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Primary Nursing: A Cost and Quality Effective Patient Care Structure

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PRIMARY NURSING:

A COST and QUALITY EFFECTIVE PATIENT CARE STRUCTURE

By

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Abstract

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This descriptive study was undertaken to investigate differences in cost-effectiveness and quality patient care between primary nursing and team/functional nursing as practical in a 113 bed acute care community hospital. The sample was comprised of 80 hospitalized patients that were divided equally between a primary and team-functional nursing unit. Quality of Care was measured by the Rush-Medicus Nursing Care Quality System and cost effectiveness was determined by annual salaries.

Using a t-test statistical analysis, no significant differences were obtained in quality of patient care when using a primary nursing care structure with less FTEs as compared to a team leading nursing structure using more FTEs. The employee salary relationship showed that primary nursing unit costs were 11.7% higher than the team-leading unit, but when orientation for new staff and additional personnel salaries are factored out, the total demonstrates that primary nursing unit costs were not different than those of the teamleading unit.

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Chapter 1

Introduction

This chapter is organized into eight sections: (1) problem statement; (2) purpose of the study; (3) importance of the study; (4) research questions and hypothesis; (5) definitions of terms; (6) research objectives; (7) limitations of the study; and (8) organization of thesis. Each section is discussed separately.

Identification of the Problem

Hospitals are the agencies that employ the majority of practicing nurses in the United States and are often the most difficult places in which to practice nursing. Frequently this is due to working conditions in hospitals that may include unflexible policies and regulations, administration philosophy and style, direct supervision, shift and weekend work requirements and medical staffs' interactions. Efforts are needed to improve the hospital working environment for nurses. The areas that need to be developed include increasing the nurses' accountability, responsibility and autonomy of nursing practice and patient care. Regardless of the modality of care, whether it is Primary Nursing, Team Leading, or Functional Nursing Care, competitive fiscal management has become a challenge for nursing service administrators with the advent of Medicare's new prospective payment system.

The cost to provide health care in 1985 for the United States was 370 billion dollars and is continuing to increase at a rate that is faster than the annual inflation rate (Hospital Week, 1985). As a result the federal government, business groups and consumer groups are exerting political and economic pressure on the health care industry to minimize the spiraling cost of health care. Hospitals, in particular, feel this impact. Nursing personnel comprise about one-half of the total personnel employed by an average hospital. Salary expenses for this group total 20 to 30% of the total hospital expenditures (Levine & Philip, 1975).

In 1977, the total cost of recruiting and socializing new nurses in California, exclusive of the cost of the personnel department and the inservice education department was $182 million or $287 a month for each working nurse in the state. In 1980, 38% of the entire nursing work force in California left employment (Friss, 1982). Other studies estimate that, for hospitals of 200 to 500 beds, the average cost associated with orienting new hired registered nurses was from $70,000 to over $131,000 per year (Kase & Swenson, 1976; Tuchi & Carr, 1971). Droste (1987) stated "the cost of replacing a registered nurse when calculated for both the temporary replacement and the new nurse was between $10,000 and $20,000" (p.150). Hospital costs, in general, have risen dramatically over the past several decades. Concern about these dramatic cost increases has created pressure to maximize operational efficiency in hospitals. For this

reason, nursing service, which is the largest single component of hospital cost has come under close financial scrutiny (Levine & Phillip, 1975).

The primary goal of any nursing department or patient care service is to render effective, efficient health care to the consumer. To accomplish this goal, an appropriate system for delivery of nursing care must be used. In the early seventies, nursing leaders began to advocate primary nursing as one of the best institutional systems available to yield this desired care.

Primary nursing is a relatively new term but not altogether a new idea. The history and trends in nursing over the past century tell the story of changes in the focus and organization of nursing care, particularly in hospitals. Primary Nursing was developed in the late 1960s. Primary Nursing means the individual nurse has full accountability and responsibility for patient care from admission to discharge, involving the patient and family in all aspects of care. This pattern of care is being hailed by many as a means by which to decrease costs, increase quality, and to provide greater opportunities for nurses to assume responsibiity, accountability, and autonomy within their workplace. Primary nursing has been named, reported, and developed mostly through American nursing literature (Hegyvary, 1982).

A brief history of the types of nursing care is necessary in order to understand how and why primary nursing

is evaluated. Nursing Care as a deliberate and organized service has existed a relatively short time. The origins of modern nursing are usually attributed to Florence Nightingale and her contemporaries in the nineteenth century. Nightingale lived in an era of little scientific knowledge about the care of the sick. As a recruiter, a teacher, and an organizer, she took care of the sick in a more systemic way then generally was known. She kept data on the wounded, rates of infection, death rates, and types of treatment that reduced trauma and death. She advocated formal education for people who nursed the sick.

Care of the sick at home was the custom before World War I. "Private duty" nursing set the stage for community health nursing as well as primary care in later decades. However, a major change in the delivery of health care in hospitals forced changes in nursing.

The increase in the number of hospitalized patients necessitated a change in nursing style. This style tended to be hierarchical and authoritarian, based on military and religious traditions. Nurses had low status because of their low social class, sex and lack of proper education. They were in fact "cheap labor" for the hospitals, not just for care of the sick but for a myriad of chores to keep the hospital in operation (Marram, Barrett & Bevis, 1979).

Students were trained as apprentices to hospital nurses. Although some nurses advocated higher education for nursing practice, norms were based not on educational

principles but on the needs and environments of hospitals. Community and private duty nurses remained a separate breed for many years (Hegyvary, 1982).

In the 1920s, 1930s, and early 1940s, studies gave rise to functional divisions of labor that almost depersonalized nursing (Marram, et al., 1979). The functional method of delivering care was a direct outgrowth of the division of labor by tasks and was hierarchical in structure. The medication nurse, treatment nurse, and bedside nurse are all products of this system. The functional method implements classic scientific management. Procedural descriptions are used to describe the standard of care, and psychological needs are slighted. Registered nurses (RN) keep busy with managerial and non-nursing duties, while nurse aides deliver the patient care. Although efficient, the functional assignment method does not encourage patient and staff satisfaction (Marram, et al., 1979).

Team leading was introduced during 1950 to improve nursing service by utilizing the knowledge and skills of professional nurses and to supervise the increasing numbers of auxiliary nursing staff. The results were an improvement in patient and staff satisfaction. This was still "care through others", but it was a response to unfavorable conditions, both in hospital care and society at large in the postwar era. These problems included a shortage of registered nurses, the need to control unemployment of

unskilled workers such as aides trained for the war, and the strain of changing back to a peacetime economy (Douglass, 1973).

In its ideal form, team leading, to some extent, restored the direction toward a more professional level of practice. The assignment of staff to the total care of the same patients from day to day gave continuity and comprehensiveness that were lost with task assignments (Douglass, 1973; Hegyvary, 1982; Marram, et al., 1979). However, the ideal model was frought with problems. The team leader was placed in an often impossible situation, with untrained or poorly trained staff. Frequently the patients were divided according to the tasks that had to be done for them. As a result, "team" has come to mean a mixed group of nursing staff, one of them called team leader, who collectively give care to a number of patients, regardless of whether assignments made are according to tasks or to patients. Lydia Hall (1969) called team leading "the greatest disservice to the American public,"..."team nursing... is concerned mainly with getting the nursing work done" (p.82). Any career defined around work which has to be done, and how it is divided to get it done, is a trade.

Although team leaders probably have the least contact with patients, they are responsible for the assessment and planning and for communication with physicians. Continuity of care is not given, as patients are not assigned to the same staff all of the time and large assignments make

individualized patient care difficult. Team conferences are often omitted because they are difficult to fit into busy days. Care plans rarely depict the patient as a total person and consequently are not comprehensive. Registered nurses in these systems are not professional care givers, rather they are checker-uppers of cheaper-doers.
Primary Nursing, on the other hand, is a delivery system that creates the opportunity for nurses to develop a more professional role in hospital nursing. Primary nursing means the full accountability for patient care from admission to discharge.

