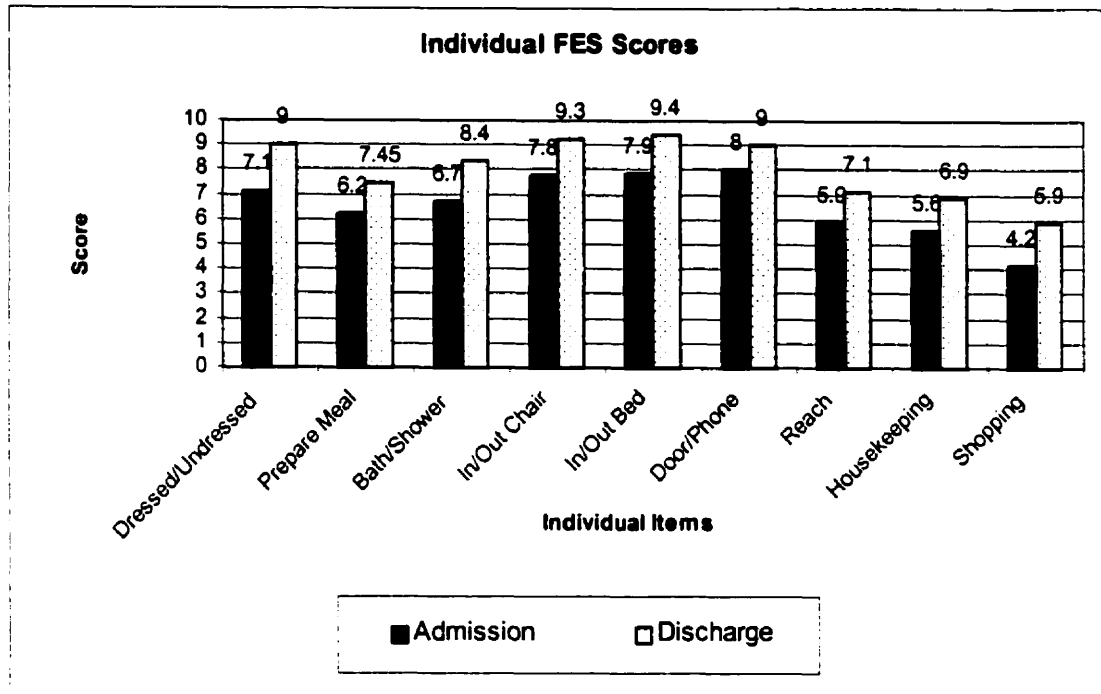
Overall, on admission, subjects reported moderate fear of falling in performing the 10 activities, with a mean score of 6.76 (S.D. 1.7) for individual items and an overall score of 67.6 (SD 16.7). On discharge,



subjects reported minimal fear of falling. There was an overall mean increase in FES scores. FES mean scores on admission were 67.6 (S.D. 16.7) and on discharge was 82.3 (S.D. 12.7). Of the 40 subjects, 7.5% (n=3) reported lower levels of confidence in performing the 10 activities on discharge than on admission to the RCU. Two subjects had no changes in the total FES score, while 87.5% (n=35) of subjects received higher FES scores on discharge than on admission.

As reflected in Table 6, the largest change in scores from admission to discharge were seen in getting dressed and undressed, with a change of 1.9 (admission  $\bar{X}$  = 7.1, discharge  $\bar{X}$  = 9.0) followed by taking a bath or shower, with a change of 1.7 (admission  $\bar{X}$  = 6.7; discharge  $\bar{X}$  = 8.4), and simple shopping, with a change of 1.7 (admission  $\bar{X}$  = 4.2; discharge  $\bar{X}$  = 5.9).

Answering the door or telephone showed the smallest change, with a mean change score of 1.0, (admission  $\bar{X}$  = 8.0; discharge  $\bar{X}$  = 9.0), followed by reaching in cabinets or closets, with a change of 1.2 (admission  $\bar{X}$  = 5.9; discharge  $\bar{X}$  = 7.1) and walking around inside your home, with a change of 1.3 (admission  $\bar{X}$  = 8.1; discharge  $\bar{X}$  = 9.4). This data is illustrated in Figure 4.



**Figure 4.** Individual FES Scores

#### Relationship between self-efficacy and functional ability

In answer to the research question “What is the relationship between functional ability and self-efficacy in performing essential nonhazardous activities of daily living following admission to a GRU” this study found that an insignificant relationship exists between FIM and FES scores both on admission and discharge.

Pearson-moment correlation between total scores of the FIM and FES admission scores was  $r(40; 0.050) = .221$ , and between total discharge scores of the FIM and FES was  $r(40; 0.05) = -.023$ . These findings represent insignificant relationships between functional ability and self-efficacy on admission and discharge to the RCU.

## **Chapter 5**

### **Discussion**

Following admission to the RCU, subjects in this study demonstrated significant gains in 4 categories of functional activity (self-care, sphincter control, transfers, and locomotion) and feelings of self-efficacy. While recognizing the use of a small sample, the findings of this study support the use of GRU's to promote older, hospitalized patients' functional abilities and likelihood of returning to independent living. The significance of these findings will be discussed in this chapter.

