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A retrospective analysis of early progressive mobilization nursing interventions and early discharge among post coronary artery bypass patients

Millie Quan

A RETROSPECTIVE ANALYSIS OF EARLY PROGRESSIVE MOBILIZATION NURSING INTERVENTIONS AND EARLY DISCHARGE AMONG POST CORONARY ARTERY BYPASS PATIENTS

A Project

Presented to the

Faculty of

California State University,

San Bernardino

In Partial Fulfillment

of the Requirements for the Degree

Master of Science

in

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ABSTRACT

The strain of healthcare resources imposed by increased bypass surgeries as a result of longer life expectancy, advanced medical technology, and improved healthcare practices, creates an impetus for the improvement in patient care delivery and efficiency throughout the healthcare delivery system. This research proposal examines the outcome of early progressive mobilization nursing interventions for patients who had first-time CABG surgery on a single stay Cardiothoracic Intensive Care Unit of a large teaching hospital and its impact to the total length of stay. A total of 30 patients will be selected in this study who had first-time Coronary Artery Bypass Surgery (CABG) completed in 2001. The goal of the study is to evaluate the effectiveness and relationship between early patient mobilization and length of stay. The hypothesis of this study is that there will be an increase in early discharge among CABG patients who experience early and sustained mobilization postoperatively. In other words, the earlier and more frequently the patient ambulates, the shorter the length of stay.

The concept of a single stay unit is widely recognized as the most effective treatment model in recent

healthcare history (Brown, 2000). Despite this fact, no literature research has been completed to measure its effectiveness. As a result, this study will offer evidence and data to measure how progressive and sustained mobilization strategies that are implemented by nurses impact early discharge on a single stay Cardiothoracic Intensive Care Unit for patients undergoing first-time CABG surgery.

ACKNOWLEDGMENTS

Taking the path less traveled has lead to a fruitful harvest in the growth of personal strength and stamina to withstand any elements of adversity. I would like to thank the many individuals who have contributed their time and efforts to keep me focused and committed to achieving my career goals. The faculty members of California State University have been extremely supportive in making my dream an achievable reality. The countless hours and personal time to assist in my needs were and will always be extremely appreciated. Susan and Marcia, you have made my learning experience very rewarding.

To my friends who have weathered my tempers, you will never realize how much you all mean to me when I was in need of support. Saurabh, Marfe, Pam, and the staff of CTICU, thank you for being there.

To my parents, who are there for me unconditionally, I thank you for letting me take chances and giving me the opportunity to be myself. Your unconditional love will always be cherished. Eric, you have been the strength that keeps me standing when I am weak. My love for you will stand as strong as time will last. Thank you Sylvia for such a wonderful vision.

DEDICATION

My efforts and commitment to education and the achievement of high expectations are clear evidence that anything is possible in life. I dedicate this research thesis to the many individuals who have given up trying or have lost their motivation to strive for their dreams. I am living proof that it can be done. Education is all powerful and can offer many fruitful rewards of success.

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CHAPTER ONE

INTRODUCTION

Advances in science have proven to be a double edged sword. It has provided the means to feed and clothe the masses, but at what cost? With the advent of transcontinental corporations, internationally recognized super athletes, global fast food chains, soda pop that even people in the most isolated parts of the world can recognize the slogan, it was only a matter of time before profits overcame the welfare of the common man. Profits have driven sales for cigarettes, fast food chains and junk foods; all these multi-billion dollar industries whose products have shown a direct correlation to the rising levels of obesity and heart disease. In the United States, home to many of these industries, the effects can be clearly seen and felt by the rising costs of health care being provided to our citizens (Healthy People 2010 Initiative, 2001, American Heart Association, 2001).

Background

In the face of health prevention and technological measures to combat disease processes, cardiovascular disease still remains to be the leading cause of death in the United States. According to the Center for Disease

Control and Prevention (CDC), there are about 950,000 Americans who die of cardiovascular disease each year. This amounts to one death every 33 seconds. The estimated cost of cardiovascular disease in the United States in 2001 is $298 billion, which includes health care expenditures and lost productivity (Center for Disease Control [CDC], 2001).

In light of current managed care systems and economic reform cardiovascular disease is an enormous burden worthy of significant attention. The financial impact of cardiovascular disease on the United States economy is expected to grow with the aging population (CDC, 2001). It is estimated that by 2030, one in three adults will be 50 years of age or older. This growing elderly population is a common target for heart disease (U.S. Department of Health and Human Services, 2001). Today, almost 40% of all deaths among persons aged 65 to 74 years of age are due to cardiovascular disease. For the elderly who are 85 years or older, the rate increases to 80% of all cardiovascular deaths (U.S. Department of Health and Human Services, 2001).

Coronary artery bypass graft (CABG) surgery has become a common intervention for coronary artery disease (CDC, 2001). The number of patients undergoing cardiac

surgery exceeds 600,000 per year (Nickerson, Murphy, Davila-Roman, Schechtman, & Kouchoukos, 1999). This costly intervention is a frequent target of analyses to reduce hospital expenditures (Doering, Esmalian, Laks, 2000; Cohen, 1999; American Heart Association, 2001; Michalopoulos, Nikolaides, Antzaka, Deliyanni, Smirrli, Geroulanos, Papadimitriou, 1998). The strain of healthcare resources imposed by increased bypass surgeries creates an impetus for improvement in efficiency throughout the healthcare delivery system.

