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Functional outcomes in occupational therapy following cerebrovascular accident

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FUNCTIONAL OUTCOMES IN OCCUPATIONAL THERAPY
FOLLOWING CEREBROVASCULAR ACCIDENT

A Thesis

Presented to

The Faculty of the

Department of Occupational Therapy

San Jose State University

in Partial Fulfillment

of the Requirements for the Degree

Master of Science

by Susan Daines

August, 1996

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ABSTRACT

FUNCTIONAL OUTCOMES IN OCCUPATIONAL THERAPY FOLLOWING CEREBROVASCULAR ACCIDENT by Susan Daines, OTR

This retrospective study of 160 subjects assessed the effectiveness of occupational therapy intervention for self-care function following cerebrovascular accident (CVA). The research examined the following variables and their influence on dependence: self-care function as measured by the Functional Independence Measure (FIM), toileting skills, severity of dysfunction, age, time spent in occupational therapy intervention, and discharge placement.

The results indicated the following: (a) a significant positive change between admission and discharge overall FIM score was found for 89% of the study subjects; (b) a significant relationship was found between hours spent in occupational therapy intervention and increase in overall self-care scores; (c) no significant relationship was found between age or severity of dysfunction and change in overall self-care skills score; (d) the majority of subjects were discharged home (71%); and (e) subjects discharged home had the highest toileting self-care skills.

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CHAPTER 1

INTRODUCTION

Purpose

The primary purpose of this study is to explore the efficacy of occupational therapy for individuals following cerebrovascular accident (CVA). This will be accomplished by exploring the extent to which persons who have experienced CVA also experience change in self-care functions. The secondary purpose of this study is to replicate the findings of a similar investigation performed by Gail McLaughlin in 1989.

Statement of the Problem

Annually approximately 500,000 to 600,000 individuals living in the United States experience CVA. Two-thirds of those who survive a CVA will live with some degree of permanent disability, resulting in as many as two to three million people alive in this country with the residual effects of stroke. Estimates indicate that stroke costs our nation as much as 25 billion dollars each year (National Stroke Association, 1989).

A recent study performed by May and Kittner (1994) indicates that although national trends in stroke incidence declined steadily between 1985 and 1989, incidence trends rose slightly between 1989 and 1991. In addition, Howard, Craven, Sanders, and Evans (1991) cite an increase in acute stroke hospitalizations with a decreased rate of in-hospital stroke death rates between 1970 and 1987 in a study examining stroke mortality in the United States. These findings seem to suggest a growing population of persons who have experienced a stroke in this country.

In contrast, the present health care climate is one of cost-containment and increasing competition for available reimbursement funds. This places emphasis on outcomes and documentation of the value of services provided in acute rehabilitation to persons who have experienced a stroke (Granger & Clark, 1994).

The majority of persons who have experienced a stroke qualify for health care coverage under the Medicare system. Acute rehabilitation units are currently exempt from the Medicare Prospective Payment System and are reimbursed for services on a cost basis with limits established by the Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA). Under these conditions, occupational therapy may be viewed as a revenue generator for hospitals since reimbursement dollars for admissions to DRG-exempt acute rehabilitation units are cost-based and not DRG set-priced.

Although acute rehabilitation units currently qualify for exemption from the Medicare Prospective Payment System (PPS), the industry is moving toward the establishment of a PPS-like reimbursement system for medical rehabilitation based on fee per admission. This move may impact the perceived value of therapeutic intervention. Rather than payment for services based on cost, occupational therapy services may be viewed as revenue depleters in set-price reimbursement. This could negatively impact use of occupational therapy services if those services are not seen as revenue generators.

Private insurance companies also make up a significant proportion of payers for acute rehabilitation of individuals who have experienced CVA. These agencies are responding to escalating health care costs and inflation with a movement away from fee-

for service plans to selective contracting and capitated contracting. Due to legislation in the 1980's, insurers are now able to select a set of hospitals and negotiate for specific services at lower prices and favorable terms (Zwanziger, Melnick, Mann, & Simonson, 1994). Under these conditions, hospitals can improve profits by limiting operating costs and services provided, thus negatively impacting use of rehabilitation services including occupational therapy.

Medicare's move toward a PPS-like system for acute rehabilitation and private insurers' shift to selective contracting and capitation places additional responsibility on occupational therapy professionals to document the value and effectiveness of services.

Rehabilitation of individuals who have experienced a CVA is cited by Falconer, Roth, Sutin, Strasser, and Chang (1993) as "one of the oldest and best-established specialty practices with medical rehabilitation." Additionally, persons who have experienced a CVA represent the largest impairment group served by inpatient rehabilitation facilities (Falconer et al., 1993). Currently, provision of occupational and physical therapy is a requirement for qualification as a DRG-exempt unit. As a result, individuals who have experienced a CVA make up a large proportion of the type of patient seen by occupational therapists in clinical settings.

Through purposeful activities, occupational therapists strive to help patients achieve the highest functional level possible. One of the founding premises of occupational therapy is that individuals, through purposeful activity, can influence and

impact the state of their body and mind. Unfortunately, research support for this belief is limited.

In many instances, occupational therapy goals focus on helping individuals improve their quality of life and maximize residual abilities. Reimbursement is the force that furnishes the practitioner with the financial ability to provide enabling services to their patients. Reimbursement, in turn, is driven by documentation requirements designed by payers to analyze the value and functional outcomes of occupational therapy services. This study will provide data and raise further questions about the factors that influence outcomes in self-care function in people disabled by cerebrovascular accident.

Objective and Questions

Objective

The primary objective of this study is to determine the outcomes of occupational therapy intervention on self-care independence in a population of patients in the acute rehabilitation environment who have survived a cerebrovascular accident.

Questions

The questions below were originally generated by Gail McLaughlin (1989) in a similar study.

1. Does occupational therapy documentation on the Functional Independence Measure (FIM) show an increase in independence of overall self-care skills and self-care skills in the areas of grooming, bathing, upper body dressing, lower body dressing,

toileting, and toilet transfer behavior following occupational therapy for these functions in patients who have been disabled by cerebrovascular accident (Appendices A, B, and C)?

2. Is there a significant relationship between change in the self-care skills scores (overall, grooming, bathing, upper body dressing, lower body dressing, toileting, toilet transfers) and time spent in occupational therapy interventions provided by the occupational therapist for persons who have sustained a cerebrovascular accident?

3. Is there a significant difference between change in the self-care skills scores (overall, grooming, bathing, upper body dressing, lower body dressing, toileting, toilet transfers) and age in those persons who have sustained a cerebrovascular accident and have been treated in occupational therapy for self-care function?

4. Is there a significant difference between the change in the self-care skills scores (overall, grooming, bathing, upper body dressing, lower body dressing, toileting, toilet transfers) and severity of dysfunction at the time the patient was admitted to the rehabilitation unit?

5. What is the relationship between discharge level of self-care and discharge placement (home, nursing home, rehabilitation facility)?

An additional question is as follows:

6. What is the relationship between the change in self-care scores relating to toileting (toileting, toilet transfers, and bladder management) and discharge placement (home, nursing home, and rehabilitation facility)?

Definition of Terms

For the purposes of this study, terms have been defined as follows:

Bathing is washing the body from the neck down, excluding the back (tub, shower or bed/sponge bath). Refer to Appendix A for a full description of FIM scoring and levels of assistance for bathing (Research Foundation—State University of New York, 1990).

Bladder Management includes complete intentional control of urinary bladder and use of equipment or agents necessary for bladder control. Refer to Appendix A for a full description of FIM scoring and levels of assistance for bladder continence (Research Foundation—State University of New York, 1990).

Cerebrovascular Accident (CVA, stroke) is the sudden onset of a focal deficit due to resumed local disturbance in blood supply to the brain (Dombovy, Sandok, & Basford, 1986).

Cognition includes skills related to (a) comprehension (understanding of either auditory or visual communication); (b) expression (clear vocal or non-vocal expression of language); (c) social interaction (skills related to getting along and participating with others in therapeutic and social situations); (d) problem-solving (skills related to solving problems of daily living—reasonable, safe, and timely decisions regarding social and personal affairs and initiating, sequencing, and self-correcting tasks and activities); and (e) memory (skills related to recognizing and remembering while performing daily activities in an institutional or community setting, including the ability to store and retrieve

information). Refer to Appendix A for a full description of FIM scoring and levels of assistance for cognition (Research Foundation—State University of New York, 1990).

Documentation is the recording of scores on the Functional Independence Measure scoring sheet which is updated weekly by occupational therapists in the areas of grooming, bathing, upper body dressing, lower body dressing, toileting, and toilet transfers. These scores are noted numerically.

Grooming includes oral care, hair grooming, washing hands and face, and either shaving or applying make-up. Refer to Appendix A for a full description of FIM scoring and levels of assistance for grooming (Research Foundation—State University of New York, 1990).

Lower Body Dressing includes dressing from the waist down including donning or removing a prosthesis or orthosis (when applicable). Refer to Appendix A for a full description of FIM scoring and levels of assistance for lower body dressing (Research Foundation—State University of New York, 1990).

Self-care skills scores are the level of independence in grooming, bathing, upper body dressing, lower body dressing, toileting, and toilet transfers designated numerically on the Functional Independence Measure. Higher scores denote greater independence.

Self-care treatment is the intervention program provided by registered occupational therapists in grooming, bathing, upper body dressing, lower body dressing, toileting, and toilet transfers that has been graded for each patient to meet the level of

assistance required. The program is modified on a weekly basis in response to patient progress.

Severity of Dysfunction is measured by the level of assistance required to complete grooming, bathing, upper body dressing, lower body dressing, toileting, and toilet transfers.

Mild dysfunction is defined as no more than two FIM scores below 4.0. Moderate dysfunction is defined as more than two FIM scores below 4.0 and/or more than two FIM scores above 2.0. Severe dysfunction is defined as no more than two FIM scores above 2.0 (Appendix A).

Toileting includes maintaining perineal hygiene and adjusting clothing before and after toilet or bed pan use. Refer to Appendix A for all description of FIM scoring and levels of assistance for toileting (Research Foundation—State University of New York, 1990).

Toilet transfer includes getting on and off a toilet. Refer to Appendix A for a full description of FIM scoring and levels of assistance for toilet transfers (Research Foundation—State University of New York, 1990).

Upper body dressing includes dressing and undressing above the waist as well as donning and removing a prosthesis or orthosis when applicable. Refer to Appendix A for a full description of FIM scoring and levels of assistance for upper body dressing (Research Foundation—State University of New York, 1990).

Assumptions

The assumptions held by the researcher are:

1. The patients were accurately diagnosed with cerebrovascular accident by a physician.
2. Selection of patients for admission to the rehabilitation unit at Sequoia Hospital was equitably biased or selective.
3. All patients participated in the therapeutic program to the best of their abilities.
4. All patients received a self-care treatment program that equitably identified and addressed their needs.
5. The protocol for evaluating the level of self-care, cognition, bladder management, and toilet transfer was followed as outlined in the Functional Independence Measure.
6. Biased or selective documentation of self-care activity was equitably distributed among the selected population.
7. The scores received by patients in self-care, cognition, bladder management, and toilet transfer function were reliable and valid indicators of their grooming, bathing, upper body dressing, lower body dressing, toileting, toilet transfer, bladder management, and cognitive independence.
8. The clinical observations and interactions used to measure grooming, bathing, upper body dressing, lower body dressing, toileting, toilet transfer, bladder management,

and cognition were reliable and valid indicators of self-care independence in hospital and home environments.

Significance of the Study

There are two significant reasons for this study to be conducted. The first is the need to determine whether or not functional improvement can be documented in a program of occupational therapy. The second is the need to examine the necessity of acute rehabilitation, in which occupational therapy plays a large role, for individuals that have experienced cerebrovascular accident.

CHAPTER 2

REVIEW OF THE LITERATURE

Introduction

Gail McLaughlin identified the following themes as significantly relevant to her 1989 study: theoretical frames of reference, changes in reimbursement for health care services, the effectiveness of therapeutic intervention on function in persons with cerebrovascular accident, and self-care as a treatment modality in occupational therapy. These themes will be explored and updated in the following chapter.

Theoretical Frames of Reference

Theory

Both activities theory and neurophysiology theory have valid application to the study proposed herein. Activities theory stresses the importance of conversion of ability into skill via practice (Rogers, 1984). Neurophysiology theory discusses the human body's systems (physical, sensory, perceptual, and cognitive), their interconnectedness, and the central nervous system's ability to respond and adapt to stimuli.

Davies (1991) in Steps to Follow discussed neurophysiology as it relates to rehabilitation:

The plasticity of our central nervous system is at the very crux of our existence and development. Every learning process, and thus also the practical work of rehabilitation depends upon the preconditions of stimulability, inhibition and facilitation. The greater the patient's residual

learning capacity, in other words the plasticity of his central nervous system, the more successful will his rehabilitation be. (p. vi)

Frames of Reference

The occupational therapy frames of reference that utilize the concepts of activities and neurophysiology theories are occupational behavior and occupational performance. An additional framework, person-environment-performance, will also be discussed as it relates to this study.

The occupational behavior frame of reference emphasizes execution of life roles in the context of temporal adaptation and competency. According to this model, individuals are internally motivated to occupy their time by achieving competence in the performance of behaviors related to life roles. In practice, occupational therapists should teach individuals skills that have personal relevance and that are linked to roles (Shannon, 1988).

The occupational performance frame of reference was designed as a generic foundation of occupational therapy practice in the treatment of physical disabilities.

Occupational performance is defined as:

the individual's ability to accomplish the tasks required by his or her role and related to his or her developmental stage. Occupational performance includes self-care, work, and play/leisure time performance. (American Occupational Therapy Association, cited in Pedretti, 1990, p. 1)

This model emphasizes use of purposeful activities in the rehabilitation of patients with dysfunction in the substructural performance components (sensory-integrative,

motor, social, psychological, and cognitive functioning). The ultimate goal of occupational therapy intervention in the context of occupational performance is to maximize the patient's ability to achieve functional independence in performance of life roles (Pedretti, 1990).

An additional model that has application to this study, which expands the occupational performance frame of reference, is one based on general systems theory presented in Occupational Therapy: Overcoming Human Performance Deficits (eds., Christiansen & Baum, 1991). Personal-environment-performance is set forth as a conceptual framework for occupational therapy practice that perhaps offers a more complete framework than the occupational performance frame of reference. As stated by Christiansen (1991):

it facilitates consideration of the multiple factors that influence occupational performance, including the characteristics of individuals, the unique environments in which they function, and the nature and meaning of the activities, tasks and roles they perform. (p. 18)

Occupational performance in this context is defined as:

the day-to-day engagement in occupations that organize our lives and meet our needs to maintain ourselves [self-care/self-maintenance], to be productive, and to derive enjoyment and satisfaction within our environments. (p. 19)

These three frames of reference all emphasize achievement of competence in skills related to life roles and the use of purposeful activity in the remediation of skill deficits. Self-care/self-maintenance is also identified as an important aspect of life roles.

Reimbursement

Soon after the implementation of the Medicare Prospective Payment system for acute hospitalizations, there were many studies that predicted the effect of the PPS and its effect on health care. There were, however, few studies that reported actual findings. Studies that discussed actual findings generally concluded that readmissions due to complications, decreased quality of patient care, facilitation of cost-effectiveness without increase in morbidity, and increased rehabilitation referrals were some of the findings. There were also several articles that indicated an imminent conversion of the current cost-based reimbursement system for DRG-exempt acute rehabilitation units to a PPS-like system (McLaughlin, 1989).

A review of the literature published since 1989 indicates that decreased acute hospital lengths of stay (Marciniak, Heinemann, & Monga, 1993) and the emergence of multiple levels of care with multiple levels of cost are some of the health care systems' responses to prospective payment and DRGs. Fowler and Gill (1990) predicted that cost controls would lead to development of subacute and postacute programs. These multiple care levels respond to gaps formed by pressure to reduce lengths of stay in acute care hospitals. The emergence of subacute care fills the needs of patients at both ends of the hospital spectrum: those considered too well for the acute hospital and those too ill for

either acute rehabilitation or to return to their prior living situation. On the subacute level of care, some of the burden of care is shifted away from nursing to therapies, which are reimbursed on a cost basis (Balsano & Fowler, 1993).

Zwanziger, Melnick, Mann, and Simonson (1994), in a study of California hospitals, found that prior to the shift to Medicare's PPS and private insurance selective contracting, competition between hospitals led to increased costs. Following the enactment of PPS and the increase in private insurance's selective contracting, hospitals in greater competitive markets and under greater pressure from PPS showed less increase in costs than hospitals in less competitive markets and under less pressure from PPS. Further, expenses were cut across cost centers and not focused in a few areas.

Marciniak, Heinemann, and Monga (1993) studied the changes in medical stability of acute rehabilitation patients. Their study indicated an increase in the number of rehabilitation patients requiring transfer to acute care hospitals within 24 hours of admission for serious medical problems since the enactment of PPS. Further, patients that had experienced CVA were the largest subgroup that most often required transfers. However, the authors also indicated that the increasing trend of Medicare patients requiring transfer to acute hospitals was not statistically significant.

The final topic for discussion in this section is how the health care industry continues to move toward prospective payment for acute rehabilitation. The current Medicare reimbursement system for acute rehabilitation was established by the Tax Equity & Fiscal Responsibility Act of 1982 (TEFRA). Medicare reimburses facilities developed

after 1982 for acute rehabilitation services based on cost with limits that are established based on the facility's third year operational costs. For facilities established prior to 1982, TEFRA limits for reimbursement are based on the facility's 1982 costs (McCue & Thompson, 1995). The design of the TEFRA system favors newer facilities and has an inherent bias against expensive and complicated patients (Echelard, Lord, Broadbent, & Truskoloski, 1991). This system was intended to be a temporary method of reimbursement for acute rehabilitation, but because of the difficulty in predicting outcomes and defining needs of acute rehabilitation patients, health care policy makers have been reluctant to change the TEFRA payment system.

Gray and Metwalli (1987) reported that the TEFRA system was designed to restrict Medicare payments to providers. Further, providers can "improve their bottom line under TEFRA's fixed reimbursement" system by limiting the cost of service delivery (p. 31).

Some authors have presented alternatives to the TEFRA reimbursement system. One such method presented recently by Stineman, Scarce, Hamilton, Granger and Williams (1994) outlines use of the FIM and function related groups (FRGs) as a basis for a prospective payment system. Under this system, patients would initially be classified into rehabilitation impairment categories (RIC) based on the diagnosis leading to disability (i.e., stroke, cardiac, pulmonary, pain syndrome, etc.). FRGs were then developed for each RIC using classification and regression trees and recursive partitioning algorithms. This model for a prospective payment system for acute rehabilitation was designed after

the DRG example and was intended to be a classification system based on use of rehabilitation resources.

Harada, Sofaer, and Kominski (1993) stressed the importance of a theoretical model of rehabilitation as an underlying basis to a prospective payment system for acute rehabilitation. The authors presented a rehabilitation outcomes model that uses economic theory to address relationships between supply, demand, and the production process as it relates to rehabilitative care. In addition, the article summarizes a study of change in functional status based on five ADL measurements for nine different rehabilitation conditions. In their study of patients in hospital-based and free-standing rehabilitation facilities, it was found that the significant predictors of change in patient functional status varied by condition. For example, basic ADL performance may be the best outcome predictor for neurological impairment, while ambulation ability may be a better predictor of outcome in orthopedic impairment.

In summary, acute care prospective payment and the expectation of prospective payment in acute rehabilitation has impacted health care in several ways. These impacts include decreased lengths of stay for acute hospitalizations, the emergence of multiple levels of care/cost, increased selective contracting, fewer hospital cost increases, decreased medical stability of acute rehabilitation patients, and the emergence of proposed models for rehabilitation prospective payment systems.

The Effectiveness of Therapeutic Intervention on Function of People Who Have Experienced CVA

Many studies reviewing the effectiveness of therapeutic intervention for individuals that have experienced cerebrovascular accident find organized, comprehensive rehabilitation to be beneficial to the individual and result in increased functional independence. Unfortunately, the methodology of these studies and the wide range of institutional evaluation instruments have made it difficult to draw far-reaching conclusions and compare results (McLaughlin, 1989). More recent research has focused on accurately predicting rehabilitation outcomes, including identification of prognostic indicators and the effectiveness of the FIM as a measure of severity of disability.

In the current health care climate where competition for available reimbursement funds is high, it is desirable to accurately predict the patients that will benefit from use of rehabilitation resources. Many authors report that improved ability to identify good candidates for rehabilitation will lead to more efficient use of rehabilitation funds. An article by Falconer, Naughton, Dunlop, Roth, Strasser, and Sinacore (1994) is an example. In this study, a classification tree was used to predict outcomes for individuals that had experienced CVA based on four variables: toileting management, bladder management, toilet transfer ability, and financial resources. This method accurately predicted the outcomes of 88% of a sample of 225 patients.

In a study by Cillessen, van Huffelen, Kappelle, Algra, and van Gijn (1994), it was concluded that electroencephalography (EEG) is useful in the prediction of functional

outcomes in the acute stage of cerebral ischemia. For patients classified with moderate handicap, EEGs performed in the acute stage of cerebral ischemia accurately predicted the outcome of 95% of the sample ($n = 30$).

Galski, Bruno, Zorowitz, and Walker (1993) retrospectively studied a group of patients who had experienced stroke and 50 patients with orthopedic diagnoses in an effort to examine the role of cognition in predicting functional outcomes. All patients received comprehensive rehabilitation, demonstrated a comparable degree of improvement of physical abilities, and almost all returned home following inpatient rehabilitation. Patients with CVA, however, scored lower than patients with orthopedic diagnoses in all ten cognition areas assessed. Patients with CVA scored significantly lower in the areas of memory, construction, similarities, and judgment. Additionally, patients with CVA scored significantly lower than the orthopedic sample on both occupational and physical therapy admission and discharge FIM totals. The patients with CVA had a statistically longer length of stay and reported more hours of attendant help after discharge. The authors concluded that higher-order cognitive skills play an important role in determining length of stay and in predicting functional status at discharge. This conclusion was drawn from the poorer physical condition at discharge and increased amount of outpatient therapy needed by the patients with cerebrovascular accident when compared to the patients with orthopedic diagnoses. The study results may also be explained, at least in part, by the disease processes and resulting impairments (physical and cognitive) underlying the

diagnosis of stroke as opposed to those resulting from orthopedic diagnoses (primarily physical).

