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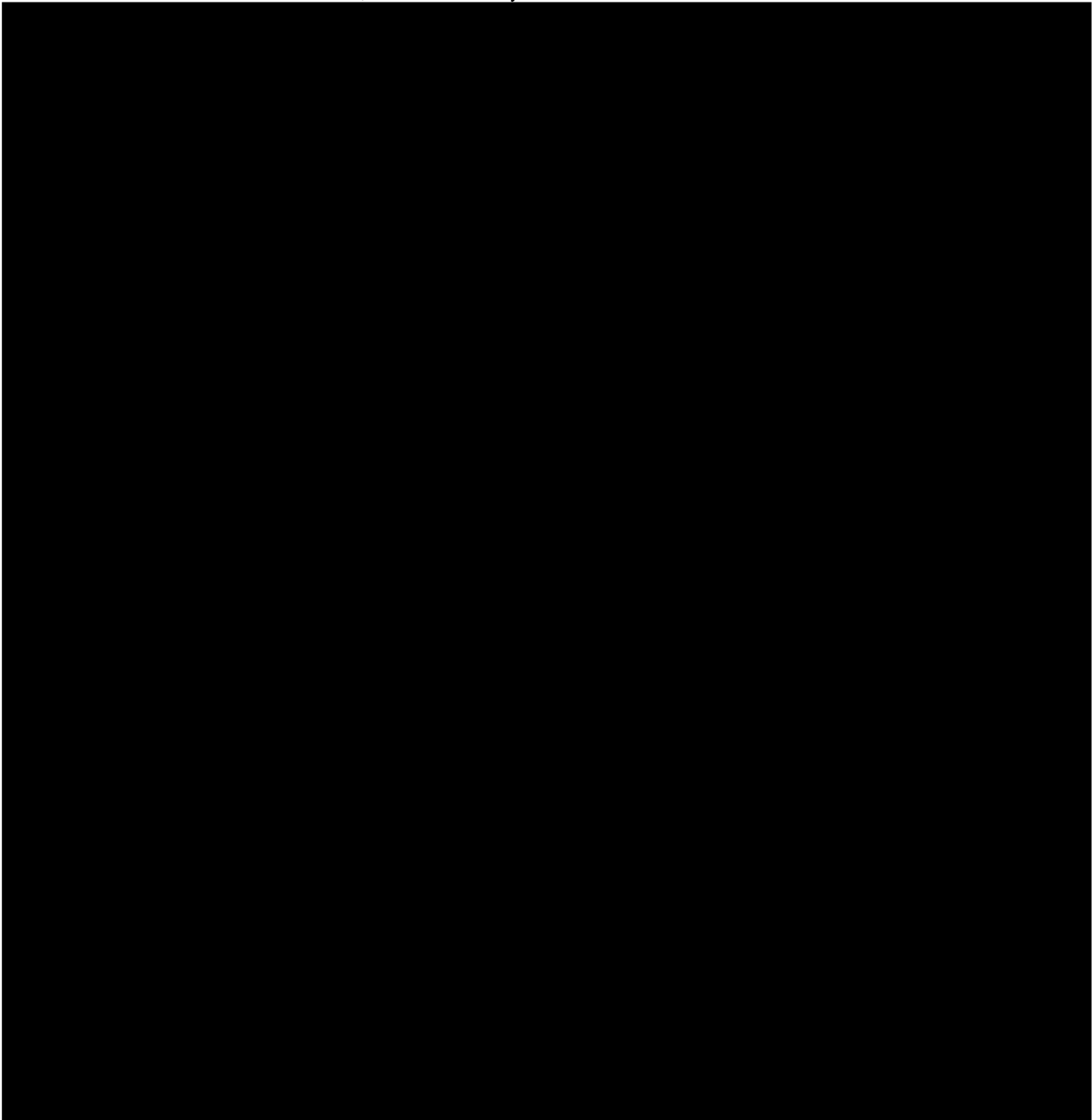
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THE EFFECTS OF TWO NURSING AUDIT PROCESSES ON SUBSEQUENT
ACTION FOR IMPROVING QUALITY OF PATIENT CARE

by

Marjorie Bee Wheeler
B.S., University of San Francisco 1976



Date

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ACKNOWLEDGEMENTS

To my husband Dave for his support, devotion, and encouragement. He inspired me to establish high goals for myself, to vigorously pursue those goals, and to expand my horizons.

To my family and many friends who have supported and encouraged me throughout my graduate studies, I wish to formally express my deepest appreciation.

To Marlene Mayers and Shirley Chater, members of my thesis committee, and to Carol Mitchell for their guidance, support, and insightful critique. Their comments were invaluable in enabling me to lucidly express the concepts in this thesis.

To Marlene Kramer, chairperson of my thesis committee, who provided a role model of the nurse researcher, nursing leader, and above all, master teacher. Her tireless involvement, empathy, energy, and encouragement in all phases of the thesis both defined academic professionalism and enabled me to logically express abstract concepts.

ABSTRACT

Will participative involvement by staff nurses in defining and evaluating quality of patient care generate commitment by nurses to take action to improve the quality of patient care? Nursing care is given over a twenty-four hour period and involves working together as a group to achieve patient care goals. Nurses, then, must collaborate and work in groups and must be committed to take action to improve patient care. Mills' group paradigm describes the cumulative levels of group process necessary to group self-direction. Staff nurses have not, as a whole, been actively involved as advocates for improved patient care. Staff nurses must accelerate their efforts in view of the rising health care costs, rapid advances in technology, and expanding knowledge base for practice. Nuclear acceleration concepts provide both a model to a) clarify and isolate many fuzzy and unclear variables embedded in social reality and b) to search for an environment favorable to acceleration of nurses.

Two nursing audit processes were employed as a mechanism to structure the essential elements necessary toward group growth described by Mills. It was predicted that groups which were actively involved in developing their own criteria for quality of patient care, evaluating their progress toward meeting the criteria, and taking action to improve progress toward the criteria would meet and carry out more remedial action than groups not involved in that process.

Results of the study indicated a variable change in audit scores between adjacent months for certain criteria by the involved group, but not significantly increased over the total seven months of the

study. The non-involved, rather than the involved group as predicted, made highly significant increases in meeting the audit criteria. A change in head nurse, high expectations for staff nurse performance, unit goal-setting, specific plans for achieving goals, and a high complement of younger, less experienced nurses on the non-involved unit could have accounted for some of the differences noted. Differences in staff nurse and nursing unit characteristics were also noted. Those differences mandate that each nursing group employ remedial actions tailored to their particular group.