### **Sample**

Subjects in this study included older adults who were admitted directly to the RCU or to an acute care hospital from home. Therefore, no subjects were residents of long-term care facilities, such as nursing home or special care home residents. Failure to consider nursing home or special care home residents for admission raises concerns regarding the admitting process for geriatric rehabilitation. Considering that the majority of nursing home and special care homes residents require some assistance with activities of daily living (Glick & Swanson, 1995; Resnick, 1998; Resnick, 1998; Roberts & Fitzpatrick, 1994), further functional decline resulting from the hospital admission may alter the type and amount of nursing care required upon their discharge. Therefore, exclusion of this group from

geriatric rehabilitation may have a tremendous impact on quality of life of these individuals and health care costs.

The majority of participants in this study were female (70%). Females were on average older (84.8 years) than males (81.7 years). This is consistent with both national and provincial data (Government of New Brunswick, 1996; Statistics Canada, 1996) which show that females have a longer life expectancy than males and, therefore, represent the largest proportion of older adults.

#### Acute Care hospitalization

Prior to the RCU admission, subjects in this study were hospitalized in acute care for up to 84 days. Mean length of stay in acute care was 40.5 days (S.D. 17.7). Although it is well documented that older adults require a longer length of stay compared to younger patients with similar problems (Health Canada, 1996), hospital stay was almost twice as long as the 21.9 days previously estimated (Statistics Canada, 1996). Admitting diagnosis of participants provided no explanation for the long hospital stays, although the age of participants may account for the lengthy hospitalization.

Although the scope of this study did not include assessment of subjects' functional ability prior to RCU admission, interviews with patients revealed all subjects lived independently prior to the hospitalization. However, functional ability on admission to the RCU was at a level requiring assistance to perform everyday activities of daily living (eating, grooming,

bathing, dressing, toileting, and ambulating). On admission to RCU, 77.5% of participants were unable to dress independently, 82.5% were unable to bathe independently, and 85% were unable to walk at least 150 feet, even with assistive devices. This data strongly suggests that subjects would have been unable to return to independent living unless they had been admitted to the RCU. This finding is consistent with the literature that asserts older adults who are hospitalized are high risk for functional decline and dependent living post discharge (Alexander, 1990; Bergman et al., 1997; Hebert, 1997; Rosenberg & Moore, 1997; Statistics Canada, 1996).

#### Informal Caregivers

The vast majority of subjects in this study (91.4%) identified an individual who would provide informal support upon discharge. Although limited information on informal supports was obtained, subjects did identify the relationship of their support systems. Considering the age of subjects in this study, it is conceivable that many of their supports were themselves, older adults. This would be consistent with earlier findings that reported 45% of all informal supports are over the age of 60 (Penrod, Kane, Kane & Finch, 1995). Previous research suggests that older individuals who provide informal support are often denied adequate supports to assist them in their caregiving role (Grant, 1999, Dennis et al., 1998; Vrabec, 1997) and that many older people develop health problems as a result of providing informal support (Home, 1991; Piccinato & Rosenbaum, 1997). The health

of this aggregate group should be a focus of concern as failure to adequately support these informal caregivers may have grave repercussions on our health care system.

### **Self Efficacy Theory**

Bandura's Theory of self-efficacy asserts there is an interrelationship between behavior, the individual, and the environment. Previous studies have demonstrated this relationship with health promotion (Spence Laschinger, 1996), chronic obstructive pulmonary disease (Scherer & Schmieder, 1996; Scherer, Schmieder & Buffalo, 1997; Wigal et al., 1991), and recovery from orthopaedic events (Pellino et al., 1998). Results of this study did not provide evidence to support self-efficacy theory within the context of a GRU.

### **Behavioral Component**

The behavioral component of Bandura's Theory of self-efficacy was functional ability, as measured by the FIM. Subjects in this study made significant gains in self-care, mobility, locomotion and sphincter control during their stay on the RCU. The greatest gains occurred in locomotion, overall subjects went from moderate assistance to independence with supervision. Similar changes were noted in self-care ability and mobility, where subjects progressed from "minimal assist" to "independent". Although not as extreme, large gains were also seen in sphincter control (bladder and bowel control). Functional improvements of this magnitude could have significant implications for clinicians and patients. It is likely that

these gains were instrumental in returning patients to community living that otherwise would have been destined for long term placement. These findings support earlier studies that found GRU decreases the likelihood of nursing home placements (Hanks et al., 1996; McVey et al., 1989; Rubenstein et al., 1981; Twasdale, Shuman, Snow, & Luchi, 1983).

As previously identified, it was not possible to determine if subjects returned to their pre-hospitalization level of functioning. Similarly, the scope of this study did not include assessment of subject's ability to maintain functional gains after rehabilitation ended and they were discharged from the RCU.

Length of stay on the RCU ranged from 9 to 84 days with a mean length of stay of 40.8 days (SD 19.17). Functional ability of participants, however, was only measured twice during each subject's RCU stay; within 72 hours of admission and within 72 hours of discharge. Further studies to determine if and when functional values plateau and would help determine appropriate length of stay and ensure appropriate utilization of geriatric rehabilitation services.

Although no information was available on communication or social cognition on admission to the acute care area, 87.5% of participants were independent in these areas on admission to the RCU. This contradicts earlier studies that reported almost half of patients 65 years and older admitted to acute care areas develop cognitive impairment (Black, Soltis & Barlett, 1999; Lamont et al., 1983; Resnick, 1998). In contrast, the results

of this study did not find any statistically significant differences in admission and discharge scores in these areas. However, subjects rated high in these areas on admission thereby providing little room for improvement.