Purpose of the Study

The purpose of this research was to assess differences between two dimensions of primary nursing and team-leading nursing as practiced in a 113 bed acute care community hospital. This research was initiated to provide meaningful information so the hospital administration could make a more rational decision on which type of nursing structure should be used to provide patient care on all of its nursing units.

For the purposes of this study, cost-effectiveness means the extent to which a nursing unit can produce the same quality outcomes with less cost, or with the same cost and efficiency, produce higher quality outcome. Quality of nursing care services is defined by the measurement of the assessment of structural elements, the care delivery process itself, and the outcomes of care. The question confronting

the researcher is what constitutes the most feasible and advantageous mix of nursing staff in lieu of cost containment policies. Given a hospital unit on which the complexity of patient care requirements have increased to a consistently higher level, is it possible for a higher mix of professional nursing staff (73% RN, 27% LPN) consisting of fewer members (20.3 FTEs) to deliver nursing care as effectively as a lower mix of professional nursing staff (34% RN, 54% LPN and 12% Nurse Aides (NA)) consisting of more members (23.4 FTE's)? At the same time, can cost containment policies be observed?

Significance of the Study

Nursing care of patients can be provided by a number of different modes which include (1) functional, (2) team-leading, and (3) primary nursing. If the goals related to quality health care are to be achieved, scientific inquiries within the nursing profession by nurses must be encouraged.

The implementation of primary nursing is not easily accomplished. As with any major change, this process requires a great deal of time and energy expended by many individuals. To successfully implement primary nursing, cooperation and considerable skill are necessary in the use of commmunication networks as well as in interpersonal interactions. Therefore, it is essential that a considered change to primary nursing be based on facts. "Nothing will destroy credibility more quickly than a discovery that the

cause for which one labors is based on incomplete or false data" (Brooten, Hayman & Naylor, 1978).

Many rigorous nursing research studies are still needed to demonstrate whether primary nursing improves the quality of care, increases nurse and patient satisfaction, or is cost effective. The successful implementation of primary nursing and measurement of its effectiveness has the potential for improving the status of nursing as well as the quality and cost of the health care nurses provide.

Research Questions

This study addressed the following research questions:

1. Was the quality of patient care on the primary nursing care unit different than that on the teamleading unit? Specifically, was the quality of patient care higher on the primary care unit?

2. Was the primary nursing unit more cost-effective than the team/functional nursing unit?

Research Hypotheses

The nursing staff and patients on the Primary Nursing Care Unit and the Teamleading Nursing Care Unit were evaluated by the Rush-Medicus Quality Monitoring Methodology tool to determine quality of patient care and for salary costs for employees' wages. It was hypothesized that in a 113 bed acute care community hospital:

1. There will be no difference in the quality of patient care on the primary nursing care unit using less

FTE's than on the team leading nursing care unit using more FTE's.

2. The primary nursing care unit will be more cost effective than the team/functional nursing unit.

Cost effectiveness will be demonstrated when the total salary expense for each nursing unit is compared over one fiscal year and is within a 5 percent range either above or below. Nursing care hours per patient day and paid hours per patient day will be assessed for the primary and team-leading units to demonstrate level of productivity.

Definition of Terms

For the purposes of this study, the following definitions were used:

1. Quality of nursing care: is the outcome of care measured by the assessment of structural elements and the care delivery process itself.

a. Nursing process: the comprehensive set of nursing activities performed in the delivery of patient care which comprise the following: (a) assessment of the problems or needs of the patient, (b) planning for care, (c) implementing the plan of care, and (d) evaluating and updating the plan of care.

b. Primary nursing: full accountability for patient care from admission to discharge, involving the patient and family in all aspects of care.

c. Team nursing: total care given to a group of patients by a team of personnel prepared at various levels, headed by a registered nurse.

2. Cost effectiveness: the extent to which a nursing unit can produce the same outcomes for the same or less cost.

a. One fulltime equivalent (FTE): is equal to 2,080 hours per year.

b. Average length of stay (ALOS): the total number of patient days per month divided by the total number of discharges per month.

c. Costs: includes total salary expense for each nursing unit and salary expenses per patient day.

d. Nursing care hours per patient day: total hours worked in both regular and overtime categories divided by the total number of patient days.

e. Paid Hours Per Patient Day(PHPP): the actual paid nursing hours including benefit, new employee orientation and inservice education hours divided by actual patient days.

f. Unit cost: total personnel salaries for operating each nursing unit. Salary includes all paid regular, overtime, holiday, sick time, vacation, orientation and inservice education expenses.

Major Assumptions

The three major assumptions of this study were: (1) that the acuity of patient care of the two medical/surgical

nursing units under consideration was similar; (2) that nurses and patients who responded to the interviews stated valid information; and (3) that all ancillary support services of both units were the same.

Limitations of the Study

The findings of this study are limited to the two Medical/Surgical nursing units at North Ottawa Community Hospital from May 29 to June 30, 1984.

The Quality Monitoring Methodology tool was used for one 32 day period and not repeated at a later date; therefore, one limitation utilizing this tool was the possibility of staffing and patient classification bias. This is possible if at other times during the year different types of patient medical diagnoses are treated in each unit. A second limitation was that the data did not reflect the level of satisfaction the nursing staff felt providing nursing care on either unit. Employee work satisfaction can affect clients' perceptions of quality of care received. A third limitation was the effect of employee stress resulting from the negotiating of a new union contract. Employee morale and work performance can decrease during times when management and unions negotiate salaries, benefits and working conditions. A fourth limitation was that there are other variables affecting quality of patient care that were not measured. These include quality care indicators that can have a direct effect on patient care and outcomes. These indicators include infection rates, medication error

rates, patient falls and injury rates, and length of stay. A fifth limitation is the fact that the primary unit had many new registered nurses orientating during the sampling period which could cause lower or higher scores on certain sections of the questionnaire. A sixth limitation was that the nursing staff on the teamleading unit knew that if the hypotheses were supported, their unit would be required to change to primary nursing and the nursing assistants would be transferred to other departments or laid off.

Chapter 2

Conceptual Framework

Herzberg's Motivation Theory

Herzberg's (1966) theory of motivation provides an explanation for why primary nursing can improve the quality of patient care and increase both a nurse's productivity and a nurse's level of job and professional satisfaction. Herzberg's industrial research was undertaken in the 1950s to investigate theories of worker motivation that would give managers guidelines for work environment redesign for improved productivity and worker satisfaction (Herzberg, Mausner & Schneiderman, 1959). Herzberg's approach to motivation theory describes two factors - "hygiene or job dissatisfaction" and "motivation or job satisfaction". The major finding from Herzberg's studies suggests that the factors involved in producing job satisfaction (and motivation) are separate and distinct from factors that lead to job dissatisfaction. Factors linked with the good times were called "satisfiers" and "motivators" because they were associated with feeling good and with an increased desire to achieve improved job performance. The motivators included achievement, recognition, growth, work itself, responsibility, and advancement. The three motivators that cause the greatest lasting attitude change are responsibility, advancement and work itself (Hampton, Summer & Webber, 1982).

Herzberg (1976) called the factors linked with the bad times "dissatisfiers" because they were associated with workers not feeling satisfied. The dissatisfiers included company policy and administration, supervision, relationships with supervisors, work conditions, salary, relationships with peers, personal life relationship with subordinates, status, and security. He also called these items "hygiene factors" as they seemed to be environmental. They made up the context in which work was done. Their deterioration was associated with a loss of good feelings and a reduction of work effort and performance. If not maintained, the hygiene factors at work could cause dissatisfaction and weakened effort and performance among employees. Herzberg states that satisfaction and dissatisfaction are more usefully viewed as two separate dimensions, not as opposite poles of one dimension. When hygiene is maintained, dissatisfaction is prevented. But preventing dissatisfaction is all that the hygiene factors can achieve (Hampton, et al., 1982).