The audit process alone did not accelerate the involved group to the degree predicted. Nurses on both involved and non-involved units, however, demonstrated the willingness and ability to begin a self-evaluation process to examine the quality of nursing care given to patients. The audit process needs to be employed with increased vigor and frequency of feedback to accelerate groups of nurses in the evaluation of patient care.

Mills' paradigm and nuclear accelerator concepts can be used to describe groups which have been involved in audit. Both models need to be examined in more depth to determine the extent to which they can serve as predictive models for group self-determination, acceleration, and growth. The head nurse as the group leader, constructive conflict resolution, effects of feedback, and the employment of a complement of new graduate nurses were potential accelerating factors uncovered in this study which merit further investigation.

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Introduction

Will participative involvement generate commitment by nurses to take action to improve the quality of patient care? Growing technological advances in diagnosis and treatment of health care problems and a public policy favoring provision of highly sophisticated health care at a reasonable cost challenge the nursing profession. Nurses must assume responsibility to keep abreast of technological, social, and economic issues relevant to health care delivery. This responsibility is a professional obligation reciprocal to the societal trust afforded professions. Nurses coordinate health care plans for patients at the direct patient care level. They are thus in a powerful position to detect, analyze, and act on problems encountered in the provision of quality patient care. This strategic position involves an inherent duty to attack the challenge of providing a cost-effective health care program for both the present and the future. Active involvement in the legislation of and planning for a cost-effective health care system is not characteristic of most nurses. This leads to the question: what can be done to induce nurses to utilize their collective potential to improve the quality of health care?

Self-directed behavior change presents a viable approach to the utilization of collective nursing potential and is the focus of this thesis. Nursing audit will be examined as one process which could lead to self-directed behavior change for the enhancement of patient care. Progress toward enhanced patient care will be presented

through a historical analysis, review of nursing and medical quality of care studies, and identification of unanswered questions. Concepts that will predictably lead to and accelerate self-directed behavior change will be examined. Finally, two different audit processes will be tested on two separate nursing units. Results of the two audit processes will be analyzed to determine whether or not active involvement in developing standards (1) makes a difference in the quality of care provided and (2) leads to subsequent action to improve care.

Evaluation of quality assurance literature will be presented in Chapter One. Quality of care studies in medicine and nursing will be analyzed and unexplored areas of quality assurance will be delineated. The chapter will highlight the significance of the study to patients, nurses, and the health care system and conclude with the research question.

The conceptual framework for this study will be presented in Chapter Two. Acceleration necessary to advance nurses toward self directed behavior change will be discussed using the nuclear accelerator model and Mills' social growth paradigm. The advantages, disadvantages, and application of the accelerator model to nursing practice will be presented. The chapter will conclude with the research hypotheses.

Research design and purposes of the study groups will be presented in Chapter Three. Measures of the dependent variable, to include the development of a nursing audit attitude questionnaire, will be described. The chapter will conclude with a discussion of procedures utilized in application of the independent variable and

those utilized for the non-equivalent groups.

Data collection and analysis will be presented in Chapter Four. The thesis will conclude in Chapter Five with results of the study, implications for nursing practice, and conclusions.

Chapter One

Introduction

Rising health care costs and rapid scientific advances in the treatment and diagnosis of health problems require that nursing as a profession take action to improve the quality of patient care. In this chapter, a brief review of the history of quality assurance, a review of the medical and nursing studies in quality of patient care, and deficiencies in that literature will be presented. Nurses are the largest group of health care providers, yet they are not, as a whole, involved in setting policy, advocating legislation, or advancing changes to improve quality of care at the local level. This dormant potential for improving and advancing the quality of patient care leads to the search for ways to accelerate that potential. The quest leads to the research question, which will conclude this chapter.

History of Quality Assurance

Quality of care has been an implicit historical concern which predated the time of Hammurabi and the Code of Ethics. From a historical perspective, quality of care has moved from that implicit concern in the direction of explicit and externally imposed requirements. Rising health care costs, scientific advances, highly sophisticated medical technology and federally funded programs have led to a growing demand for explicit systems for monitoring the quality of health care. Quality assurance has made rapid advances

in the American health care system since the 1950's. Third party fiscal reimbursement companies have contributed to this demand. The need for and timeliness of most health services are now seriously questioned by fiscal intermediaries and insurance companies. Reimbursement for the health care provided is contingent upon documentation of both the treatment afforded and the rationale for that care. Thus, fiscal intermediaries are playing an increasingly influential role in the pressure for creation of mechanisms to monitor quality of care.

Legislation has also played an influential role in generating requirements for quality assurance programs. The Social Security Act provided for the Medicare and Medicaid programs. These programs were costly to implement and were without mechanisms for quality control. These deficiencies led to legislation that required documentation of quality of care and a system for continual review of that care as a prerequisite for fiscal reimbursement (PL 92-603, 1972). This law (which specified the Professional Standards Review Organization, PSRO, as the quality of care reviewing body) required that hospitals and providers of care at the local level either take responsibility for documentation of a method to monitor their care or the local PSRO board would assume responsibility. This statute holds physicians accountable and responsible for the quality of care throughout the health care system.

A third influence in the development of quality assurance programs was the Joint Commission on Hospital Accreditation (JCAH). Although the JCAH is a voluntary accrediting body, the social prestige

of accreditation provides a strong stimulus for hospital providers to develop quality assurance programs in the form of patient care audit studies.

A fourth influence on quality assurance in nursing lies in the professional development of nursing. The American Nurses' Association has published Standards For Nursing Practice (1973, 1974, 1975, 1976, 1977), Guidelines For Review of Nursing Care (1976), and Implementing Standards of Practice (1975). This action has been supplemented in California by a Regional Medical Program (1974). The California Nurses' Association disseminated information on how to implement nursing audit and develop quality assurance programs at the local hospital level through state-wide workshops for practicing nurses, as part of the Regional Medical Program. Developing standards and disseminating information reflects an internalized professional move rather than an external requirement toward quality assurance in nursing. Nursing, as a profession, has also sought membership on the JCAH Board and on PSRO Boards in efforts to legitimize its perceived obligation to monitor nursing practice.

In sum, quality assurance has developed primarily through legal requirements which mandate the documentation and monitoring of quality of care. Voluntary compliance to JCAH requirements and professional development of standards of practice and guidelines for review of care complement federal legislation. This thesis focuses on nursing's voluntary assumption of responsibility for defining quality of patient care and taking action to improve care as a professional responsibility.