Nearly 80% of participants in this study were 80 years or older and represent a distinct group of older adults who generally have more health problems, increased disabilities and decreased mobility than older adults as a whole (Carlson et al., 1998; Government of New Brunswick, 1996; Hebert, 1997; Resnick, 1998; Rosenberg & Moore, 1997). This finding has important implications for acute care services. Given that Canadians over the age of 80 are the fastest growing segment of our population (Government of New Brunswick, 1996) the demand for health care resources to address their needs may increase dramatically.

#### Personal/Cognitive

The personal/cognitive component of Bandura's Theory was self-efficacy, as measured by the FES. Subjects in this study made significant gains in self-efficacy. Overall, feelings of self-efficacy went from moderate to high. As in earlier studies, the increase in self-efficacy was accompanied by an increase in functional ability (DeLeon et al., 1996; Gill et al., 1997; Tinetti et al., 1994). While Bandura's theory suggests that efficacy beliefs have an impact on functional ability, it is conceivable that the subjects' increase in functional ability in turn had an impact on their efficacy beliefs.



### **Relationship between self-efficacy and functional ability**

Although significant gains were documented in functional ability and self-efficacy, this study did not find a significant relationship between these variables. This relationship may be explained in a number of ways. One possible explanation may be that no relationship actually exists between functional ability and self-efficacy of patients admitted to a GRU. This conclusion would assume that findings from numerous earlier studies that found self-efficacy to be a consistent predictor of functional ability (DeLeon et al., 1996; Gill et al., 1997; Tinetti et al., 1994) cannot be generalized to patients admitted to a GRU. Another explanation may be that the relationship found in this study is specific to this sample. In this sample, subjects were predominantly older (83.8 years), female (70%) and had long hospitalizations in acute care units (40.5 days) prior to the GRU admission.

Although insignificant, the correlation between functional ability and self-efficacy was only performed twice during the study. This finding demonstrates that no relationship existed between the two variables during admission or discharge from the unit. It is not clear, however, if a significant relationship existed during any other point of the RCU stay.

The overall lack of a significant relationship between functional ability and self-efficacy could also be due to the different contexts in which the variables were measured. Theoretically, the relative influence of these variables is situation specific and will vary according to the specific context in which the behaviors take place (Bandura, 1977; Bandura, 1986). In this

study, functional ability was determined by nursing staff's observation of each subjects' ability to perform self-care activities on the RCU. In contrast, self-efficacy was based on each subjects' perception of their confidence in performing activities at home. In keeping with Bandura Theory of self-efficacy, the results of this study may reflect the difficulty of generalizing feelings of self-efficacy in different contexts, such as hospital and home. Future research should utilize instruments that allow functional ability and self-efficacy to be measured within the same context, that is, during a GRU admission.

Furthermore, based on the design of this study, the individual experiences of each patient could not be determined. This study did not take into account the multitude of factors that could have influenced the RCU experience. For example, there was no control over nurse/patient assignments. It was assumed that all staff had similar experience and expertise, and that vicarious experiences would have the same impact for all subjects. Furthermore, subjects' exposure to extraneous sources of information, such as dialogue with families and other patients, and seeing others who did not benefit from rehabilitation, was not controlled. It would be unrealistic to exercise the degree of control required to ensure all subjects' had the same rehabilitation experience.

## **Summary**

**This study supports the use of GRU's to promote older adult's functional abilities and feelings of self-efficacy. Significant changes were found between functional ability and self-efficacy, although findings did not demonstrate a significant relationship between self-efficacy and functional performance. Understanding and insight into the impact of individual sources of efficacy information may further promote functional performance for RCU patients.**

## **Chapter 6**

### **Implications for Nursing**

This study investigated the relationship between GRU patients' functional abilities and self-efficacy. Specifically, the study explored the following questions:

- 1) Does a patient's functional ability change following admission to a GRU?
- 2) Does a patient's self-efficacy for performing essential, nonhazardous activities of daily living change following admission to a GRU?
- 3) What is the relationship between functional ability and self-efficacy in performing essential nonhazardous activities of daily living following admission to a GRU?

### **Recommendations**

#### **Nursing Research**

This study provides beginning documentation about the contribution of a GRU and supports the premise that individuals admitted to a GRU have significant gains in functional performance and self-efficacy. Replication of this study may strengthen these findings and provide further evidence to support recognition of the effectiveness of GRUs. Additional studies with larger and more diverse samples will assist in generalizability and a more controlled design could strengthen findings.

Further research investigating changes in functional abilities of GRU patients is required. Specifically, functional abilities need to be documented at regular intervals throughout the GRU admission to determine required

length of stay and promote efficient use of resources. Longitudinal studies, designed to follow patients post-discharge from the GRU, would also be helpful to determine if functional gains made during a GRU stay are maintained.

Additional research is required to fully understand the relationship between functional ability and self-efficacy of patients admitted to a GRU. Instruments that measure these variables within the same context would assist in developing a more accurate understanding of the relationship between these variables. Such findings should also provide additional information on the applicability of Bandura's theory of self-efficacy to GRU's.