Statement of the Problem

Extensive progress has been made in reducing death from heart disease, but significant challenges remain. The Healthy People 2010 Initiative (2001), which is nationally recognized for identifying areas of risk and/or preventive behaviors that are modifiable, further supports the necessity to reduce the cost of hospitalization of older adults. Establishing cost effective procedures in healthcare delivery has the potential to alleviate the dramatic strain on healthcare expenses. Many protocols have been developed to minimize health care expenditures and to reduce hospital stays (Engelman, 1996; Engelman et

al., 1994; Nikas, Freeman, Luterman, Warnken, Nenstiel, Farell, & Alpert, 1996).

Fast-track protocols and clinical pathways have been implemented by some hospitals to reduce the total cost without affecting the quality of patient care. Despite the intense interest of these potentially cost-saving clinical practices, there are few published reports that support a relationship between specific nursing procedures and early discharge, such as early mobilization progression post-CABG surgery on a single-stay Cardio-Thoracic Intensive Care Unit (CTICU). The specific nursing interventions that are related to reduce deleterious effects during the post CABG recovery process have not been clearly identified.

Purpose of the Study

The purpose of this study is to examine the relationship between early and sustained mobilization nursing interventions post-CABG surgery and early discharge. The goal of the study is to describe the factors that impact the relationship between early progressive mobilization and early discharge rates on a single-stay CTICU of a large teaching hospital in Southern California. The use of a single stay unit has been

identified to support early mobilization contributing to positive outcomes (Brown, 2000; Joyce & Pandolph, 2001).

Theoretical Framework

Watson's mid-range theory on caring recognizes how caring and healing practices help to give nursing its unique disciplinary, scientific, and professional standing to implement effective nursing interventions (Watson, 1999). Watson's carative factors are essential to understand how the dynamics of caring influence the practice of nursing (Watson, 1985).

Watson's Theory of Caring

Watson believes that nursing care is a result of the combined study of sciences and humanities to culminate a therapeutic nurse-client relationship (Watson, 1979). This process is based on ten carative factors of nursing. Each of the factors potentiates therapeutic healing processes and relationships as encompassed by nursing. Each factor will be described and interpreted related to post CABG early mobilization nursing interventions and early discharge.

1. The first carative factor is the "formation of a humanistic altruistic system of values" (Watson, 1979, p.10). This factor describes satisfaction

through giving and extension of the sense of self (Watson, 1979). Caring is the moral ideal of nursing whereby the end is protection, enhancement, and preservation of human dignity (Sourial, 1996). A nurse's interventions related to mobilization aide in the recovery process and instill confidence through the usage of proactive encouragement to initiate progressive mobilization strategies.

2. The "*instillation of faith-hope*" describes the nurse's role in promoting wellness; by helping the CABG patient adopt health-seeking behaviors; by using the positive power of suggestion to support the client; and by developing effective nurse-client interrelationships (Watson, 1979, p.12). The development of trust between patient and regular staff members will help reduce anxiety and maintain continuity of care.
3. The "*cultivation of sensitivity to one's self and to others*" recognizes the feelings that lead to self-actualization through self-acceptance for the nurse and the client (Watson, 1979, 16).
4. The "*development of a helping-trust relationship*" is the fourth carative factor that

promotes and accepts the expression of positive and negative feelings (Watson, 1985, p.23).

5. The *"promotion and acceptance of the expression of positive and negative feelings"* is a shared risk-taking experience for both the nurse and the patient (Watson, 1979, p.41), by allowing patients, for example, to verbalize how progressive mobilization has contributed to their individual recovery process.

6. The sixth carative factor is the *"systematic use of the scientific problem-solving method for decision making".* This factor uses the nursing process as a scientific approach to problem solving (Watson, 1979, p.54). Nurses are able to critically analyze the physiological changes to each patient, as with the post CABG patient, to promote safety and enhance well-being which would include early mobilization and discharge strategies.

7. The *"promotion of interpersonal teaching-learning"* separates caring from curing. It allows the patient to be informed and shifts responsibility for wellness to the patient (Watson, 1979, p.69). The nurse facilitates this

with teaching-learning techniques to enable the patient to provide self-care, determine his own needs, and provide for his own growth. Early discharge instructions are initiated at the time of admission to help educate patients throughout the course of hospitalization.

8. The *"provision for a supportive, protective or corrective mental, physical, sociocultural, and spiritual environment"* includes external and internal variables (Watson, 1979, p.81). Providing care on a single stay post operative unit enhances the level of comfort and eliminates anxiety for the patients.

9. *"Assistance with the gratification of human needs"* recognizes the biophysical, psychophysical, psychosocial, and intrapersonal needs of herself and her patient. Patients must attain the lower order needs before attaining those higher in the needs hierarchy (Watson, 1979, p.105).