According to the logic of motivation/hygiene theory, the expectation that greater productivity will be caused by a hygienic environment is unsupported. Once a maintenance level of productivity is attained, then only motivators, satisfiers of unsatisfied needs, can improve productivity (Hampton, et al., 1982).

To enhance motivation, motivators must be present. During the 1980s improving performance in hospitals will be

directly related to how well supervisors motivate people through making work more meaningful. These improvements will be necessary due to the many economical and political forces influencing health care in the coming years. Even though meeting maintenance needs is important to increase their productivity, managers must examine the satisfiers of a job after meeting employees' maintenance needs. Motivation, if it is to work, must encourage and develop feelings of responsibility, achievement, growth, and recognition. Herzberg (1966) states "the primary functions of any organization, whether religious, political or industrial, should be to implement the need for man to enjoy a meaningful existence" (p.x).

Team nursing care requires nurses to be responsible for and provide many direct services to a large number of patients. These duties include patient medications, doctors' orders, complex dressings and procedures, patient teaching and support, and to formulate the nursing care plan for all patients. Further duties include supervision of the activities of others to ensure that the plan is enacted. It is not surprising that few nursing care plans are written or that those written are superficial and general, sometimes merely a repetition of the physician's orders. The team leader has little time to see that written plans are adequately carried out. Team nurses have little direct patient contact and control over patient outcomes. These factors are counter-productive to motivating employees and

do not produce feelings of ownership, responsibility, and can cause feelings of employee frustration with patient outcomes and work itself.

Primary nursing care demonstrates Herzberg's Theory by providing professional nurses a work environment that encourages accountability, autonomy and responsibility. This type of nursing practice emphasizes holistic patient care which minimizes the fragmentation of care. The placement of nursing care at the patient's side avoids the pyramiding of nursing care delegation of duties and nurses' preoccupation with nursing's reporting hierarchy which is required in team nursing. Primary nursing care affords professional nurses a work place which allows them personal satisfaction, a potential for growth and a meaningful career (Marram, Flynn, Abarovich & Corey, 1976).

Primary nursing is used to reorient and reorganize nursing practice so as to prevent the patient from becoming a nameless, faceless set of tasks. It is both a philosophy of care and an organizational design. It is not simply a way of assigning nurses to patients, but rather a view of nursing as professional, patient-centered practice.

There are four basic assumptions required to differentiate primary nursing from other forms of nursing care.

1. Accountability: One nurse, the primary nurse, is answerable for the indivudalized nursing care plan and direct activities of a patient 24 hours a day, throughout the patient's hospitalization.

2. Autonomy: The primary nurse has and acts on the authority to make decisions about nursing care of her patients in the mode of professional self-governance.

3. Coordination: Nursing care is continuous around the clock, with smooth, uninterrupted flow from shift to shift and with direct communication from care-giver to care-giver.

4. Comprehensiveness: Each care-giver performs all required nursing care for a patient during a specific time period and the nursing care is patient-centered (Hegyvary, 1982; Marram, et al., 1979).

The trend for hospitals to use primary nursing is being shown to motivate nursing staffs to increase productivity and improve job satisfaction. Primary nursing supports human development and work satisfaction by creating an environment where responsibility, accountability, autonomy, coordination, and professional recognition are required for patient care. Herzberg's theory of motivation is demonstrated when nurses practice primary nursing care. Both Herzberg's theory and primary nursing show that when management cultivates a work environment that yields feelings of responsibility, achievement, growth and recognition, quality, productivity and employee motivation will be enhanced (Herzberg, 1976). Studies have demonstrated that employees who are motivated and feel in control of their work environment use less sick time and are more productive (Hinshaw, 1981; Isler, 1976; Keiser, 1980).

Chapter 3

Review of Related Literature

The review of literature includes topics relevant to an understanding of primary nursing care. In this chapter, literature related to cost, nurse's satisfaction and quality of patient care is discussed.

Marram, et al (1979) stated, "Primary nursing is a modality of nursing care subscribing to a distinct set of objectives and philosophy that, in turn, support a unique distribution (assignment) of nurses to patients in the hospital setting" (p.1). The main emphasis in a primary nursing system is that the primary nurse has both responsibility and accountability for the total care of a patient over a 24-hour period, from a patient's admission through discharge.

The majority of studies reviewed shared the limitation of presenting overwhelming positive or qualitative statements or implications about the effects of primary nursing care without offering much objective or quantitative evidence of the superiority of primary nursing to other nursing modes. Primary nursing is identified by numerous authors as a care delivery system that facilitates professional practice, but the interplay and the actual organizational structure have not been clearly stated and defined. A clear definition of primary nursing must

acknowledge the organizational content that fosters and reinforces the roles and activities assumed by primary nurses (Anderson & Choi, 1980).

Conceptually, primary nursing was introduced to the literature in 1970 by Manthey and colleagues from the University of Minnesota (Manthey, Ciske, Robertson & Harris, 1970). These authors applied the label to the nursing care delivery system developed at the University of Minnesota Hospitals and Clinics during the late 1960s. They stated primary nursing established a one-to-one nurse-patient relationship in a highly complex care context. It is a design concept that embodies an arrangement of nurse and patient that facilitates professional practice and the delivery of nursing care. It is an organizational pattern for nursing units in acute care hospitals which calls for nurses to assume a new role... it incorporates the strong components of reponsibility and accountability into the role of the hospital nurse... admitting to only one constant, top quality care.

Measures that have been used as criteria for assessing the effects of primary nursing fall into four major categories: patient satisfaction with care, nursing staff job satisfaction, quality of care, and most recently, cost effectiveness (Osinski & Powals 1980). Marram and colleagues (1974) clarify that total care of one patient is the responsibility of one nurse, not many (p.155-156). In

their definition, primary nursing extends beyond an organizational pattern to a philosophy of nursing focusing on the patient (Marram, 1974).

Smith (1977) introduces time parameters to the individual nursing responsibility for total patient care. Responsibility extends from admission to discharge. Comprehensive care with continuity is emphasized. The patient and nurse are at the hub and all systems extend outward to support them. In Smith's definition, the primary nurse's role expands to include that of patient advocate; the patient participates in making and achieving health care goals (Smith, 1977).

In 1979, Marram extended her previous definition by clarifying that the primary nurse accepts authority and autonomy in addition to accountability for care of a small caseload of patients. Logistics of care are refined. The primary nurse is a manager, caring for the patient while on duty and overseeing care by an associate nurse when off duty (Marram, et al., 1979).

A cost analysis of Primary Nursing was done by Marram and sponsored by the New England Deaconess Hospital in Boston, Massachusetts (1976). This study addressed cost differentials between a primary nursing unit and a team nursing unit. The Primary Nursing Unit had lower salary charges and required fewer nursing care hours to function. Expenditures for extra nursing hours and sick time were less. According to Marram, the primary nursing unit

provided maximum benefit for the nurses who were able to function more professionally (Marram, 1976).

Other studies confirm Marram's conclusion that the cost of primary nursing was less than other modes of patient care (Betz, Dickerson & Wyatt, 1980; Collins, 1975; Felton, 1975; Hinshaw, Scofield & Atwood, 1981; Jones, 1975; Osinski & Powals, 1980; Williams & Stewart, 1980). The Iowa Hospital Association study revealed no difference in the cost between primary nursing and team nursing (Brigid, 1977). Three other studies demonstrated that primary nursing costs more than team nursing (Giovannetti, 1980; Hancock, Flynn & DeRosa, 1984; Shukla, 1982).

Hinshaw studied staff, patient and cost outcomes. The nursing staffs' work environment changed for the better in two ways - staff reported greater satisfaction with their jobs and the work group became more cohesive. Patient satisfaction indicated significant increases in the education and trust aspects of care. In terms of cost containment, there was a drop in the number of float pool hours while sick leave, overtime, and compensation time decreased (Hinshaw, et al., 1981).