Review of Quality of Care Literature

The focus for the review of literature will be on nursing and medical quality of patient care studies. Quality of care studies may be categorized according to the primary emphasis of the study. Quality of care evaluation studies examine: (1) process, or what the practitioner does to the patient; (2) structure, or the environment in which care is delivered; and (3) outcomes, or results achieved (Donabedian, 1966; Bloch 1975). This framework yields a basis for evaluating a broad concept such as quality of care.

Nursing Studies

The major thrust of quality of care studies in nursing has been in the development of tools to measure quality of nursing care. Tools have been developed to measure the process of giving nursing care (Wandelt & Slater, 1975; H.E.W., 1974; Phaneuf, 1976; Aydelotte, 1973). Secondly, tools have been developed to measure outcomes of nursing care to the patient (Wandelt & Ager, 1975; Laros, 1977; H.E.W., 1975; Aydelotte, 1973; Mayers, Norby, & Watson, 1977; ANA, 1976). Finally, tools have been developed to measure the structure in which patient care is delivered (Aydelotte, 1973; H.E.W., 1974; Mayers, et al., 1977; Hegyvary, 1976).

Nursing has, in addition to tool development, described methods or procedures which can be used in the process of evaluating nursing care (Dunham, 1974; ANA, 1976; Lang, 1974; Mayers, et al., 1977; Peter et al., 1977; Phaneuf, 1976; Benedikter, 1977; Froebe & Bain, 1976). The essential components of the processes described are:

selection of a specific focus for study, directing staff nurses to carry out evaluation studies on their nursing units, detecting and analyzing problems in meeting their unit standards, recommending and implementing remedial action, monitoring progress, and re-evaluation. The literature also describes how a nursing department audit committee is selected and developed to review hospital-wide nursing audit findings. Those authors also articulate reasons why nursing audit studies are vital to quality of patient care. The procedures and methods described have not been tested experimentally. They have provided practical guidelines to staff nurses for examination and evaluation of the quality of patient care delivered on their units.

Finally, the importance of nursing research studies done primarily in the last twenty-five years cannot be ignored. The trend for nurses to use research methods to examine their own practice is an important indicator of scientific inquiry employed to define a basis for nursing practice (Barnard & Neal, 1977; Batey, 1977; Ellis, 1977; Sills, 1977; Gortner & Nahm, 1977; Gunter & Miller, 1977; Highriter, 1977; Schlotfeldt, 1977; De Tornyay, 1977; Lindeman, 1976). Although few nursing research studies have been labeled or titled as "Quality of Care", many have contained valid and reliable tools that could be used by staff nurses to monitor quality of care (Mahaffy, 1965; Wolfer & Visintainer, 1975; Brown & Hurlock, 1975; Resio & Verhonick, 1973; Mc Carthy, 1968).

Medical Studies

Medicine has contributed to the evolution of the study of quality of care by proposing a basic framework for examination of that complex

subject (Donabedian, 1966; Donabedian, 1968; Brook, 1973; DeGeyndt, 1970; Schepps, 1955). The basic framework consists of three common elements described in the literature as structure, process, and outcomes of patient care. This framework was adopted by both medical and nursing professions to examine quality of care. Several studies done in medicine are particularly relevant to this thesis since these studies describe the process of evaluating the quality of patient care (Williamson, Alexander, & Miller, 1967; Gonnella, Goran, Williamson, & Costanas, 1970; Williamson, 1971). The four preceding studies began by describing the effects of a physician's knowledge of a specific topic upon his subsequent action taken in the treatment and diagnosis of patients with that particular problem.

Gonnella (1970) looked at the effects of a physician's knowledge of urinary tract infections upon subsequent action taken by that physician in the diagnosis and treatment of patients. The study reported that performance on the written examination on urinary tract infections did not predict the physician's performance in providing care for urinary tract infection patients. Gonnella recommended that further studies include inquiry into how specific clinical knowledge is translated into action.

Williamson has described studies reporting subsequent action taken by physicians to correct deficiencies in quality of medical care. Williamson studied the effects of physician/practitioner-developed standards for the care of urinary tract infection patients upon subsequent actions to increase compliance to those standards. The actual compliance to those standards fell below the expected

compliance. Subsequent action to improve compliance consisted of a continuing education program on urinary tract infection, but failed to demonstrate any improvement by the physicians in complying with their own standards.

In a subsequent study carried out three months later in a different hospital with different physicians, using the same standards developed by the first group, Williamson looked at the diagnosis and treatment of urinary tract infection patients and the level of physician knowledge on a written objective test. The study revealed higher scores on the examination than found in the first study. Compliance to the standards for urinary tract infection patients still fell below expectations. The study again recommended additional research on the effects of knowledge upon subsequent action taken in the process of giving patient care.

Later studies by Williamson on cardiac patients revealed deficiencies in long term management of cardiac patients. Subsequent action in these studies led to implementation of structural changes, by establishing a clinic for long term management of cardiac patients. This recommended improvement in the health care structure represents expansion to another dimension of problem analysis. Studies up to this point have examined the medical process of giving patient care measured by the patient outcomes of that care. Recommended changes in improving care have centered on improving the process of care. The studies have used a descriptive approach in the evaluation of patient care linking process of care with outcomes of that care.

Deficiencies in the Literature

The major deficiencies in the literature are the absence of descriptive follow-up studies in patient care evaluation, the lack of detailed reports to enable replication, and the absence of experimental studies examining the effectiveness of the processes used to evaluate patient care. Nursing has been concerned with developing tools to measure specific processes and outcomes. This emphasis on tool development was essential because of the need to identify the effects of specific nursing actions upon patient care. Medicine has not had a parallel concern with development of assessment tools. Physicians, unlike nurses, have a well defined scope of practice which is acknowledged by patients. Physiologic and biologic measurement tools are available to provide indicators of medical practice upon patient care.

There is a need to advance beyond the descriptive quality of care evaluation studies reported in medicine and the tool development studies reported in nursing. Experimental studies of the effects of the evaluation process upon subsequent action to improve patient care need to be undertaken in efforts to extend the descriptive studies. Although a patient care evaluation process has been developed (Brown, 1970) this process has yet to be tested experimentally to determine which evaluation process has the best pay-off in nursing for improving patient care. The purpose of this study is to address this issue.