Two recent articles suggest a positive outcome for patients with stroke admitted to acute rehabilitation units. Kalra (1994) found greater functional recovery and significantly more rapid recovery was gained for patients with stroke on stroke rehabilitation units compared with patients with stroke on general wards. In addition, this was accomplished in shorter mean lengths of stay on stroke rehabilitation units compared to general wards. Parfenchuck, Parziale, Liberman, Butcher, and Ahern (1990) examined outcomes when an acute care stroke unit was converted to a DRG-exempt rehabilitation unit. Although patients discharged from the rehabilitation unit showed a significant increase in the overall length of stay, they also showed significantly greater FIM score improvement and more were discharged home.

Studies performed by Kalra (1994) and Falconer, Naughton, Strasser, and Sinacore (1994) looked at the effects of age and the outcomes of acute rehabilitation. Both studies indicate that older age correlates with poorer rehabilitation outcomes. Kalra suggests that although the difference in function between the two groups was not significant, younger (<75 years) patients with stroke appeared to benefit more than older (>75 years) patients with stroke. This was attributed to a higher prevalence of age related changes in the older group. In the study performed by Falconer et al. (1994), results indicate that older (>75 years) patients with stroke have shorter lengths of stay in rehabilitation, were more often discharged to nursing homes, had poorer motor ability and

higher level of care following discharge than younger patients with stroke. The results for older patients with stroke could also be explained, at least in part, by the cumulative effects of aging and co-morbid disease.

Studies performed using the FIM also indicate relationships between function and age. Dodds, Martin, Stolov, and Deyo (1993) showed that as age increased, admission and discharge FIM scores decreased. Oczkowski and Barreca (1993) concluded that age was a predictor of discharge location: patients discharged home were younger than those discharged to institutions. Hamilton and Granger (1994) indicate that younger patients with stroke have significantly higher FIM scores upon admission to acute rehabilitation, reflective of higher functional ability.

In addition to age, functional abilities upon admission to acute rehabilitation appears to have an effect on outcome. Wilson, Houle, and Keith (1991) suggest that prior living arrangement, length of inpatient rehabilitation, and higher functional status (higher overall FIM score) at admission and discharge, influenced discharge home. The previously cited study by Oczkowski and Barreca indicates that admission FIM scores divided the study population into three groups that helped predict the place of discharge: patients with overall admission FIM scores of 36 or less had high levels of disability, little change in ability after rehabilitation, and demonstrated need for institutionalization; patients with overall admission FIM scores of 36 to 96 showed moderate functional impairment, demonstrated large changes in FIM scores after rehabilitation, but discharge destination was difficult to predict; and patients with overall admission FIM scores over

96 had lower levels of disability, changed little after rehabilitation, and most often were discharged home. This suggests that FIM scores are useful in predicting degrees of expected change in functional status and discharge location based on overall FIM score upon admission.

Dodds, Martin, Stolov, and Deyo (1993) report that one of the principle goals of the FIM is to accurately measure burden of care and the data from their study appears to support that concept. Further, Granger, Cotter, Hamilton, and Fiedler (1993) report that FIM scores are useful in predicting the amount of care needed by an individual that has experienced a stroke. The authors suggest that a one point change in overall FIM score correlates with an average of 2.19 minutes of assistance or help per day provided to the patient with stroke by another person at home.

In addition to studies relating FIM scores and functional outcomes, several recent studies have examined the validity and reliability of the FIM as an evaluation instrument. Dodds et al. have found that the FIM has many valuable features including internal consistency, broad discriminative capabilities, predictable behavior, and that individual items of the FIM test are highly correlated. This article also reported that the FIM is not able to clinically test items such as fine motor ability and quality and ease of task completion. FIM scores are also not indicative of quality of life or patient satisfaction.

Heinemann, Linacre, Wright, and Granger (1993) examined the relationships between impairment and physical disability as measured by FIM scores. The results of their study also support the validity of the FIM test. It also suggested potential revisions

including: reducing the number of transfer items due to the partially redundant aspects of function, redefining bowel and bladder items to distinguish between incontinence and levels of assistance, and assigning a value other than “1” for items not tested.

In summary, recent research indicates that inpatient acute rehabilitation outcomes can be predicted using age, bladder function, cognitive function, and overall FIM score upon admission. Studies also indicate the FIM test is an effective measure of disability with high reliability, validity, and internal consistency. It does not, however, measure quality of life, patient satisfaction, fine motor skills, or ease and quality of task completion.

Self-Care as a Treatment Modality in Occupational Therapy

Although self-care training as a treatment modality is well supported by the theoretical constructs of occupational therapy, there have been few studies performed that evaluate its effectiveness with individuals that have experienced cerebrovascular accident. Recent research has yielded few contributions to this field of knowledge. Brodie, Holm, and Tomlin (1994) studied rehabilitation outcomes in patients with stroke with relative to demographic, diagnostic, and occupational therapy. Among other things, the retrospective study of 112 subjects, concluded that the only significant variable among those studied that could be influenced by the occupational therapy process during inpatient rehabilitation was the patient's level of functional deficits at admission to a large rehabilitation hospital reflected by the increase in CVA disability score. The patient's functional deficits were represented by a CVA disability score that addressed three

categories of self-care: transfers, grooming, and dressing. A higher score denoted less disability.

Khader and Tomlin (1994) studied change in transfer performance during rehabilitation for men with cerebrovascular accident. One hundred men (50 with left CVA, 50 with right CVA) were rated in transfer behavior according to FIM guidelines. Subjects were patients in a rehabilitation hospital and transfer training was included as a part of their occupational therapy treatment plan. Both groups showed significant improvement in transfer ability between admission and discharge. No statistically significant differences were found between side of lesion and transfer ability at admission or discharge.

No other studies addressing the effectiveness of occupational therapy intervention for self-care using a traditional graded assisted self-care program were located.

In summary, few studies have been conducted on occupational therapy self-care intervention despite its strong traditional base and widespread use with many rehabilitation diagnoses, including cerebrovascular accident.

CHAPTER 3

DESIGN AND METHODOLOGY

Objective

The primary objective of this study is to determine the outcomes of occupational therapy intervention on self-care independence in a population of patients in the acute rehabilitation environment who have survived a cerebrovascular accident.

Questions

The questions generated for this study are as follows:

1. Does occupational therapy documentation on the FIM (Appendices A, B, and C) show an increase in independence of overall self-care skills and in the self-care skill areas of grooming, bathing, upper body dressing, lower body dressing, toileting, and toilet transfer behavior following occupational therapy for these functions in patients disabled by cerebrovascular accident?
2. Is there a significant relationship between change in the self-care skills scores (overall, grooming, bathing, upper body dressing, lower body dressing, toileting, and toilet transfers) and time spent in self-care interventions provided by an occupational therapist for persons who have sustained a cerebrovascular accident?
3. Is there a significant difference between change in the self-care skills scores (overall, grooming, bathing, upper body dressing, lower body dressing, toileting, and toilet transfers) and age in those persons who have sustained a cerebrovascular accident and have been treated in occupational therapy for self-care function?

4. Is there a significant difference between change in the self-care skills scores (overall, grooming, bathing, upper body dressing, lower body dressing, toileting, and toilet transfers) and the severity of dysfunction at the time the patient was admitted to the rehabilitation unit?

5. What is the relationship between discharge level of self-care function and discharge placement (home, skilled nursing facility, rehabilitation facility)?

6. What is the relationship between change in self-care skills scores that relate to toileting (toileting, toilet transfers, and bladder management) and discharge placement (home, skilled nursing facility, rehabilitation facility)?

Population

The proposed subjects for this study are a delimited population of people diagnosed with cerebrovascular accident who were admitted to Sequoia Hospital's 12-bed acute rehabilitation unit between May 1, 1993 and March 1, 1995. Diagnosis of cerebrovascular accident will be defined by the diagnosis entered on the Uniform Data Systems form. This was determined by computed tomography, magnetic resonance imaging and/or neurological evaluation.

The beginning date for this retrospective chart review, May 1, 1993, coincides with the date that the staff of the Sequoia Rehabilitation Unit (SRU) completed testing and certification as qualified scorers of the Functional Independence Measure protocols. The cut-off date, March 1, 1995, was chosen to permit enough time to obtain a reasonable sample size. All patients admitted between the established dates with a diagnosis of CVA,

whether primary or secondary, and who were patients on the SRU for at least five days will be considered for use in this study. Patients also must have undergone self-care treatment as part of their occupational therapy program.

Due to the relatively small number of admissions to the rehabilitation unit, random sampling will not be used in an effort to maximize the sample size.

Design

The design of this study is ex post facto, employing retrospective chart review. Inherent in the nature of this design is an inability to control the variables, which are:

Dependent

- Change in FIM score - grooming
- Change in FIM score - bathing
- Change in FIM score - upper body dressing
- Change in FIM score - lower body dressing
- Change in FIM score - toileting
- Change in FIM score - toilet transfer
- Change in FIM score - bladder control
- Change in FIM score - overall

Independent

- Time spent in occupational therapy
 - Hours of self-care treatment
 - Length of stay on the rehabilitation unit

Age

46 to 55 years

56 to 65 years

66 to 75 years

76 to 85 years

86 to 95 years

Other - older

Other - younger

Severity of dysfunction

Severe

Moderate

Mild

Number of secondary diagnoses

Cognition score on the FIM when admitted

Discharge placement

Home

Skilled nursing facility

Rehabilitation facility

Other

The independent variables were selected based on variables that the literature identified as affecting improvement in function and predicting discharge placement.

A control group will not be used for several reasons. The study is retrospective in nature and patients who did not receive occupational therapy services did not have documentation on self-care performance. Establishing a control group would also involve withholding services that are perceived as beneficial. In addition, most patients with a diagnosis of a CVA are referred to occupational and physical therapy.

Data Collection

Data collection techniques for this study will be as follows:

Evaluation Instrument

The FIM is used to score all patients on the Sequoia Hospital acute rehabilitation unit on admission, discharge, and on a weekly basis. All members of the rehabilitation team are required to undergo testing to be considered certified scorers of FIM protocol. Members of the rehabilitation team are responsible for scoring sections of the FIM that correspond to their area of professional expertise. The occupational therapist is responsible for scoring functional status in the areas of grooming, bathing, upper body dressing, lower body dressing, toileting, and toilet transfers.

The Functional Independence Measure is a portion of the Uniform Data System for Medical Rehabilitation (UDSMR) developed by a joint task force of the American Congress of Rehabilitation Medicine and the American Academy of Physical Medicine and Rehabilitation in collaboration with several other rehabilitation organizations (Hamilton & Granger, 1994). The development of the FIM responded to a long-standing need to define, measure, document, and report the severity of patient disability as well as

outcomes of rehabilitation (Hamilton & Granger, 1994). The original version of the FIM measured patient disability on a four-point scale. The current version (1990) measures individual disability on a seven point scale (Appendix A).

The FIM was administered to all prospective subjects in this study. The data will be collected from the patient's occupational therapy charts and patient files on the rehabilitation unit.

Collection

Data will be collected by the researcher over a period of time using a data collection form (Appendix D). FIM scores regarding the initial and the final level of independence in grooming, bathing, upper body dressing, lower body dressing, toileting, toilet transfers, bladder management, and cognition will be gathered from occupational therapy charts and/or patient files located on the rehabilitation unit. Data regarding insurance coverage, age, number of complicating diagnoses, and discharge destination will be gathered from UDS forms located on the rehabilitation unit. Patient occupational therapy charts will be reviewed for length of stay and time spent in occupational therapy self-care treatment.

Subject confidentiality will be protected by eliminating names and assigning numbers to the data collection forms, eliminating sex, and by recording age as a range.

Analysis

The variables in this study are either inherently quantitative in nature or could easily be assigned numerical values. Statistical tests were selected in order to determine

the degree of difference between variables. Analysis of Variance (ANOVA) and Pearson product moment correlation tests were used for a computerized analysis of the data.

CHAPTER 4

DATA AND RESULTS

Introduction

Included in this chapter is a discussion of the data analysis including demographics and data results relevant to the study questions (1 through 6). Data for questions 1, 5, and 6 will be discussed descriptively. Data for questions 2, 3, and 4 will be discussed with regard to statistical analysis performed with an overall alpha level of .05.

Demographics

Sample

One hundred and sixty-seven patient files from the Sequoia Hospital rehabilitation unit were reviewed for this study. Three patient records could not be used because the patient stayed less than five days, one of the criteria for inclusion in the study. One patient record could not be used because although the patient was in the hospital greater than five days, he/she received occupational therapy only four of ten days. Three patient records were not included in the study because full FIM records were not available at the time of the study. One hundred and sixty subjects made up the sample for this study, 95.8% of the available population.

Age

Subjects were divided by age into five categories of ten years each. These were: 46 to 55 years, 56 to 65 years, 66 to 75 years, 76 to 85 years, 86 to 95 years and younger than 46 years of age. Five subjects (3.1%) were under 46 years of age. Three subjects

(1.9%) were between 46 and 55 years of age. Eighteen subjects (11.3%) were between 56 and 65 years of age. Fifty-nine subjects (36.9%) were between 66 and 75 years of age. Fifty-six subjects (35%) were between 76 and 85 years of age. Nineteen subjects (11.9%) were between 86 and 95 years of age. There were no study subjects older than 95 years of age (Table 1).

Severity of Dysfunction

FIM scores were used to categorize subjects according to severity of dysfunction upon admission to the Sequoia Rehabilitation Unit (SRU). Severe impairment included subjects with no more than two of the six FIM self-care skill admission scores (grooming, bathing, upper body dressing, lower body dressing, toileting, and toilet transfers) above a score of 2 (maximum assistance). Fifty-two subjects (32.5%) met the criteria for the severely impaired category upon admission to SRU. Moderate impairment included subjects with more than two FIM self-care skill admission scores above a 2 and/or more than two admission self-care skill scores below a 4 (minimum assistance). Fifty subjects (31.3%) met the criteria for the moderately impaired category upon admission to SRU. Mild impairment included subjects with no more than two FIM self-care skill admission scores below a 4. Fifty-eight subjects (36.3%) met the criteria for the mildly impaired category (Table 2).

Insurance

Information regarding the type of insurance coverage was collected on each subject. One hundred and one subjects (63.1%) were covered by Medicare. Thirty

Table 1

Distribution of the Sample According to Age Category

Data	Age						
	<46	46-55	55-65	66-75	76-85	86-95	>95
<i>n</i>	5	3	18	59	56	19	0
%	3.1%	1.9%	11.3%	36.9%	35%	11.9%	0

Note. *n* = number of subjects in that category.

Table 2

Distribution of the Sample According to Severity of Dysfunction

Data	Severity of Dysfunction		
	Mild	Moderate	Severe
<i>n</i>	58	50	52
%	36.3%	31.3%	32.5%

Note. Mild dysfunction = no more than 2 of the 6 (grooming, bathing, upper body dressing, lower body dressing, toileting, and toilet transfers) FIM admission scores below 4. Moderate dysfunction = more than 2 of the 6 FIM admission scores above 2 and/or more than 2 admission FIM scores below 4. Severe dysfunction = no more than 2 of the 6 FIM admission scores above 2. *n* = number of subjects in that category.

subjects (18.8%) were covered by Aetna insurance policies. Twenty-nine subjects (18.1%) had other insurance policies (Medical, private insurance companies other than Aetna). Table 3 outlines the sample distribution according to type of insurance coverage.

Secondary Diagnoses

Data pertaining to secondary diagnoses were gathered from occupational therapy evaluations. Concurrent medical problems and pre-existing conditions as listed in the occupational therapy evaluation were considered secondary diagnoses. These included but were not limited to: cardiovascular conditions, pulmonary problems, hypertension, psychiatric diagnoses (i.e., depression, schizophrenia, etc.), musculoskeletal conditions, arthritis, cataracts, glaucoma, gastrointestinal conditions, and disease processes such as cancer, multiple sclerosis; Alzheimer's and Parkinsonism. Two subjects (1.3%) had no secondary diagnoses. Eleven subjects (6.9%) had one secondary diagnosis. Twenty-two subjects (13.8%) had two secondary diagnoses. Thirty-seven subjects (23.1%) had three secondary diagnoses. Thirty-one subjects (19.4%) had four secondary diagnoses. Twenty-one subjects (13.1%) had five secondary diagnoses. Eighteen subjects (11.3%) had six secondary diagnoses. Five subjects (3.1%) had seven secondary diagnoses. Five subjects (3.1%) had eight secondary diagnoses. Two subjects (1.3%) had nine secondary diagnoses. Three subjects (1.9%) had ten secondary diagnoses (Table 4). Data regarding secondary diagnoses was not collected on three subjects (1.9%).

Table 3

Distribution of the Sample According to Type of Insurance Coverage

<u>Data</u>	<u>Type of Insurance</u>		
	Medicare	Aetna	Other
<i>n</i>	101	30	29
%	63.1%	18.8%	18.1%

Note. Other = medical, private insurance policies other than Aetna. *n* = number of subjects in that category.

Table 4

Distribution of the Sample According to the Number of Secondary Diagnoses

	Number of Secondary Diagnoses										
<u>Data</u>	0	1	2	3	4	5	6	7	8	9	10
<i>n</i>	2	11	22	37	31	21	18	5	5	2	3
%	1.3%	6.9%	13.8%	23.1%	19.4%	13.1%	11.3%	3.1%	3.1%	1.3%	1.9%

Note. Secondary diagnoses = diagnoses other than CVA listed by the occupational therapist on the initial evaluation. *n* = number of subjects in that category.

Questions

Introduction

The statistical tests used to analyze the data were the Analysis of Variance (ANOVA) and the Pearson product-moment correlation.

Question 1

Does occupational therapy documentation on the Functional Independence Measure show an increase in independence of overall self-care skills and self-care skills in the areas of grooming, bathing, upper body dressing, lower body dressing, toileting, and toilet transfer behavior following occupational therapy for these functions in patients disabled by cerebrovascular accident?

The results pertaining to this question will be discussed according to overall change in FIM scores, and according to change for each of the self-care skill scores (grooming, bathing, upper body dressing, lower body dressing, toileting, and toilet transfers).

Overall change. Overall change is scored as the difference between the sum of the admission self-care FIM scores (grooming, bathing, upper body dressing, lower body dressing, toileting, and toilet transfers) and the sum of the discharge self-care FIM scores.

Seven subjects (4.4%) showed a decrease in overall change in FIM scores. Ten subjects (6.3%) showed no change in overall FIM scores. One hundred forty-three subjects (89.4%) showed an increase in overall change in FIM scores ($n = 160$). The mean total change in overall FIM score was 10.7 (SD \pm 7.16) points.

Forty-two subjects (80.8%) who were admitted with severe impairments ($n = 52$) showed an increase in overall change in FIM scores. The mean overall change was 10.4 (SD \pm 7.98) points.

Forty-five subjects (90%) who were admitted with moderate impairments ($n = 50$) showed an increase in overall change score. The mean overall change was 12.8 (SD \pm 6.99) points.

Forty-nine subjects (84.5%) who were admitted with mild impairments ($n = 58$) showed an increase in overall change score. The mean overall change was 9.1 (SD \pm 6.14) points. Table 5 outlines overall change in FIM score by severity of dysfunction.

In addition, a dependent t-test was performed on the data to examine the relationship between the overall initial self-care skills score and the overall discharge self-care skills score. The mean overall initial (admission) self-care skills score was 18.9 (SD \pm 7.42). The mean overall discharge self-care skills score was 29.5 (SD \pm 9.31). A significant change between admission and discharge overall self-care skills score was found with a t value of 19.01 ($p = .00$).

Grooming. Change in the self-care skill area of grooming was calculated by subtracting the grooming FIM admission score from the grooming FIM discharge score. This was called the grooming change score.

Five subjects (3.1%) showed a decrease in grooming change score. Twenty-five subjects (15.6%) showed no change in grooming change score. One hundred and thirty

Table 5

Change in Overall Self-Care FIM Scores by Severity of Dysfunction

Mean FIM Score Change	Severity of Dysfunction		
	Mild	Moderate	Severe
Overall Mean	9.1	12.8	10.4
SD	6.14	6.99	7.98
%	84.5%	90.0%	80.8%

Note. Overall mean = mean change in overall FIM scores (difference between the sum of the admission self-care FIM scores - grooming, bathing, upper body dressing, lower body dressing, toileting, and toilet transfers - and the sum of the discharge self-care FIM scores). % = percent of subjects from that category that showed an increase in overall change in FIM scores.

subjects (81.4%) showed an increase in grooming change score ($n = 160$). The mean change was 1.65 (SD \pm 1.31) points.

Bathing. Change in self-care skill area of bathing was calculated by subtracting the bathing FIM admission score from the bathing FIM discharge score. This was called the bathing change score.

Three subjects (1.9%) showed a decrease in the bathing change score. Thirty subjects (18.8%) showed no change in bathing change score. One hundred and twenty-seven subjects (79.3%) showed an increase in bathing change score ($n = 160$). The mean change was 1.61 (SD \pm 1.20) points.

Upper body dressing. Change in the self-care skill area of upper body dressing was calculated by subtracting the upper body dressing FIM admission score from the upper body dressing FIM discharge score. This was called the upper body dressing change score.