While the Iowa Hospital Association study showed no difference in the cost of primary nursing, it did find an increase in the quality of nursing care (Brigid, 1977). Most of the research examining the area of quality of patient care suggests primary nursing is an improvement over team nursing (Daeffler, 1975; Eichhorn & Frevert, 1979;

Felton, 1975; Hegedus, 1980; Jones, 1975; Ruzanski, 1981; Williams & Stewart, 1980).

Corpuz (1977), formerly the associate Chairperson of the Department of Nursing at Evanston Hospital in Evanston, Illinois, monitored and documented costs since primary nursing was initiated in 1971. Nursing care hours were recorded per patient day. During the first three years, there were no significant increases in the nursing care hours per patient per day (Corpuz & Anderson, 1977). Anderson, succeeding Associate Chairperson of the Nursing Department, reported cost effectiveness can be documented by the HAS 6th Month Report, June 1976. HAS Monitrend is a computerized data service for hospitals to help monitor monthly current cost and personnel level. HAS provides information which measures productivity and financial trends. It also compares one hospital to others of similar bed size, both in state and nationally. This system is used by over 3000 hospitals nationwide (HAS, 1972). The HAS/Monitrend Report indicated that Evanston Hospital had fewer nursing care hours, a higher R.N. mix, and less salary expense per patient day than the hospitals using team nursing (Anderson & Choi, 1980).

A study conducted at Rush Presbyterian St. Lukes Medical Center by Medicus Corporation, Haussman, Hegyvary, and Newman (1976) noted that the weaker the R.N. mix, the poorer the quality of care. The Medicus Quality Assurance methodology originated in 1973 in cooperation with Rush-

Presbyterian-St. Luke's Medical Center and the Medicus Corporation. The Medicus process model for assessment of quality takes a patient oriented approach to the evaluation of nursing care. Patient needs and nursing process form the basis for this methodological approach. Objectives in the Medicus quality assessment tool relate to each component of the nursing process as well as several secondary level activities. There are six major objectives and thirty-two subobjectives.

A field test was performed by Haussman and Hegyvary to analyze the feasibility of this methodology for monitoring the quality of nursing care. The validity of the quality instrument was assessed through a review and interpretation of the actual quality scores obtained. Nurse observers participating in the field test were registered nurses with experience in an acute care setting. Quality scores were aggregated and analyzed. An analysis of the scores showed that the methodology was effective and reliable.

The goals at Rush were to maximize the best compromise possible between quality of nursing and cost containment in the development of a center of excellence in nursing (Millman, 1978). Martin & Stewart (1983) using the Rush-Medicus Quality Monitoring Methodology in an Australian hospital, reported that primary nursing had a significant positive effect on patient care. The primary nursing units in this study scored significantly higher overall in formulation of nursing care plans, attending to the

non-physical needs of patients and evaluating the patient's response to care. On the other hand, the study found no significant differences in the physical care provided to patients in primary and non-primary units.

Martin & Stewart (1983) states these findings are not surprising, as physical care is related mainly to carrying out hospital routines and physician's orders, which have been the historical emphasis of nursing. Other areas of care require independent nursing judgement and are related to the professional role of the nurse, which is facilitated by the primary nursing system. Helt and Jelinek (1988) analyzed over eight million patient days in the Medicus National Data Base Monitoring System and found that even with a significant drop in length of stay, and the attendant increase in patient acuity; productivity and quality both increased. One of the key explanations for increased productivity was an increase in the number of registered nurses in each institution. Studies of job satisfaction, employees' attitudes toward work and the organization have shown that primary nursing caused increased motivation and job satisfaction in the nursing staff (Hinshaw, et al., 1981; Isler, 1976; Keiser & Bickle, 1980; Marram, 1976).

The literature review demonstrates the idea that primary nursing supports Herzberg's theory which states that if motivators are encouraged and developed in the job setting productivity and quality of patient care will increase. Primary nurses will have greater control over

their practice setting and profession. This will provide nurses a work environment which will support and encourage autonomy, responsibility, and coordinated patient care.

Chapter 4

Methodology

Introduction

The purpose of this study was to examine differences between primary nursing and team nursing care by measuring salary costs and quality of patient care. This chapter describes the methodology for the study. The research design, sample selection, data producing instruments, procedure, and protection of human subjects are described.

Research Design

The research used a descriptive design to examine cost effectiveness and quality of patient care differences between primary nursing care and teamleading nursing care.

Setting

The study was conducted at North Ottawa Community Hospital (NOCH), a 113 bed acute care community medical center. The nursing units used for the study were two identical Medical/Surgical units, each with 30 beds. Both nursing units were located on the same floor and provided care to patients with the same mix of medical/surgical diagnoses. All ancillary support services were exactly equal on both units. Examples of ancillary support services included unit dose medication system, messenger services, dietary, and patient transportation system.

Sample

The sample consisted of forty (40) randomly selected patients chosen from each of the two nursing units. The patients chosen were both medically and legally competent, spoke English, and had been in the hospital for more than 24 hours. The sample consisted of 35% and 37% respectively of the patient admissions to both units. The patients were of both sexes. The nursing staff interviewed were all Registered Nurses and all were female.

Data Producing Instrument

The Rush-Medicus Quality Monitoring Methodology was chosen for use in this study because it has been extensively tested for reliability and validity (Haussmann, et al., 1976; Hegyvary, 1982). It has been translated into Norwegian, Dutch and French and has been used to monitor quality of nursing care in those countries (Hegyvary, 1982).

Further, the Rush-Medicus instrument was reviewed by Ward & Lindeman (1978) in Instruments For Measuring Nursing Practice and Other Health Care Variables, published by the U.S. Department of Health, Education and Welfare, which is a compilation and critique of nursing research instruments. three other tools: the Quality Patient Care Scale (QUALPACS), the States Nursing Competencies Scale, and the Phaneuf Nursing Audit also were included in that compilation. While recognizing the value of all four instruments, the report commented on the problem of

subjectivity and possible introduction of bias when using both the QUALPACS and Slater Nursing Competencies Scale, on the lack of information provided by the Phaneuf Nursing Audit, and on the test-retest and inter-observer reliability characteristics of the variables measured.

In the critique of the Rush-Medicus instrument, Ward & Lindeman (1978) stated: "This methodology represents careful and impressive attention to conceptual framework, detail, planning, testing and evaluation" (p.512). As one of the most widely tested, most thoroughly analyzed methodologies available for measuring the quality of nursing care at this time, it can make a significant contribution to the nursing profession.

The quality of nursing care as it can be measured by an assessment of the nursing process is the variable. The nursing process is defined as the assessing, planning, implementing, evaluating, and updating components of care. The nursing process, as operationalized by the instrument, is a comprehensive set of all nursing process activities performed in the delivery of patient care.

The Medicus Nursing Quality Monitoring Methodology was utilized to evaluate the care given on both the team nursing unit and the primary nursing unit. The quality monitoring methodology is based on 367 criteria applicable to medical, surgical, obstetrical, pediatric, psychiatric, labor and delivery and emergency as well as nurseries and recovery

rooms. For the purpose of this study, only the medical, surgical evaluation tools were utilized.

Initially (in 1973) the methodology was tested by Medicus in sixteen medical, surgical, and pediatric units of two pilot hospitals for a four month period. Then in 1974, a refined version of the criteria was field tested in nineteen hospitals across the United States. More than 100 patient care units were monitored over an extended period of time. After extensive statistical analysis, criteria were restated or refined to achieve the greatest possible consensus in interpretation among nurse observers (some 60 nurse observers used the criteria in the field test). Thus, the methodology as it stands today has proven its reliability and validity. No other tool currently in use shares this distinction (Whittaker Medicus, 1982).