Significance of the Study

The impact and significance of this study lies in potential improvement to the patient, the nurse, the organization, the nursing profession, and the health care system. The benefit to the patient exists in the knowledge that the nurse taking care of him is monitoring her own nursing practice to detect problems and actively improve her practice. This monitoring and evaluating is an inherent and essential component of the trust given by patients to nurses because of their specialized body of knowledge. The consumer must trust the nursing practitioner to evaluate nursing care because he lacks the knowledge and skills to do so. This study would yield information about which of two evaluation processes is superior in stimulating and producing subsequent action by nurses to improve patient care.

The benefits of this study to the nurses rests in the definition of an evaluation process that yields a data base for action toward improving patient care. This data base serves to provide feedback to the nurse on her own practice for validation of patient care progress resulting from her practice. The nurse would have a mechanism for both evaluating nursing care trends on her unit and for recommending changes at the unit and hospital level. Those recommendations are predicated on the effects that change would have on patient care.

The benefits to the organization lie in addressing the organizational need to meet internal responsibility for quality of care, external requirements for financial reimbursement for services, and accreditation. The motivation, interest, and job satisfaction of the

nursing staff will be increased by delineating a mechanism to encourage action for improving and changing patient care. To develop, maintain, and improve nursing practice, the nursing staff must use both educational and practical knowledge and skills which are inherent in the audit process. This will benefit the organizational objectives of attaining optimum patient care and effectively utilizing the personnel resources of the nursing staff.

The significance of this study to the nursing profession is the demonstration of an evaluation process which promotes nursing self-evaluation at the patient care level and serves as evidence to the public that nursing as a profession has the ability and the willingness to evaluate its practice. The evaluation data can also serve as a profession-wide data base for improving the contribution of nursing to quality of patient care. The professional consequence of not defining a self-evaluation process is even more significant. The self-direction stimulus inherent in professional accountability, responsibility, and movement toward improved patient care is removed when others assume responsibility for evaluating and prescribing action for staff nurses.

The significance of this study to the health care system exists in its potential for stimulating and involving nurses to improve the health care system. The resources of nurses as evaluators of health care are not being effectively utilized. Thus, defining a cost-effective method to evaluate care given by the practitioners themselves will begin to tap this vital resource.

Research Question

The impact of this study to the patient, the nurse, the organization, the profession, and the health care system leads to the question, what is the pay-off of quality of care studies to the patient? Specifically, in this study, which of two nursing audit processes leads to nurses taking more action to improve the quality of patient care?

Summary

In Chapter One, the factors effecting the history of quality assurance were presented. Quality of care studies in nursing and medicine were discussed using structure, process, and outcome as the framework for approaches to patient care evaluation studies. Nursing research studies and the professional development of nursing were described as additional evolutionary indicators of nursing's concern for quality of patient care. The medical quality of care studies, primarily descriptive, were presented. Deficiencies in the literature were identified. The focus on the quality of care evaluation process and subsequent action for improvement was presented as the thesis for this study. The significance of the study was followed by the research question, which concluded the chapter.

Chapter Two

Conceptual Framework

Which of two nursing audit process procedures leads to the central issue of this study of self-directed behavior change in nursing practice toward excellence in patient care? Self-directed behavior change concepts will be explored in this chapter by demonstrating the need for acceleration in nursing. Mills' group growth paradigm will be employed to describe the progressive levels required to attain group self-direction. The same paradigm also applies to individuals for it is the individuals who comprise the group. In this thesis, however, "self" will refer to the nursing unit staff group. Accelerator models in physics will be utilized to describe the process by which groups can accelerate to the level of group self-direction. The application of the acceleration process to nursing, and the forces acting upon that process, will be analyzed. The chapter will conclude with the hypotheses of the study.

Acceleration In Nursing: Why Is It Needed?

The concept of acceleration may seem far removed from nursing, but close inspection of the role nurses at the staff nurse level have played in improving the quality of patient care reveals minimum involvement in such improvement. Acceleration means a change in speed, a change in direction, or a change in both speed and direction. The profession of nursing, and its individual practitioners, must

break through the inertia of the past by accelerating to the level of self-direction, if they are to attain the goals mandated both by the profession and by public policy. Those goals include provision of health care for all regardless of the consumer's financial status. The evolving right to health care is compounded by rapid technological advancements, spiraling health costs, and by legal requirements for documented evidence of quality of care.

The delivery of quality patient care requires self-direction by nurses to meet the explosion in health care science and technology. An ever-changing and highly unpredictable environment prevails. Improvement that is contingent upon the evaluation and direction of others, rather than upon self-evaluation and direction, is costly and time consuming. Critical time is lost, and health care costs are further increased, when the potential of the nursing staff is not utilized to effect change toward improved patient care.

One reason nurses have not been involved in self-evaluation and self-direction of their own nursing group (unit staff) is that nursing expectations have not regarded those activities as explicit expectations for staff nurses. It is only in the last few years that the J.C.A.H., C.N.A., and A.N.A. have formally proposed and recommended staff nurse-developed audits. Currently, there is no requirement for each nursing unit staff to evaluate care on their own unit. It is the central premise of this thesis that active involvement by staff nurses in improving the quality of patient care begins at the patient care level by unit staff nurse evaluation of nursing care delivered on their unit. Thus, recent efforts to develop nursing audit committees

and to promote active involvement on health care planning boards have been predictably slow to activate nursing potential. Acceleration is the key to cost-effective, high quality patient care.

One of the aspects of the environment of nursing that is both unique and troublesome for nursing is the interdependence of nurses in providing care. Patients are hospitalized twenty-four hours a day, seven days a week. The individual staff nurse is personally unable to work all shifts to plan, assess, implement, and evaluate nursing care on her patients. Nurses are highly interdependent upon other nurses, who are working on other shifts, to both accomplish nursing interventions and to evaluate care. Collaboration with other nurses and other health care professionals in the acute care hospital is essential to the accomplishment of quality patient care goals. Acceleration in nursing toward accomplishment of quality patient care must occur through groups, rather than through individuals, in the acute care setting. Acceleration can facilitate collaboration.

Acceleration In Other Fields: Why Is It Needed?

Physicists have studied and advanced the concept of acceleration through the study of subatomic particles. Physicists must accelerate subatomic particles to "see" them. Physicists are then able to examine, analyze, and describe the characteristic properties of the accelerated particles. A second reason for accelerating particles is to cause them to interact with targets. Acceleration in physics is used as a means to an end. In contrast, acceleration in nursing will

be examined as an end in itself. In other words, is acceleration in nursing the passport to quality patient care?