Four subjects (2.5%) showed a decrease in upper body dressing change score. Twenty-six subjects (16.3%) showed no change in upper body dressing change score. One hundred and thirty subjects (81.3%) showed an increase in upper body dressing change score ($n = 160$). The mean change was 1.83 (SD \pm 1.38) points.

Lower body dressing. Change in the self-care skill area of lower body dressing was calculated by subtracting the lower body dressing FIM admission score from the lower body dressing FIM score. This was called the lower body dressing change score.

Four subjects (2.5%) showed a decrease in lower body dressing change score. Twenty-four subjects (15%) showed no change in lower body dressing change score. One hundred thirty-two subjects (82.5%) showed an increase in lower body dressing change score ($n = 160$). The mean change was 1.95 (SD \pm 1.49) points.

Toileting. Change in the self-care skill area of toileting was calculated by subtracting the toileting FIM admission score from the toileting FIM discharge score. This was called the toileting change score.

Five subjects (3.1%) showed a decrease in toileting change score. Thirty-three subjects (20.6%) showed no change in toileting change score. One hundred and twenty-two subjects (76.3%) showed an increase in toileting change score ($n = 160$). The mean change was 1.88 (SD \pm 1.50) points.

Toilet transfer. Change in the self-care skill area of toilet transfers was calculated by subtracting the toilet transfer FIM admission score from the toilet transfer FIM discharge score. This was called the toilet transfer change score.

Four subjects (2.5%) showed a decrease in toilet transfer change score. Thirty-one subjects (19.4%) showed no change in toilet transfer change score. One hundred and twenty-five subjects (78.1%) showed an increase in toilet transfer change score ($n = 160$). The mean change was 1.75 (SD \pm 1.30) points. Table 6 outlines change in FIM score by self-care skill area.

Table 6

Change in FIM Scores by Self-Care Skill Area

Change in FIM Score	Self-Care Skill Area					
	Grooming	Bathing	UB Dressing	LB Dressing	Toileting	Toilet Transfer
Increase	81.4%	79.3%	81.3%	82.5%	76.3%	78.1%
No Change	15.6%	18.8%	16.3%	15%	20.6%	19.4%
Decrease	3.1%	1.9%	2.5%	2.5%	3.1%	2.5%
Mean Change	1.65	1.61	1.83	1.95	1.88	1.75
SD	1.31	1.20	1.38	1.49	1.50	1.30

Note. Increase = % of subjects that demonstrated an increase in FIM score for that self-care skill category. No change = % of subjects that demonstrated no increase or decrease in FIM score for that self-care skill category. Decrease = % of subjects that demonstrated a decrease in FIM score for that self-care skill area. Mean change = mean change in FIM score (calculated by subtracting the admission FIM score from the discharge FIM score) for that self-care skill area.

Question 2

Is there a significant relationship between increase in self-care skill scores (overall, grooming, bathing, upper body dressing, lower body dressing, toileting, toilet transfer) and time spent in self-care intervention provided by the occupational therapist for persons who have sustained a cerebrovascular accident?

During the data collection process, it was found that it was not possible to separate time spent in self-care treatment from time spent in other types of occupational therapy intervention. As a result, the data collected for this question reflects overall time spent in any type of occupational therapy intervention.

A significant relationship was found between time (hours) spent in occupational therapy treatment and overall increase in self-care skills score in the sample as a whole. The statistical test applied was the Pearson product-moment correlation ($r = .36, p = .00$).

The mean time spent in occupational therapy intervention was 25.87 hours (SD \pm 16.82). The mean length of stay was 24.5 days (SD \pm 16.4) and the median length of stay was 21.0 days.

Question 3

Is there a significant difference between change in the self-care skills scores (overall, grooming, bathing, upper body dressing, lower body dressing, toileting, toilet transfers) and age in those persons who have sustained a cerebrovascular accident and have been treated in occupational therapy for self-care function?

There was no significant difference found between change in overall self-care skills score and age in the sample as a whole. The statistical test applied was the ANOVA ($F = .67, p = .61$).

Question 4

Is there a significant difference between change in the self-care skills score (overall, grooming, bathing, upper body dressing, lower body dressing, toileting, toilet transfers) and the severity of dysfunction at the time the patient was admitted to the rehabilitation unit?

No significant difference was found between the overall change in self-care skills score and severity of dysfunction at admission in the sample as a whole. The statistical test applied was the ANOVA ($F = 3.64, p = .029$).

Question 5

What is the relationship between discharge level of self-care and discharge placement (home, skilled nursing facility, rehabilitation facility)?

Of the one hundred sixty subjects in the study sample, one hundred fourteen subjects (71%) were discharged home. The mean overall self-care skill score for those subjects discharged home from the SRU was 32.6 (SD \pm 6.48). Twenty-eight subjects (18%) were discharged to a skilled nursing facility. The mean overall self-care skill score for those subjects discharged to a skilled nursing facility from the SRU was 17.3 (SD \pm 8.51). One subject was discharged to a rehabilitation facility from the SRU. Thirteen subjects (8%) were discharged either to the acute hospital or to a board and care facility.

The mean overall self-care skill score for those subjects discharged either to the acute hospital or to a board and care facility from the SRU was 28.6 (SD \pm 11.81). Discharge location information was not collected for 4 subjects (3%). Table 7 outlines the distribution of the sample according to discharge placement.

Question 6

What is the relationship between change in self-care skills scores related to toileting (toileting, toilet transfer, bladder management) and discharge placement (home, skilled nursing facility, rehabilitation facility)?

Of the one hundred sixty subjects in the study sample, one hundred fourteen subjects (71%) were discharged home. The mean self-care skills score related to toileting for those subjects discharged home was 6.0 (SD \pm 3.28). Twenty-eight subjects (18%) were discharged to a skilled nursing facility. The mean self-care skills score related to toileting for those subjects discharged to a skilled nursing facility was 2.5 (SD \pm 3.52). Thirteen subjects (8%) were discharged to either the acute hospital or a board and care facility. The mean self-care skills score related to toileting for those subjects discharged to either the acute hospital or a board and care facility was 4.1 (SD \pm 4.27). One subject was discharged to a rehabilitation facility. Discharge destination information was not collected for 4 subjects (3%). Table 8 outlines toileting self-care skills scores by discharge placement.

Table 7

Distribution of the Sample According to Severity of Dysfunction

Data	Severity of Dysfunction			
	Home	SNF	Rehab Facility	Other
<i>n</i>	114	28	1	13
%	71%	18%	<1%	8%
Mean Overall Self-Care Skill Score	32.6	17.3	—	28.6
SD	6.48	8.51	—	11.81

Note. Other = acute hospital or Board and Care facility. *n* = number of subjects in that category. Mean overall Self-Care Skill Score = mean total of self-care FIM scores at discharge.

Table 8

Toileting Self-Care Skills Scores by Discharge Placement.

Data	Discharge Placement		
	Home	SNF	Acute Hosp/Board & Care
<i>n</i>	114	28	1
%	71%	18%	8%
Toileting Self-Care Skill score	6.0	2.5	4.1
SD	3.28	3.52	4.27

Note. *n* = number of subjects in that category. Toileting Self-Care Skill Score = mean sum of FIM scores relating to toileting (toileting, toilet transfer, bladder management).

CHAPTER 5
DISCUSSION, IMPLICATIONS,
RECOMMENDATIONS, AND SUMMARY

Introduction

The first section of this chapter discusses the results for each of the research questions. The second section addresses implications for the Sequoia Rehabilitation Unit at Sequoia Hospital in Redwood City, California. Research recommendations will be discussed in the third section and the final section summarizes the study.

Research Questions

Change in Self-Care Skills Scores

Does occupational therapy documentation on the Functional Independence Measure show an increase in independence of overall self-care skills and self-care skills in the areas of grooming, bathing, upper body dressing, lower body dressing, toileting, and toilet transfer behavior following occupational therapy for these functions in patients disabled by cerebrovascular accident?

The results of this study spoke to the question stated above regarding change in self-care skills scores (overall score, grooming score, bathing score, upper body dressing score, lower body dressing score, toileting score and toilet transfer score) after occupational therapy. A large percentage (89.4%) of subjects showed a positive change in overall score and all individual self-care skill scores. In addition, a significant positive

change between mean overall admission score (18.9 FIM points) and mean overall discharge score (29.5 FIM points) was found with a *t* value of 19.01 ($p = .00$).

These findings are consistent with results in studies by Wagner and Cushman (1994); Khader and Tomlin (1994); Wilson, Houle, and Keith (1991); Hamilton and Granger (1994); Granger and Clark (1994); Falconer, Naughton, Strasser, and Sinacore (1994); and Galski, Bruno, Zorowitz and Walker (1993). These studies all used the FIM as a measure of self-care skills for subjects with CVA and found improvement in self-care function after rehabilitation which included occupational therapy. Additionally, as noted in Chapter 2, studies performed by Kalra (1994) and Parfenchuk, Parziale, Liberman, Butcher, and Ahern (1990) also cite improved functional ability in subjects that experienced CVA and underwent acute rehabilitation.

Unfortunately, the amount of self-care improvement that can be attributed to spontaneous recovery was not discernible in this study. Due to the *ex post facto* design of the study, it was not possible to include a control group that did not receive therapeutic intervention. Even in a study employing an experimental design, the use of a control group would involve withholding treatment that is deemed beneficial and would not be approved by the Institutional Review Board.

These findings indicate that during the dates of examination, a very high percentage (89.4%) of all patients admitted to the Sequoia Rehabilitation Unit after experiencing a CVA significantly improved in their overall and individual self-care abilities. The amount of mean improvement in overall self-care FIM score was 10.6 FIM

points. This indicates a higher level of independence in study subjects and, ultimately, a decreased burden of care as defined by Granger, Cotter, Hamilton, and Fiedler (1993). As noted in the literature review section, these authors suggest that a one point change in overall FIM score correlates with an average of 2.19 minutes of assistance per day provided at home to the individual with CVA. Application of the Granger et al. finding to this study would indicate that subjects who underwent rehabilitation including occupational therapy at the Sequoia Rehabilitation Unit would theoretically require 23.2 fewer minutes of at home self-care assistance at discharge than they would have at admission.

Relationship Between Improvement and Hours of Treatment

Is there a significant relationship between increase in self-care skill scores (overall, grooming, bathing, upper body dressing, lower body dressing, toileting, toilet transfer) and time spent in self-care intervention provided by an occupational therapist for persons who have sustained a cerebrovascular accident?

A significant relationship was found between increase in overall self-care scores and hours spent in occupational therapy treatment. The relationship, although significant, was somewhat weak due to a high coefficient of correlation ($r = .36$).

This finding can be interpreted to mean that the amount of time spent in occupational therapy treatment may positively influence the degree of self-care independence the subjects in this study achieved. For the subjects involved in this study, it would appear that the more time a subject spent in occupational therapy, the higher the

level of self-care independence was attained. Positive outcomes of this nature that result from time spent in occupational therapy also bode well for continued reimbursement by Medicare and private insurance companies for occupational therapy services.

However, because the coefficient of correlation was somewhat high, other influences must be considered including the conditions for treatment on a Diagnostic Related Group (DRG) exempt unit, discharge location and planning, and the impact of therapeutic intervention provided by disciplines other than occupational therapy.

Patients treated on a DRG exempt rehabilitation unit may not be discharged from occupational therapy due either to lack of functional progress or to achievement of discharge goals, as they are likely to be on a DRG based acute unit. Continued stay on the rehabilitation unit may be deemed necessary based on discussion of patient progress at weekly multi disciplinary conferences. Extension of an individual's acute rehabilitation may be required in order to facilitate caretaker training or for further intervention from disciplines other than occupational therapy. This may result in additional time spent in occupational therapy due to Medicare guidelines that require 90 minutes daily of occupational therapy five days a week. This is one of the requirements that must be met by a rehabilitation unit in order to qualify as DRG exempt. This requirement, due to its ability to expand costs in the cost-based Tax Equity & Fiscal Responsibility Act of 1982 (TEFRA) reimbursement system, may also be one of the factors that is influencing the move towards a Prospective Payment System (PPS)-like system of reimbursement for acute rehabilitation as previously discussed in Chapter 2.

Discharge destination may also impact time spent in occupational therapy treatment. Subjects discharged home may require more time spent in therapy than subjects discharged to a skilled nursing facility. The subjects that go home may require occupational therapy intervention for caretaker training or household modifications that would not be necessary for subjects that are discharged to the care of skilled staff in long term care facilities. Also, subjects discharged to skilled nursing facilities due to poor functional status and/or inadequate family support, or insufficient financial ability to provide for in-home care may have shorter overall lengths of stay, resulting in less time spent in occupational therapy.

Therapy provided by disciplines other than occupational therapy may also positively impact outcomes in self-care function. For example, transfer training and balance activities provided by physical therapists may enhance a subject's ability to successfully execute self-care tasks such as toilet transfers and lower body dressing. Additionally, communication and cognitive retraining provided by speech pathologists may also facilitate improved subject comprehension of and ability to participate in therapeutic activities.

Another factor to consider is the difficulty during the data collection process of separating time spent in self-care training from time spent in other occupational therapy interventions. As noted in Chapter 4, it was not possible to separate time spent in self-care treatment from other occupational therapy interventions. Data collected reflects time spent in any type of occupational therapy intervention which may include but not be

limited to any of the following: self-care retraining, cognitive retraining, visual perceptual training, family education and training, upper extremity exercises and activities, community re-integration, homemaking retraining, and equipment assessment and training. Although the results for this question are not reflective of time spent solely in self-care retraining, it is realistic to assume that a subject's self-care ability may be positively impacted by improved cognitive or visual perceptual abilities. As noted previously, Galski, Bruno, Zorowitz, and Walker (1993) concluded that higher order cognitive skills play an important role in predicting functional status at discharge. Occupational therapists often employ various treatment modalities, including cognitive and visual perceptual retraining, in an effort to maximize patient abilities and improve self-care function.

Difference Between Age and Improvement

Is there a significant difference between change in the self-care skills scores (overall, grooming, bathing, upper body dressing, lower body dressing, toileting, toilet transfers) and age in those persons who have sustained a cerebrovascular accident and have been treated in occupational therapy for self-care function?

In this study, there was no significant difference found between a subject's age and the amount of change achieved in self-care skill areas. The majority of subjects (71.9%) were between the ages of 66 and 85. While no significant difference was found, a general trend can be noted. Subjects that were 55 or younger ($n = 8$) demonstrated the highest average improvement in overall self-care skills (13.4 FIM points). Subjects in the 56 to 65 age group ($n = 18$) showed a mean improvement of 10.6 FIM points. Those in the 66 to

75 age group ($n = 59$) averaged 11.4 FIM point increases in overall self-care skill areas. Subjects aged 76 to 85 ($n = 56$) showed an average FIM point increase of 10.0. The final age group, 86 and older ($n = 19$), demonstrated a mean increase of 9.6 FIM points (Table 9). This data generally reflects a slight decrease in mean overall self-care FIM point change as the subject age increases and suggests that younger subjects may benefit from rehabilitation to a greater extent than older subjects. It would appear that older study subjects showed less overall improvement in self-care than younger study subjects.

The trend discussed above is consistent with the findings of several studies discussed in Chapter 2. For example, Dodds, Martin, Stolov and Deyo (1993) found that as age increased, functional ability decreased. Studies conducted by Kalra (1994), Falconer, Naughton, Strasser and Sinacore (1994), Oczkowski and Barreca (1993), Harada, Sofaer and Kominski (1993), and Hamilton and Granger (1994) generally found older age to have a negative impact on rehabilitation outcomes. These studies also indicated that age appeared to influence discharge destination with older individuals more often being discharged to a skilled nursing facility than younger individuals. Although the relationship between age and discharge destination was not explored in this study, it is a potential area for further study. Information gained from further study may help professionals more accurately predict the patients that will most benefit from use of rehabilitation services.

Table 9

Overall Self-Care Skill Score by Age

Data	Age				
	<55	56-65	66-75	76-85	>86
<i>n</i>	8	18	59	56	19
FIM Score Increase	13.4	10.6	11.4	10.0	9.6

Note. *n* = number of subjects in that category. FIM score increase = mean increase in FIM scores from admission to discharge.

Another related area of potential study is the influence of secondary diagnoses on an individual's rehabilitation. Older age is often accompanied by increased incidence of co-morbid disease and problems related to the aging process. These conditions, or secondary diagnoses, may negatively impact on an individual's ability to achieve improved self-care function following a CVA. For example, cardiac, or pulmonary problems limit an individual's activity tolerance and thus impact time spent in therapy. Also, mental health conditions or disease processes affecting cognition may limit comprehension, retention, or both, of therapeutic techniques taught. While most (70.4%) subjects in this study had between two and five secondary diagnoses (Table 4), their impact on independence was not explored. The incidence of co-morbid disease or pre-existing conditions and their relationship to self-care function following stroke could be examined in future stroke rehabilitation studies.

Difference Between Level of Severity at Admission and Change in Self-Care Scores

Is there a significant difference between change in the self-care skills score (overall, grooming, bathing, upper body dressing, lower body dressing, toileting, toilet transfers) and the severity of dysfunction at the time the patient was admitted to the rehabilitation unit?

No significant difference was found between a subject's level of severity of impairment upon admission to Sequoia Hospital's SRU and his/her change in self-care score. Subjects in this study were fairly evenly distributed across impairment groups at SRU admission. Fifty-two subjects fell into the severely impaired group, 50 subjects were

in the moderately impaired group and 58 subjects were in the mildly impaired group. By discharge, subjects that were severely impaired at admission to SRU showed a mean overall increase in self-care FIM points of 10.4 points; moderately impaired subjects demonstrated an average overall increase of 12.8 self-care FIM points; mildly impaired subjects averaged a 9.1 overall self-care FIM point increase. Although subjects in each impairment group showed significant improvement in self-care ability, the distribution of subjects across impairment groups did not change significantly. Upon discharge from SRU, 124 subjects were in the mildly impaired group, 20 subjects were in the moderately impaired group and 16 subjects were in the severely impaired group. The subjects moderately impaired at admission to SRU appeared to demonstrate the highest average change in self-care scores (Table 5).

These findings appear to be consistent with the results of a study by Oczkowski and Barreca (1993). Their study of individuals who underwent stroke rehabilitation indicated that patients with an admission overall FIM score (combined total of self-care, motor, and cognition scores) between 36 and 96 (moderate impairment) demonstrated the most change in overall FIM score by discharge. In contrast to this, the study subjects who fell below (severe impairment) or above (mild impairment) this range showed less change in overall FIM score by discharge. Although criterion for classification into "mild," "moderate," and "severe" impairment groups was not the same for each study, both studies show the greatest amount of improvement for their respective moderately impaired subject groups.

These results also suggest that for patients with CVA admitted to SRU with moderate impairment as defined in this study are likely to demonstrate more functional improvement than patients with mild or severe impairment. While there are many factors to consider when admitting an individual to a DRG-exempt rehabilitation unit, this information may assist in predicting which patients would most benefit from use of rehabilitation services.

Relationship Between Discharge Level of Self-Care and Discharge Placement

What is the relationship between discharge level of self-care and discharge placement (home, skilled nursing facility, rehabilitation facility)?

A strong relationship between functional ability and discharge location is apparent in the literature. As discussed in Chapter 2, higher level of function tends to indicate a more likely discharge to home. A study by Wilson, Houle and Keith (1991) cite longer rehabilitation stay and living at home prior to stroke in addition to higher patient function at admission and discharge as factors influencing discharge home. Parfenchuck, Parziale, Liberman, Butcher, and Ahern (1994) also found more home discharges and higher FIM scores among acute rehabilitation subjects when compared to general ward subjects.

The data gathered in this study indicates that the vast majority (71%) of subjects admitted to the Sequoia Rehabilitation Unit after experiencing a stroke were discharged home. This group also showed the highest average overall self-care score (32.6). Subjects discharged to a skilled nursing facility had the lowest average overall self-care score, 17.3. Subjects discharged to either the acute hospital for medical reasons or to a

board and care facility showed an average overall self-care score (28.6) that fell between the scores of those discharged home and those discharged to a skilled nursing facility (Table 7).

These results reflect positively on both the SRU and the occupational therapy department at Sequoia Hospital. Good outcomes, such as home discharge, for the majority of patients admitted to SRU during the dates examined may be reflective of effective services provided. While many factors are considered in determining a home discharge, many of the services provided by occupational therapists for patients admitted to SRU (equipment evaluations, home safety assessments, education regarding household modifications, and caretaker training) help facilitate an individual's discharge to home.

Relationship Between Discharge Placement and Change in Toileting Skills

What is the relationship between change in self-care skills scores related to toileting (toileting, toilet transfer, bladder management) and discharge placement (home, skilled nursing facility, rehabilitation facility)?

In this study, higher level of independence in toileting, toilet transfers and bladder management appears to coincide with discharge home. Subjects in this study who were discharged home ($n = 114$) had the highest mean toileting self-care score, 6.0. This corresponds to the FIM classification of "modified independence" which indicates the subject is able to perform the task without the assistance of another individual but may have safety issues, require extra time or the use of assistive equipment. Subjects who were discharged to a board and care facility or to the acute hospital ($n = 13$) had the next

highest mean toileting self-care score, 4.1. This corresponds to the FIM classification of "minimum assistance" which indicates the need for incidental help from another individual. Finally, subjects who were discharged to a skilled nursing facility ($n = 28$) had the lowest mean toileting self-care score, 2.5. This score falls between the FIM classifications of "moderate assistance" and "maximum assistance." Both of these classifications indicate the need for increasing amounts of assistance from another individual to safely complete the toileting tasks. The data appears to indicate that subjects who were discharged home demonstrated higher levels of independence in toileting, toilet transfers and bladder management (Table 8).