10. The last factor is the *"allowance for existential-phenomenological forces"*. This provides a thought-provoking experience leading to a better understanding of others and

ourselves (Watson, 1979, p.205). These ten carative factors have since evolved within an expanding perspective with new ideas and values.

Watson's ten carative factors are best understood in an environment that complements nursing care efficiency. The concept of a single stay cardiac surgery recovery model facilitates nurses to maintain consistency of patient care to provide effective patient outcomes (Joyce & Pandolph, 2001).

CHAPTER TWO

REVIEW OF THE LITERATURE

Introduction

Understanding how the evolution of cardiac surgery to present day practice will help to recognize how the advent of current practice contributes to better outcomes. Continual improvements in cardiac surgery techniques and after care have markedly reduced the postoperative hospital stays. Early ambulation post CABG surgery has been widely documented as a crucial factor to shorten hospital stays. Many of the protocols or clinical pathways developed to encourage optimal recovery include early ambulation (American Heart Association, 2001; Brown, 2000; Cowper, Peterson, DeLong, Jollis, Muhlbaier, & Mark, 1997; Engelman et al, 1994; Joyce & Pandolph, 2001; Michalopoulos et al, 1987; Nickerson et al, 1999).

Early Mobilization in Post-Cardiac Surgical Patients

In the early 1900's, the treatment for a cardiovascular event (i.e. acute myocardial infarction) required strict bed rest to allow myocardial healing and scar formation. It was theorized that physical activity increased the risk of dysrhythmias, recurrent myocardial

infarction, sudden cardiac death, aneurysm, and cardiac rupture. Further studies determined that the injured myocardium required 12 weeks for healing and scar formation. At least 2 weeks of absolute bed rest followed by 2-6 weeks of less restricted bed rest was necessary (Caplin, 1986; Marshall & Hawrysio, 1988).

The strategy of strict bed rest has been associated with medical complications. Research studies have found immobility as a precursor to many deleterious outcomes. With prolonged immobility, the overall workload of the heart is increased, decreased cardiac reserve is noted, and postural hypotension occurs (Marshall & Hawrysio, 1988). Prolonged bed rest can cause venous stasis and increase the formation of thrombus.

Pulmonary complications can adversely compromise coronary blood flow to a patient who has limited functional capacity. Hypoventilation and atelectasis can complicate the physical work capacity and cardiopulmonary reserve of a postoperative CABG patient who needs to return to optimal health. The prevention of respiratory complications has been identified with early ambulation (Osborne, 1984; Capuano, Sullivan, Rothenberger, & Sebastian, 1999; Cohen, 1999; Doering et al., 2000; Michalopoulos et al, 1998).

The emphasis of early and progressive ambulation is the benchmark to manage patients in the immediate postoperative phase (Capuano et al, 1999). Early ambulation provides the opportunity for early detection of arrhythmias, hypertension, or other problems manifested by physiologic and psychologic effects of bed rest (Osborne, 1984).

The safety of early ambulation of uncomplicated CABG patients has been well documented and widely encouraged (Capuano et al, 1999). Early ambulation results in more favorable outcomes (Marshall & Hawrysio, 1988). In a study done by Osborne, in 1984, confirmed that stable post-CABG patients tolerate early postoperative ambulation without signs or symptoms of cardiovascular distress. The eight patients in the study who ambulated 32 hours post-CABG did not show evidence of arrhythmias or cardiovascular distress as compared to the seven other patients who ambulated 56 hours post-CABG surgery. The implementation of early ambulation has been practiced for over 18 years. Early mobilization and exercise minimizes deconditioning.

Recent practices of modern medicine have curtailed the time for ambulation to maximize recovery. Invasive monitoring lines and chest tubes are no longer a reason to delay ambulation (Capuano et al, 1999). According to

Naughton, Prowroznyk, and Feneck, (1999) ambulation begins on the day of extubation. Complications of deep vein thrombosis, and arrhythmias are identified (Capuano et al, 1999). Early mobilization begins within 2 hours after extubation. Wound healing is progressed and early detection of complications can be identified. An accelerated progression of physical activity and rehabilitation that begins the morning after cardiac surgery is encouraged (Engelman et al, 1994).

Early Mobilization and Early Discharge

Research studies have identified the implementation of early progressive ambulation associated with shorter intensive care unit stay and postoperative length of stay (Zevola & Maier, 1999; Nickerson et al, 1999; Miller, 1998).

Early discharge has been achieved through advances in efficiency of care. The nursing intervention of implementing progressive ambulation post-CABG surgery has positive outcomes. Effective patient outcomes are best understood with the application of theories from other disciplines that are yet to be found in the body of nursing. Watson's theory of caring, evidenced-based practice model, and single-stay post-op model are all

significant to acknowledge how progressive ambulation contributes to positive outcomes. The application of these three concepts helps to form the building blocks that are fundamental to modern practice for CABG patients.

This new approach has been implemented in a few facilities in the United States and is being recognized as the most effective treatment model in recent healthcare history. This model integrates the acute ICU and step-down phases of care to maintain consistent continuity of care. The single stay unit is capable of providing intensive care, step-down care, and telemetry care along a continuum of critical illness to health recovery and hospital discharge (Brown, 2000). Instead of the patient being moved from one level of service to the next, unlike conventional surgical floors, the patient is stationary while the service levels change to accommodate the patient's progress. This model is designed to receive open heart surgery patients directly from the operating room to be the patient's care unit for the entire hospitalization.