Acceleration toward accomplishment of quality patient care must occur through groups, rather than through individuals, in the acute care setting. Thus, a group process paradigm is presented as part of the conceptual framework in the paper. Theodore Mills has described such a paradigm (1967).

Mills' Group Process Paradigm

Group growth toward self-direction is to nursing as nuclear accelerators are to physics. Mills presents a group model that describes conditions under which groups will advance toward growth. The essential conditions include both the successive stages of groups toward growth and the critical essential role occupant needed within the group to attain such growth. Each step in the group model and the individual role needed within the group to advance to that level will be discussed. Limitations of the Mills' paradigm will conclude this component of the conceptual framework.

Mills uses a paradigm to examine groups in terms of their order of purpose at various levels of development. He further examines the required role systems in each successive and additive order of group purpose. He categorizes the interpersonal processes into five levels - behavior, emotions, norms, goals, and values.

The first order of purpose underlying the formation and operation of a group is immediate gratification. Members interact for the

purpose of satisfying their own needs, such as tension-release, warmth, safety, or curiosity. The level of interpersonal process, or role system, is individual behavior within the group and group emotion. The interaction process is characterized by the way in which people act overtly in the group and the organization of that interaction over a period of time. For example, on a nursing unit the role of one staff member may be that of devils' advocate or that of the scapegoat. A second level interactive process characteristic of the group at this first order of purpose is group emotion, or the configuration of feelings among members and their emotional response to events.

The second order of purpose guiding group process is to sustain the group. Groups that have experienced gratification as a group seek ways to continue the relationship. This order of purpose adds to, in lieu of replacing, the first purpose of immediate gratification. The level of interpersonal process taking place to sustain the group is group norms. Norms are the ideas about how persons should act, should feel, and should express their feelings. The subsystem of norms is the role of the organized and largely shared ideas about what members should do and feel, how their behaviors should be regulated, and what sanctions should be applied when those behaviors do not coincide with group norms. The function of the normative role is maintenance of the group rules.

The purpose of groups of the third order is to pursue a collective goal. This purpose is additive to the first and second order purposes. The level of interactive process occurring at this order is the generation of a group design about what is most desirable for

the group to do. The subsystem role is the technical system or set of ideas about what the group should accomplish and the specific plans about how the group goals will be accomplished. The group gains new knowledge and standards of evaluation as it pursues and accomplishes goals. Group members develop a deeper commitment to the group. The instrumental role required by a role occupant within the group is deep commitment to the goals of the group.

The fourth order of purpose of groups is self-determination. Again, this order of purpose is additive. Thus, characteristics and ingredients of immediate gratification, sustaining the group, and pursuit of a collective goal are present in addition to the new purpose. The group purpose of the fourth order is establishing conditions which allow the group to set its own goals, such as research and development. The subsystem role descriptive of the level of interaction process is the executive role. The executive is committed to the configuration of persons in an organized group within a changing environment. The executive, by discrete responses to momentary situations, influences and shapes future direction for the group. The executive role occupant now de-commits herself from prior roles, such as normative and instrumental, and addresses herself to what the group can become. The executive functions may be held or addressed by more than one member of the group.

The fifth order of group purpose is growth. The intergroup executive is the corresponding role system required. The intergroup executive role consists of stimulating the group's capacity to generate new ideas, designing and combining the old and the new,

expanding horizons, crossing boundaries separating one's group from other groups, and relinquishing group members to create new groups with goals that differ from one's own.

Summary of Mills' Group Process Paradigm

The major points in Mills' group process paradigm are five successive orders of purpose which groups may develop. The purposes are: (1) immediate gratification; (2) sustain the group; (3) pursue a collective goal; (4) self-determination; and (5) growth. Movement from the first order of purpose to the successive orders is dependent upon the presence of a role occupant critical to the group's achievement of successive and additive group purposes. The five successive roles are: (1) interactive and emotional; (2) normative; (3) technical; (4) executive; and (5) intergroup executive. Use of Mills' paradigm to structure an evaluation process for nursing unit staff means that nursing unit groups not presently functioning at the level of self-determination could predictably be accelerated to that stage through use of a group process, such as the nursing audit. Mills' paradigm also provides a framework for assessing groups that may be arrested at one particular order of group purpose. The model facilitates prescription of the necessary ingredients to help the group advance.

Limitations of the Mills' Paradigm

The major limitation of the Mills' paradigm is that the model does not provide the necessary framework to assess factors outside the group which may impinge upon or arrest group movement toward

self-determination. The acute care setting is a dynamic social field with several influential variables in operation in addition to the interdependence of staff nurses. Influential variables such as patients, families, visitors, non-nursing health care personnel, administrative staff, physicians, and auxillary staff interact with social, psychological, cultural, economical, and administrative factors in the acute care health setting. The operation of those variables influence nursing staff in the delivery of patient care through social interaction.

Thus, in designing an acceleration process for nursing unit staff, a framework is needed to understand in greater detail the influencing variables, particularly for groups which have not reached the purpose of self-direction. Thus, the identification of a framework to accurately assess and predict variables influencing group growth serves two purposes. The first purpose is to provide a framework to a facilitator helping groups which have not attained group self-direction. The second purpose is to provide a device for the executive role occupant in shaping future directions for groups at the self-determination level.

The search for a framework to understand acceleration in greater detail led this investigator to select accelerator models used in nuclear physics. Oftentimes in social phenomena conditions under which groups accelerate are not clear. There are many variables imbedded in social reality which are fuzzy and unclear. The physics accelerator model provides a clear picture, a structure to isolate, identify, and analyze social phenomena.

How Nuclear Particles Are Accelerated

The linear accelerator provides a framework for analyzing the conditions under which a particle will predictably accelerate. Linear accelerators are made up of a series of rectangular magnets with opposite poles lying adjacent to one another in a horizontal line, within a vacuum chamber surrounded by shielding. A positively charged particle is introduced at the positive pole of the magnet. The repulsive electrical force of two positive charges causes the particle to be repelled by the positive (or "like" force) pole as well as to become attracted to the negative pole (or opposite force). At a critical point, with the particle very close to the negative pole, the polarity of the next magnet (negative at this point) is switched to a positive charge. The particle has gained momentum by this time so that the positive charge "kicks" the particle. It is the electrical charge, the repelling of two positive forces, and the attraction or pull of the negative pole that accelerates the particle (Newton's First Law of Motion, in Hewitt, 1974).