The results for this question support the conclusion drawn by Falconer, Naughton, Roth, Strasser, and Sinacore (1994) as discussed in Chapter 2. These authors found that toileting management, toilet transfer ability, bladder management, and financial resources were accurate predictors of rehabilitation outcomes. It would also appear that, for the dates examined in this study, more subjects with a high degree of independence in self-care areas related to toileting were discharged home than those with a lower level of toileting self-care independence. The high percentage (71%) of subjects with a positive outcome (discharge home and a high degree of independence for self-care skills relating to toileting) also reflect well on the occupational therapy department at Sequoia Hospital. The occupational therapists working on SRU have primary responsibility for training patients with self-care deficits in the areas of toileting and toilet transfers.

Implications for the Sequoia Rehabilitation Unit

The most significant finding of this study for Sequoia Hospital's rehabilitation unit and the occupational therapy department are the positive outcomes for the majority of patients admitted. Nearly all patients showed an increase in overall self-care skills as well as each self-care skill area (grooming, bathing, upper body dressing, lower body dressing, toileting, and toilet transfers). The overall change for subjects who demonstrated increased self-care abilities was statistically significant. In addition, nearly all patients were discharged home and showed a high level of independence for toileting, toilet transfers and bladder management. These findings cast a positive light on the effectiveness of the occupational therapy program on the acute rehabilitation unit at Sequoia Hospital. They also imply that occupational therapists working with patients on the rehabilitation unit should continue self-care training emphasizing toileting skills as a predictor of positive outcome and benefit from occupational therapy services. These positive outcomes also cast a favorable light on occupational therapy services when reimbursement issues are raised.

A statistically significant relationship was also found between time (hours) spent in occupational therapy and positive change in self-care skills, suggesting that the more time a patient in rehabilitation at Sequoia Hospital spent in occupational therapy intervention, the greater the level of self-care independence achieved. This finding is also suggestive of an effective occupational therapy program on the rehabilitation unit. Due to the weak nature of the statistical significance, however, the influence of other disciplines working

with patients on the rehabilitation unit as well as factors related to DRG exempt units should also be considered.

Finally, although younger study subjects showed more positive change in self-care abilities than older subjects, findings indicate that age should not be used exclusively to predict an individual's ability to benefit from self-care treatment. Rather, age should be considered one of many factors that may predict an individual's ability to benefit from occupational therapy on Sequoia's Rehabilitation Unit.

Research Recommendations

Recommendations for further research with individuals that have experienced a CVA include: (1) a study that controls for spontaneous recovery in self-care function, possibly by matching subjects in hospitals in countries where occupational therapy services are not available with hospitals that provide occupational therapy services, (2) a controlled study that explores the relationship between hourly amounts of time spent in self-care treatment and change in self-care abilities, (3) a study that explores the type and amount of assistance of individuals discharged home, (4) a controlled study that assesses the effectiveness of Medicare's three hour therapy regulation for DRG exempt rehabilitation units by comparing levels of subject disability and varying amounts of time spent in occupational therapy self-care treatment, (5) a study that explores the relationship of age and discharge destination, and (6) a study that examines the influence of secondary diagnoses on subject participation in therapeutic activities and improvement in self-care function.

Summary

The purpose of this study was to examine the variables that affect improvement in self-care functioning in a population of subjects who had experienced a CVA with the intention of determining the cost-effectiveness of occupational therapy for self-care treatment and of determining predictors of subject progress in self-care functioning.

A review of the literature revealed few studies that explore the efficacy of self-care training following a CVA. Available literature on stroke rehabilitation, including self-care skills, suggests that age, level of impairment, cognitive abilities, financial resources and level of function related to toileting skills play an important role in overall functional status improvement. No literature regarding time spent in therapy was located.

In this study, change in self-care function, time spent in occupational therapy, age, severity of impairment, discharge location, and self-care skills relating to toileting were examined. The results indicated that most subjects demonstrated substantial improvement in self-care abilities following acute rehabilitation for deficits sustained following CVA. Findings also supported time spent in occupational therapy, discharge location, and toileting ability as factors in positive rehabilitation outcomes. Age and severity of dysfunction was not found to be a significant factor in improvement in self-care scores.

Recommendations stemming from these results indicate that rehabilitation units should emphasize toileting self-care retraining in occupational therapy intervention and consider discharge location and not age or severity of dysfunction as predictors of benefit from acute rehabilitation. Potential areas for further study include: (1) the type and

amount of occupational therapy intervention received by subjects who have experienced CVA, (2) degree of spontaneous recovery, and (3) type and amount of home assistance received by subjects who experience CVA and are discharged home.

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APPENDICES

APPENDIX A
FUNCTIONAL INDEPENDENCE MEASURE GUIDE

GUIDE
for use of the
**UNIFORM DATA SET
FOR
MEDICAL REHABILITATION**
including the
**FUNCTIONAL INDEPENDENCE MEASURE
(FIM)**

Version 3.1 • March 1990

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UNIFORM DATA SET FOR MEDICAL REHABILITATION

CHANGES IN THE GUIDE - version 3.1 1990:

The **Guide for Use of the Uniform Data Set for Medical Rehabilitation** has been modified in keeping with the goal of developing and sustaining uniformity of definitions and measures of disability and rehabilitation outcome. We are striving for consensus in the field.

Since the first revision, 1987, the National Advisory Committee (formerly, National Task Force) for a Uniform Data System (UDS) for Medical Rehabilitation has learned much from users of the UDS and Functional Independence Measure (FIM). For instance, UDS/FIM training workshops on 30 occasions in the past 18 months have reached more than 1,500 clinicians, administrators, and quality assurance and program evaluation coordinators. In addition, 140 inpatient medical rehabilitation facilities in 33 states have enrolled in the UDS Data Management Service since the last guide was published. Facilities in Canada, Australia, France, West Germany, Sweden, and Japan also have adopted the FIM and UDS data set. As of March 1, 1990, 53,000 patients have data entered in the United States UDS data base.

The rich feedback from this growing experience has prompted changes in the **Guide**. The changes, while not extensive, are important because they respond to a persistent need to measure what we do accurately, reliably, with validity, and in a cost-effective way.

You will find the following changes and recommendations in the 1990 version of the **Guide**:

1. Functional Independence Measure

- Item A, formerly titled "Feeding", is now titled "Eating". Setup (cutting, pouring, opening of containers etc.) is scored at level 5. Other changes include consideration of the consistency of food, deleting knife as a utensil and raising self-administered tube feedings to level 6.
- In item B, Grooming, the term "specialized" (describing grooming equipment) is deleted.
- The definition of Toileting, item F, is modified.
- Items G and H, Bladder and Bowel Management, are revised to include use of a bedpan or bedside commode. Also, the scoring for independent management of absorbent pads is changed.
- Item L, Locomotion, more specifically addresses the scoring for level 5 (an exception for household ambulators). The definition and comment referring to the most frequent mode of locomotion is also revised.

Changes in the Guide (continued)

- **Stairs, item M,** now provides for an exception, a level 5 score, if the subject is able to take 4-6 stairs independently. The number of stairs required at each level is more clearly defined.
- **Significant changes appear in items N and O, Comprehension and Expression.** Revisions are made in each of the definitions, brief comments and examples are added and the wording is changed at several levels.
- **In level 6 of item P, Social Interaction,** use of medication for control of behavior is added.
- **Item Q, Problem Solving,** now considers routine versus complex problems. Brief examples are provided.
- **Revisions that affect the FIM as a whole include:** in any item where two helpers are required, the score is always 1. If an orthosis or prosthesis is used, it is considered in each item where appropriate, instead of in the areas of upper or lower body dressing only. For example, if a lower extremity prosthesis is applied by a helper and the rest of lower body dressing is done by the subject, the score for lower body dressing is 5. The highest possible scores in Locomotion, Stairs, and Transfers (if they are stand-pivot), is 6 because the prosthesis is also used for these activities.

Please refer to the specific items in the **Guide** for details.

2. Inpatient Coding Sheet Changes

- All followup data are now recorded on the Followup Coding Sheet rather than being included on the Inpatient Coding Sheet.
- Item 13, "Living Arrangement, setting", choice 09 is now titled, "Rehab facility" and can include any Rehab facility. Choice 11 is titled "died", rather than "expired".
- Items 16-18 (Impairment Group, Date of Onset, Principal Diagnosis) include additional brief explanation.
- Item 16, Impairment Group, is now a four-place decimal number, rather than a three place-decimal number.
- Impairment Group coding has been expanded and appears on side 1 of the Inpatient Coding Sheet.
- Item 22, the FIM itself, the comment regarding the use of level 1 was reworded to emphasize that level 1 is recorded when the subject is not testable due to risk, rather than not being tested.

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Changes in the Guide (continued)

3. Followup Coding Sheet Changes

- Again, followup is now recorded on a separate coding sheet.
- For item 13, "Living Arrangement", whether the subject is in your Rehab facility or another Rehab facility, use code 09.
- Item 15, "Followup Therapy", now includes a code for inpatient hospital (05).

4. Impairment Group Coding

- Impairment group codes for stroke are emphasized for side of body versus brain.
- The impairment groups of: Neurologic, Spinal Cord, Orthopaedic Conditions, Pulmonary and Congenital are expanded.
- Impairment group 14, Major Multiple Trauma, is added.
- Again, impairment group codes now have four decimal places.

5. ICD-9 Coding

- Under item 18, Principal Diagnosis, enter the ICD-9 code related to the impairment for which the patient is admitted to rehabilitation.
- Item 19, Other Diagnoses, enter the ICD-9 code for other impairments, etiology, co-morbid conditions and complications diagnosed on admission or during the rehabilitation stay.
- Appendix B, Impairment Groupings with related ICD-9 Codes, is replaced by the UDS policy for ICD-9 coding.

6. FIM Training

- Several options are now available for learning to reliably assess function using the FIM. They include: self-study of the Guide, video education, FIM training workshops and use of the Functional Independence Measure: Decision Tree (FONE FIM) as a training instrument.
- The UDS Data Management Service also provides Reliability Assessment for both subscribers and non-subscribers of the Data Management Service.
- For further information regarding these services, contact the UDS at (716) 831-2076, or write.

UNIFORM DATA SET FOR MEDICAL REHABILITATION

BACKGROUND

The Task Force to Develop a Uniform Data System for Medical Rehabilitation was established in 1983 to meet a long-standing need to document severity of patient disability and the outcomes of medical rehabilitation. Until recently there had been no uniform way to describe and communicate about disability. The Task Force was sponsored by the American Congress of Rehabilitation Medicine (ACRM) and the American Academy of Physical Medicine and Rehabilitation (AAPM&R).

A grant¹ was obtained from the National Institute on Disability and Rehabilitation Research to develop a minimum data set that would be an appropriate, quickly and uniformly administered, valid and reliable measure, and in addition would be discipline-free and acceptable to the clinicians in the field. Data collected on key patient functional attributes in a consistent fashion will allow clinicians, administrators and researchers to track patients from the initiation of hospital care through discharge and follow-up. With periodic reassessment, changes in patient performance over time can be measured and rehabilitation outcomes determined. There are many uses for this kind of information.

The Task Force reviewed 36 published and unpublished functional assessment instruments which were helpful in identifying items and rating scales that measure function. The challenge for the Task Force was to select the most common and useful functional assessment items and to decide on an appropriate rating scale which would permit most rehabilitation clinicians to assess severity of disability in a uniform and reliable manner.

The Functional Independence Measure (FIM) was derived for this purpose. It assesses self care, sphincter management, mobility, locomotion, communication, and social cognition on a seven-level scale.

The data set includes, in addition, items which document patient demographic characteristics, diagnoses, impairment groups, length of hospital inpatient stay, and hospital charges.

Pilot, trial and implementation phase studies have been carried out since 1984 for the purpose of testing the FIM for validity and reliability in over 50 facilities across the country. The FIM was found to have face validity and to be reliable. Each phase resulted in useful modifications of this GUIDE, the data set, and definitions. This version of the GUIDE reflects those changes and improvements.

¹ The Uniform Data System for Medical Rehabilitation was developed with support from the U.S. Department of Education, National Institute on Disability and Rehabilitation Research (NIDRR), grant number G008435062, and was conducted by the State University of New York at Buffalo, School of Medicine, Department of Rehabilitation Medicine.

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UNDERLYING PRINCIPLES
FOR USE OF THE FUNCTIONAL INDEPENDENCE MEASURE (FIM)

The Functional Independence Measure is intended to include a minimum number of items. It is not intended to incorporate all the activities that would be possible to measure or that might need to be measured for clinical purposes. Rather, it is a basic indicator of severity of disability. Severity of disability changes during rehabilitation, therefore the change in FIM is an indicator of the benefit or outcome of care.

The FIM has been designed to be used with a seven-level scale which represents major gradations in independent and dependent behavior and reflects the burden of care for disability. Burden of care is the substituted time/energy which must be brought to serve the dependent needs of the disabled individual so that a certain quality of life may be achieved and maintained. The underlying rationale for classifying an activity as independent or dependent is whether another person, a helper, is required. And, if help is required, how much.

The FIM is a measure of disability, not impairment. The FIM is intended to measure what the subject² actually does, whatever his or her diagnosis or impairment, not what he or she ought to be able to do, or might be able to do if certain circumstances were different. As an experienced clinician, you may be well aware that a depressed person could do many things he or she is not doing, but nevertheless the person should be assessed on the basis of what he or she actually does. Note also that there is no provision to consider an item "not applicable." All items must be completed.

The FIM was designed to be discipline-free, that is, a measure usable by any trained clinician, regardless of discipline. However, under some circumstances, certain clinicians may find it difficult to assess some activities. If that is the case, another more appropriate clinician can participate in the FIM assessment of a patient. If it is felt that only a speech pathologist can assess the communication items whereas a nurse is more knowledgeable with respect to bowel and bladder management and a physical therapist has the expertise to evaluate mobility, the assessment can be divided among them.

It is important to read the definitions of the items carefully before beginning to use the FIM, committing to memory what each activity includes. Rate the subject only with respect to the specific item. For example, when rating the subject with regard to bowel and bladder management, do not take into consideration whether he or she can get to the toilet. That information will be obtained when transfer is assessed. Similarly, preparation for grooming does not include getting to the washbasin.

² Subject means the person with disability.

Underlying Principles for the Use of the FIM (continued)

To be categorized at any given level, the subject must complete either all of the tasks included in the definition or only one of several tasks. If all must be completed, the series of tasks will be connected in the text of the definition by the word **and**. If only one must be completed, the series of tasks will be connected by the word **or**. For example, grooming includes oral care, hair grooming, washing hands and face, **and** either shaving **or** applying make-up. Communication includes clear comprehension of either auditory **or** visual communication.

Implicit in all of the definitions, and stated in many of them, is a concern that the individual perform these activities with reasonable safety. With respect to level 6, the question to be asked is whether the subject is at risk of injury when performing the task. As is true of all human endeavors, your judgment should take into account that there must be a balance between the risk of an individual's participating in some activities and a corresponding, although different risk, if he or she does not.

Because the data set is still being refined, your opinions and suggestions are considered very important. We are also interested in any problems you encounter in collecting and recording data.

The FIM may be added to a facility's own data set, which may include items such as independent living skills, ability to take medications, to use community transportation, to direct care provided by an aide, or to write or use the telephone, mobility outdoors, impairments such as blindness and deafness, and pre-morbid status. Many clinicians who participated in the Trial wanted to add such items. But the data set must be limited to the fundamentals of assessing disability and outcome of the rehabilitation process. We encourage individual clinicians or centers to adopt additional items for their own use, if this is appropriate.

CODING THE DATA SET

WHEN COMPLETING THE FORMS, BE SURE TO RECORD DATA ON THE CODING SHEET, AND BE SURE TO COMPLETE ALL THE INFORMATION. DON'T LEAVE ANY BLANKS UNFILLED.

The completed coding sheets can form the data base for your own analysis and reporting. Or, you can forward coding sheets from your patients to the Data Management Service office at the address below. Before sending coding sheets to the Data Management Service office write a letter indicating a desire to enroll in the service. A return letter will give you directions on how to enroll, submit data, and receive reports.

UDS-Data Management Service
82 Farber Hall
SUNY-Main Street
Buffalo, New York 14214
Telephone: (716) 831-2076
FAX: (716) 831-2080

Coding the Data Set (continued)

A coded specimen copy of the coding sheet is provided in Appendix A. The specimen coding sheet has been completed for Sample Case #1 for instructional purposes. Sample Case #2 is a test case which can be used to practice scoring and check your rater reliability. If you would like to complete the scoring for Sample Case #2 and receive correct answers and scores from the UDS, refer to the instructions in Appendix A.

A. WHEN TO CODE ITEMS IN THE DATA SET

Information will be coded in the data set at least two times: within 72 hours after patient admission to and within 72 hours before discharge from inpatient rehabilitation. Follow-up information will be collected at one point at an outpatient visit, home visit, by telephone, or by mailed questionnaire approximately three months after discharge, for those facilities which wish to collect it.

B. HOW TO CODE ITEMS IN THE DATA SET

Using the sample coding sheets (Appendix A) as a guide and the item-by-item coding instructions which follow, enter a number or numbers in every appropriate open (blank) box on the coding sheet. Notice that the coding sheet has two sides.

If you have difficulty with the data set see your facility Uniform Data System coordinator or call the Data Management Service at (716)831-2076.

C. ITEM-BY-ITEM CODING INSTRUCTIONS

1. Rehabilitation Facility Code . . . use facility identification number provided by Data Management Service.
2. Patient Number . . . subject identification number (maximum nine digits). Use the medical record number, social security number, or other unique number that remains consistent throughout the patient's hospitalizations.
3. Admission Date . . . the initial admission date to medical inpatient rehabilitation.

Coding the Data Set (continued)

4. Discharge Date the date of discharge from rehabilitation. If the subject is transferred off the rehabilitation service and later returns, the discharge date should be the last day spent on the rehab service. An interruption of 30 days or less will be considered the same rehabilitation hospitalization. An interruption of more than 30 days is a new hospitalization (classified as readmission), and a new form should be completed.
5. Program Interrupted . . . whether the subject was transferred to another medical service during the rehabilitation program. Answer "Yes" or "No." This item is appropriate for those rehabilitation units which are part of larger acute care medical facilities and for freestanding rehabilitation facilities that transfer patients to acute care hospitals.

An interruption of any period of 30 days or less will be considered the same rehabilitation hospitalization.

- If yes:
- 1st Interruption
 - a. Transfer date
 - b. Return date
 - 2nd Interruption
 - a. Transfer date
 - b. Return date
 - 3rd Interruption
 - a. Transfer date
 - b. Return date

6. Admission Class the admission classification of the subject should be coded as follows:
- 1 Initial Rehabilitation - first time admission to any comprehensive medical rehabilitation program for this impairment.
 - 2 Short-Term Evaluation - a preplanned stay for evaluation of fewer than 10 days on the rehabilitation service.
 - 3 Readmission - any rehabilitation readmission to any rehabilitation facility.

Coding the Data Set (continued)

7. Zip Code write in nine-digit zip code, if available; otherwise five-digit code of the last home before admission.
8. Birthdate subject's birthdate: Month/Day/Year (MM/DD/YYYY) Include century.
9. Sex code the gender of the subject as follows:
- 1 Male
 - 2 Female
10. Race/Ethnicity code the race/ethnicity of the subject as follows:
- 1 White
 - 2 Black
 - 3 Asian
 - 4 American Indian
 - 5 Other
 - 6 Hispanic ethnicity
11. English Language does the subject understand and speak English? Do not account for aphasia here.
- 1 Yes
 - 2 No
 - 3 Partial
12. Marital Status code the subject's marital status at time of admission as follows:
- 1 Single (never married)
 - 2 Married
 - 3 Widowed
 - 4 Separated
 - 5 Divorced

Coding the Data Set (continued)

13. Living Arrangement

- a. Setting from which the subject was admitted to rehabilitation, or to which discharged. Code for: prehospital, admit to rehabilitation from, discharge, and follow-up. Code as follows:

- 01 Home
- 02 Board and care facility (includes a structured retirement facility)
- 03 Transitional living facility
- 04 Intermediate care facility (nursing home)
- 05 Skilled nursing facility (nursing home)
- 06 Acute unit of your own facility
- 07 Acute unit in another hospital
- 08 Chronic hospital
- 09 Rehab facility
- 10 Other
- 11 Died - code only at discharge or follow-up

- b. Living with - the relationship of the individuals (if any) residing with the subject. If living with more than one other person, select only one in the order presented. If 13.a. is 02-10, code 13.b. as 5., Other. Code for prehospital, discharge, and follow-up.