Instrument

Four major steps were taken by Medicus in the initial development of the instrument: (1) development of the conceptual framework; (2) identification of logical components of the framework, (3) identification of criteria for evaluating quality within these components, and (4) statistical testing of both criteria and the framework. In reality, these steps were not discrete, but were engaged in at various points throughout the project. Medicus uses a conceptual framework for quality monitoring that is patient-oriented in its approach to the evaluation of nursing care. Two concepts that form the basis of this approach are

nursing process and patient needs. Nursing process monitoring extends beyond the performance of technical activities to encompass the nurse's data gathering and decision-making.

The corollary concept is that of patient needs. Criteria related to assessment and planning imply that the nurse focuses on the needs or problems of the patient. Implementation criteria then specify that care is provided in accordance with the plan of care which, in turn, is based on the assessment and continuous evaluation of needs or problems. The criteria are stated in objective, measurable terms, usually with dichotomous answers, and sources of information have been identified for each criterion.

The methodology also recognizes that the provision of direct care for patients is dependent on the provision of many indirect or support components. For example, a nurse cannot administer a medication unless the medication is delivered to the unit. To measure the quality of nursing care, then, other factors in the patient care system are considered simultaneously.

The major objectives and subobjectives for nursing care were developed which centered on performance of each component of the nursing process. The overall instrument consists of six major objectives, each of which are addressed by a number of subobjectives, totaling 32.

Following is a list of the major objectives.

1. Nursing Care Plan Formulated
2. Patient Physical Needs Attended
3. Non-Physical Needs Attended
4. Achievement of Objectives Evaluated
5. Unit Procedures are Followed
6. Delivery of Care Facilitated

The subobjectives relate specifically to the issue addressed by the major objectives. For example, major objective 4.0 has two subobjectives that include Records document care provided and Patient response to therapy is evaluated. The single most important fact about the objectives as developed is their level of detail. No other existing methodology for monitoring quality of nursing care defines the nursing care process with this degree of specificity and discreteness. Each individual subobjective can be taken as an independent characteristic for which a performance measure can be obtained (Ward & Lindeman 1978).

The methodology was developed to permit a separate review of the patient-specific and unit-specific criteria. In this manner, quality on a unit can be evaluated in several dimensions, both patient-specific and unit-wide, providing the ability to identify and focus on problems in distinct areas of the nursing process.

The Medicus tool monitors quality in any nursing unit on the basis of a review of 10% of one month's admissions (12 to 20 patients, depending on unit occupancy and length

of stay). Observations are distributed randomly across days and evenings, with 60% occurring on days, 40% on evenings and 10% on weekends. A master schedule defines for the nurse observers the number of observations to be made by shift on each unit. One observation consisted of selecting two or three specific patients using their room numbers with a table of random numbers just prior to the actual observations. Responses are recorded on a Quality Monitoring Answer Sheet for each patient. Once patients are identified for observation by the nurse observer, their illness classification is ascertained from the patient classification form and appropriate questionnaires are selected for use. The nurse observer collects patient specific data from the chart and when finished goes to the selected patient's room and introduces herself and explains the questionnaire and receives patient approval before completion of patient interview. The nurse then interviews the patient's assigned RN and ask her the questions that are part of the questionnaire. A general unit observation is made at the same time.

The questions are very specific and have several probe questions listed to help the patient or nurse understand the question. If the patient or nurse cannot understand the questions, the observer can either: 1) repeat the question exactly as written; 2) refer to the wording in the criteria statement, or 3) refer to the wording in the answer format. The observer is not allowed to reinterpret the question with

the use of other words or examples. Observers may use "neutral probes" at any time in interviewing, such as, "Could you elaborate?" or "Could you explain that a little further?"

Data Collection: Patient Specific. The subobjectives are addressed by a number of alternative questionnaires for each patient classification type and appropriate specific sources i.e. (patient record, patient and/or nurse) are reviewed and interviewed. For example, one acuity level questionnaire has seven alternative forms of the questionnaire, each of which produce data that are considered equal (see Appendix A). The alternate forms of the questions are also called criteria. This arrangement reduces observer monotony and prohibits staff on the units being monitored from anticipating which items are being reviewed at any one time. Appendix B contains, as an example, major objective 1.0 with all five subobjectives and related questions or criteria for subobjective 1.3.

Data Collection: Unit Specific. One form of the unit observation questionnaire is utilized as part of each data collection visit on the nursing unit. The unit specific questionnaire addresses only major objective 6.0 of the Medicus tool which relates to Delivery of Nursing Care Facilitated and Managerial services.

At the end of the month, a computer program produces quality indices for the 32 subobjectives. Scoring of the instrument proceeds on three levels. First, the responses

to all criteria or questions related to a subobjective are totaled and averaged. Next, the average scores for each criterion are totaled and averaged for a subobjective score. Lastly, the mean of the subobjective scores are computed to arrive at the score for the major objective. The possible range for scores for sub-objectives and major objectives is 0-100 with 100 being the highest quality of care and 0 being the lowest. All criteria within a subobjective are treated equally; that is, no attempt is made to weight their relative importance to the particular attribute of nursing being addressed by that subobjective.

Procedure

A letter and proposed personnel salary budget was sent to the hospital administrator requesting permission to examine the differences between primary nursing and teamleading nursing care by measuring salary costs and quality of patient care. Nursing Administration received approval from the hospital administrator to proceed with the study. The percentage of RNs was increased and the Nursing Assistants were moved to other nursing units within the hospital. Three nurse-rater observers were hired for the study.

A four hour workshop was conducted to train the observers before they initiated observations. They were also given a manual with all pertinent information regarding policies and procedures to accurately score their observations. It was considered essential for the observers to

be registered nurses, as nursing judgements are required in the use of the tool (Haussmann, et al., 1976). The rater-observers included one masters prepared nurse who was hired from outside the hospital and two baccalaureate prepared nurses who worked at the hospital, but were not directly involved in either the primary or non-primary units. To determine comparability among observers, reliability testing took place at the beginning of the study. Inter-observer reliability for the three reviewers was 85%. To decrease the chance of observer fatigue, boredom and error, and also not to overstress the nursing staff, observers were allowed to do a maximum of three observations per session.

In this study, forty patients were reviewed on each unit (80 in all) over a period of one month (5/29/84 - 6/30/84). Thirteen unit observation questionnaires were also completed on each unit. (A unit observation was done each time two or more patients were reviewed on a unit.) Communication with the nursing staff on each unit was established to determine, what times on each shift would not be suitable for making observations. Times that were avoided included early morning hours; changes of shift and meal times.

Observations were distributed randomly across days and evenings, with 60% occurring on days, 40% on evenings, and 10% on weekends. Patients were randomly selected from each unit (using a random numbers table) just prior to the actual observations. Patients must have been on the unit for at

least 24 hours in order to qualify for inclusion in the sample. Also, the same patient could not be used twice unless the observations were at least seven days apart. To keep track of the patients and questionnaires used in the study, questionnaire control forms were filled out each time observations were made (Appendix C).

Once patients were identified for observation, their illness classifications were ascertained using a patient classification system measuring patient dependency on nursing. The patient classification system used at North Ottawa Community Hospital is based on minutes of care per patient per shift. Minutes of care are converted into points on a ratio of six minutes for each point. Patients are categorized accordingly and identified as type 1,2,3, or 4, with 1 indicating the lowest level of acuity and 4 the highest. Appropriate questionnaires were selected for use depending on the patient's classification. Since there were no Type 4 patients on the Med-Surg units, only the first three types of patients were sampled.