As Canada's population ages and with the continued emphasis on community-based care, the need to assist caregivers in the home will intensify. Unfortunately, as the population ages, so will those family members and friends called upon to provide support. The increased demands placed on these informal caregivers of older adults should be examined and their needs identified and understood.

Finally, this study has been limited to one methodology to gather information about changes in GRU patients' functional ability and self-efficacy. Further studies should consider a triangulated approach, such as the combined use of instruments, interviews, participant observation and case study approaches. Description of the lived experience of patients would help further develop an understanding of the impact of GRUs. Data

elicited could not only explore personal experiences of GRU patients, but also identify influencing conditions within the acute care environment.

### Education

It is commonly believed that older adults have little rehabilitation potential (Cameron, Reil, Rajacich & Dunham, 1996; Lookinland & Anson, 1995), that aging equates with dependency, and that older adults are a homogenous group and inevitable invalids (Armstrong-Ester, Browne & McAfee, 1994; Hamilton & Lyons, 1995; Harper, Manasse & Newton, 1992; Resnick, 1998). Because such inappropriate beliefs exist, efforts to restore functional ability in older adults may be perceived as futile. Such ageist attitudes can result in the provision of custodial, rather than rehabilitative care and negatively affect the patient's functional ability. For example, when nurses perform complete care on older patients and provide little opportunity for self-care (Armstrong et al.), functional decline and dependency is inevitable. Staff nurses, although in an ideal position to prevent functional decline, are often not aware of the vicious cycle they have created.

Schools of nursing should critically evaluate their curriculums to ensure they are not reinforcing ageist beliefs amongst student nurses. Although older adults (with their often multiple health issues) provide excellent learning opportunities for students, older adults are too frequently used for an introduction to basic nursing care. Beginning students, who have little or no nursing experience, are frequently preoccupied with gaining experience in

areas such as bathing, feeding and transferring — failing to provide the older adult with opportunities for self-care. Furthermore, using older adults as nursing students' first aggregate group of patients may implicitly communicate that caring for seniors requires no specialized knowledge or skills. Students may also perceive older adults to be the 'safest' group to practice new skills — a mindset which only perpetuates society's ageist attitudes (French, 1990; Fuller, 1995; Goldschmidt, 1995; Hewison, 1995; McGuire, 1994) and which may be reflected in practice long after formal education is completed.

Of relevance to nursing education is the fact that studies examining strategies to maintain functional level and independence in older adults have increased significantly over the past decade. Dissemination of these research findings to nurses is critical to strengthen gerontological nursing practice.

### Nursing Practice

Nurses working in acute care areas outside of the GRU must become aware of the pivotal role of functional ability in maintaining independence in older adults. While it is not realistic for acute care nurses to provide intensive rehabilitation services, they should place emphasis on maintaining functional ability wherever possible. These opportunities can be provided by allowing patients to participate in their daily care as much as possible, providing verbal encouragement regarding any functional activity, or providing ambulation opportunities whenever possible, such as walking a patient to the bathroom.

**Nursing education programs and professional associations should increase emphasis on the complexity of gerontological nursing.**

**Administrators should support nurses working with older adults and assist in professional development. The knowledge, skills and attitudes required to provide appropriate care for older adults, in acute medical, surgical, gerontological, and longterm care areas should be acknowledged and upheld. Opportunities for the acquisition of specialty certification and advanced knowledge should also be available to all nursing staff working with older adults. Nursing associations should monitor schools of nursing to ensure the complexity of gerontological nursing practice is reflected in curriculums. Associations should also lobby government for sufficient funding to educate practitioners, from across the health care continuum, in appropriate assessment and intervention strategies for older adults. Departments of nursing should also lobby for advanced nurse practitioners and clinical nurse specialists to assist in addressing the needs of complex geriatric patients and expanding gerontological nursing knowledge.**

**With the growing number of older adults in New Brunswick (Province of New Brunswick, 1996), the demand for hospital based services will rise (Statistics Canada, 1996; Wilkins & Park, 1997). With only 6 GRU's throughout the entire province of New Brunswick, it is, therefore, projected that availability of this service will not meet the demand. While it is difficult to project what this will mean in terms of health care spending and resource utilization, the findings of this study and numerous earlier studies (Freeman,**



1997; Lamont et al., 1983; McVey et al., 1989; Pheby & Thorns, 1994; Rajacich & Cameron, 1995; Roberts & Fitzpartick, 1994; Rosenberg & Moore, 1997; Sanders, 1992) suggest, that for many older adults, hospitalization may result in the inability to return home and maintain independent living. It is, therefore, important that GRUs or alternate strategies to provide appropriate and affordable care to this population, be examined.

The effect of geriatric consultation teams on maintaining or enhancing functional abilities of older adults admitted to medical or surgical units may need to be reexplored. Research has not occurred for over a decade, and at that time samples consisted primarily of male war veterans (McVey et al., 1989). As reflected in this study, females comprise the largest segment of older adults in today's society. The effects of geriatric consultation teams on today's older adults should be explored. These teams could help patient care providers develop individualized plans of care that promote patients' optimal functional performance and self-efficacy, while maximizing current resources. Such an approach could potentially prevent functional decline, decrease complications associated with immobility (decubitus ulcers, thrombosis, pneumonia) decrease length of hospital stay, improve patient satisfaction (Aptaker, Roth, Reichhardt, Duerden, & Levy, 1994; Daly, Adelman, & Resnick, 1992; Hamilton & Lyons, 1995; Harris, Mion, Patterson, & Frengley, 1988; Lefton, Bonstelle, & Frengley, 1983; Mulrow et al., 1994), reflecting the needs of older adults

hospitalized today. Such an approach could also help educate professionals working in general hospital units about geriatric rehabilitation and influence a positive change in attitudes towards gerontological nursing practice.