- 1 Alone
- 2 With Family/Relatives
- 3 With Friends
- 4 Attendant
- 5 Other

14. Vocational Status

- a. Whether the subject was employed or was a student, homemaker, or was retired prior to and following hospitalization for the disabling condition. If more than one, select only one in the order presented. Code at prehospital and follow-up

- 1 Employed (competitive setting)
- 2 Sheltered employment
- 3 Student
- 4 Homemaker
- 5 Not working
- 6 Retired for age (60 years of age or greater)
- 7 Retired for disability (permanent disability, less than 60 years of age)

Coding the Data Set (continued)

- b. Amount of effort - If subject is retired, code full-time. If not working, code full-time. Code at prehospital and follow-up.
- 1 Full time
 - 2 Part time
 - 3 Adjusted workload - workload is reduced due to disability.
15. Follow-up the date, source, and method of obtaining follow-up information, who performs health maintenance activities, and current therapy received. Code as follows (use separate Follow-up Coding Sheet):
- a. Date of follow-up
 - b. Source of follow-up information
 1. Patient
 2. Family
 3. Other
 - c. Method of obtaining follow-up information
 1. In person
 2. By telephone
 3. Mailed questionnaire
 - d. Health maintenance - the person primarily responsible for performing routine personal care, and managing the personal environment at home or in the institution. If only one type of helper is required, code primary and secondary boxes the same. If more than one type of helper is involved, indicate which is primary (spends most time) and which is secondary (spends second most time). Code as follows:
 1. Subject him- or herself
 2. An unpaid person or family member
 3. A paid attendant or aide
 4. A paid, skilled professional such as a registered nurse
 - e. Therapy - the subject is currently receiving therapy which is paid for. Code as follows:
 1. None
 2. Outpatient therapy
 3. Home-based paid therapy such as P.T., O.T., Speech, Nursing (not routine personal care or maintenance)
 4. Both
 5. Inpatient Hospital

Coding the Data Set (continued)

16. Impairment Groups . . . the major impairment diagnostic category of the subject. Refer to listing below of specific impairment group codes to be included in each category. Choose the appropriate two-digit code shown below first, then decimal designation for subgroup. Code at discharge as follows:

01 Stroke:

- 01.1 Left Body Involvement (Right Brain)
- 01.2 Right Body Involvement (Left Brain)
- 01.3 Bilateral Involvement
- 01.4 No Paresis
- 01.9 Other Stroke

02 Brain Dysfunction:

- 02.1 Non-Traumatic Dysfunction
- 02.2 Traumatic
- 02.21 Traumatic Injury - Open
- 02.22 Traumatic Injury - Closed
- 02.9 Other Brain Dysfunction

03 Neurological Conditions:

- 03.1 Multiple sclerosis
- 03.2 Parkinsonism
- 03.3 Polyneuropathy
- 03.4 Guillain-Barre
- 03.9 Other Neurologic

04.1 Non-Traumatic Spinal Cord Dysfunction:

- 04.11 Paraplegia
- 04.111 Paraplegia Incomplete
- 04.112 Paraplegia Complete
- 04.1211 Quadriplegia Incomplete C1-4
- 04.1212 Quadriplegia Incomplete C5-8
- 04.1221 Quadriplegia Complete C1-4
- 04.1222 Quadriplegia Complete C5-8
- 04.130 Other Non-Traumatic SC

04.2 Traumatic Spinal Cord Dysfunction:

- 04.2 Traumatic
- 04.211 Paraplegia Incomplete
- 04.212 Paraplegia Complete
- 04.2211 Quadriplegia Incomplete C1-4
- 04.2212 Quadriplegia Incomplete C5-8
- 04.2221 Quadriplegia Complete C1-4
- 04.2222 Quadriplegia Complete C5-8
- 04.230 Other Traumatic SC

Coding the Data Set (continued)

05 Amputation of Limb:

- 05.1 Single Upper Extremity Above the Elbow (AE)
- 05.2 Single Upper Extremity Below the Elbow (BE)
- 05.3 Single Lower Extremity Above the Knee (AK)
- 05.4 Single Lower Extremity Below the Knee (BK)
- 05.5 Double Lower Extremity Above the Knee (AK/AK)
- 05.6 Double Lower Extremity Above/Below the Knee (AK/BK)
- 05.7 Double Lower Extremity Below the Knee (BK/BK)
- 05.9 Other Amputation

06 Arthritis:

- 06.1 Rheumatoid
- 06.2 Osteoarthritis
- 06.9 Other Arthritis

07 Pain Syndromes:

- 07.1 Neck Pain
- 07.2 Back Pain
- 07.3 Extremity Pain
- 07.9 Other Pain

08 Orthopaedic conditions:

- 08.1 Status Post Hip Fracture
- 08.2 Status Post Femur (Shaft) Fracture
- 08.3 Status Post Pelvic Fracture
- 08.4 Status Post Major Multiple Fracture
- 08.5 Status Post Hip Replacement
- 08.6 Status Post Knee Replacement
- 08.9 Other Orthopaedic

09 Cardiac:**10 Pulmonary:**

- 10.1 Chronic Obstructive Pulmonary Disease
- 10.9 Other Pulmonary

11 Burns:**12 Congenital Deformities:**

- 12.1 Spina Bifida
- 12.9 Other Congenital

Coding the Data Set (continued)

13 Other Disabling Impairments:**14 Major Multiple Trauma:**

- 14.1 Brain + Spinal Cord
- 14.2 Brain + Multiple Fracture/Amputation
- 14.3 Spinal Cord + Multiple Fracture/Amputation
- 14.9 Other Multiple Trauma

17. Date of Onset the date of onset of the impairment that was coded in Item 16 for which the subject is to be rehabilitated. Record eight digits (including century). For conditions which have an insidious onset or if for any other reason the exact date of onset is not known, code as follows:
- a. if the year and month are known, but the exact day is not, use the first day of the month.
 - b. if the year is known, but the exact month is not, use the first of January of that year.
 - c. if the year is an approximation, use the first of January of the approximate year.
18. Principal Diagnosis . . . the ICD-9 Code for principal diagnosis or presenting problem for which the subject was admitted to rehabilitation that relates to item 16. Code at discharge.
19. Other Diagnoses the relevant additional diagnoses. List ICD-9 Codes (maximum of 7) to include secondary diagnoses and other major conditions. These include other impairments, etiology, co-morbidity, and complications during initial rehabilitation or occurring after discharge from rehabilitation. It is recommended that the medical record administrator provide this information. Code at discharge and follow-up.

Coding the Data Set (continued)

20. Payment Source the source of payment of the subject's inpatient rehabilitation expenses. Code the appropriate category for primary (largest \$ amount) and secondary payment source. If there is no secondary source, enter code 15. Code at discharge.

a. Primary

- 01 Blue Cross
- 02 Medicare
- 03 Medicaid/Welfare
- 04 Commercial Insurance
- 05 HMO
- 06 Workers' Compensation
- 07 Crippled Children's Services
- 08 Developmental Disabilities Services
- 09 State Vocational Rehabilitation
- 10 Private pay
- 11 Employee - courtesy
- 12 Free
- 13 Champus
- 14 Other

b. Secondary

- Code as above, or
- 15 None

21. Total Hospital Rehabilitation Charges

a. Total hospital rehabilitation charges accrued while the subject is on the rehabilitation service. Charges should be consistent with days on the rehabilitation service as coded for Items 3 & 4. If interruption of the rehabilitation inpatient program is 30 days or less, rehabilitation days and total charges should reflect the total stay on the rehabilitation service. Acute hospital days and charges during the program interruption should not be included. If the interruption is greater than 30 days, this constitutes a new (separate) admission and should be reported on a new (separate) coding sheet. Code the actual dollars charged to the nearest whole dollar only.

b. Do these charges include physician fees? Code as follows:

- 1 Yes
- 2 No

Coding the Data Set (continued)

22. Functional Independence Measure (FIM)

**PROCEDURES FOR SCORING THE
FUNCTIONAL INDEPENDENCE MEASURE (FIM)**

Record the number which best describes the subject's level of function for every FIM item on the coding sheet. If the subject would be put at risk for injury if tested, then enter 1. Leave no FIM item blank.

Each of the 18 items comprising the FIM has a maximum score of 7, and the lowest score on each item is 1. The highest total score is 126 and the lowest total score is 18.

The clinicians in the field have been adamant in their conviction that a seven-level scale is necessary for showing patient function change with sufficient sensitivity. The original four-level scale was superseded in 1987 and the seven-level scale is recommended for all items.

In the event FIM scores are rated higher during therapy than when the patient is observed on the nursing floor or in his/her room, record the lower score. The usual reason for this is the patient has not mastered the function or is too tired or not motivated enough to transfer the behavior out of the therapy setting. The lower score is recorded because it is what the patient actually, usually does. There may be a need to resolve the question of what is "usual" by discussion between therapist and nurse.

When two helpers are required in order for the patient to perform the behaviors described in an item, enter level 1. Set-up is uniformly scored a level 5 for all items.

Comment: The social cognition items: social interaction, problem solving, and memory, are estimates of function in three important areas of a person's daily activity. Unlike the other areas of function assessed with the FIM, which have been in clinical use for years, consensus is not yet clear among behaviorists and rehabilitation clinicians about how to quantify these activities at the level of disability. The social cognition items in the FIM have very acceptable reliability. They have been refined as a result of comments made by users during the trial and implementation phases and will continue to be refined as more clinical and research experience is gained by the field.

Functional Independence Measure - **FIM** (continued)**DESCRIPTION OF THE LEVELS OF FUNCTION AND THEIR SCORES**

INDEPENDENT--- Another person is not required for the activity (**NO HELPER**).

- 7 **Complete Independence**--All of the tasks described as making up the activity are typically performed safely, without modification, assistive devices, or aids, and within reasonable time.
- 6 **Modified Independence**--Activity requires any one or more than one of the following: An assistive device, more than reasonable time, or there are safety (risk) considerations.

DEPENDENT--- Another person is required for either supervision or physical assistance in order for the activity to be performed, or it is not performed (**REQUIRES HELPER**).

---MODIFIED DEPENDENCE---The subject expends half (50%) or more of the effort. The levels of assistance required are:

- 5 **Supervision or Setup**--subject requires no more help than standby, cuing or coaxing, without physical contact. Or, helper sets up needed items or applies orthoses.
- 4 **Minimal Contact Assistance**--with physical contact the subject requires no more help than touching, and subject expends 75% or more of the effort.
- 3 **Moderate assistance**--subject requires more help than touching, or expends half (50%) or more (up to 75%) of the effort.

---COMPLETE DEPENDENCE---The subject expends less than half (less than 50%) of the effort. Maximal or total assistance is required, or the activity is not performed. The levels of assistance required are:

- 2 **Maximal Assistance**--subject expends less than 50% of the effort, but at least 25%.
- 1 **Total Assistance**--subject expends less than 25% of the effort.

Functional Independence Measure - **FIM** (continued)

- A: **EATING** Includes use of suitable utensils to bring food to the mouth, chewing and swallowing, once the meal is appropriately prepared.

NO HELPER

7. **Complete Independence**--Eats from a dish, while managing all consistencies of food, and drinks from a cup or glass with the meal presented in the customary manner on a table or tray. The subject uses a spoon or fork to bring food to the mouth; food is chewed and swallowed.
6. **Modified Independence**--Requires an adaptive or assistive device such as a straw, spork, rocking knife, requires more than a reasonable time to eat, or requires modified food consistency or blenderized food, or there are safety considerations. If the individual relies in part on other means of alimentation, such as parenteral or gastrostomy feedings, then he/she administers the feedings him/herself.

HELPER

5. **Supervision or Setup**--Requires supervision (e.g., standing by, cuing, or coaxing) or setup (application of orthoses); or another person is required to open containers, cut meat, butter bread, or pour liquids.
4. **Minimal Contact Assistance**--Subject Performs 75% or more of feeding tasks.
3. **Moderate Assistance**--Performs 50% to 74% of feeding tasks.
2. **Maximal Assistance**--Performs 25% to 49% of feeding tasks.
1. **Total Assistance**--Performs less than 25% of feeding tasks. Or, the individual does not eat or drink full meals by mouth but must rely in part on other means of alimentation, such as parental or gastrostomy feedings, and does not administer the feedings him/herself.

Functional Independence Measure - **FIM** (continued)

- B: GROOMING** Includes oral care, hair grooming, washing hands and face, and either shaving or applying makeup. If there is no preference for shaving or applying make-up, then disregard.

NO HELPER

7. **Complete Independence**--Cleans teeth or dentures, combs or brushes hair, washes hands and face, shaves or applies makeup, including all preparations.
6. **Modified Independence**--Requires specialized equipment (including prosthesis or orthosis) or takes more than a reasonable time, or there are safety considerations.

HELPER

5. **Supervision or Setup**--Requires supervision (e.g., standing by, cuing, or coaxing) or setup (application of orthoses, setting out grooming equipment, and initial preparation such as applying toothpaste to brush, opening makeup containers).
4. **Minimal Contact Assistance**--Subject performs 75% or more of grooming tasks.
3. **Moderate Assistance**--Performs 50% to 74% of grooming tasks.
2. **Maximal Assistance**--Performs 25% to 49% of grooming tasks.
1. **Total Assistance**--Performs less than 25% of grooming tasks.

Functional Independence Measure - **FIM** (continued)

- C: BATHING** Includes bathing the body from the neck down (excluding the back), either tub, shower or sponge/bed bath. Performs safely.

NO HELPER

7. **Complete Independence**--Bathes and dries the body.
6. **Modified Independence**--Requires specialized equipment (including prosthesis or orthosis) or takes more than a reasonable time or there are safety considerations.

HELPER

5. **Supervision or Setup**--Requires supervision (e.g., standing by, or cuing or coaxing) or setup (setting out bathing equipment, and initial preparation such as preparing the water or washing materials).
4. **Minimal Contact Assistance**--Subject performs 75% or more of bathing tasks.
3. **Moderate Assistance**--Performs 50% to 74% of bathing tasks.
2. **Maximal Assistance**--Performs 25% to 49% of bathing tasks.
1. **Total Assistance**--Performs less than 25% of bathing tasks.

Functional Independence Measure - **FIM** (continued)

- D: DRESSING - UPPER BODY** Includes dressing above the waist as well as donning and removing prosthesis or orthosis when applicable.

NO HELPER

7. **Complete Independence**--Dresses and undresses including obtaining clothes from their customary places such as drawers and closets; manages bra, pull-over garment, and front-opening garment; manages zippers, buttons, and snaps; dons and removes prosthesis or orthosis when applicable.
6. **Modified Independence**--Requires special adaptive closure such as velcro, or assistive device (including a prosthesis or orthosis), or takes more than a reasonable time.

HELPER

5. **Supervision or Setup**--Requires supervision (e.g., standby, cuing, or coaxing) or setup (application of orthosis, setting out clothes or dressing equipment).
4. **Minimal Contact Assistance**--Subject performs 75% or more of dressing tasks.
3. **Moderate Assistance**--Performs 50% to 74% of dressing tasks.
2. **Maximal Assistance**--Performs 25% to 49% of dressing tasks.
1. **Total Assistance**--Performs less than 25% of dressing tasks, or is not dressed.

Functional Independence Measure - **FIM** (continued)

- E: DRESSING - LOWER BODY** Includes dressing from the waist down as well as donning or removing prosthesis or orthosis when applicable.

NO HELPER

7. **Complete Independence**--Dresses and undresses including obtaining clothes from their customary places such as drawers and closets; manages underpants, slacks, skirt, belt, stockings, and shoes; manages zippers, buttons, and snaps; dons and removes prosthesis or orthosis when applicable.
6. **Modified Independence**--Requires special adaptive closure such as velcro, or assistive device (including a prosthesis or orthosis), or takes more than a reasonable time.

HELPER

5. **Supervision or Setup**--Requires supervision (e.g., standing by, cuing, or coaxing) or setup (application of orthosis, setting out clothes or dressing equipment).
4. **Minimal Contact Assistance**--Subject performs 75% or more of dressing tasks.
3. **Moderate Assistance**--Performs 50% to 74% of dressing tasks.
2. **Maximal Assistance**--Performs 25% to 49% of dressing tasks.
1. **Total Assistance**--Performs less than 25% of dressing tasks, or is not dressed.

Functional Independence Measure - **FIM** (continued)

F: TOILETING Includes maintaining perineal hygiene and adjusting clothing before and after toilet or bed pan use. Performs safely.

NO HELPER

7. **Complete Independence**--Cleanses self after voiding and bowel movement; puts on sanitary napkins/inserts tampons; adjusts clothing before and after using toilet.
6. **Modified Independence**--Requires specialized equipment (including orthosis or prosthesis) or takes more than reasonable time or there are safety considerations.

HELPER

5. **Supervision or Setup**--Requires supervision (e.g., standing by, cuing, or coaxing) or setup (application of adaptive devices or opening packages)
4. **Minimal Contact Assistance**--Subject performs 75% or more of toileting tasks.
3. **Moderate Assistance**--Performs 50% to 74% of toileting tasks.
2. **Maximal Assistance**--Performs 25% to 49% of toileting tasks.
1. **Total Assistance**--Performs less than 25% of toileting tasks.

Comment. If subject requires assistance with sanitary napkins (usually 3-5 days per month) level of assistance is 5. supervision or setup.

Functional Independence Measure - **FIM** (continued)

- G: BLADDER MANAGEMENT** Includes complete intentional control of urinary bladder and use of equipment or agents necessary for bladder control.

NO HELPER

7. **Complete Independence**--Controls bladder completely and intentionally and is never incontinent.
6. **Modified Independence**--Requires a urinal, bedpan, commode, catheter, absorbent pad, diaper, urinary collecting device, or urinary diversion or uses medication for control; if catheter is used, the individual instills or irrigates catheter without assistance; cleans, sterilizes, and sets up the equipment for irrigation without assistance. If the individual uses a device, he/she assembles and applies condom drainage or an ileal appliance without assistance of another person; empties, puts on, removes, and cleans leg bag or empties and cleans ileal appliance bag. No accidents.

HELPER

5. **Supervision or Setup**--Requires supervision (e.g., standing by, cuing, or coaxing) or setup (placing or emptying) of equipment to maintain a satisfactory voiding pattern or to maintain an external device; or because of the lapse of time to get to bedpan or the toilet the individual may have occasional bladder accidents, or bed pan or urinal spills, but less often than monthly.
4. **Minimal Contact Assistance**--Requires minimal contact assistance to maintain an external device; the individual performs 75% or more of bladder management tasks; or may have occasional bladder accidents, but less often than weekly.
3. **Moderate Assistance**--Requires moderate assistance to maintain an external device; the individual performs 50% to 74% of bladder management tasks; or may have occasional bladder accidents, but less often than daily.
2. **Maximal Assistance**--Despite assistance the individual is wet on a frequent or almost daily basis, necessitating wearing diapers or other absorbent pads, whether or not a catheter or ostomy device is in place. The individual performs 25% to 49% of bladder management tasks.
1. **Total Assistance**--Despite assistance the individual is wet on a frequent or almost daily basis, necessitating wearing diapers or other absorbent pads, whether or not a catheter or ostomy device is in place. The individual performs less than 25% of bladder management tasks.

Comment: The functional goal of bladder management is to open the bladder sphincter only when that is needed and to keep it closed the rest of the time. This may require devices, drugs or assistance in some individuals. This item, therefore, deals with two variables: 1) level of success in bladder management and, 2) level of assistance required. Usually the two follow each other, e.g., when there are more accidents usually more assistance is required. However, should the two levels not be exactly the same, always record the lower level.

Functional Independence Measure - FIM (continued)

- H: **BOWEL MANAGEMENT** Includes complete intentional control of bowel movement and use of equipment or agents necessary for bowel control.

NO HELPER

7. **Complete Independence**--Controls bowels completely and intentionally and is never incontinent.
6. **Modified Independence**--Requires bed pan or commode, digital stimulation or stool softeners, suppositories, laxatives, or enemas on a regular basis, or uses other medications for control. If the individual has a colostomy, he/she maintains it. No accidents.

HELPER

5. **Supervision or Setup**--Requires supervision (e.g., standing by, cuing, or coaxing), or setup of equipment necessary for the individual to maintain a satisfactory excretory pattern or to maintain an ostomy device; or the individual may have occasional bowel accidents, but less often than monthly.
4. **Minimal Contact Assistance**--Requires minimal contact assistance to maintain a satisfactory excretory pattern by using suppositories or enemas or an external device; the individual performs 75% or more of bowel management tasks; or the individual may have occasional bowel accidents, but less often than weekly.
3. **Moderate Assistance**--Requires moderate assistance to maintain a satisfactory excretory pattern by using suppositories or enemas or an external device; the individual performs 50% to 74% of bowel management tasks; or the individual may have occasional bowel accidents, but less often than daily.
2. **Maximal Assistance**--Despite assistance the individual is soiled on a frequent or almost daily basis, necessitating wearing diapers or other absorbent pads, whether or not an ostomy device is in place. The individual performs 25% to 49% of bowel management tasks.
1. **Total Assistance**--Despite assistance the individual is soiled on a frequent or almost daily basis, necessitating wearing diapers or other absorbent pads, whether or not an ostomy device is in place. The individual performs less than 25% of bowel management tasks.

Comment: The functional goal of bowel management is to open the anal sphincter only when that is needed and to keep it closed the rest of the time. This may require devices, drugs or assistance in some individuals. This item, therefore, deals with two variables: 1) level of success in bowel management and, 2) level of assistance required. Usually the two follow each other. E.g., when there are more accidents usually more assistance is required. However, should the two levels not be exactly the same, always record the lower level.

Functional Independence Measure - **FIM** (continued)

- I: **TRANSFERS: BED, CHAIR, WHEELCHAIR** Includes all aspects of transferring to and from bed, chair, and wheelchair, and coming to a standing position, if walking is the typical mode of locomotion.

NO HELPER

7. **Complete Independence**
 --- If walking, approaches, sits down and gets up to a standing position from a regular chair; transfers from bed to chair. Performs safely.
 --- If in a wheelchair, approaches a bed or chair, locks brakes, lifts foot rests, removes arm rest if necessary, and performs either a standing pivot or sliding transfer and returns. Performs safely.
6. **Modified Independence**--Requires adaptive or assistive device (including a prosthesis or orthosis) such as a sliding board, a lift, grab bars, or special seat or chair or brace or crutches; takes more than reasonable time or there are safety considerations.

HELPER

5. **Supervision or Setup**--Requires supervision (e.g., standing by, cuing, or coaxing) or setup (positioning sliding board, moving foot rests, etc.)
4. **Minimal Contact Assistance**--Subject performs 75% or more of transferring tasks.
3. **Moderate Assistance**--Performs 50% to 74% of transferring tasks.
2. **Maximal Assistance**--Performs 25% to 49% of transferring tasks.
1. **Total Assistance**--Performs less than 25% of transferring tasks.

Comment: When assessing bed to chair transfer, the subject begins and ends in the supine position.

Functional Independence Measure - **FIM** (continued)

J: TRANSFERS: TOILET Includes getting on and off a toilet.

NO HELPER7. **Complete Independence**

-- If walking, approaches, sits down on and gets up from a standard toilet. Performs safely.