This model incorporates the constructs of consistent patient-centered care. Consistent care provision allows for confidence and interdisciplinary cooperation amongst health care members, dedication to teamwork and interest in optimal team performance, and commitment to meeting

patient and family needs (Brown, 2000). Patient, family, and physician satisfaction has identified its proven success (Brown, 2000; Joyce & Pandolph, 2001).

The recognition of immediate complications can be intercepted and rapid interventions provided (Brown, 2000; Joyce & Pandolph, 2001). The monitoring and management of each patient's recovery process is continuous. Fragmentation of patient-centered care is eliminated. Nurses' expertise to encourage early mobilization strategies is consistent and continuous (Brown, 2000; Joyce & Pandolph, 2001). This environment combined with Watson's theory of caring is the framework that can enhance patient outcomes.

Patient outcomes are best understood when evidence validates evolving changes in clinical practice. The initiation of early progressive mobilization strategies for CABG patients is adapted from the Center for Advanced Nursing Practice Evidenced Based Practice Model (Barnason & Rasmussen, 2000). This model aims to enhance recovery by organizing care and reducing variation in patient care and consequently result in fewer complications and achieve target goals during the course of hospitalization (Barnason & Rasmussen, 2000).

Analyzing key data to develop new practices and redefining best practices are essential to validate the efficacy of evolving changes in recovering CABG patients (Barnason & Rasmussen, 2000). This model supports earlier mobilization of patients to promote rapid recovery (Barnason & Rasmussen, 2000). It is essential that new practices are implemented and practiced concurrently with new research. These three concepts form the framework that can describe how early progressive mobilization and early discharge are impacted on a single stay CTICU of a large teaching hospital.

Definition of Terms

Coronary artery bypass graft surgery (CABG) - is the procedure where arteries that are partially or completely blocked are bypassed from an area of the artery where the artery is open and a piece of vein or artery from another part of the patient's body are sewn around the areas of blockage, thereby "bypassing" the arteries and restoring blood flow to the heart muscle (Society of Thoracic Surgeons [STS], 2000).

Single-stay unit - Integrates the acute ICU and step-down phases of care to maintain continuity of care by

consistent staff members located on this unit before and after surgery. The patient is stationary while the service levels change to accommodate the patient's progress (Joyce & Pandolph, 2001). This model is designed to receive open-heart surgery patients directly from the operating room and maintain continuity of care until the patient is discharged.

Cardiovascular disease (CVD) – Includes a variety of diseases of the heart and blood vessels, such as coronary heart disease (coronary artery disease, ischemic heart disease), stroke (brain ischemia), hypertension (high blood pressure), rheumatic heart disease, congestive heart failure, and peripheral artery disease (CDC, 2001).

Progressive mobilization strategies - Designed to restore cardiac patients to their optimal levels of physical, psychological, social, and vocational function. Patients are steadily progressed along a continuum to ambulate two hours post-extubation. Hemodynamic stability is continuously monitored to assess for patient tolerance (Malier, Pollock, & Graves, 1986; Joyce & Pandolph, 2001).

CHAPTER THREE

METHODOLOGY

Introduction

This study utilized a descriptive, retrospective chart review to examine the factors that impact the relationships between early progressive mobilization and early discharge on a single-stay CTICU of a large teaching hospital in Southern California.

Hypothesis

The hypothesis of this study is that there will be an increase in early discharge among CABG patients who experience early and sustained mobilization postoperatively. The collection of this data is derived from normal nursing practices provided to patients. There is no deviation or alteration of nursing practice to support the evidence for my hypothesis.

Research Design

The design of this study will be a descriptive non experimental design utilizing a retrospective chart review to examine the factors that affect early progressive mobilization and early discharge on a single-stay CTICU of a large teaching hospital in Southern California.

Setting

The large teaching University Medical Center is a non-profit, religious institution that has a capacity to hold nearly 800 beds. The Cardio-Thoracic Intensive Care Unit has been operating for over two decades. There is a maximum of 15-bed capacity in this unit. Over three hundred cardiac surgery cases were done in 2001.

Sample

The sample of this study will be subjects selected from a single stay Cardio-Thoracic Intensive Care unit at a large University Medical Center. The data will be collected retrospectively based on chart review of patients who had first time coronary artery bypass graft surgery in 2001. The data collected will be used to describe the factors associated with early progressive ambulation and early discharge. The inclusion criteria for this study are both genders, first-time CABG patients, patients between the age of 40-90, and received post-op care on CTICU in January - December 2001. Subjects undergoing redo CABG surgeries or valve surgeries will be excluded to reduce outliers in the sample population. No minors will be included in this convenience sample.

Interrater reliability will be tested prior to the pilot study to establish content validity. Two professional nurse researchers will collect data using the same tool (refer to Appendix A) and compare data. Once content validity is reached, a pilot study will be initiated with five subjects to determine practicality and efficiency of the tool that was developed by the researcher. Once the reliability and validity of the tool are identified, a sample of 30 subjects will be collected. A retrospective chart review will be conducted for data collection. All information will remain confidential.