### Conclusion

This exploratory study utilized a pre-post design to examine changes in functional abilities and self-efficacy of patients admitted to a GRU. The results indicated statistically significant differences in four categories of functional performance and feelings of self-efficacy from time of GRU admission to time of discharge. An insignificant relationship was found between functional ability and self-efficacy. While based on a small convenience sample, the results of this study support the use of GRUs to promote older adult's functional abilities. Future study is needed to support generalizability and explore the relationship between functional abilities and self-efficacy of patients admitted to a GRU.

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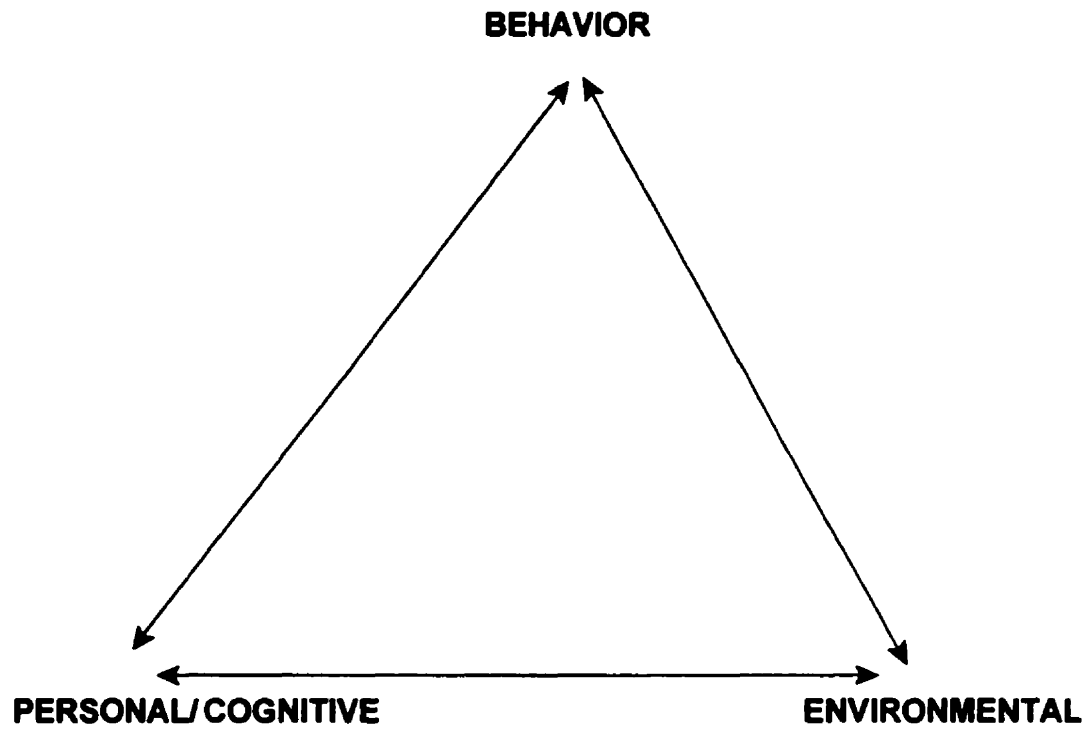
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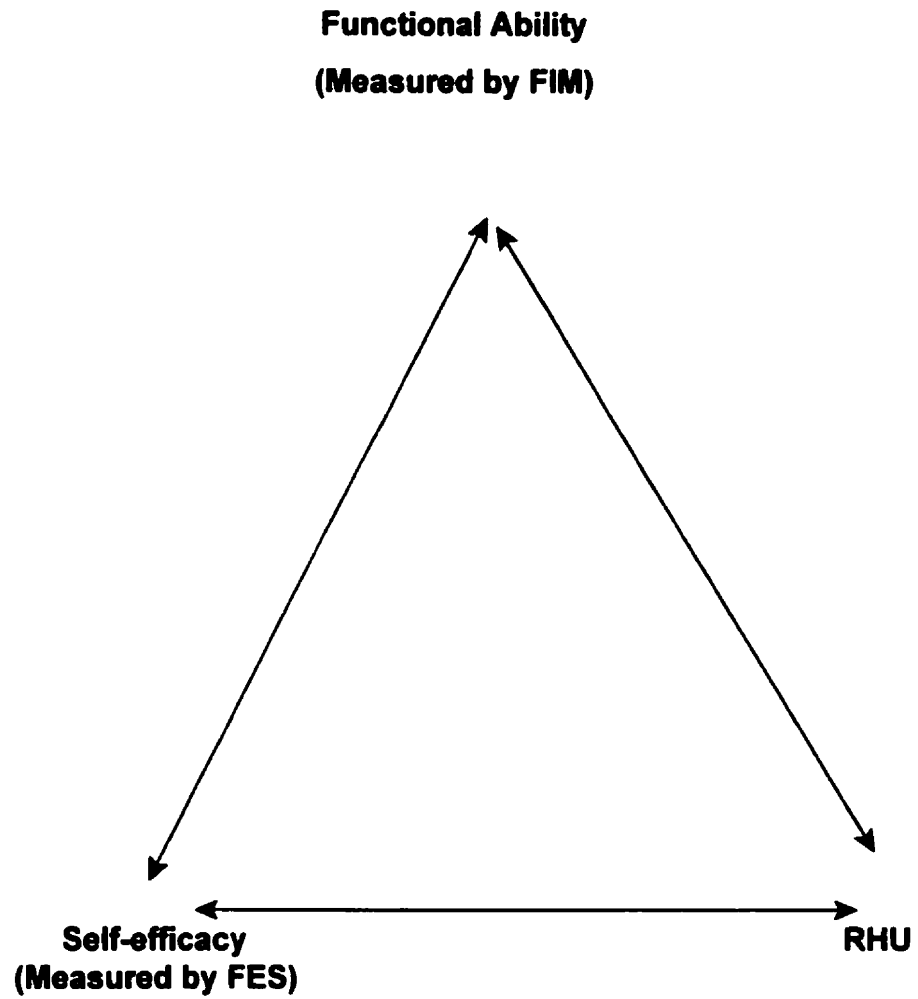
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**Appendix A: Self-efficacy Theory: Triadic Reciprocal Causation**