The acceleration continues as the negative poles are switched to positive poles until the desired speed of the particle is obtained. As the particle accelerates, it gains in kinetic energy. Energy is defined as: "The quality of an object that enables it to do work" (Hewitt, 1974, p. 63). At a point just below the "speed limit" approaching ninety-nine percent of the speed of light, the particle can no longer accelerate, but gains energy in the form of mass (Ginzton & Kirk, 1961). Thus, particles continue to gain energy,

according to their relative speed (Einstein's theory of relativity, in Ginzton & Kirk, 1961).

Problems in Nuclear Acceleration

The major limitation of the linear accelerator is that a large distance is needed (greater than two miles in length) to accelerate and produce high energy particles. Therefore new accelerator designs had to be created to accommodate the further exploration of high energy particles. This phenomenon leads one to predict that in the acute care hospital, groups which accelerate toward self-direction and growth may also require new designs and organizational structure to accommodate, utilize, and accelerate their group energy. This application to nursing will be discussed at length later in this chapter.

The newer nuclear accelerators were circular and permitted accelerated particles to travel in a widening radius rather than along a greater linear distance. Magnetic force holds the particles in the circular track. This design permits increased acceleration without the need for a physical structure extending over several miles of space. The major limitation of the circular designs is that they do not accelerate electron particles effectively. The reason is that electrons lose much of their energy in the form of x-ray radiation when they are accelerated in a circular path. The higher the speed of the electron in a circular path, the greater the proportion of gained energy which escapes as radiation. Therefore, high speed electrons do not have the energy for use in application, exploration,

or experiments as they do in linear accelerators.

Thus, advanced accelerator models are developed to handle greater acceleration, to learn more about subatomic particles and their interactions with other targets, and to conduct practical experiments to apply the new knowledge.

Utilization of High Energy Accelerated Particles

High speed, accelerated particles have three main purposes. The first purpose is to speed particles to make them "visible", and thus facilitate description and understanding of the nature of the subatomic particles. The second purpose for accelerating particles is to cause collisions with other particles and to develop a theory descriptive and predictive of the effects of nuclear force. A third purpose is to use high energy particles in application to specific problems, such as treatment of tumors in humans.

Energy from accelerated particles is released when collisions are produced by placing targets in their path. The collision of particles at high speeds causes all of the energy to be released at one time with minute destruction before and after that release. This phenomenon is known as the Brag peak. Efforts and experiments are currently in progress to find ways to prolong the Brag peak. Implications for the field of medicine are that prolonged Brag peaks would permit treatment of larger areas of tumor tissue than now exists in the treatment of pituitary tumors. The release of energy from high energy beams is evocative of the question of when the "Brag peak" of group energy might be needed, and how it might be prolonged to solve complex problems confronting the health care system.

Types of High Energy Collisions

The effects of the energy released from accelerated particles varies depending upon the type of collision. There are four types of high energy collisions. The first type of collision is caused when a high energy particle barely grazes or penetrates the target. Little energy is transmitted because energy is lost in moving the target (Wilson, 1958; Lawrence Berkeley Lab., 1976). The second type of collision is caused by a high energy particle directly hitting the target head-on. In this case, the particle and target fuse together. A third type of collision is a close encounter. The target and high energy particle never touch, but pass close enough to affect each other through long range forces. The effect of this collision is to cause the target, the particle, or both to rotate rapidly. A fourth type of collision occurs when two high energy accelerated particles traveling in opposite directions collide head-on. The result of this collision is that all the energy, theoretically, from both particles is free because the mass increase is neutralized by one another. There is no tendency for either particle to move away from the other and waste energy.

Factors Effecting Nuclear Accelerators

In applying accelerator models of nuclear physics to social settings such as an acute care hospital, it is relevant to summarize the main problems physicists have encountered in acceleration. These problems, conceptually, may occur in the social settings as well. First, particles may not be accelerated fast enough to either see them or to use them. A second problem occurs if the vacuum, magnetic field

or polarity is out of adjustment for the specific particle being accelerated. A third problem can occur when barriers, such as lead or concrete, are inserted in the path of the accelerating particles and thus slow or stop acceleration. A fourth problem can occur when particles scatter and energy is lost. Management of these problems by physicists is directed toward eliminating the particular problem, and results in responses such as designing new accelerators, searching for ways to permit acceleration to occur, detecting and removing barriers to acceleration, and in building intricate computerized monitoring systems capable of early detection of problems. Ongoing research in experimental physics leads to the design of more advanced accelerators to advance new knowledge of subatomic particles.

Summary of Acceleration Concepts

Before proceeding to the application of nuclear acceleration to nursing, a summary of the main points will be made. First, acceleration in nursing needs to occur because of the rapidly advancing technology in the health care field, the spiraling health care costs, and the absence of the active involvement of nurses in evaluating and planning for quality care. The patient does not possess the knowledge to evaluate nursing care by himself. Therefore, the social responsibility to patients in the health care system mandates both evaluation of one's own nursing practice and actions to improve the quality of care. Hence, acceleration is required in nursing to stimulate nurses to actively improve the health care system.

Secondly, Mills' paradigm was used to explain and describe the steps groups need to accomplish to attain self-direction. The physics

model for acceleration was presented, because Mills' paradigm does not easily lend itself to the description and analysis of other variables, apart from the group itself. The physics model for nuclear acceleration lends itself to description of the various components, forces, and dynamics which interact in the acute care hospital setting. How nuclear acceleration occurs, purposes of accelerated particles, problems resulting from accelerated, high energy particles and factors affecting acceleration were presented. The next component of the conceptual framework entails analysis of how the Mills' paradigm and the nuclear accelerator models can be applied and tested in the acute care hospital setting.

Application of Acceleration To Nursing

The application of acceleration to nursing will be presented by describing a model for group process which contains the components of Mills' paradigm necessary to reach the group process stage of self-direction and growth. Secondly, factors which would predictably affect how, when, and under what circumstances nursing groups accelerate will be discussed using nuclear accelerators as a model.

A group process which contains the components of Mills' paradigm has been described in the literature as the nominal group process (Brown, 1970; Dunham, 1974; Campbell, 1968; Delbecq & Van de Ven, 1972; Dunnette, Campbell, & Jaastad, 1963; Kanehar, Nulakantar, & Lalkaka, 1975; Louche, C., 1976; Taylor, Berry, & Block, 1958). The nursing audit process is built upon the foundation of the nominal

group process. Both processes require that unit staff set standards for a particular nursing area of concern, specify compliance levels for those standards, measure current compliance, analyze discrepancies between desired compliance and actual compliance, recommend remedial action for improvement, monitor progress, and re-evaluate progress. The audit process is viewed as an example of Mills' group growth paradigm and constitutes a viable method for applying that paradigm.