Completion of the questionnaire control form was required for two purposes. The first was to ensure that each type of questionnaire was used in a consecutive order on each unit. The second was to record which patients had been monitored, to prevent monitoring the same patient within too short a time span. The observer was instructed to go first to the patient's records. The records which were used included the chart, Kardex, medication records,

Intake and Output sheets and Vital Signs Graphics Form. As the records were reviewed, the questions on the questionnaire were answered. Observers were advised not to read the entire chart, but to limit their review to those areas necessary to answer questions indicated on the questionnaire. In answering each question, the appropriate number in the response column of the answer sheet was marked. After completing the questions to be answered from the patient records, the observer proceeded through the remaining parts of the questionnaire to answer questions from other sources of information, specifically the patient, the patient's nurse, and unit observation.

In the primary nursing unit the nurse interviewed was either the primary or associate nurse for the patient. The primary nurse was responsible for the nursing care plan and all changes that would occur in that care plan from admission to discharge. The associate nurse followed the developed care plan and provided bedside nursing care when the primary nurse was not working. In the team nursing unit the nurse was the teamleader who was usually responsible for 12 to 15 patients on that team for each shift.

The quality of care data sheets from each unit under study were scored separately using Rush-Medicus Nursing Care Quality Reporting System. All computing was done using an Apple micro computer statistical program. Means and standard deviations of all objectives and subobjective

scores were computed. Differences were considered significant when $p<.05$.

Total salary expenses and FTE's were calculated by dividing the two salary totals to find the percent difference. Total salary dollars include regular hours, overtime, paid inservices, new employee orientation, sick, holiday and vacation hours. Nursing care hours per patient day and paid hours per patient day between the two units were assessed to determine which unit had the lower level. Also each unit's benefit hours level were compared to demonstrate which unit used fewer non-productive work hours.

Protection of Human Subjects

Before collecting data, the proposal was submitted to the hospital administrator and the medical executive committee for approval and to assure protection of the rights and welfare of the human subjects.

A standardized introduction to patients and nursing staff was developed and strictly adhered to on all interviews (Appendix D).

Risk to the participants was minimal due to the voluntary nature of the participation, the subject matter of the questionnaire and the design of collecting data which insured confidentiality and anonymity of all subjects. Two possible risks to subjects were that 1) if patient's complaints regarding care were directly given to the nurse in charge of the unsatisfied patient, the nurse could alter the patient's hospital environment and nursing care services

provided, and 2) if the observers reported specific individual results to the head nurse and the head nurse counseled or disciplined an individual nurse for a low score.

The data were collected and stored in the nursing administrator's locked office during the five week collection period. Scan sheets were stored in a locked metal cabinet in the researcher's home.

Chapter 5

Presentation and Analysis of Data

In Chapter 5 data are presented and analyzed for the following hypotheses:

1. There will be no difference in the quality of patient care on the primary nursing care unit using less FTE's than on the teamleading nursing care unit using more FTE's.
2. The primary nursing care unit will be more cost-effective than the team/functional nursing unit.

The Rush-Medicus Methodology for assessing quality of care was used on the primary nursing unit and the team nursing unit. The subjects were those patients in any of the two units who were selected by use of random numbers and were 35% and 37% of patient admissions respectively per unit per the five week study period. On this basis, 80 patients were assessed; 40 from the primary nursing unit and 40 patients from the teamleading unit. For each patient assessed, information was obtained from the patient record, by observation and interview of the patient and by interview of the nurse responsible for the patient's care. All answer data worksheets were returned completed.

Data from which the hospital monthly Profit or Loss Report and FTE Report were developed and distributed by finance and payroll departments of the hospital were used to measure cost effectiveness.

Sample Characteristics

Patient classification mix was identified by unit as 14 (35%) Type 1, 15 (37.5%) Type 2, 11 (27.5%) Type 3 patients on the primary unit and 13 (32.5%) Type 1, 15 (37.5%) Type 2 and 12 (30%) Type 3 patients on the teamleading unit. The proportion of patient types that were assessed for the study were similar between the two units during the five week sampling period.

The nursing staffs of the primary unit and teamleading unit were compared by using a t-test for the three following characteristics: 1) years of actual work experience as a Registered Nurse or Licensed Practical Nurse; 2) years of actual work experience at North Ottawa Community Hospital as a Registered Nurse or Licensed Practical Nurse; 3) age of nursing staff by RN and LPN title.

Nursing Staff's Work Experience

The nursing staff's mean number of years of actual work experience were determined for both the RNs and the LPNs on both units. A t-test calculation demonstrated that the teamleading units' RNs had significantly higher number of years actual work experience than the primary care unit t (29) = 2.52, $p<.05$ as shown in Table 1.

The nursing staff's mean number of years actually worked at North Ottawa Community Hospital and mean ages were determined for both the RNs and the LPNs on both units. A t-test calculation demonstrated that there were no significant differences $p>.05$ for either nursing group as shown in

Table 1

Sample Nursing Staff Demographic Characteristics
(N=63)

	Primary Nursing	Team Nursing	df	t-test	Level of Sig
Mean Years of Actual Work Experience					
RNs	4.2 yrs	10.8 yrs	29	2.52	p<.05
LPNs	4.3 yrs	9.6 yrs	20	1.99	p<.05
Aides	0	9.4 yrs	---	-----	-----
Mean Years of Actual Work at NOCH					
RNs	4.6 yrs	7.7 yrs	29	.17	p>.05
LPNs	7.0 yrs	7.5 yrs	20	.80	p>.05
Aides	0	9.4 yrs		---	-----
Mean Age of Nursing Staff					
RNs	34.3	37.8	29	.79	p>.05
LPNs	38.2	36.3	20	.44	p>.05
Aides	0	41.3			
Numbers of Staff					
RNs	21	10			
LPNs	8	14			
Aides	0	10			

Table 1. There were three registered nurses with BSNs, thirteen Diplomas, and five with Associate Degrees on the primary unit. There were two Registered Nurses with BSNs and nine with Diplomas on the teamleading unit. It has been stated in prior studies that work experience both for age and educational preparation of the nursing staff could affect both the quality of patient care and the productivity of the nursing staff due to on-the-job learning experiences (Shukla, 1982).

Staffing Levels

Budgeted yearly staffing levels for direct nursing care hours for the primary unit were 19.6 FTE's which consisted of a staffing mix of 73% RNs and 27% LPNs. For the team nursing unit, budgeted levels were 22.4 FTE's with a staffing mix of 34% RNs, 54% LPNs and 12% Nursing Assistants. (See Table 2.)

The fiscal year end actual patient days for the primary unit were 9367 and for the team nursing unit were 9631. The team nursing unit had 264 more patient days which was 2.8% more than the primary unit. The actual nursing paid hours showed that the primary unit used 2757 hours or 1.33 FTE's (4.6%) less than the team nursing unit. Paid hours per patient day were 6.17 hours for the primary unit and 6.29 hours for the team nursing unit. This represents 2.0% less for the primary unit. (See Table 3.)

Table 4 demonstrates that the team nursing unit benefit hours were higher than the primary unit for sick time at 19%

Table 2

Budgeted Direct Care Hours

FY 83/84 (Study Year)

	Primary Unit		Team Nursing Unit	
	Total Staff	FTEs	Total Staff	FTEs
7-3 Shift				
RN	4	5.6	2	2.8
LPN	2	2.8	3	4.2
NA	0	0	2	2.8
3-11 Shift				
RN	4	5.6	2	2.8
LPN	1	1.4	3	4.2
NA	0	0	1	1.4
11-7 Shift				
RN	2	2.8	1	1.4
LPN	1	1.4	2	2.8
NA	0	0	0	0
Unit Total				
RN	10	14	5	7
LPN	4	5.6	8	11.2
NA	0	0	3	4.2
Total	14	19.6	16	22.4

and vacation at 25%. Orientation hours were 1050 more on the primary nursing unit due to the number of new registered nurses that were required to staff the unit.

Quality of Patient Care

The Rush-Medicus Quality Monitoring Methodology questionnaires were used for all patient and nurse subjects. The questionnaire is grouped into six objectives with two to nine subobjective structures for each major objective. The mean scores from each subobjective were analyzed to compare the primary and team nursing units. (See Table 5.)