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**Appendix B: Use of Self-Efficacy Theory for this study**





### Appendix C: Functional Independence Measure

#### SCORING

The patient is scored as:

7. Completely independent
6. Independent with assistive devices
5. Dependent with supervision
4. Dependent with minimal assistance
3. Dependent with moderate assistance
2. Dependent with maximal assistance
1. Totally dependent

#### SELF CARE

Eating	1	2	3	4	5	6	7
Grooming	1	2	3	4	5	6	7
Bathing	1	2	3	4	5	6	7
Dressing Upper Body	1	2	3	4	5	6	7
Dressing Lower Body	1	2	3	4	5	6	7
Toileting	1	2	3	4	5	6	7

#### SPINCTER CONTROL

Bladder Control	1	2	3	4	5	6	7
Bowel Control	1	2	3	4	5	6	7

#### TRANSFERS

Bed, Chair, Wheelchair	1	2	3	4	5	6	7
Toilet	1	2	3	4	5	6	7

#### LOCOMOTION

Walk/Wheelchair	1	2	3	4	5	6	7
-----------------	---	---	---	---	---	---	---

#### COMMUNICATION

Comprehension	1	2	3	4	5	6	7
Expression	1	2	3	4	5	6	7

#### SOCIAL COGNITION

Social Interaction	1	2	3	4	5	6	7
Problem Solving	1	2	3	4	5	6	7
Memory	1	2	3	4	5	6	7

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### Appendix D: FALLS EFFICACY SCALE

Please place a circle around the number which best reflects how confident you will feel when you go home about undertaking each of the following tasks.

	NO CONFIDENCE		MODERATE CONFIDENCE		EXTREME CONFIDENCE					
1. Get dressed and undressed.	1	2	3	4	5	6	7	8	9	10
2. Prepare a simple meal.	1	2	3	4	5	6	7	8	9	10
3. Take a bath or shower.	1	2	3	4	5	6	7	8	9	10
4. Get in/out of a chair.	1	2	3	4	5	6	7	8	9	10
5. Get in/out of a bed.	1	2	3	4	5	6	7	8	9	10
6. Answer the door or telephone	1	2	3	4	5	6	7	8	9	10
7. Walk around the inside of your house.	1	2	3	4	5	6	7	8	9	10
8. Reach into cabinets or closets.	1	2	3	4	5	6	7	8	9	10
9. Light housekeeping	1	2	3	4	5	6	7	8	9	10
10. Simple shopping	1	2	3	4	5	6	7	8	9	10

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Appendix E: Approval to use Functional Independence Measure

**GUIDE**

FOR USE OF THE

**UNIFORM DATA SET**  
**FOR**  
**MEDICAL REHABILITATION**

Version 3.0 March 1990

PREPARED BY THE DATA MANAGEMENT SERVICE  
OF THE UNIFORM DATA SYSTEM FOR  
MEDICAL REHABILITATION

AND THE CENTER FOR FUNCTIONAL  
ASSESSMENT RESEARCH

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Appendix F: Approval to use Falls Efficacy Scale

July 6, 1999

Attention: Dr. Mary E. Tinetti MD

I am Master of Nursing student, University of New Brunswick, Canada. I am interested in the concepts of self-efficacy and functional ability in older hospitalized adults.

I have researched the Falls Efficacy Scale you have developed and consider it a valuable tool that can lead to a better understanding of the needs of older hospitalized adults. I would appreciate the opportunity to use this instrument in my research study, titled "The effects of Self-efficacy upon Functional Abilities of Patients on a Geriatric Rehabilitation Unit".

If you would allow me to use this instrument for research purposes, I agree to acknowledge your work and the work of your colleagues in its development.

Please sign below if you authorize its use for my study.

I hereby authorize the use of the Falls Efficacy Scale to Rose McCloskey, RN, BN University of New Brunswick for data collection in the study "The effects of Self-efficacy upon Functional Abilities of Patients on a Geriatric Rehabilitation Unit.