Scheduling the unit staff for a meeting to define their audit standards and to set compliance levels is seen as the step necessary to attain the first two purposes of groups. Those purposes, immediate gratification and sustaining the group, are attained by explicitly defining group norms and expectations.

The third order of purpose of Mills' paradigm, setting a collective goal, is attained when staff members measure compliance to their audit standards, analyze discrepancies between desired and actual compliance to their standards, and recommend remedial actions for improvement. Thus, the technical role is fulfilled by the group prescription of specific actions necessary to meet their audit standards.

Self-direction, the fourth order of purpose, will predictably occur when the group acquires knowledge of progress toward unit goals and when some group member performs the executive role. At least one person on the unit staff, capable of generating ideas about subsequent goals, must emerge and be able to use the executive role to shape future goals. The investigator makes the assumption that as the group meets its collective goals that at least one member on the unit staff

will emerge in the executive role. This assumption is based in part on empirical experience with the audit process. A second basis for this assumption is the dynamic feedback generated by the audit process. Such feedback, when composed of evidence of successful progression toward a unit goal, stimulates group discussion and interchange, which predictably result in establishment of additional goals. These new goals are generated by one or more group members.

Thus, the audit process is one method for structuring the purpose of groups to attain self-determination and growth. However, if the nuclear accelerator model is used to analyze and predict the results of the audit process, other factors, in addition to the levels of group purposes, emerge and predictably affect acceleration.

Environmental Influences on Group Acceleration

The concept of the nuclear accelerator will be employed to further clarify both how and to what extent acceleration will predictably occur through use of the audit process. The following factors may be perceived by the unit group to be either facilitating or inhibiting factors to self-determination. Environmental factors outside the hospital, within the hospital, and factors affecting the purposes and role subsystems within the group will be discussed.

Environmental Factors

Operation of nuclear accelerators is dependent upon permission granted by external authorities, such as the Atomic Energy Commission and the Environmental Protection Agency. In much the same way, the operation of hospitals is dependent upon controls established by

external authorities, such as federal legislation (PL 92-603, 1972) and JCAH accreditation. Staff nurse efforts to improve care are affected by these external authorities and reflect the scope or extent of change that might predictably need to occur as a result of nursing audit. These external forces may be perceived as facilitating or inhibiting factors by nursing staff. For example, the JCAH recommends that each professional group conduct their own audits. This external influence may be perceived by staff nurse groups, at the level of self-determination, as a facilitative factor which is congruent with their own values for self-evaluation and determination of group goals.

The hospital organizational environment may be viewed as analogous to the internal vacuum and magnetic field of the nuclear accelerator. This environment in nuclear accelerators is carefully controlled, rigidly defined in specific detail, and based on knowledge of the properties of the particle being accelerated. This knowledge and control over the environment is not present in nursing to the same extent as in nuclear accelerators. Knowledge and control over the environment in nursing must occur to the extent that an optimum accelerating environment needs to be generated to permit growth and self-determination of nursing groups toward improving patient care. There are, however, environmental factors within the hospital, such as policies, procedures, and both physical and organizational structures, which can facilitate or inhibit acceleration toward group growth and improved patient care (Corwin, 1965; Blau, 1960; Kramer, 1974; Kramer & Schmalenberg, 1976, 1977; H.E.W., 1974).

Social interchange within the hospital provides additional environmental factors which influence acceleration of a nursing unit. The values held by the patients, patients' families, physicians, visitors, and other hospital employees may or may not be congruent with the audit criteria for quality patient care established by the nursing staff. The point is that the whole social field in which care is given must be examined to detect how and to what extent the environmental and social forces interrelate (Ricci, 1969). The nuclear accelerator clarifies the dynamic influences present in the complex social field such as the acute care hospital.

Nuclear Accelerators Applied to Nursing Audit Progress

How will acceleration from one stage in the group process to another occur? Mills explains the order of purposes necessary to attainment of self-direction and growth. Mills' paradigm does not explain how acceleration occurs. The nuclear accelerator as a model, provides a framework for explaining how that process might take place. The remainder of this chapter will focus on use of nuclear accelerators to analyze (1) conditions under which groups will accelerate and (2) how that acceleration will occur.

Does the nursing audit process provide a vehicle for group acceleration? It will be helpful to now review the essential elements of nuclear acceleration before application of the acceleration model to the audit process. Subatomic particles are inserted in an electrical field designed to permit that particle to attain maximum speed.

The particle is repelled by the positive electrical pole and attracted to the negative electrical pole. The electrical polarity is switched at a critical point just before the subatomic particle reaches the negative pole. The change "kicks" the particle. The particle accelerates because of the "kick", the repelling action of the positive field, and the attraction of the next negative electrical pole.

In nursing, the unit staff must use the audit process if the acceleration potential of the process is to be tested. Four critical questions must be answered to apply the nuclear accelerator to nursing. First, what are the forces which might repel staff nurses from using the audit process? Secondly, what are the forces which might attract the staff to the audit process? Third, what factors might predictably "switch polarity" at a critical point, and thus accelerate the group? Finally, what is the net effect of the positive, negative, and critical factors present in the nursing group? Will the group accelerate?

Forces Which Repel Utilization of the Audit Process

The two main forces which repel unit staff from using the audit process are their resistance to change and their reluctance to expend the effort required. Staff nurses have not been directly involved in formal evaluation of the quality of nursing care delivered to patients. The current method of implementing nursing audit has supervisors and head nurses use their own individual and empirical standards to evaluate patient care. These supervisory standards are usually not explicit to the staff nurse group being evaluated. The JCAH requires on-going patient care audits within each hospital and monitors compliance every one to two years. This brief external examination of

audit compliance exerts a repelling effect on the development of an on-going nursing audit system. The nursing audit process recommended by both the American Nurses' Association and the California Nurses' Association, in contrast with both the implicit supervisory audit and the biannual JCAH audit, requires that staff nurses meet together, define their standards in the form of audit criteria, problem solve discrepancies between their expected standards and their actual performance, and monitor their practice. This audit process involves group goal-setting, commitment of individual and group energy for self-evaluation, and time. Staff nurses directly responsible for giving patient care will predictably be resistant to the change from supervisory to peer group evaluation of patient care.