A t-test revealed that there was no significant difference in regard to quality of patient care between the primary and teamleading units. Table 6 shows the t values, degrees of freedom and significance level for the primary and team units for the average score of six major objectives. The average scores for the six major objectives for the two units were not statistically different. Therefore, it is concluded that the level of care on the two units did not differ. Four of the six major objective mean scores were higher on the primary unit than the team nursing unit. Although there was no statistical difference on the following four major objectives

1. Nursing Care Plan Formulated
2. Patient Physical Needs are Attended
3. Non-physical Needs Attended
4. Achievement of Objectives Evaluated,

the mean scores were higher for the primary unit. The mean

Table 3

Actual Paid Hours Per Patient Day
Primary/Teamleading Ratio

	Primary Unit	FTE	Team Nursing	FTE	% Var.
1st 6 mo. sub-total pt. days	4,714		4,996		5.7%
Nursing Paid Hours	28,569	27.48		29.25	6.1%
Paid Hours Per Pt. Day	6.06		6.09		0.5%
2nd 6 Mo. sub-total pt. days	4,653		4,635		0.04%
Nursing Paid Hours	29,276	28.15	30,181	29.02	3.0%
Paid Hours Per Pt. Day	6.29		6.51		
Year End Patient Day Total	9,367		9,631		2.8%
Nursing Paid Hours Total	57,845	27.81	60,602	29.14	4.6%
Paid Hours Per Pt. Day	6.17		6.29		2.0%

Table 4

Actual Personnel Hours Budgeted and Variances for 1983-1984

Variance	Primary Unit	Team Nursing Unit	Hours Difference	% Difference
Regular Hours	43,873	45,841	2,028	4.3%
Overtime Hours	7,606	8,251	645	7.8%
Vacation Hours	2,133	2,866	733	25.6%
Holiday Hours	1,152	1,157	5	0.4%
Sick Hours	1,351	1,667	316	19%
New Employee Orientation Hours	1,870	820	1,050	138%
Total Hours	57,845	60,602	2,757	4.6%
FTEs	27.81	29.14	1.33	4.6%

Table 5

North Ottawa Community Hospital
Quality Monitoring System - Score Report
(Period from 5/29 to 6/30/84)

	Objective	Primary Unit Mean	Team-Nursing Unit Mean
1.0	Nursing Care Plan Formulated	66	50
2.0	Patient Physical Needs Attended	87	82
3.0	Non-Physical Needs Attended	63	57
4.0	Achievement of objectives evaluated	70	51
5.0	Unit procedures are followed	64	87
6.0	Delivery of care facilitated	80	80

Table 6

North Ottawa Community Hospital
Quality Monitoring System - Average Score
(Period from 5/29 to 6/30/84)

	Primary Unit Mean	Team-Nursing Unit Mean	df	t Value	Level of Sig.
TOTAL	71.8	67.8	10	.789	p>.05

score on Delivery of Care Facilitated was the same on both units. The mean score for the objective, Unit Procedures are Followed was higher on the teamleading unit.

Salary Cost Relationship

The year long salary budgets of the two nursing units were compared using the hospital's financial monthly management summary of direct profit or loss. The total salary costs on the primary nursing unit were $552,034 and on the team nursing unit were $487,451 which showed that the primary unit salaries were $64,583 or 11.7% more costly than the team nursing unit. Table 7 shows the comparative year-end budget and totals between the primary unit and team nursing unit.

This cost difference can be shown to reflect a $14,600 new employee orientation expense for the primary unit. This expense was required due to the need to hire 10 new registered nurses with at least 160 hours of hospital and unit orientation before they were used as regular staff. There was an added salary expense of another $31,409 for additional Licensed Practical Nurses and Nursing Assistants during the start-up phase. This was required due to not being able to hire all the budgeted registered nurses until March, 1984. For three months on the day shift Nursing Assistants were staffed and for nine months on evenings that staff consisted of three registered nurses and three licensed practical nurses, instead of the budgeted staff of four registered nurses and one licensed practical nurse.

Table 7

Comparative Year-End Budget Report - 1983/1984
Profit or Loss Report

	Primary Unit	Team Nursing Unit	$ Variance	% Variance
RN	$305,937	$166,596	+ $139,341	183%
LPN	149,145	169,782	- 20,637	12.2%
NA	23,309	80,137	- 56,828	343%
UC	46,632	46,513	+ 119	0%
HdN	24,768	24,423	+ 345	1.6%
TOTAL	$552,034	$487,451	$ 64,583	11.7%
Orientation Start-Up Costs	$ 14,600	$ 0	$ 14,600	100%
Extra Staff During Transition				
NAs	23,309	0	$ 23,309	100%
LPNs	8,100	0	8,100	100%
TOTAL	$ 47,009	0	$ 47,009	100%
New Adjusted TOTAL	$ 505,025	$487.451	$ 17,574	3.5%

NOTE: Percent Variance is the mean difference between the primary unit and team nursing unit.

When the orientation and extra nursing staff salary costs are factored out, the new salary total for the primary unit was $505,025, which is a difference of $17,574 or 3.5 % over the team nursing unit.

Summary

This chapter discussed the sample characteristics of the nursing units, nursing staff and patients and the results of the questionnaire and budget summary. Using a t-test statistic, the quality of patient care was not significantly different at $p<.05$ when using a primary nursing care structure with less FTE's as compared to a team leading nursing structure using more FTE's. The total employee salary costs showed that the primary nursing unit costs were 11.7% more than the team leading unit, but when the orientation and additional nursing staff salaries are factored out the new total illustrates a 3.5% higher level for the primary unit which was within the accepted 5% range.

Hypothesis 1; There will be no difference in the quality of patient care on the primary nursing unit using less FTE's than on the teamleading nursing using more FTE's was supported. Hypothesis 2; The primary nursing care will be more cost effective than the team-functional nursing unit was also supported.

Chapter 6

Discussion and Interpretation of Results

Primary nursing has a positive influence on the quality and cost effectiveness of nursing care as reported by (Halloran, 1983; Haussmann, et al., 1976; Hinshaw, et al., 1981; Williams & Stewart, 1980).

This study of the comparison of the total personnel salary costs and quality of patient care between primary nursing and team nursing supports the hypothesis that primary nursing using fewer FTEs is comparable in cost and quality to those on the team nursing unit. These findings supported the conversion to primary nursing for the team nursing unit which was approved and implemented.

The findings of this study are comparable to results of other studies that employed different methods to measure quality of nursing care. Steckel, Barnspther and Owen (1980) and Eichhorn and Frewert (1979) also found no significant differences in sources relative to meeting patients' physical needs using the quality Patient Care Scale. Historically nursing has focused on carrying out hospital routines and policies, physician orders and direct patient care requirements. Technical skills of the nurse have been the major emphasis of education and practice in the past. These are medically delegated functions of the nurse which are in the area of physical care. With primary nursing the focus is on more than the medical needs of the

patient. Primary nursing allows the nurse to become an extension of the patient and base her nursing care on the wholeness of the patient. Primary nursing requires independent nursing judgements which support and develop a professional role for nurses.

The results of this study verified that primary nursing was comparable to the cost of team nursing. The cost of implementing primary nursing was the factor that increased the first year cost. This was due to the orientation of ten new registered nurses. One major limitation of this study was that salaries were counted for one full year, which included start-up costs, but quality was assessed for only six weeks. Like the findings of Betz. et al., (1980), Dahlen (1978), Minyard, Wall and Turner (1986), Osinski and Powals (1980), Forster (1978), and Jones (1975), the present study revealed that the cost of primary nursing is comparable to team nursing.