Study Variables

Early and sustained mobilization will be measured by ambulation that occurs along a continuum on the day of surgery or day one. Early discharge will be measured by a discharge day that is less than six days. Demographic data that will be collected include gender, age, and ethnicity to measure differences between groups.

Treatment

Before the charts are selected and reviewed, permission will be obtained from the Loma Linda University Institutional Review Board (refer to Appendix B), and California State University San Bernardino Institutional

Review Board (refer to Appendix C). A written letter of permission from the unit manager of the Cardio-thoracic Intensive Care Unit will be obtained (refer to Appendix D). In addition, a written letter from an assigned IRB liaison of Loma Linda University Medical Center will review my research concurrently to confirm that I will follow the standards and practices of data collection guidelines (refer to Appendix E). A chart review tool will be used to collect data. The chart review tool will be assessed for validity and reliability, and pilot tested before implementation (refer to Appendix A).

A pilot study of five subjects will be initiated before data collection begins. The duration of data collection will be thirty days. Assigned case numbers will be used to identify patients to maintain anonymity. No names will be identified. Only site administrator, thesis committee members, and investigator will have access to confidential information. All information will be kept in a secure locked file cabinet. All retrospective chart review will be conducted in the medical records office at the University hospital.

The questions in the tool are specified to identify how nursing interventions (i.e. progressive and sustained mobilization) help to encourage ambulation and affect

discharge outcomes. This research serves to quantify the factors associated with progressive mobilization strategies that are implemented by nurses on a single-stay cardio-thoracic intensive care unit related to the discharge day of patients.

Limitations of the Study

This study is limited to patients on a single stay CTICU in a large university hospital undergoing cardiac bypass surgery. Other limitations include the researcher developed data collection tool; the reliability and validity of the tool needs to be further demonstrated. The small convenience sample poses limitations to generalization of the findings to other populations or settings. Replication studies with other patients and settings should be considered.

Data Analysis

The use of a cardiac single stay unit to measure outcomes has not been collected to date. The statistical evidence collected in this study will describe a relationship related to the nursing interventions implemented in this study. If early progressive and sustained ambulation is found to encourage early discharge

in this study, this research will contribute to further analysis of its effectiveness.

The level of measurement in regards to the day of discharge, number of days hospitalized, and times ambulated consists of ratio data. Important components to acknowledge in analyzing data is the accuracy of the data, reliability and validity of the data, the process of analyzing self-developed assessment tool established by the researcher, the statistical algorithm of the database, and the power of the database. All of the elements will be taken into consideration to produce an accurate representation of the data collected.

In this descriptive, non-experimental study, quantitative data will be analyzed by the use of SPSS software, version 10.0, statistical program. Descriptive statistics will be generated for quantitative data that will include but not limited to mean, median, mode, standard deviation, frequency distributions to test for associations with early progressive mobilization and discharge day on a single stay CTICU of a large teaching university hospital. Nominal data to measure percentages using Chi Square will also be applied. Demographic data and factors related to the outcome of ambulation will also

be explored. A P value <.05 will be required for statistical significance.

Protection of Human Subjects

The Institutional Review Board (IRB) of the Faculty of Nursing at California State University of San Bernardino and the University Medical Center will review the proposal. The confidentiality of subjects will be protected at all times. The questionnaires that are reviewed by a statistician or other personnel for data entry will be identified by subject numbers. There will be no identification of medical record number or name exposed to the questionnaires reviewed. All data collected by the researcher will be kept in a locked file and will not be shared with anyone else. No patient contact will be required for completion of this retrospective study.

Risks to the individual participants in this study are not foreseen. This research may or may not provide direct benefits to the subjects of this study. However, the study may be far reaching if there is recognition of early and sustained progressive nursing interventions and its affect with discharge day. The impact of cost containment and patient satisfaction are other areas that

can be explored. The ramification of such evidence provides an outlet for many further studies to continue.

CHAPTER FOUR

RESULTS AND DISCUSSION

Data Analysis

The data collected in this study include demographics, total length of stay, and the frequency of mobilization. The convenience sample for this study was composed of thirty 46-86 year old adults who completed CABG surgery in 2001 at the large teaching University hospital. Subjects were excluded if they were a minor or had redo and/or valve surgery.

The socio-demographic data collected for each subject from the retrospective chart review tool includes age, ethnicity, and gender. Age in years was reported as mean, median, mode, and standard deviation. Nominal data included ethnicity (Caucasian, Hispanic, Black, Asian, or other) and was reported as a percentage. Gender was also reported as percentage. The percentages that were found provided evidence of differences and similarities between groups.

Mobilization was compared with total length of stay using the Chi-Square statistical test. The Chi-Square statistical test analyzes nominal data to test for group independence or relatedness and approximation. The total

number of medical records exceeded twenty to adequately represent approximation. The null hypothesis for this study was that there is no difference between early mobilization by day 1 and early discharge.