-- If in a wheelchair, approaches toilet, locks brakes, lifts foot rests, removes arm rests if necessary and does either a standing pivot or sliding transfer and returns. Performs safely.

6. **Modified Independence**--Requires adaptive or assistive device (including a prosthesis or orthosis) such as a sliding board, a lift, grab bars, or special seat; takes more than reasonable time or there are safety considerations.

HELPER

5. **Supervision or Setup**--Requires supervision (e.g., standing by, cuing, or coaxing) or setup (positioning sliding board, moving foot rests, etc.)

4. **Minimal Contact Assistance**--Subject performs 75% or more of transferring tasks.

3. **Moderate Assistance**--Performs 50% to 74% of transferring tasks.

2. **Maximal Assistance**--Performs 25% to 49% of transferring tasks.

1. **Total Assistance**--Performs less than 25% of transferring tasks.

Functional Independence Measure - **FIM** (continued)

K: TRANSFERS: TUB OR SHOWER Includes getting into and out of a tub or shower stall.

NO HELPER

7. **Complete Independence**
 -- If walking, approaches, enters and leaves a tub or shower stall. Performs safely.
 -- If in a wheelchair, approaches tub or shower, locks brakes, lifts foot rests, removes arm rests if necessary, and does either a standing pivot or sliding transfer and returns. Performs safely.
6. **Modified Independence**--Requires adaptive or assistive device (including a prosthesis or orthosis) such as a sliding board, a lift, grab bars, or special seat; takes more than reasonable time or there are safety considerations.

HELPER

5. **Supervision or Setup**--Requires supervision (e.g., standing by, cuing, or coaxing) or setup (positioning sliding board, moving foot rests, etc.)
4. **Minimal Contact Assistance**--Subject performs 75% or more of transferring tasks.
3. **Moderate Assistance**--Performs 50% to 74% of transferring tasks.
2. **Maximal Assistance**--Performs 25% to 49% of transferring tasks.
1. **Total Assistance**--Performs less than 25% of transferring tasks.

Functional Independence Measure - FIM (continued)

- L: LOCOMOTION** Includes walking, once in a standing position, or using a wheelchair, once in a seated position, on a level surface. Check most frequent mode of locomotion. If both are about equal, check both W and C. If initiating a rehabilitation program, check the mode for which training is intended.

W = walking C = wheelchair

NO HELPER

7. **Complete Independence**--Walks a minimum of 150 feet without assistive devices. Does not use a wheelchair. Performs safely.
6. **Modified Independence**--Walks a minimum of 150 feet but uses a brace (orthosis) or prosthesis on leg, special adaptive shoes, cane, crutches, or walkerette; takes more than reasonable time or there are safety considerations.

 If not walking, operates manual or electric wheelchair independently for a minimum of 150 feet; turns around; maneuvers the chair to a table, bed, toilet; negotiates at least a 3 percent grade; maneuvers on rugs and over door sills.
5. **Exception (Household Ambulation)**-- Walks only short distances (a minimum of 50 feet) with or without a device. Could take more than reasonable time, or there are safety considerations, or operates a manual or electric wheelchair independently only short distances (a minimum of 50 feet)

HELPER

5. **Supervision**--If walking, requires standing by supervision, cuing, or coaxing to go a minimum of 150 feet.

 If not walking, requires standing by supervision, cuing, or coaxing to go a minimum of 150 feet in wheelchair.
4. **Minimal Contact Assistance**--Subject performs 75% or more of locomotion effort to go a minimum of 150 feet.
3. **Moderate Assistance**--Performs 50% to 74% of locomotion effort to go a minimum of 150 feet.
2. **Maximal Assistance**--Performs 25% to 49% of locomotion effort to go a minimum of 50 feet. Requires assistance of one person only.
1. **Total Assistance**--Performs less than 25% of effort, or requires assistance of two people, or does not walk or wheel a minimum of 50 feet.

Functional Independence Measure - **FIM** (continued)

M: STAIRS Goes up and down 12 to 14 stairs (one flight) indoors.

NO HELPER

7. **Complete Independence**--Goes up and down at least one flight of stairs without any type of handrail or support. Performs safely.
6. **Modified Independence**--Goes up and down at least one flight of stairs requiring side support or handrail, cane, or portable supports; takes more than reasonable time or there are safety considerations.
5. **Exception (Household Ambulation)**--Goes up and down 4 to 6 stairs independently, with or without a device. Could take more than reasonable time or there are safety considerations.

HELPER

5. **Supervision**--Requires standing by supervision, cuing, or coaxing to go up and down one flight.
4. **Minimal Contact Assistance**--Subject performs 75% or more of effort to go up and down one flight.
3. **Moderate Assistance**--Performs 50% to 74% of the effort to go up and down one flight.
2. **Maximal Assistance**--Performs 25% to 49% of stair climbing effort to go up and down 4 to 6 stairs. Requires the assistance of one person only.
1. **Total Assistance**--Performs less than 25% of the effort or requires the assistance of two people, or does not go up and down 4-6 stairs, or is carried.

Functional Independence Measure - FIM (continued)

- N: **COMPREHENSION** Includes understanding of either auditory or visual communication (e.g. writing, sign language, gestures). Check and evaluate the most usual mode of comprehension. If both are about equally used, check both A and V.

A = Auditory

V = Visual

NO HELPER

7. **Complete Independence**--Understands directions and conversation that are complex or abstract; understands either spoken or written native language.
6. **Modified Independence**--Understands directions and conversation that are complex or abstract in most situations or with mild difficulty. No prompting is needed. May require a hearing or visual aid, other assistive device, or extra time to understand the information.

HELPER

5. **Standby Prompting**--Understands directions and conversation about basic daily needs more than 90% of the time. Requires prompting (slowed speech rate, use of repetition, stressing particular words or phrases, pauses; visual or gestural cues) less than 10% of the time.
4. **Minimal Prompting**--Understands directions and conversation about basic daily needs 75% to 90% of the time.
3. **Moderate Prompting**--Understands directions and conversation about basic daily needs 50% to 74% of the time.
2. **Maximal Prompting**--Understands directions and conversation about basic daily needs 25% to 49% of the time. May understand only simple questions or statements. Requires prompting more than half the time.
1. **Total Assistance**--Understands directions and conversation about basic daily needs less than 25% of the time or does not understand simple questions or statements or may not respond appropriately or consistently despite prompting.

Comment: Comprehension of complex or abstract information includes, but is not limited to understanding: group conversation, current events appearing in television programs or newspaper articles, or abstract information such as religion, humor, math, or finances used in daily living. Information about basic daily needs refers to conversation, directions, question or statements related to the subject's need for nutrition, fluids, elimination, hygiene, sleep (physiological needs).

Functional Independence Measure - **FIM** (continued)

- O: **EXPRESSION** Includes clear vocal or non-vocal expression of language. This item includes both intelligible speech or clear expression of language using writing or a communication device. Check and evaluate the most usual mode of expression. If both are about equally used, check both V and N.

V = Vocal N = Nonvocal

NO HELPER

7. **Complete Independence**--Expresses complex or abstract ideas clearly and fluently.
6. **Modified Independence**--Expresses complex or abstract ideas in most situations, or with mild difficulty. No prompting is needed. May require an augmentative communication device or system.

HELPER

5. **Standby Prompting**--Expresses basic daily needs and ideas more than 90% of the time. Requires prompting (e.g. frequent repetition) less than 10% of the time to be understood.
4. **Minimal Prompting**--Expresses basic daily needs and ideas 75% to 90% of the time.
3. **Moderate Prompting**--Expresses basic daily needs and ideas 50% to 74% of the time.
2. **Maximal Prompting**--Expresses basic daily needs and ideas 25% to 49% of the time. May use only single words or gestures. Needs prompting more than half the time.
1. **Total Assistance**--Expresses basic daily needs and ideas less than 25% of the time or does not express basic needs appropriately or consistently despite prompting.

Comment: Examples of complex or abstract ideas include, but are not limited to, discussing current events, religion, or relationships with others. Expression of basic needs and ideas refers to the subject's ability to communicate about necessary daily activities such as nutrition, fluids, elimination, hygiene and sleep (physiological needs).

Functional Independence Measure - **FIM** (continued)

- P: SOCIAL INTERACTION** Includes skills related to getting along and participating with others in therapeutic and social situations. It represents how one deals with one's own needs together with the needs of others.

NO HELPER

7. **Complete Independence**--Interacts appropriately with staff, other patients, and family members (e.g., controls temper, accepts criticism, is aware that words and actions have an impact on others).
6. **Modified Independence**--Interacts appropriately with staff, other patients, and family members in most situations or with mild difficulty. No supervision is required. May require more than a reasonable time to adjust in social situations or may require medication for control.

HELPER

5. **Supervision**--Requires supervision (e.g., monitoring; verbal control; cuing, or coaxing) only under stressful or unfamiliar conditions, but no more than 10% of the time. May require encouragement to initiate participation.
4. **Minimal Direction**--Subject interacts appropriately 75% to 90% of the time.
3. **Moderate Direction**--Interacts appropriately 50% to 74% of the time.
2. **Maximal Direction**--Interacts appropriately 25% to 49% of the time.
May need restraint.
1. **Total Assistance**--Interacts appropriately less than 25% of the time, or not at all. May need restraint.

Examples of socially inappropriate behaviors: temper tantrums; loud, foul, or abusive language; excessive laughing, crying; physical attack; or very withdrawn or non interactive.

Functional Independence Measure - **FIM** (continued)

- Q: PROBLEM SOLVING** Includes skills related to solving problems of daily living. This means making reasonable, safe, and timely decisions regarding financial, social and personal affairs and initiating, sequencing and self-correcting tasks and activities to solve the problems.

NO HELPER

7. **Complete Independence**--Consistently recognizes a problem, makes appropriate decisions, initiates and carries out a sequence of steps to solve complex problems until the task is completed, and self-corrects if errors are made.
6. **Modified Independence**--Recognizes a problem, makes appropriate decisions, initiates and carries out a sequence of steps to solve complex problems in most situations, or with mild difficulty, or requires more than a reasonable time to make decisions about or solve complex problems.

HELPER

5. **Supervision**--Requires supervision (e.g., cuing, or coaxing) to solve routine problems only under stressful or unfamiliar conditions, no more than 10% of the time.
4. **Minimal Direction**--Subject solves routine problems 75% to 90% of the time.
3. **Moderate Direction**--Solves routine problems 50% to 74% of the time.
2. **Maximal Direction**--Solves routine problems 25% to 49% of the time. Needs direction more than half the time to initiate, plan or complete simple daily activities. May need restraint for safety.
1. **Total Assistance**--Solves routine problems less than 25% of the time. Needs direction nearly all the time, or does not effectively solve problems. May require constant 1:1 direction to complete simple daily activities. May need a restraint for safety.

Examples of problems: **Complex** problem solving includes activities such as: managing a checking account, participating in discharge plans, self-administration of medications, confronting interpersonal problems, and making employment decisions. **Routine** problems include successfully completing daily tasks or dealing with unplanned events or hazards that occur during daily activities.

Functional Independence Measure - **FIM** (continued)

- R: MEMORY** Includes skills related to recognizing and remembering while performing daily activities in an institutional or community setting. It includes ability to store and retrieve information, particularly verbal and visual. A deficit in memory impairs learning as well as performance of tasks.

NO HELPER

7. **Complete Independence**--Recognizes people frequently encountered and remembers daily routines; executes requests of others without need for repetition.
6. **Modified Independence**--Recognizes people frequently encountered. remembers daily routines and requests of others with mild difficulty. May use self-initiated or environmental cues, prompts or aids.

HELPER

5. **Supervision**--Requires prompting (e.g., cuing, repetition, reminders) only under stressful or unfamiliar conditions, but no more than 10% of the time.
4. **Minimal Prompting**--Subject recognizes and remembers 75% to 90% of the time.
3. **Moderate Prompting**--Recognizes and remembers 50% to 74% of the time.
2. **Maximal Prompting**--Recognizes and remembers 25% to 49% of the time. Needs prompting more than half the time.
1. **Total Assistance**--Recognizes and remembers less than 25% of the time or does not effectively recognize and remember.

Appendix A**Uniform Data Set for Medical Rehabilitation****SAMPLE CASE #1**

Facility: 326 Number: 433-87-7656 Impairment Group: 14.1

George S. is a 33 year-old white male employed as a roofer. He is separated and lives with a girlfriend who has a 6 year-old son.

While working he fell off of a second story roof onto the paved driveway. He was admitted to Carmen Valley Hospital on 11/20/88 with confused sensorium and incomplete motor and sensory quadriplegia due to fracture-dislocation at C7-T1. He had cervical traction applied. An emergency room CT scan showed a right parietal subdural hematoma. Under local anesthesia burr hole evacuation of the subdural hematoma was performed. Two days later the cervical spine was reduced by open operation and fused posteriorly.

He was transferred to the rehabilitation unit on 12/15/88. Admission evaluation indicated he needed application of an orthosis for eating and assistance to scoop each spoonful of food onto the utensil. He was able to bring food from the plate to his mouth. He used a plate guard and a long straw for beverages. He was able to wash and dry his face after having a bath mitt applied to his right hand, but was unable to comb hair, brush teeth and shave. The helper washed his right hand during these activities. With bath mitt on the right hand, the subject washed neck, left chest and arm, but the helper completed the rest of the bath and dried all areas.

Typical dress for George is: a pullover sweatshirt, sweatpants with an elastic waist, antiembolic stockings, socks and high-top sneakers. The helper gathered all the clothing from the dresser and closet. Helper placed the shirt over subject's head and onto his arms. George then leaned forward so helper could pull the shirt down over his chest and back. George was dependent in application of the antiembolic stockings, socks, and shoes. Helper threaded pant legs onto lower legs. George shifts from side to side so helper could bring pants up legs and over hips.

George's bladder was managed by staff by intermittent catheterization. He had overflow incontinence 3-4 times per week. He had spontaneous bowel movements in bed. He was unable to maintain perineal hygiene following bowel movement. George shifted from side to side to assist helper in adjusting clothing before and after catheterization and bowel movement.

George was lifted by staff for transfers out of and into bed and chair. He did not perform toilet or bath/shower transfers. He was unable to propel the manual wheelchair. Stair climbing was not attempted because of risk of injury.

He expressed information about daily activities clearly, but was unable to discuss financial and insurance matters. That is, he expressed such things as menu choices and made statements about activities in which he was involved during occupational and physical therapy. He did not express to his girlfriend such things as: questions about her son's daily activities, bills, or television programs and sporting events. He was able to understand questions that the staff asked him about everyday matters such as meals, need for pain medication, and physical assistance. He watched television programs but was unable to follow a more complicated plot or understand subtle humor. He was often uncooperative with staff during therapy, refusing to participate at times and using foul language. He needed frequent verbal redirection for this behavior, but did not require a restraint. George was able to recognize and solve a routine problem, like asking for help when unable to reach something or putting on his call light when he needed help, but he was unable to make decisions about such things as household finances, discharge plans or transportation arrangements. George was able to recognize the therapists who treated him, although not by name. He could list his daily activities to the staff, but not in proper sequence. He would respond to requests appropriately, but needed repetition if the request involved more than one activity or thought.

He began on a program of graded mobilization. On 1/10/89 he complained of nausea and vomited coffee-ground material. An X-ray showed free air in the peritoneal cavity. He had a laparotomy for closure of a perforated peptic ulcer. He returned to the rehabilitation unit on 1/20/89. He showed improved motor and sensory function of his right limbs. He was started standing in the parallel bars when marked swelling of the left calf was noted. A chest X-ray showed a suspected pulmonary embolism that was confirmed by pulmonary scan. He was transferred to acute care on 2/9/89 for anticoagulation and returned to the rehabilitation unit on 2/18/89.

During the remainder of rehabilitation, function of the left limbs gradually improved, approaching the improving function of the right limbs. He was able to eat by himself after the helper opened cartons and cut meat. He was able to comb his hair, brush his teeth and shave, needing assistance only to complete the job thoroughly. He was able to wash his hands and face with no problem. He washed in the tub using a tub bench and hand held shower. He needed the water temperature and pressure adjusted and help to wash his feet only. He needed assistance to set out his clothing and to put on his socks and shoes, but was able to do the rest of his upper and lower body dressing.

He developed control of bowel function using a suppository every other day. He was able to position himself in bed and the nurse inserted the suppository. After breakfast, he ambulated to the bathroom and used the toilet. He had only one

accident in the past month. In the bathroom he was able to transfer to the toilet using a grab bar. He wiped himself following bowel movement and adjusted his clothing before and after using the toilet, holding onto the grab bar. He learned self intermittent catheterization of the bladder which was changed to condom drainage because of satisfactory bladder emptying. He was able to empty his leg bag, apply the condom, connect the tubing and change to night drainage, with instruction. He had two accidents in the past month related to condom management.

George transferred in and out of bed but needed someone present because of bed height. He transferred onto the tub bench by himself, but requested supervision for getting out due to wet surfaces. He walked 150 feet using two Lofstrand crutches and was able to go up and down four stairs with assistance of the therapist. He became very cooperative with the treatment staff and participated in discharge planning. He communicated with friends about common interests of all kinds and began reading magazines and novels. He was discharged to live with his girlfriend and her son on 5/1/89.

The vocational rehabilitation counselor had worked with the patient prior to discharge and was making plans for him to return to school to obtain an associate degree, since he could not continue as a roofer.

At followup, five months later, George was independent in all self care areas, used a straight cane for distances over 100 feet and required a hand rail for stairs. He took an antidepressant daily. He had developed bladder and bowel control requiring only a bladder antispasmodic and a stool softener. He was driving an automobile and was in training part-time for a career in drafting.

UNIFORM DATA SYSTEM FOR MEDICAL REHABILITATION
INPATIENT CODING SHEET

SIDE 1

COMPLETE
BOTH SIDES

IF DATA ON THIS FORM ARE
REVISED, WRITE DATE
HERE / / AND
CIRCLE NEW DATA

1. Rehab Facility Code

2. Patient Number

3. Admission Date
MONTH DAY YEAR

4. Discharge Date
MONTH DAY YEAR

5. Program Interrupted 1-Yes 2-No

a. Transfer Date
b. Return Date
1st Interruption

c. Transfer Date
d. Return Date
2nd Interruption

e. Transfer Date
f. Return Date
3rd Interruption

6. Admission Class
1-First Rehab 2-Evaluation
3-Readmission

7. ZIP Code
(home)

8. Birthdate
MONTH DAY YEAR

9. Sex 1-Male 2-Female

10. Race/Ethnicity
1-White 2-Black 3-Asian
4-American Indian 5-Other 6-Hispanic

11. English Language
1-Yes 2-No 3-Partial

12. Marital Status
1-Single 2-Married 3-Widowed
4-Separated 5-Divorced

13. Living Arrangement

a. Setting PRE HOSPITAL ADMIT FROM DISCHARGE

01-Home 02-Board and Care 03-Transitional Living
04-Intermediate Care 05-Skilled Nursing
06-Acute Unit-your own facility 07-Acute Unit-another facility
08-Chronic Hospital 09-Rehab Facility 10-Other 11-Died

b. Living With PRE HOSPITAL DISCHARGE

1-Alone 2-Family/Relatives 3-Friends 4-Attendant 5-Other

14. Vocational Status

a. Category PRE-HOSPITAL

1-Employed 2-Sheltered 3-Student 4-Homemaker
5-Not working 6-Retired-age 7-Retired-disability

b. Effort PRE-HOSPITAL

1-Full-time 2-Part-time 3-Adjusted workload

IMPAIRMENT GROUP CODES		
<u>01 Stroke:</u>	<u>04.2 Traumatic Spinal Cord</u>	<u>08 Orthopaedic Conditions</u>
01.1 Left Body (Right Brain)	04.210 Paraplegia	08.1 Status Post Ho Fracture
01.2 Right Body (Left Brain)	04.211 Incomplete	08.2 SP Femur (Shaft) Fracture
01.3 Bilateral	04.212 Complete	08.3 SP Pelvic Fracture
01.4 No Paralysis	04.220 Quadriplegia	08.4 SP Major Multiple Fracture
01.9 Other Stroke	04.2211 Incomplete C1-4	08.5 SP Ho Replacement
<u>02 Brain Dysfunction</u>	04.2212 Incomplete C5-8	08.6 SP Knee Replacement
02.1 Non-Traumatic	04.2221 Complete C1-4	08.9 Other Orthopaedic
02.2 Traumatic	04.2222 Complete C5-8	<u>09 Cardiac</u>
02.21 Open Injury	04.230 Other Traumatic SC	<u>10 Pulmonary</u>
02.22 Closed Injury	<u>05 Amputation</u>	10.1 Chronic Osteo. Palm Disease
02.9 Other Brain	05.1 Single Upper AE	10.9 Other Pulmonary
<u>03 Neurologic Conditions:</u>	05.2 Single Upper BE	<u>11 Burns</u>
03.1 Multiple Sclerosis	05.3 Single Lower AL	<u>12 Congenital Deformities</u>
03.2 Paraneoplasia	05.4 Single Lower BK	12.1 Spina Bifida
03.3 Polyneuropathy	05.5 Double AL/AL	12.9 Other Congenital
03.4 Guillain-Barre	05.6 Double AL/BK	<u>13 Other disabling Impairments</u>
03.9 Other Neurologic	05.7 Double BK/BK	<u>14 Major Multiple Trauma</u>
<u>04 Spinal Cord Dysfunction:</u>	05.9 Other Amputation	14.1 Brain + Spinal cord
04.1 Non-Traumatic SC	<u>06 Arthritis:</u>	14.2 Brain + Mult. Fr./Arm
04.110 Paraplegia	06.1 Rheumatoid	14.3 Sp. Cd. + Mult. Fr./Arm
04.111 Incomplete	06.2 Osteoarthritis	14.9 Other Mult. Trauma
04.112 Complete	06.9 Other Arthritis	
04.120 Quadriplegia	<u>07 Pain Syndrome:</u>	
04.1211 Incomplete C1-4	07.1 Neck Pain	
04.1212 Incomplete C5-8	07.2 Back Pain	
04.1221 Complete C1-4	07.3 Extremity Pain	
04.1222 Complete C5-8	07.9 Other Pain	
04.130 Other Non-Trauma		

**UNIFORM DATA SYSTEM FOR MEDICAL REHABILITATION
INPATIENT CODING SHEET
SIDE 2**

**COMPLETE
BOTH SIDES**

ent Number 43318717656

Followup: Use separate Followup Coding Sheet

Impairment Group (complete on discharge) 14.1000

Put attention regarding admission to rehabilitation here, using Impairment Group Codes listed at the bottom of page 1. Be as specific as possible.