Dr. Mary Tinetti

Mary Tinetti  
Signature

7-6-99  
Date

Professor  
Position

Would you be interested in receiving a final report of the study?

YES

NO

**Appendix G: Informed Consent****INFORMED CONSENT**

**TITLE OF STUDY:** The Effects of Self-efficacy upon Functional Abilities of Patients on a Geriatric Rehabilitation Unit.

**LOCAL PRINCIPAL INVESTIGATOR:** Rose McCloskey, RN

**RS NUMBER:** 99-645

**INTRODUCTION**

A study is being done by Rose McCloskey, Master of Nursing student, University of New Brunswick, to investigate the effects of admission to the Restorative Care Unit, St. Joseph's Hospital, Saint John, New Brunswick. We hope this research will lead to a better understanding of the needs of patients admitted to the unit. You are being invited to volunteer to participate in this study. We hope you will agree to participate, but you are not required to do so. If you decide not to participate, your treatment and care on the Restorative Care Unit will not be affected in any way.

Your participation is completely voluntary. If you agree to participate, you will be given assistance to fill out a form about your confidence in performing everyday activities. This will occur when you agree to participate and again before you are discharged. The staff on the unit will also assess your abilities related to everyday activities, such as bathing and dressing.

You can withdraw from the study at any time without affecting your present or future health care. If the study is changed in any way which could affect your willingness to stay in the study, you will be told about the changes and may be asked to sign a new informed consent.

**PURPOSE OF STUDY**

The purpose of the research is to better understand the needs of patients admitted to the unit. The study will look at your abilities in performing everyday activities, such as dressing and bathing. It will also look at your confidence in performing these activities. It is expected that the study will involve 40 participants.

**PROCEDURE**

1. If you agree to participate you will be asked 10 questions about your confidence in performing everyday activities. These questions will be asked when you agree to participate and again before you are discharged from the unit. The nursing staff on the unit will also assess your abilities related to everyday activities, such as dressing and bathing.
2. A summary of the results of this study will also be made available to you if you are interested.

**POTENTIAL RISKS/DISCOMFORTS**

We can not promise that you will derive any personal benefit from participating in the study. However, there are no risks and participation should involve about one hour of your time.

**QUESTIONS**

You are encouraged to ask questions at any time during the study. If you have any questions, please ask the staff on the Restorative Care Unit or phone Rose McCloskey, the primary researcher at (506) 648-6776.

You may also contact Penny Ericson, University of New Brunswick Faculty of Nursing (506) 458-5519, or Mary Dupuis, (506) 458-7630 who can also answer any questions you may have.

You may also may contact someone not involved in the study, by calling Dr. Richard Scott, Director, Research Services at (506) 648-6781.

You may want a friend or family member to read the form and talk to Rose McCloskey, the researcher, to discuss the research.

**CONFIDENTIALITY**

Every effort will be made to ensure your confidentiality. Any information you provide will be confidential and your identity will not be disclosed in any study reports.

**ADDITIONAL INFORMATION**

You are encouraged to ask questions at any time during the study. In the event that you have further questions or experience any stress related to participating in the study, please call Rose McCloskey at 648-6776.

## CONSENT TO PARTICIPATE IN A CLINICAL RESEARCH STUDY

**Title Of Study:** The Effects of Self-Efficacy upon Functional Abilities of Patients on a Geriatric Rehabilitation Unit

**Local Principal Investigator:** Rose McCloskey, RN Atlantic Health Sciences Corporation

### PARTICIPANT'S QUESTIONS :

Has this study been explained to you?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Have you read, or had read to you, a copy of this consent form?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Have you had an opportunity to ask questions and discuss this study?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Are you comfortable with the information that has been provided?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Do you understand that you are free to withdraw from this study?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Do you understand that you will receive a signed copy of this consent?	Yes <input type="checkbox"/>	No <input type="checkbox"/>

Do you object to your family physician being notified of your participation? Yes  No

### PARTICIPANT'S STATEMENT

**I have read the above information and understand the purpose of the research as well as the potential benefits and risks of participation in the study. I have had the opportunity to ask questions, and all my questions have been answered. I hereby give my informed consent to be a participant in this study.**

\_\_\_\_\_  
Printed name of Participant      Signature of Participant      Date

\_\_\_\_\_  
Printed name of Witness      Signature of Witness      Date

### INVESTIGATORS STATEMENT :

**I have explained to the above participant(s) the nature, requirements and the purpose of the study, potential benefits, and possible risks associated with participation in this study. I have answered any questions that have been raised. I believe that the participant(s) understand the implications and the voluntary nature of the study.**

\_\_\_\_\_  
Principal Investigator (Print)      Signature      Date



Appendix H: Demographic Data

Code Number \_\_\_\_\_

Study Title: Changes in self-efficacy and functional abilities of patients on a Geriatric Rehabilitation Unit.