Presentation of the Findings

Demographic data collected from the medical records revealed the mean age of subjects who met the inclusion criteria to be 66.03 (refer to Table 3.). The age distribution ranged from 46-86 years old (refer to figure 1.). A total of 30 subjects were collected. Ethnicity within this sample identified 76.7% as Caucasian (n = 23), 10% Hispanic (n = 3), 3.3% African-American (n = 1), 3.3% Asian (n = 1), and 6.7% other (n = 2) (see Table 2.). There were more male than female subjects in this sample. A total of 63.3% (n = 19) were males and 36.7% (n = 11) were females (refer to Table 4.).

The average length of total stay for CABG surgery was 6 days (refer to Table 1.). This average is consistent with the standards of early discharge as discussed previously. Early mobilization was measured by the subjects' ability to either dangle or ambulate by day 1. Dangling at bedside and ambulation were the only interventions that were used to measure mobilization.

Chi-Square analysis was used to determine if early mobilization by day 1 had any affect on early discharge (< 6 days). The Chi-Square statistical test tested the viability of the null hypothesis. The data indicated that the null hypothesis cannot be rejected.

There was a significant difference for subjects who mobilized by day 1. Of the total 30 subjects who participated in the study, 25 subjects (83.3%) successfully mobilized by day 1 and progressively continued postoperatively ($p = 0.00$). Mobilization was reported as yes for subjects who demonstrated early progressive mobilization by day 1. Subjects who experienced unexpected outcomes as a result of health complications were excluded.

There was no significant difference in the day of discharge and early mobilization ($p = 0.068$). Although this did not identify statistical significance, there is a trend toward significance.

Summary

The study findings identify early and sustained mobilization by day 1 was statistically significant. Although a relationship between early and sustained mobilization and early discharge was not identified, the

trend toward significance can be established with a greater sample size. The statistical analysis, Phi Coefficient, would be highly effective in determining nonparametric correlations.

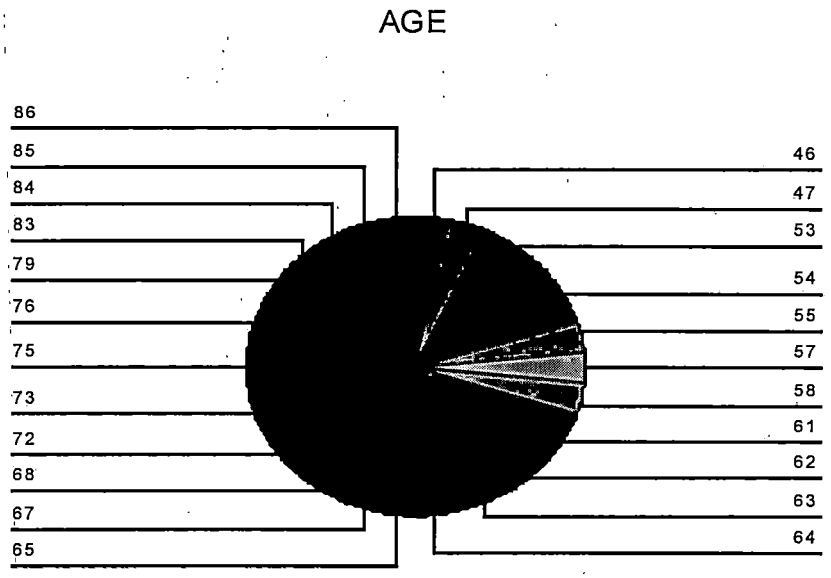

Figure 1. Distribution of Age

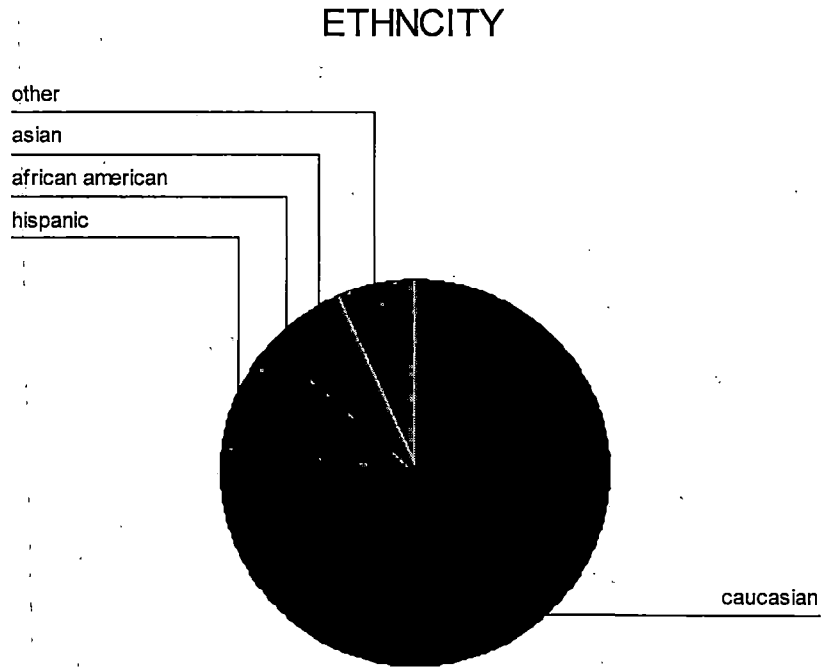

Figure 2. Distribution of Ethnicity

Table 1. Total Length of Stay

	TOTALLOS	Valid N (listwise)
N	30	30
Minimum	3	
Maximum	17	
Mean	6.00	
Std. Deviation	3.30	