Date of Onset (of impairment) 11/20/1988

Principal Diagnosis (complete on discharge) 344.0

Use ICD code related to Impairment Group here

Other Diagnoses (complete on discharge) ICD Code for other impairments, etiology, co-morbidity, and complications

1	<u>806</u>		5	<u>415</u>	<u>1</u>
2	<u>852</u>		6	<u>451</u>	<u>19</u>
3	<u>309</u>		7	<u>01</u>	<u>24</u>
4	<u>532</u>	<u>2</u>			

Payment Source (complete on Discharge)

- a. Primary 06
- b. Secondary 10

- 01-Blue Cross 02-Medicare 03-Medicaid/Welfare
- 04-Commercial Insurance 05-HMO 06-Worker's Comp
- 07-Crippled Child. Serv. 08-Developmental Disabilities Centers
- 09-State Voc. Rehab 10-Private Pay 11-Employee Courtesy
- 12-Free 13-Champus 14-Other 15-None

Charges (Rehab only) (Dollars only)

a. Total Rehab. Hospital \$ 19575

b. Include Physician? 1-Yes 2-No

22. Functional Independence Measure (FIM)

LEVELS	7 Complete Independence (Timely, Safety)	NO HELPER
	6 Modified Independence (Device)	
L E V E L S	Modified Dependence	HELPER
	5 Supervision	
	4 Minimal Assist (Subject = 75%+)	
	3 Moderate Assist (Subject = 50%+)	
	Complete Dependence	
	2 Maximal Assist (Subject = 25%+)	
	1 Total Assist (Subject = 0%+)	
Self Care		
	ADMIT	DISCH
A. Eating	<u>3</u>	<u>5</u>
B. Grooming	<u>1</u>	<u>4</u>
C. Bathing	<u>1</u>	<u>4</u>
D. Dressing-Upper Body	<u>1</u>	<u>5</u>
E. Dressing-Lower Body	<u>1</u>	<u>3</u>
F. Toileting	<u>1</u>	<u>2</u>
Spincter Control		
G. Bladder Management	<u>1</u>	<u>2</u>
H. Bowel Management	<u>1</u>	<u>2</u>
Mobility		
Transfer:		
I. Bed, Chair, Wheelchair	<u>1</u>	<u>5</u>
J. Toilet	<u>1</u>	<u>6</u>
K. Tub, Shower	<u>1</u>	<u>5</u>
Locomotion		
L. Walk/wheel Chair	<u>1</u>	<u>6</u>
M. Stairs	<u>1</u>	<u>2</u>
Communication		
N. Comprehension	<u>5</u>	<u>7</u>
O. Expression	<u>5</u>	<u>7</u>
Social Cognition		
P. Social interaction	<u>3</u>	<u>7</u>
Q. Problem Solving	<u>5</u>	<u>7</u>
R. Memory	<u>3</u>	<u>7</u>
Total FIM		<u>40</u> <u>44</u>

NOTE: Leave no blanks; enter 1 if patient not testable due to risk.

COPY FREELY - DO NOT CHANGE

**UNIFORM DATA SYSTEM FOR MEDICAL REHABILITATION
REHABILITATION FOLLOWUP CODING SHEET**

1. Rehab Facility Code

2. Patient Number

3. Admission Date
MONTH DAY YEAR

4. Discharge Date
MONTH DAY YEAR

19. Other Diagnoses: (since discharge) ICD Code for new impairments, co-morbidity and complications

1					
2					
3					
4					

5					
6					
7					

ICD 9 Code

13. Living Arrangement

a. Setting FOLLOWUP

01- Home 02- Board and Care 03- Transitional Living
04- Intermediate Care 05- Skilled Nursing
06- Acute Unit-your own facility
07 - Acute Unit-Another facility 08- Chronic Hospital
09- Rehab Facility 10- Other 11- Died

b. Living with FOLLOWUP

1- Alone 2- Family/Relatives 3- Friends
4- Attendant 5- Other

14. Vocational Status

a. Category FOLLOWUP

1- Employed 2- Sheltered 3- Student 4- Homemaker
5- Not working 6- Retired-age 7- Retired-disability

b. Effort FOLLOWUP

1- Full-time 2- Part-time 3- Adjusted workload

15. Followup

a. Date
MONTH DAY YEAR

b. Information source

1- Patient 2- Family 3- Other

c. Method

1- In person 2- Telephone 3- Mail

d. Health Maintenance

primary secondary
1- Own care 2- Unpaid helper
3- Paid attendant 4- Paid professional

e. Therapy

1- None 2- Outpatient Therapy
3- Home Based Paid Therapy 4- Both 2 & 3
5- Inpatient Hospital

22. Functional Independence Measure (FIM)

LEVELS	7 Complete Independence (Timely, Safely)	NO HELPER
	6 Modified Independence (Device)	
	Modified Dependence	
	5 Supervision	
	4 Minimal Assist (Subject = 75%+)	
	3 Moderate Assist (Subject = 50%+)	HELPER
	Complete Dependence	
2 Maximal Assist (Subject = 25%+)		
1 Total Assist (Subject = 0%+)		

Self Care		FOLLOWUP
A. Eating		<input type="text" value="7"/>
B. Grooming		<input type="text" value="7"/>
C. Bathing		<input type="text" value="7"/>
D. Dressing-Upper Body		<input type="text" value="7"/>
E. Dressing-Lower Body		<input type="text" value="7"/>
F. Toileting		<input type="text" value="7"/>
Spincter Control		
G. Bladder Management		<input type="text" value="6"/>
H. Bowel Management		<input type="text" value="6"/>
Mobility		
Transfer:		
I. Bed, Chair, Wheelchair		<input type="text" value="2"/>
J. Toilet		<input type="text" value="2"/>
K. Tub, Shower		<input type="text" value="1"/>
Locomotion		
L. Walk/wheel Chair	w <input type="text" value="6"/> c <input type="text" value="6"/>	
M. Stairs		<input type="text" value="1"/>
Communication		
N. Comprehension	a <input type="text" value="7"/> v <input type="text" value="7"/>	
O. Expression	v <input type="text" value="7"/> n <input type="text" value="7"/>	
Social Cognition		
P. Social Interaction		<input type="text" value="7"/>
Q. Problem Solving		<input type="text" value="7"/>
R. Memory		<input type="text" value="7"/>
Total FIM		<input type="text" value="121"/>

NOTE: Leave no blanks; enter 1 if patient not testable due to risk

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Uniform Data Set for Medical Rehabilitation

SAMPLE CASE #2

Note: Sample Case #2 is a practice test case to be used for learning purposes. If you are interested in receiving feedback on your skills, simply fill in the data on an inpatient coding sheet and staple a note or attach a post-it with the following information: name, facility, address, city, state, zip, and telephone number.

Make a copy of the completed coding sheet to keep for comparison and send the original to:

UDS Data Management Service
82 Farber Hall
SUNY - Main Street
Buffalo, New York 14214
Bus: (716) 831-2076
Fax: (716) 831-2080

In return, you will receive a completed coding sheet with the correct scores for sample case #2.

FACILITY: 061 NUMBER: 469-72-1823 IMPAIRMENT GROUP: 01.3

William H., a 77 year old white male, was admitted to the Arbor General Hospital at 11:00 a.m. on 1/30/89. 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.

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 10:15 a.m. on the day of the admission. Insulin reaction was ruled out as the cause of the patient's admission condition since blood glucose was 220 mg%. The patient's diabetes specialist informed the admitting physician that Mr. H. has suffered angina, foot ulcerations, and other signs of atherosclerotic vascular disease.

The primary findings on physical examination at admission included inability to respond to questions with eye movement but inability to speak, flaccid paralysis of all extremities (spasticity developed second week of hospitalization), pain, numbness and impaired sensation on the right side of body, nausea and vomiting, dysphagia, diminished gag reflex, and Horner's syndrome on the 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 2/9/89.

Rehabilitation Progress Notes:

Admission 2/9/89: The patient was on staff-administered continuous NG feeds. Grooming, bathing, dressing and toileting were done in bed. William was dependent in these activities. He had a staff-managed indwelling catheter and daily bowel accidents which necessitated the use of diapers. Transfers out of bed to a reclining chair were accomplished with use of a mechanical lift. When asked such questions as: Do you want another pillow?, Are you comfortable?, Do you want to get back to bed?, he signified a positive response by blinking his eyes. When asked such questions as: Is this 1989?, Is Ronald Regan the President?, Are you in Arbor General Hospital?, correct responses were inconsistent. He was unable to speak or express himself in writing. His level of disability precluded any independent problem solving. He recognized his primary nurse, bedside therapists, neighbor and friends. He was cooperative with staff and visitors, maintaining eye contact and moving his hand toward a person who wanted to hold his hand.

Discharge 4/3/89: During the two months since admission, Mr. H.'s diabetes has been stabilized, his trach was removed and he progressed in functional independence. The NG tube was discontinued and he progressed to a soft diet. He was able to feed himself after meat was cut and cartons were opened. He was able to wash his hands and face after towel and washcloth were placed in front of him. He needed assistance to remove his dentures and open the package of the denture cleaner, but then he soaked his dentures and replaced them. He needed help to comb his hair due to limitations in active range of motion. He shaved using an electric razor. The helper plugged it in and placed it within his reach. During bathing, he needed help to wash his feet.

Every other day he washed in the shower, rather than at the sink. He sat in a shower chair and used a hand held shower. He required a helper to supervise the transfer, adjust the water temperature and pressure and he put on the call light when he was done. He transferred out of the shower chair with steadying assistance.

A helper gathered William's clothes together for dressing and brought them to him. He dressed while sitting in a chair. His typical clothing was: underpants, pants with a zipper, socks, shoes, an undershirt and front buttoning shirt. Helper put on his underpants and pants to the knees and he completed the task. He was dependent in socks and shoes.

He put on his undershirt and shirt, but needed assistance to pull the front of his shirt together, button, and zipper his pants.

The patient was transferred to acute care between March 6th and 10th for a transurethral prostatectomy. The bladder catheter was removed. During the day, he used a urinal which was emptied by the nurse. At night, he was occasionally incontinent. A satisfactory bowel elimination pattern was established using a stool softener. He used the toilet for BM and needed help to maintain perineal hygiene and to zipper his pants. He transferred to the toilet using grab bars and supervision. Transfers in and out of bed were also supervised.

Mr. H walked 150 feet with a walker and standby assistance. He went up and down a full flight of stairs with a hand rail, and steadying assistance of one. He became actively involved in therapy sessions, enjoyed recreation (e.g. cards, bingo, "exercise to music", activities) and was congenial toward staff, visitors and fellow patients. William was able to understand group conversation and information related to his discharge plans. He was able to express his basic needs, using brief phrases, but was sometimes frustrated by his difficulty in expressing complex ideas. Mr. H. handled his personal finances and paid for his television and newspapers. He chose not to use the telephone.

He referred to his therapists by name and was aware of his daily routine.

FOLLOWUP 10/15/89: Mr. H was living alone in his home. He no longer required the assistance of a personal care aide. He was independent in all self care areas. Bowel and bladder function were now normal. He used a cane for walking and a handrail for stairs. Transfers were accomplished without a helper. Grab bars were installed on the wall beside the toilet and perimeter rails and a rubber grip mat were installed in his tub. He used a long-handled 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.

Appendix B**Uniform Data Set for Medical Rehabilitation
Policy for ICD-9 Coding**

We are developing methods for analyzing the ICD-9 diagnostic codes in the UDS database in ways that are meaningful to understand:

- a.) medical etiologies that underlie or are causative of the impairment conditions for which patients are admitted for rehabilitation.
- b.) types of medical conditions that are associated with interruptions of rehabilitative care and may cause transfer to acute care.
- c.) the relative degrees to which patients in rehabilitation are medically at risk, and
- d.) the types of medical conditions which may delay or otherwise compromise rehabilitation outcomes.

For Item 18, Principal Diagnosis, code the ICD-9 code for the principal diagnosis or presenting problem for which the subject was admitted to rehabilitation that relates to Item 16, Impairment Group.

For Item 19, Other Diagnosis, list other relevant ICD-9 codes (maximum of seven) to specify secondary diagnosis and other major conditions. These include medical conditions at the time of admission or complications during initial rehabilitation or occurring after discharge from rehabilitation. It is recommended that medical record administrator provide this information. Code at discharge and followup.

Appendix C

**Uniform Data Set for Medical Rehabilitation
Blank Coding Sheets**

UNIFORM DATA SYSTEM FOR MEDICAL REHABILITATION
INPATIENT CODING SHEET

Appendix C

IF DATA ON THIS FORM ARE REVISED, WRITE DATE HERE: / / AND CIRCLE NEW DATA.

SIDE 1

COMPLETE BOTH SIDES

1. Rehab Facility Code

2. Patient Number

3. Admission Date

4. Discharge Date

5. Program Interrupted 1-Yes 2-No

a. Transfer Date

b. Return Date

c. Transfer Date

d. Return Date

e. Transfer Date

f. Return Date

6. Admission Class

1-First Rehab 2-Evaluation 3-Readmission

7. ZIP Code

(home)

8. Birthdate

9. Sex 1-Male 2-Female

10. Race/Ethnicity

1-White 2-Black 3-Asian 4-American Indian 5-Other 6-Hispanic

11. English Language

1-Yes 2-No 3-Partial

12. Marital Status

1-Single 2-Married 3-Widowed 4-Separated 5-Divorced

13. Living Arrangement

a. Setting

PRE HOSPITAL ADMIT FROM DISCHARGE

01-Home 02-Board and Care 03-Transitional Living
04-Intermediate Care 05-Skilled Nursing
06-Acute Unit-your own facility 07-Acute Unit-another facility
08-Chronic Hospital 09-Rehab Facility 10-Other 11-Died

b. Living With

PRE HOSPITAL DISCHARGE

1-Alone 2-Family/Relatives 3-Friends 4-Abandon 5-Other

14. Vocational Status

a. Category

PRE HOSPITAL

1-Employed 2-Sheltered 3-Student 4-Homemaker
5-Not working 6-Retired-age 7-Retired-disability

b. Effort

PRE HOSPITAL

1-Full-time 2-Part-time 3-Adjusted workload

IMPAIRMENT GROUP CODES		
<p>01 Stroke:</p> <p>01.1 L/R Body (Right Brain)</p> <p>01.2 Right Body (Left Brain)</p> <p>01.3 Bilateral</p> <p>01.4 No Paralysis</p> <p>01.9 Other Stroke</p>	<p>04.2 Traumatic Spinal Cord</p> <p>04.210 Paraplegia</p> <p>04.211 Incomplete</p> <p>04.212 Complete</p> <p>04.220 Quadriplegia</p> <p>04.2211 Incomplete C1-4</p> <p>04.2212 Incomplete C5-8</p> <p>04.2221 Complete C1-4</p> <p>04.2222 Complete C5-8</p> <p>04.230 Other Traumatic SC</p>	<p>08 Orthopedic Conditions</p> <p>08.1 Status Post Hip Fracture</p> <p>08.2 SP Femur (Shaft) Fracture</p> <p>08.3 SP Pelvic Fracture</p> <p>08.4 SP Major Multiple Fracture</p> <p>08.5 SP Hip Replacement</p> <p>08.6 SP Knee Replacement</p> <p>08.9 Other Orthopedic</p>
<p>02 Brain Dysfunction:</p> <p>02.1 Non-Traumatic</p> <p>02.2 Traumatic</p> <p>02.21 Open Injury</p> <p>02.22 Closed Injury</p> <p>02.9 Other Brain</p>	<p>05 Amputation:</p> <p>05.1 Single Upper AE</p> <p>05.2 Single Upper BE</p> <p>05.3 Single Lower AK</p> <p>05.4 Single Lower BK</p> <p>05.5 Double AK/AK</p> <p>05.6 Double AK/BK</p> <p>05.7 Double BK/BK</p> <p>05.9 Other Amputation</p>	<p>09 Cardiac</p> <p>10 Pulmonary:</p> <p>10.1 Chronic Obstr. Pulm. Disease</p> <p>10.9 Other Pulmonary</p>
<p>03 Neurologic Conditions:</p> <p>03.1 Multiple Sclerosis</p> <p>03.2 Parkinsonism</p> <p>03.3 Polyneuropathy</p> <p>03.4 Guillain-Barre</p> <p>03.9 Other Neurologic</p>	<p>06 Arthritis:</p> <p>06.1 Rheumatoid</p> <p>06.2 Osteoarthritis</p> <p>06.9 Other Arthritis</p>	<p>11 Burns</p> <p>12 Congenital Deformities:</p> <p>12.1 Spina Bifida</p> <p>12.9 Other Congenital</p>
<p>04 Spinal Cord Dysfunction:</p> <p>04.1 Non-Traumatic SC</p> <p>04.110 Paraplegia</p> <p>04.111 Incomplete</p> <p>04.112 Complete</p> <p>04.120 Quadriplegia</p> <p>04.1211 Incomplete C1-4</p> <p>04.1212 Incomplete C5-8</p> <p>04.1221 Complete C1-4</p> <p>04.1222 Complete C5-8</p> <p>04.130 Other Non-Trauma</p>	<p>07 Pain Syndrome:</p> <p>07.1 Neck Pain</p> <p>07.2 Back Pain</p> <p>07.3 Extremity Pain</p> <p>07.9 Other Pain</p>	<p>13 Other Disabling Impairments</p> <p>14 Major Multiple Trauma:</p> <p>14.1 Brain + Spinal cord</p> <p>14.2 Brain + Mult. Fr./Arm.</p> <p>14.3 Sp. Cd. + Mult. Fr./Arm.</p> <p>14.9 Other Mult. Trauma</p>

**UNIFORM DATA SYSTEM FOR MEDICAL REHABILITATION
INPATIENT CODING SHEET
SIDE 2**

**COMPLETE
BOTH SIDES**

Patient Number _____/_____/_____

15. Followup: Use separate Followup Coding Sheet

16. Impairment Group (complete on discharge)
Put numbers requiring admission to rehabilitation here - using Impairment Group Codes listed at the bottom of page 1. Do as specific as possible.

17. Date of Onset (of impairment)
MONTH DAY YEAR

18. Principal Diagnosis (complete on discharge)
ICD 9 Code
Use ICD code related to impairment Group here

19. Other Diagnoses (complete on discharge) ICD Code for other impairments, etiology, co-morbidity, and complications

1	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
2	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
3	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
4	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
5	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
6	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
7	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

20. Payment Source (complete on Discharge)

a. Primary
 b. Secondary

01-Blue Cross 02-Medicare 03-Medicaid/Welfare
 04-Commercial Insurance 05-HMO 06-Worker's Comp.
 07-Crippled Child Serv. 08-Regional Cr. Devel. Disab.
 09-State Voc. Rehab. 10-Private Pay 11-Employee Courtesy
 12-Free 13-Champus 14-Other 15-None

21. Charges (Rehab only) (Dollars only)

a. Total Rehab. Hospital \$

b. Include Physician? 1-Yes 2-No

22. Functional Independence Measure (FIM)

LEVELS	7 Complete Independence (Timely, Safety)	NO HELPER
	6 Modified Independence (Device)	HELPER
Modified Dependence		
5 Supervision		
4 Minimal Assist (Subject = 75%+)		
3 Moderate Assist (Subject = 50%+)		
Complete Dependence		
2 Maximal Assist (Subject = 25%+)		
1 Total Assist (Subject = 0%+)		
Self Care		
A. Eating	ADMIT <input type="text"/>	DISCH <input type="text"/>
B. Grooming	<input type="text"/>	<input type="text"/>
C. Bathing	<input type="text"/>	<input type="text"/>
D. Dressing-Upper Body	<input type="text"/>	<input type="text"/>
E. Dressing-Lower Body	<input type="text"/>	<input type="text"/>
F. Toileting	<input type="text"/>	<input type="text"/>
Sphincter Control		
G. Bladder Management	<input type="text"/>	<input type="text"/>
H. Bowel Management	<input type="text"/>	<input type="text"/>
Mobility		
Transfer:		
L. Bed, Chair, Wheelchair	<input type="text"/>	<input type="text"/>
J. Toilet	<input type="text"/>	<input type="text"/>
K. Tub, Shower	<input type="text"/>	<input type="text"/>
Locomotion		
L. Walk/wheel Chair	<input type="text"/>	<input type="text"/>
M. Stairs	<input type="text"/>	<input type="text"/>
Communication		
N. Comprehension	<input type="text"/>	<input type="text"/>
O. Expression	<input type="text"/>	<input type="text"/>
Social Cognition		
P. Social Interaction	<input type="text"/>	<input type="text"/>
Q. Problem Solving	<input type="text"/>	<input type="text"/>
R. Memory	<input type="text"/>	<input type="text"/>
Total FIM		<input type="text"/> <input type="text"/>

NOTE: Leave no blanks; enter 1 if patient not testable due to risk.