Date of Birth: Month \_\_\_\_\_ Day \_\_\_\_\_ Year \_\_\_\_\_ Age \_\_\_\_\_ Sex \_\_\_\_\_

Rationale for RHU Admission \_\_\_\_\_

Secondary Diagnosis(s) \_\_\_\_\_  
\_\_\_\_\_

Length of Stay (# of days, starting with day of admission) \_\_\_\_\_

Medications on admission to RHU

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Medications on discharge from RHU

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Community services used prior to hospital admission

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Services on RHU discharge

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Informal Support  
Systems** \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**Living arrangements prior to hospital admission** \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**Planned living arrangements at discharge from  
RHU** \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**Informal Support System**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Medical Discharge date** \_\_\_\_\_

**Discharge Date** \_\_\_\_\_

**Accommodations at discharge** \_\_\_\_\_

**Follow-up Appointment** \_\_\_\_\_

**Number of Goals** \_\_\_\_\_

**Number of Goals Attained** \_\_\_\_\_

## **Appendix I: Standardized Case Study**

**William H., a 77 year old white male, was admitted to the Arbor General Hospital at 11:00hrs on 1/30/99. An initial medical history was obtained via a medic alert emergency card found in the patient's personal belongings and statements of a neighbor and close friend who visited Mr. H. daily.**

**Mr. H. is a retired accountant, widowed approximately five years, who lives alone in a second story flat. He has no children or other immediate family. He has been an insulin-dependent diabetic for 10 years and has a history of hypertension.**

**His neighbor explained that during the past few days, Mr. H. complained of tingling sensations (paresthesia) in his extremities, dizziness, shortness of breath, and an overall tired or weak feeling. Mr. H. was discovered unconscious on his bedroom floor at 1015 hrs on the day of admission. Insulin reaction was ruled out as the cause of the patient's admission condition since blood glucose was 22. The patient's diabetes specialist informed the admitting physician that Mr. H. has suffered angina, foot ulcerations and other signs of peripheral atherosclerotic disease.**

**The primary findings on physical examination at admission included ability to respond to questions with eye movement but unable to speak, flaccid paralysis of all extremities (spasticity developed second week of hospitalization), pain, numbness and impaired sensation on left side of face, loss of pain and temperature sensation on right side of body, nausea and vomiting, dysphagia, diminished gag reflex, and Horner's Syndrome on left.**

**Remarkable laboratory findings: elevated cholesterol and triglycerides, hyperglycemia.**

**Diagnosis: Stroke due to atherosclerosis occluding the basilar artery and left posterior inferior cerebellar artery (extended lateral medullary syndrome).**

**After ten days, the insulin dose was stabilized and urine output through an indwelling catheter was adequate. Tracheostomy and naso-gastric feeding tubes were in place. There was poor to fair motion of right upper and lower limbs and zero to trace motion of left upper and lower limbs. He was transferred to the Rehabilitation Unit on 2/9/99.**

**REHABILITATION PROGRESS NOTES(2/9/99):** The patient was completely dependent upon the nursing service for all aspects of self care including feeding, grooming, bathing, dressing and toileting. Bladder management was achieved satisfactorily by catheterization, and the patient had bowel accidents which necessitated the use of diapers. Transfers required total assistance. Mr. H. was confined to bed. He could respond to questions by blinking his eyes to signify a positive answer and appeared to fully comprehend communication from staff and visitors. However, he was unable to speak or express himself in writing. Mr. H. participated appropriately with staff. Although his level of disability precluded independent problem solving, he had adequate memory.

**DISCHARGE:** During the two months since admission, Mr. H's diabetes had been stabilized and he progressed in functional independence. He had been taught how to obtain a finger-prick blood sample and utilize chemstrips with an accu-check monitor for home glucose monitoring. Mr. H. fed himself with food prepared ahead of time, such as meat being cut, and he needed assistance with bathing since limitations in active range of motion precluded proper washing/drying of "hard to reach" areas such as the back and feet. Except for opening and closing buttons, zippers, etc., Mr. H. was able to dress himself. After prior preparation, he did not require assistance with oral care, shaving, washing of hands or face, hair grooming or toileting. The patient was transferred to acute care between March 6th and 10th for a transurethral prostatectomy. The bladder catheter was removed and he had occasional urinary incontinence at night. A satisfactory bowel elimination pattern was achieved by using a stool softener and a high fiber diet. He learned to use grab bars to transfer independently to and from the tub. Arrangements were made for installing grab bars in his home. Mr. H. walked 150 feet with the aid of a walker and used stairs with handrails, however, his attendant always stood by during these endeavors. Mr. H. had become actively involved in group therapy sessions, enjoyed recreation (e.g. cards, bingo, "exercise to music" activities) and was congenial toward staff, visitors and fellow patients. The patient managed problems of daily living satisfactory. The speech therapist reported that Mr. H. was sometimes frustrated by his difficulty in expressing complex ideas and recommended at least one hour per week of speech-language therapy for the next six weeks.

**FOLLOW-UP 10/15/99:** Mr. H. was living alone in his own home. He no longer required the assistance of a personal care aide and performed most activities of daily living and mobility with ease and in an appropriate time. Bowel and bladder control were now normal. He utilized a cane for walking and a handrail for the twelve stairs from the 1st to 2nd floor of his home. Perimeter rails and a rubber grip mat were installed in his tub and Mr. H. used a long handled brush/sponge to assist him during bathing. He was no longer frustrated in his ability to express himself verbally although he had some dysarthria. Mr. H. joined a Senior Citizen's golf league and exercised regularly at a local YMCA. He achieved good control of his diabetes by combination of medication, appropriate diet, and exercise .