Table 2. Ethnicity 1

	Valid					
	Caucasian	Hispanic	African American	Asian	other	Total
Frequenc	23	3	1	1	2	30
Percen	76.7	10.0	3.3	3.3	6.7	100.0
Vali Percen	76.7	10.0	3.3	3.3	6.7	100.0
Cumulativ Percen	76.7	86.7	90.0	93.3	100.0	

Table 3. Age

N	Valid	30
	Missing	0
Mean		66.03
Median		64.50
Mode		53
Std. Deviation		11.31
Range		40

Table 4. Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	male	19	63.3	63.3	63.3
	female	11	36.7	36.7	100.0
	Total	30	100.0	100.0	

Table 5. Chi-Square Analysis of Movement and Total Length of Stay

		Yes	No
Mobilization occurred by Day 1 p = 0.00	Count	25	5
	Expected count	15	15
	Percent	83.3%	16.7%
Early discharge < 6 days p = 0.068	Count	20	10
	Expected count	15	15
	Percent	66.6%	33.4%

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

Introduction

This research study provides significant data for further research to support early sustained mobilization nursing interventions and help encourage early discharge. This data can support how nurses are in great position to impact patient outcomes. Although this data is the first of its kind to measure patients who are on a single-stay unit, it offers a new approach and practice to nursing care.

Conclusions

Upon analyzing the data that was collected by the researcher, there are areas of limitation that affect the outcome. A sample size of thirty was insufficient to represent the outcomes of this population. Findings are not generalizable nor can conclusions be made outside of this study population. The wide variation of total hospital stay was not in direct representation of surgical days of recovery. Some subjects were treated for other problems before surgery occurred. This falsely identified a longer hospital stay that had no direct relation to surgical recovery.

Although there are areas of limitations in this study, it is significant to acknowledge that the practice of nursing care is dynamic and changing. The responsibility of nurses at the bedside is growing rapidly and so will the practice of nursing care. New research and data needs to be collected to support how the roles of nurses' impact direct patient care.

The environment of this sample population can also have a positive impact to better patient outcomes. The concept of single-stay unit offers continuity of nursing care along a continuum where the patient is monitored and assessed throughout the course of hospitalization. This element of care needs to be considered as a possible effect of good patient outcomes. Determining one precise factor that impacts early discharge is difficult to discern when nursing is provided along a continuum. Further studies are needed to evaluate nursing practice.

In order to capture greater validity of this study, a larger population of subjects from different surgical settings should be studied to determine whether early and sustained mobilization helps shorten the total length of hospital stay. By expanding the sample, there will be greater representation of the population. Further studies

using the chart review tool that was developed by the researcher will help to establish reliability of the tool.

Recommendations

Future research in nursing interventions may help to expand the knowledge and practice of providing cost saving strategies without impacting the quality of patient care. Advanced practice nurses are at the forefront of identifying new approaches and research to support the wave of improving nursing care. Research is the answer to innovation and confirmation that nursing is a practice that only gets better.

APPENDIX A

CHART REVIEW TOOL

Loma Linda University Medical Center
Cardio-Thoracic Intensive Care Unit
Activity Progression Chart Review Tool
Researcher: Millie Quan RN, PHN, MSNc

Case #_____ Date Record Reviewed: ___/___/___

Gender: ☐ M ☐ F Age:_____ Birthdate: ___/___/___

	Date	Time
Surgery:	___/___/___	___:___
Admit:	___/___/___	___:___
Discharge:	___/___/___	___:___

Ethnicity:

☐ Caucasian	☐ African-American
☐ Hispanic	☐ Asian
☐ Native American	☐ Other:_____

Progressive Mobilization Strategies

Type of mobilization completed/Frequency

	D.O.S	Day 1	Day 2	Day 3	Day 4	Day 5
☐ Dangle at bedside						
☐ Out of bed to ambulate						
☐ Unable to move						
☐ Not applicable Reason:_____						

APPENDIX B

INSTITUTIONAL REVIEW BOARD

LOMA LINDA

INSTITUTIONAL REVIEW BOARD

OSR # 52067

Exempt Notice

OFFICE OF SPONSORED RESEARCH • 11188 Anderson Street • Loma Linda, CA 92350
(909) 558-4531 (voice) • (909) 558-0131 (fax)

To:	**Andee S. Alsip, MS**
Department:	**School of Nursing**
Protocol:	*A retrospective analysis of early progressive mobilization nursing interventions and early discharge among post coronary artery bypass graft (CABG) patients*
Date:	March 11, 2002

Your application for the research protocol indicated above was reviewed administratively on behalf of the IRB. This protocol is determined to be exempt from IRB approval as outlined in federal regulations for protection of human subjects, 45 CFR Part 46.101(b)(4).