COPY FREELY - DO NOT CHANGE

**UNIFORM DATA SYSTEM FOR MEDICAL REHABILITATION
REHABILITATION FOLLOWUP CODING SHEET**

1. Rehab Facility Code

2. Patient Number

3. Admission Date

4. Discharge Date

19. Other Diagnoses: (since discharge) ICD Code for new impairments, co-morbidity, and complications

1	<input type="text"/>	<input type="text"/>	5	<input type="text"/>	<input type="text"/>
2	<input type="text"/>	<input type="text"/>	6	<input type="text"/>	<input type="text"/>
3	<input type="text"/>	<input type="text"/>	7	<input type="text"/>	<input type="text"/>
4	<input type="text"/>	<input type="text"/>			

ICD Code

13. Living Arrangement

a. Setting FOLLOWUP

01- Home 02-Board and Care 03-Transitional Living
04- Intermediate Care 05-Skilled Nursing
06-Acute Unit-your own facility
07 - Acute Unit-Another facility 08-Chronic Hospital
09-Rehab Facility 10-Other 11-Died

b. Living with FOLLOWUP

1-Alone 2-Family/Relatives 3-Friends
4-Attendant 5-Other

14. Vocational Status

a. Category FOLLOWUP

1-Employed 2-Sheltered 3-Student 4-Homemaker
5-Not working 6-Retired-age 7-Retired-disability

b. Effort FOLLOWUP

1-Full-time 2-Part-time 3-Adjusted workload

15. Followup

a. Date

b. Information source

1-Patient 2-Family 3-Other

c. Method

1-In person 2-Telephone 3-Mail

d. Health Maintenance

primary secondary

1- Own care 2-Unpaid helper
3-Paid attendant 4-Paid professional

e. Therapy

1- None 2-Outpatient Therapy
3- Home Based Paid Therapy 4- Both 2 & 3
5-Inpatient Hospital

22. Functional Independence Measure (FIM)

L E V E L S	7 Complete Independence (Timely, Safely)	NO HELPER
	6 Modified Independence (Device)	HELPER
	Modified Dependence	
	5 Supervision	
	4 Minimal Assist (Subject = 75%+)	HELPER
	3 Moderate Assist (Subject = 50%+)	
	Complete Dependence	
	2 Maximal Assist (Subject = 25%+)	
	1 Total Assist (Subject = 0%+)	

	<u>Self Care</u>	FOLLOWUP
A. Eating	<input type="text"/>	<input type="text"/>
B. Grooming	<input type="text"/>	<input type="text"/>
C. Bathing	<input type="text"/>	<input type="text"/>
D. Dressing-Upper Body	<input type="text"/>	<input type="text"/>
E. Dressing-Lower Body	<input type="text"/>	<input type="text"/>
F. Toileting	<input type="text"/>	<input type="text"/>
	<u>Sphincter Control</u>	
G. Bladder Management	<input type="text"/>	<input type="text"/>
H. Bowel Management	<input type="text"/>	<input type="text"/>
	<u>Mobility</u>	
Transfer:		
I. Bed, Chair, Wheelchair	<input type="text"/>	<input type="text"/>
J. Toilet	<input type="text"/>	<input type="text"/>
K. Tub, Shower	<input type="text"/>	<input type="text"/>
	<u>Locomotion</u>	
L. Walk/wheel Chair	<input type="text"/>	<input type="text"/>
M. Stairs	<input type="text"/>	<input type="text"/>
	<u>Communication</u>	
N. Comprehension	<input type="text"/>	<input type="text"/>
O. Expression	<input type="text"/>	<input type="text"/>
	<u>Social Cognition</u>	
P. Social Interaction	<input type="text"/>	<input type="text"/>
Q. Problem Solving	<input type="text"/>	<input type="text"/>
R. Memory	<input type="text"/>	<input type="text"/>
	Total FIM	<input type="text"/>

NOTE: Leave no blanks; enter 1 if patient not testable due to risk.

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**UNIFORM DATA SYSTEM FOR MEDICAL REHABILITATION
INPATIENT CODING SHEET
ADDITIONAL DATA FIELDS**

PROFESSION CODES

PHYSICIAN 1 □□□□□□□□□□
 PHYSICIAN 2 □□□□□□□□□□
 PT □□□□□□□□□□
 OT □□□□□□□□□□
 SPEECH □□□□□□□□□□
 RN □□□□□□□□□□
 SW □□□□□□□□□□
 PROVIDER 1 □□□□□□□□□□
 PROVIDER 2 □□□□□□□□□□
 PROVIDER 3 □□□□□□□□□□

NUMBER FIELDS

NO. 1 □□□□□□□□□□.□□
 NO. 2 □□□□□□□□□□.□□
 NO. 3 □□□□□□□□□□.□□
 NO. 4 □□□□□□□□□□
 NO. 5 □□□□□□□□□□

DATES

DATE 1 □□/□□/□□
 DATE 2 □□/□□/□□
 DATE 3 □□/□□/□□

MISCELLANEOUS CODES

USER PROGRAM □□□□□□□□□□
 MISC 2 □□□□□□□□□□
 MISC 3 □□□□□□□□□□
 MISC 4 □□□□□□□□□□
 MISC 5 □□□□□□□□□□

FUNCTIONAL INDEPENDENCE MEASURE

FIM

L E V E L S	7 Complete Independence (Timely, Safety)	NO HELPER		
	6 Modified Independence (Device)	HELPER		
	Modified Dependence			
	5 Supervision			
	4 Minimal Assist (Subject = 75%+)			
	3 Moderate Assist (Subject = 50%+)			
	Complete Dependence			
	2 Maximal Assist (Subject = 25%+)			
	1 Total Assist (Subject = 0%+)			
Self Care				
	A. Eating	ADMIT	DISCHG	FOL-UP
	B. Grooming	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	C. Bathing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	D. Dressing-Upper Body	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	E. Dressing-Lower Body	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	F. Toileting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Spincter Control				
	G. Bladder Management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	H. Bowel Management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mobility				
	Transfer:			
	I. Bed, Chair, Wheelchair	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	J. Toilet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	K. Tub, Shower	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Locomotion				
	L. Walk/wheel Chair	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	M. Stairs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Communication				
	N. Comprehension	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	O. Expression	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Social Cognition				
	P. Social Interaction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Q. Problem Solving	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	R. Memory	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Total FIM	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOTE: Leave no blanks; enter 1 if patient not testable due to risk.				

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APPENDIX B
SEQUOIA REHABILITATION UNIT
OCCUPATIONAL THERAPY DOCUMENTATION

SEQUOIA REHABILITATION UNIT
Occupational Therapy
Evaluation and Treatment Form

PATIENT INFORMATION	
Name:	
Acct#:	
Room:	
Date:	

____ Patient/Family Input Incorporated in Goal Setting, Treatment Plan, and Discharge Plan

Doctor:				Onset Date:			
Diagnosis:				Admit Acute:			
Medical History:				Admit SRU:			
				Age:			
				Birthdate:			
				Sex:			
Previous Functional Status:							
Precautions:							
Equipment Owned:							
General Observations:							
Physical/Motor	Right	Left	ROM:	Right:	Left:	Coordination:	
Hand Dominance			Shoulder				
Affected UE			Elbow				
Strength	Right	Left	Wrist				
			Fingers				
Shoulder			Comments:				
Elbow							
Wrist							
Grip							
Lat. Prehension							
3-Point Pinch							
Tip Pinch							
Neuro:	Right	Left	Recovery Stages:			Right	Left
Subluxation			Flaccid, No Movement				
Spasticity			Synergies Appearing (1/4 Range or less)				
Assoc. Reactions			Dev. from Synergies (Gross stabilizer)				
Neglect			Relative Indep (Gross Functional Assist)				
Edema			Isolated Mvmts (Isolated control)				
Apraxia							
Comments:							
Sensation RUE	Intact	Impaired	Absent	Sensation LUE	Intact	Impaired	Absent
Light Touch				Light Touch			
Sharp/Dull Distinction				Sharp/Dull Discrimination			
Stereognosis				Stereognosis			
Proprioception				Proprioception			
Kinesthesia				Kinesthesia			
Comments:							
Cognition	Intact	Impaired	Cognition	Intact	Impaired		
Orientation			Impulsivity				
Attention			Direction Following				
Memory			Persistence				
Judgement			Cooperation				
Safety			Aware of Disability				
Problem Solving			Sequencing				
Money Management							
Comments:							

SEQUOIA REHABILITATION UNIT
Occupational Therapy
Evaluation and Treatment Form

Page 2 of 2

PATIENT INFORMATION	
Name:	
Acct#:	
Room:	
Date:	

Visual/Perceptual	Intact	Impaired
Position in Space		
Spatial Relations		
Figure Ground		
Visual Tracking		
Depth Perception		
Body Scheme		
R/L Discrimination		
Functional Independence Measures		
Self-Care	Initial	Goal
Upper Extremity Dressing		
Lower Extremity Dressing		
Grooming/Hygiene		
Bathing		
Self-feeding		
Toileting		
Transfers	Initial	Goal
Toilet - Commode		
Tub - Shower		
Bed - Chair		
Car		

Activity Tolerance:

Comments:

FIM Key:
 7 = Completely Independent
 6 = Modified Independence
 5 = Supervision
 4 = Min. Assist. Pt. 75 %
 3 = Mod. Assist. Pt. 50 %
 2 = Max Assist. Pt. 25 %
 1 = Total Assist

Positioning:

Comments:

Other (Homemaking, Community, ADL, Driving, etc.):

Summary/Impression

Goals

<input type="checkbox"/> Inc. Functional Transfer Skills	<input type="checkbox"/> Normalize Tone	<input type="checkbox"/> Inc. Safety Awareness
<input type="checkbox"/> Inc. Self-Care	<input type="checkbox"/> Decrease Edema	<input type="checkbox"/> Proper Positioning
<input type="checkbox"/> Inc. ROM/Prevent Contractures	<input type="checkbox"/> Inc. Awareness of Affected Extremity	<input type="checkbox"/> Inc. Endurance/Activity Tolerance
<input type="checkbox"/> Inc. UE Strength	<input type="checkbox"/> Inc. Compensation for Visual Field Cut	<input type="checkbox"/> Inc. Home/Community Skills
<input type="checkbox"/> Inc. Functional Use of RUE/LUE	<input type="checkbox"/> Inc. Compensation for Sensation	<input type="checkbox"/> Safe Home Environment
<input type="checkbox"/> Inc. Fine/Gross Motor Coordination	<input type="checkbox"/> Inc. Perceptual Skills	<input type="checkbox"/> Home Exercise Prepared for DC
<input type="checkbox"/> Inc. Dexterity	<input type="checkbox"/> Inc. Cognitive Skills	<input type="checkbox"/> Equip. Recommendations

Treatment Plan

<input type="checkbox"/> Functional Transfer Training	<input type="checkbox"/> Cognitive Retraining
<input type="checkbox"/> Self-care Retraining	<input type="checkbox"/> Positioning Training
<input type="checkbox"/> Therapeutic UE Exercises	<input type="checkbox"/> Energy Conservation
<input type="checkbox"/> Neuromuscular Re-education	<input type="checkbox"/> Work Simplification Techniques
<input type="checkbox"/> Functional Activities	<input type="checkbox"/> Household/Community ADL Training
<input type="checkbox"/> Orthotic/Splinting	<input type="checkbox"/> Home Safety Training
<input type="checkbox"/> Edema Control Techniques	<input type="checkbox"/> Home Visit
<input type="checkbox"/> Sensory Re-education	<input type="checkbox"/> Community Reintegration
<input type="checkbox"/> Visual Perceptual Retraining	<input type="checkbox"/> Other:

Frequency and Duration:

O.T. Signature and Date

M.D. Signature and Date:

SEQUOIA REHABILITATION UNIT
 Occupational Therapy
 Discharge Summary

PATIENT INFORMATION	
Name:	
Acct#:	
Room:	
Date:	

SRU Admit Date	SRU Discharge Date	Actual Length of Stay	Discharge Destination

FIM: 7=Completely Indep; 6=Mod Indep; 5=Supervised; 4=Min Assist. Pt. 75%; 3=Mod Assist. Pt. 50%; 2=Max Assist. Pt. 25%; 1=Total Assist				
Self Care	Initial	Goal	Actual	Comments:
UE Dressing				
LE Dressing				
Grooming/Hygiene				
Bathing				
Self-feeding				
Toileting				
Transfers				
Toilet/Commode				
Tub/Shower				
Bed/Chair				
Car				
Other:				
Summary of Progress				
Equipment:				
Patient/Family Education				
___ Home exercise program was provided and included:				
___ No home exercise program was provided because:				
Follow-up Occupational Therapy Recommendations				
<input type="checkbox"/> Home Occupational Therapy <input type="checkbox"/> Outpatient Occupational Therapy at: <input type="checkbox"/> Other: <input type="checkbox"/> No further O.T. indicated at this time.				
Recommendations				

Therapist Signature: _____

Date: _____

APPENDIX C
UNIFORM DATA SYSTEM FORM

UNIFORM DATA SYSTEM FOR MEDICAL REHABILITATION.
INPATIENT CODING SHEET Page 1 of 2

Complete Both Pages

Rehabilitation Patient

1. Facility Code

2. Patient Code

3. Birth Date

4. ZIP/Postal Code (home)

5. Gender 1-Male 2-Female

6. Ethnicity 1-White 2-Black 3-Asian 4-Native American 5-Other 6-Hispanic

7. English Language 1-Yes 2-No 3-Partial

8. Marital Status 1-Never Married 2-Married 3-Widowed 4-Separated 5-Divorced

Dates

9. Admission Date

10. Admission Class 1-Initial Rehabilitation 2-Short Stay 3-Readmission

11. Discharge Date

12. Program Interrupted?

Check if program is interrupted, and enter Transfer and Return Dates.

13. Program Interruption Dates

1st Interruption

a. Transfer Date

b. Return Date

2nd Interruption

c. Transfer Date

d. Return Date

3rd Interruption

e. Transfer Date

f. Return Date

Payment Source and Rehabilitation Charges

14. Payment Source

a. Primary Source

b. Secondary Source

1-Blue Cross 2-Medicare 3-Medicaid/Welfare
4-Commercial Insurance 5-HMO 6-Workers' Compensation
7-Crippled Children's Serv. 8-Developmental Disabilities Serv.
9-State Vocational Rehabilitation 10-Private Pay
11-Employee Courtesy 12-Unreimbursed 13-CHAMPUS
14-Other 15-None (for secondary only)

15. Gross Rehabilitation Charges

a. Total (Dollars only) \$

b. Physician Fee 1-Included 2-Not Included

16. Net Rehabilitation Charges

a. Total (Dollars only) \$

b. Physician Fee 1-Included 2-Not Included

Diagnosis

17. Impairment Group

(Condition requiring admission to rehabilitation)
(See UDS Impairment Group Codes found in Guide 4.6- Appendix F)

18. Date of Onset

19. Etiologic Diagnosis (ICD-9 Code)

20. ASIA Impairment Scale (Traumatic SCI only)
A-Complete B-Sensory Preserved C-Motor Nonfunctional
D-Motor Functional E-Normal

21. Other Diagnoses (ICD-9 codes)

Most Significant

a.

b.

c.

Complications Comorbidity

d.

e.

f.

Diagnosis for Transfer or Death

g.

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UNIFORM DATA SYSTEM FOR MEDICAL REHABILITATION
INPATIENT CODING SHEET Page 2 of 2

1. Facility Code

2. Patient Code

Admission Assessment

- 22. Admit From**
 1-Home 2-Board and Care 3-Transitional Living
 4-Intermediate Care 5-Skilled Nursing Facility
 6-Acute unit of own facility 7-Acute unit another facility
 8-Chronic Hospital 9-Rehabilitation Facility 10-Other
 12-Alternate Level of Care Unit
- 23. Prehospital Living Setting**
 Use codes listed for item 22.
- 24. Prehospital Living With**
 (Complete only if item 23 is coded 9-Home.)
 1-Alone 2-Family/Relatives 3-Friends
 4-Attendant 5-Other
- 25. Prehospital Vocational Category**
 1-Employed 2-Sheltered 3-Student 4-Homemaker
 5-Not Working 6-Retired-age 7-Retired-disability

26. Prehospital Vocational Effort
 (Complete only if item 25 is coded 1,2,3 or 4.)
 1-Full-time 2-Part-time 3-Adjusted workload

Discharge Assessment

- 27. Discharge to**
 1-Home 2-Board and Care 3-Transitional Living
 4-Intermediate Care 5-Skilled Nursing Facility
 6-Acute unit of own facility 7-Acute unit in another facility
 8-Chronic Hospital 9-Rehabilitation Facility 10-Other
 11-Old 12-Alternate Level of Care Unit
- 28. Discharge Living With**
 (Complete only if item 27 is coded 1-Home.)
 1-Alone 2-Family/Relatives 3-Friends
 4-Attendant 5-Other
- (For Items 29-38 See Follow-Up Coding Sheet)

39. Functional Independence Measure (FIM)

	ADMISSION	DISCHARGE
Self-Care		
A. Eating	<input type="text"/>	<input type="text"/>
B. Grooming	<input type="text"/>	<input type="text"/>
C. Bathing	<input type="text"/>	<input type="text"/>
D. Dressing-Upper Body	<input type="text"/>	<input type="text"/>
E. Dressing-Lower Body	<input type="text"/>	<input type="text"/>
F. Toileting	<input type="text"/>	<input type="text"/>
Sphincter Control		
G. Bladder Management	<input type="text"/>	<input type="text"/>
H. Bowel Management	<input type="text"/>	<input type="text"/>
Transfers		
I. Bed, Chair, Wheelchair	<input type="text"/>	<input type="text"/>
J. Toilet	<input type="text"/>	<input type="text"/>
K. Tub, Shower	<input type="text"/>	<input type="text"/>
Locomotion		
L. Walk/Wheelchair	<input type="text"/>	<input type="text"/>
M. Stairs	<input type="text"/>	<input type="text"/>
Motor Subtotal Score <input type="text"/>		
Communication		
N. Comprehension	<input type="text"/>	<input type="text"/>
O. Expression	<input type="text"/>	<input type="text"/>
Social Cognition		
P. Social Interaction	<input type="text"/>	<input type="text"/>
Q. Problem Solving	<input type="text"/>	<input type="text"/>
R. Memory	<input type="text"/>	<input type="text"/>
Cognitive Subtotal Score <input type="text"/>		
Total Motor and Cognitive Score <input type="text"/>		

FIM Levels	
NO HELPER	
7	Complete Independence (Timely, Safely)
6	Modified Independence (Device)
HELPER	
Modified Dependence	
5	Supervision
4	Minimal Assistance (Subject = 75 % +)
3	Moderate Assistance (Subject = 50 % +)
Complete Dependence	
2	Maximal Assistance (Subject = 25 % +)
1	Total Assistance (Subject = 0 % +)

(NOTE: Leave no blanks; enter 1 if not testable due to risk)

Complete Both Pages

APPENDIX D
DATA COLLECTION SHEET

APPENDIX E
SEQUOIA HOSPITAL INSTITUTIONAL REVIEW BOARD
APPROVAL FORM

APPROVED

MAY 31 1995

INSTITUTIONAL REVIEW BOARD

APPLICATION FOR
NON-CONSENTED MEDICAL RECORDS REVIEW RESEARCH (MRRR)

Date 3-30-95

Name of Investigator Susan Daines

Address 205 Waverley St. #1 Menlo Park, CA 94025

Phone number (415) 324-9181

Identify Association with Sequoia Hospital District employed by BAK
work at hospital

Please attach the following:

- 1) Written proposal outlining the purpose, nature, extent and intent of the study attached
- 2) Investigator's qualifications Master's candidate at San Jose State
registered occupational therapist
- 3) Name of person(s) who will actually be reviewing medical records on site and their qualifications Susan Daines
- 4) A copy of the data collection form(s) attached

The investigator agrees to the following procedures governing the MRRR, as specified in the Non-Consenting Medical Records Review Research policy:

- A) At the time of data collections at Sequoia Hospital, copies of the completed data forms shall be left with the IRB office.
- B) Any and all MRRR data obtained at Sequoia Hospital shall be registered with the Institutional Review Board (IRB) office, located on the ground floor of Sequoia Hospital (415) 367-5555.
- C) A form, signed by the investigator, shall be filed with the IRB (this application) certifying that no information other than that obtained through use of the data collections form will be taken from the medical record.
- D) Patients' names or other identifying data shall not be used under any circumstances unless expressly authorized by law and approved by the IRB.

Susan Daines
Name (please print)
Susan Daines
Signature of Investigator

Name (please print)

Signature of Co-Investigator

APPENDIX F
SAN JOSE STATE UNIVERSITY
HUMAN SUBJECTS EXEMPTION FORM



A campus of The California State University

Office of the Academic Vice President • Associate Academic Vice President • Graduate Studies and Research
One Washington Square • San Jose, California 95192-0025 • 408/924-2480

TO: Susan Daines
205 Waverley St., #1
Menlo Park, CA 94025

FROM: Serena W. Stanford *Serena W. Stanford*
AAVP, Graduate Studies & Research

DATE: June 8, 1995

The Human Subjects-Institutional Review Board has approved your request to use human subjects in the study entitled:

"Occupational Therapy for Function in Self-Care
Following Cerebrovascular Accident: Is there
Increased Function?"

This approval is contingent upon the subjects participating in your research project being appropriately protected from risk. This includes the protection of the anonymity of the subjects' identity when they participate in your research project, and with regard to any and all data that may be collected from the subjects. The Board's approval includes continued monitoring of your research by the Board to assure that the subjects are being adequately and properly protected from such risks. If at any time a subject becomes injured or complains of injury, you must notify Serena Stanford, Ph.D., immediately. Injury includes but is not limited to bodily harm, psychological trauma and release of potentially damaging personal information.

Please also be advised that each subject needs to be fully informed and aware that their participation in your research project is voluntary, and that he or she may withdraw from the project at any time. Further, a subject's participation, refusal to participate, or withdrawal will not affect any services the subject is receiving or will receive at the institution in which the research is being conducted.

If you have any questions, please contact me at (408) 924-2480.