According to Marram and her associates, none of the hospitals studied in the United States reported an increase in cost of operating primary nursing units compared with nonprimary units (Marram, et al., 1979). They documented monthly cost savings of about $142 per patient with primary nursing. Also the number of sick and absent days was less in primary units, with one unit reporting a 50% reduction.

Authors in diverse locations have concluded that primary nursing is cost effective. It is difficult to tell if the data are comparable from study to study. A review of

some areas of cost to be considered in an analysis underscores the problems of comparability and may be useful in future evaluations of primary nursing.

Sick leave and overtime at North Ottowa Community Hospital were less on the primary nursing unit. The nursing staff were also given a chance to vote at the end of the study and voted 100% to continue primary nursing. For professional nursing personnel, other studies described advantages of primary nursing which includes: 1) a nursing process that becomes more visible and felt to be important (Christman, 1976); 2) increased self-esteem of registered nurses (Evanston Story, 1977); 3) increased job satisfaction as reflected in lower turnover rates and decreased absenteeism (Carey, 1979; Ciske, 1974; Isler, 1976; Knecht, Schlegel, & Marram, 1973); 4) improved interpersonal relations with other health disciplines, particularly the nurse-physician relationship (Cicaticello, 1977); and 5) a work environment which is consistent with the goals of educational programs in nursing and professional ideals (Knecht, et al., 1973).

It would seem that, if accountability for patient care means accountability for total patient care, then primary nursing as opposed to team or functional nursing promises more. Not only are primary nurses more committed to the overall well-being of their patients, but they also have the responsibility for total care; this responsibility is not shared with several other nurses.

Herzberg's (1966) theory of motivation states that motivators include achievement, recognition, growth, work itself, and responsibility. These motivators will cause improved job performance and increase productivity. Primary nursing promotes and supports a patient-centered practice and gives nurses more accountability, autonomy, responsibiity, and professional recognition. This provides for a work environment which increases nurses' job satisfaction. This study supported Herzberg's theory by demonstrating that the primary unit used less nursing care hours and provided higher mean scores for quality of care in four of the six major quality assurance objectives.

Suggestions for Future Research

To determine the benefits or effects of primary nursing, researchers must perform an extensive analysis. Effects to be considered must include costs, patient satisfaction, satisfaction of nurses, and quality of care.

In an analysis of results, a major problem is ensuring specificity and comparability of data. For each of the variables named above, there is more than one measure or method of calculation. Indeed, it is necessary to define carefully the variable called "primary nursing". How much of professional nursing practice has been achieved? Simply calling one unit the "team unit" and another the "primary unit" is an insufficient basis for analysis, comparison, or replication of results either within or across hospitals.

Evaluations of the effects of primary nursing have been conducted in several countries. Individually and collectively, however, they remain limited in scope. More extensive and sophisticated methods must be applied before there is a clear picture of professional nursing practice, its effects on patients and families, and its place in the hospital system.

Further empirical testing is needed to determine whether primary nursing produces better, quality care, whether it is cost-effective, whether it reduces absenteeism and turnover, whether it increases nursing satisfaction and builds work morale and incentive. The definitions of primary nursing reflect what would be considered by some an ideal evalution for nursing. Clearly more research is needed on the cost-effectiveness of the primary nursing modality. Further research should be sensitive to the problem of comparability of nursing units - especially the aspect of patient acuity or disease entity. The experience level and educational level of the RN is also a potentially important variable. Research findings in these areas can build upon research more effectively and be viewed with more validity as the design and measurement issues become increasingly sophisticated.

Implications for Nursing

Primary nursing exemplifies the old and the new. It is heralded as a new concept, but in fact it revives the old and almost lost idea of one nurse for one patient. However,

this is not merely a recycled idea. Although it is based on the past, both the form and the substance have changed. It raises new questions and opens new doors for the future.

Primary nursing has made a significant impact upon the practice of nursing at the hospital under study and many others that implemented primary nursing. Recruitment of registered nurses at the hospital improved after primary nursing was implemented. The quality monitoring methodology demonstrated that the new nurses hired on the primary care unit needed better orientation of hospital procedures.

Primary nursing demonstrates that registered nurses in direct contact with patients have more patient contacts and opportunities to deal with the total patient needs than team nursing with a lesser proportion of registered nurses acting to give care through licensed practical nurses and nursing assistants.

These analyses imply that more staff may not be the answer. A shift toward more highly qualified staff can result in greater attention to total patient needs and a decrease in the cost of providing care. Primary nursing facilitates professional nursing practice as evidenced by cost, patient and nursing responses.

Appendix A

Questionnaire Number by Series by Clinical Area

Clinical Area	Patient Type 1	2	3	4	Unit
Emergency Department	111 112 113	121 122 123			151 152 153
Labor and Delivery	211 212 213 214 215	221 222 223 224	231 232 233 234 235 236		251 252 253
Psychiatry	311 312 313 314 315 316				351 352 353
Nursery		421 422 423 424 425 426	431 432 433 434 435 436	441 442 443 444 445 446	451 452 453
Parents		427 428 429	437 438 439	447 448 449	
General Care	511 512 513 514 515	521 522 523 524 525 526 527	531 532 533 534 535 536 537 538	541 542 543 544 545 546 547	551 552 553
Recovery Room	611 612 613				651 652 653

NOTE. General care questionaaires number 511, 521, 531, 541, 551, were used during the study.

APPENDIX B

Master Criteria List

1.0 THE PLAN OF NURSING CARE IS FORMULATED

1.1 The Condition of the Patient is Assessed on Admission

1.2 Data Relevant to Hospital Care is Ascertained on Admission

1.3 The Current Condition of the Patient is Assessed

01. Is there a written statement about the current condition of the skin? NO 1 YES 2

(Relates to dryness. turgor-hydration, absence or presence of skin lesions, localized skin color, warmth, etc. DO NOT accept general description, such as "pale". Should apply to present status or within past 48 hours.)

02. Are respiratory rate and quality recorded? NO 1 YES 2

Applies to patients with respiratory conditions, conditions in which respiratory involvement is anticipated, or when otherwise necessary, e.g., stroke patient, patient on respirator, hyperglycemic patient, etc. Must be recorded within past 48 hours.

03. Are behaviors indicative of the current emotional state recorded? NO 1 YES 2

Applies to statements i.e., alert, talkative, anxious, depressed, etc. May not be applicable for infants. Applies to past 48 hours.

1.4 The Written Plan of Nursing Care is Formulated

1.5 The Plan of Nursing Care is Coordinated with the Medical Plan of Care

NOTE. 1.0 is a Major Objective statement.
1.1, 1.2, 1.3, 1.4, 1.5 are Subobjective statements.
01., 02., 03. are criteria questions for subobjective 1.3.

Appendix C

Quality Monitoring

General Care

Questionnaire Control Form

Unit _____ Unit Code Number _____

Enter the numbers of the questionnaire used, and the patients' names. Questionnaires should be used in sequential order within a series. Two patients and one unit observation are usually completed with each unit visit.

DATE	SERIES 51	52	53	54	55 (unit)	PATIENT NAME	ROOM NUMBER	RECLASSIFICATION FROM	TO

Appendix D

Introduction to Patients

"Hello, M_. _____. I'm (name). I'm a representative of the Nursing Department, and I'd like to talk with you about the nursing care you have been receiving. We're interested in seeing that patients get the very best nursing care, so we want you, as well as other patients, to tell us about your care. Anything you tell us is confidential. Would you mind if I asked you a few questions?"

"If you don't want to answer some or all of the questions, that's okay. Also, feel free to say anything else in addition to answering the questions."

Introduction to Nurses

"Hello, I'm (name). I'm making observations in relation to the quality project. Have you heard about the project already?"
(If not, the project was explained by stating that the study is being done on two units to look at the quality of care on the units.)

"I'd like to ask you just a few questions if you have a few minutes to spare. It shouldn't take more than 3 or 4 minutes."
(If the nurse was very busy, ask if you could return in an hour or so.)

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