Please note the PI's name and the OSR number assigned to this IRB protocol (as indicated above) on any future communications with the IRB. Direct all communications to the IRB c/o the Office of Sponsored Research.

Although this protocol is exempt from further IRB review as submitted, it is understood that all research conducted under the auspices of Loma Linda University will be guided by the highest standards of ethical conduct.

Signature of IRB Chair or Designee: R.L. Rigsby MD Date: 3/11/02

IRB Chair:
Rhodes L. Rigsby, M.D.
Department of Medicine
(909) 558-2341 rigsby@ahs.llumc.edu

IRB Administrator:
Linda G. Halstead, M.A., Director
Office of Sponsored Research
Ext. 43570, FAX 80131, lhalstead@univ.llu.edu

IRB Specialist:
Anu Job, MPH
Office of Sponsored Research
Ext. 87130, FAX 80131, ajob@univ.llu.edu

APPENDIX C

INSTITUTIONAL REVIEW BOARD

CALIFORNIA STATE UNIVERSITY,

SAN BERNARDINO

CALIFORNIA STATE UNIVERSITY
SAN BERNARDINO
5500 University Parkway, San Bernardino, CA 92407-2397

APPROVED

Expedited Review
IRB File #
01043

APPROVED

April 9, 2002

Ms. Millie Quan
c/o Professor Susan Lloyd
Department of Nursing
California State University
5500 University Parkway
San Bernardino, California 92407

Dear Ms. Quan:

Your application to use human subjects, titled, "A Retrospective Analysis of Early Progressive Mobilization Nursing Interventions and Early Discharge Among Post-Coronary Artery Bypass Graft (CABG) Patients" has been reviewed by the Institutional Review Board (IRB). Your informed consent statement should contain a statement that reads, "This research has been reviewed and approved by the Institutional Review Board of California State University, San Bernardino."

Please notify the IRB if any substantive changes are made in your research prospectus and/or any unanticipated risks to subjects arise. If your project lasts longer than one year, you must reapply of approval at the end of each year. You are required to keep copies of the informed consent forms and data for at least three years.

If you have any questions regarding the IRB decision, please contact Michael Gillespie, IRB Secretary. Mr. Gillespie can be reached by phone at (909) 880-5027, by fax at (909) 880-7028, or by email at mgillesp@csusb.edu. Please include your application identification number (above) in all correspondence.

Best of luck with your research.

Sincerely,

Joseph Lovett, Chair
Institutional Review Board

JL/mg

cc: Professor Susan Lloyd

APPENDIX D

PERMISSION LETTER

Millie Quan RN, MSNc
Principal Investigator
25614 State Street
Loma Linda, CA 92350

Re: Written Consent to utilize patient data retrospectively for the completion of a research thesis

January 3, 2002

To Whom It May Concern:

This letter is to confirm permission to utilize stored data on patients who have undergone CABG surgery within the last year (Jan 2001 – Dec 2001). The qualified subjects will be used as data collection to measure the effectiveness of skilled nursing on a single stay unit (Cardio-Thoracic Intensive Care Unit, 7100). Please acknowledge that the use of human subjects will not be involved. The issue of patient confidentiality will be enforced at all times.

The purpose of this research study is to assist and offer implications to enhance patient outcomes through means of data collection. I will keep you informed regarding the progress of the study in a timely manner. Your time and efforts to assist with my research are greatly appreciated.

Sincerely,

Pam Bracke

Pam Bracker RN, MBA
Nurse Manager
Cardio-Thoracic Intensive Care Unit

CALIFORNIA STATE UNIVERSITY
SAN BERNARDINO
5500 University Parkway, San Bernardino, CA 92407-2397

COLLEGE OF NATURAL SCIENCES
Department of Nursing
(909) 880-5380
fax: (909) 880-7089

February 6, 2002

To Whom It May Concern:

This letter is to verify that Millie Quan is a graduate student in California State University, San Bernardino's Nursing Department's Master of Science in Nursing program. I am the Chair of Ms. Quan's thesis committee. Ms. Quan does need patient data from Loma Linda University Medical Center for her research thesis.

It would be very much appreciated if LLUMC would provide Ms. Quan with the data she needs.

Thank you and please feel free to contact me if you have any questions or concerns.

Sincerely,

Susan L. Lloyd

Susan L. Lloyd, PhD, RN
Director of MSN Program/Professor
Department of Nursing

APPENDIX E

DATA COLLECTION GUIDELINES

LOMA LINDA UNIVERSITY MEDICAL CENTER

Memorandum

To:

From: California State University

Date: Andee Alsip MSN, RN, CNRN

Subject: 02-21-2002

IRB for Millie Quan MSNc

Nurse Quan is being proctored by me at Loma Linda University Medical Center for her graduate project. I am a member of the Nursing Research Council. We guide our student and staff researchers through a rigorous review process.

Ms. Quans' project will be a retrospective chart review of surgical patient records. The subjects are a convenience sample of individuals that have previously undergone heart surgery. Patient confidentiality is maintained. Names and record numbers are ommited. Patients are identified by demographic characteristics and assigned codes only.

Respectfully,

Andee Alsip
Clinical Nurse Specialist
Department of Advanced Practice Nursing

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