Individuals must work toward group goals to attain quality patient care. This group involvement requires an initial expenditure of more time and effort than does the current supervisory audit. Staff nurse resistance to change in the status quo of evaluation and in the necessary commitment of staff time and effort to implement the nursing audit process represent repelling forces to group acceleration.

Forces Which Attract Utilization of the Audit Process

Several forces in the nursing environment attract implementation of the audit process. The JCAH procedure both shields staff nurses from on-going self audits and induces health care organizations to adopt a process which encourages on-going utilization of nursing audit. The Joint Commission endorsement of a given hospital is highly valued by the health care organization, which typically

mobilizes all available resources to attain or preserve JCAH accreditation. A separate reason for viewing the JCAH as an attractive force consists of their recommended patient care audit process. The methodology involves nurses responsible for direct patient care. This externally imposed evaluation process is congruent with peer evaluation, a professional characteristic, and with the process necessary to attain group self-direction (Mills).

Three additional forces attractive to the utilization of the audit process are cognitive dissonance reduction, collaboration, and feedback. Each of these forces will be discussed in turn.

Introduction of the nursing audit process to groups creates a discrepancy between past expectations for supervisory evaluation of patient care and the new expectations for peer group evaluation of patient care. This discrepancy can be called cognitive dissonance (Festinger & Aronson, 1968). "Cognitive dissonance is the simultaneous existence of cognitions which in one way or another do not fit together and leads to effort on the part of the person to somehow make them fit better" (Festinger & Aronson, 1968, p. 125). Knowledge of this discrepancy predictably generates a need to reduce the dissonance. The JCAH requirements and the movement toward peer evaluation of the quality of nursing care merge to induce group movement away from the status quo.

Staff nurse collaboration is desirable in the attainment of quality patient care goals. However, the realities of daily staff nurse practice can make attainment of such collaboration difficult. Rotating shifts, float requirements, irregular work schedules, and

fluctuating days' off can combine to frustrate collaboration. The audit process both structures collaborative behavior on the part of staff nurses and depends on that collaboration to achieve their audit criteria. The unit group is held accountable for evaluation of patient care against their group audit standards through the mechanism of regular audit meetings. Individual group members must work toward mutual resolution of the perceived discrepancies if the group criteria are to be attained.

Staff nurse groups can achieve and sustain self-direction only if they have a system which provides feedback on progress toward group goals. A cybernetic system is one viable approach to the provision of feedback. Cybernetic refers to guidance mechanisms. Systems are composed of several interrelated elements which have a common purpose. The elements of a cybernetic system are: (1) an input signal to cause action; (2) feedback of results to compare with the input signal; (3) closures of the loop with summation of the two signals; and (4) effective action to counteract the necessary signal (Steg & Annourzio, 1969). These elements of the cybernetic system correspond with elements in the nursing audit process. Those elements are active involvement in defining standards, analyzing deficiencies, taking corrective action, monitoring progress (feedback), and evaluating results of corrective action.

The feedback provided by the audit process, a cybernetic system, represents an important attractive force. The first order of feedback, which consists of audit results, provides unit staff with a measure of their achievement. Self-control and accountability can

flourish only with such feedback (Deutsche, 1954). The second order of feedback, compounded of individual and group responses to first order feedback, facilitates increased group performance (Zajonc, 1963). The staff nurse group is thus equipped with the necessary information to refine their performance toward quality patient care. The group can employ this cumulative feedback in the individual performance of patient care. In sum, the feedback mechanism represents an attractive force for the dynamic attainment of both group growth and quality patient care.

Critical Factors Which Cause Acceleration To Occur

Acceleration in the nuclear accelerator model is the product of switches in polarity which speed up the subatomic particle. What factors in the complex social field of an acute care hospital provide an analogous acceleration for staff nurse groups? Administrative policies, with concomittent congruent role expectations, feedback from audits, presence of an executive role occupant, and the audit process itself are presented as the probable critical factors to group acceleration. Administrative policies and role expectations can become critical primarily because the nurse is hired and employed by their organization. The nurse must comply with and meet hospital expectations if she intends to retain her employment. If one of those expectations is to conduct unit level audits as a member of a unit group, then nurses will probably comply. This administrative policy thus serves to facilitate implementation of nursing audit.

A second critical factor which may cause acceleration is the feedback to the unit staff on actual compliance to their audit criteria. The group will develop and accelerate action to bring the actual compliance levels in line with the desired compliance if results are well below the standards established by the group. There will be rapid acceleration when the low compliance is to a criteria vital to and highly valued by the staff nurse. For example, staff nurses in the coronary care unit will take immediate action to accelerate their efforts to listen to and record heart and lung sounds when audit results reveal that they have not made as many observations as they believed necessary.

The purpose at which the unit group functions and the presence of the role occupant necessary to accomplishment of those group purposes represents another critical factor. For example, work groups which are cohesive, goal oriented, and self-directed prior to introduction of the audit process may be able to accelerate through the audit process. The acceleration of this group is predictable (Zander, 1968) because they possess the self-direction necessary to take the initiative (Zander, 1968; Cartwright, 1968), that is to "switch their polarity", mandated by the audit process. Work groups, which lack cohesion, may be unable to work together on attainment of mutual goals. They will be unable to pass the first critical point, or switch in their polarity, to accelerate to the next group phase.

The nursing audit process is itself a critical factor capable of causing acceleration. The process links a strong mechanism for feedback to the components of the Mills' group paradigm. Thus audit,

in and of itself, offers staff nurse groups multiple opportunities for reversal of polarity and group acceleration

Problems in Group Acceleration

What are the implications of the rapid acceleration of groups? What happens when group energy is released in a burst, as occurs in the Brag peak in nuclear physics? What are the consequences if groups fail to accelerate? These questions may be anticipated from knowledge of nuclear accelerators and from awareness that all groups do not behave in the same way. The organizational concern is to assess and plan for a work environment which is capable of advancing and accelerating groups with diverse purposes.

Rapidly Accelerating Groups

Groups that accelerate rapidly will predictably need an environment, perhaps a new unit organizational structure, which permits research and development projects toward improved patient care. Such a unit organizational structure would be geared to accommodate high energy, self-directed output by the staff members.

Nuclear physics has identified two classes of subatomic particles, the electron and the proton. Protons can be effectively accelerated in either a cyclotron or a linear accelerator. However, electrons will accelerate effectively only in linear paths.

The group executive role occupant must identify the characteristics of the staff nurse group before selection of a model thought to facilitate an environment conducive to maximal acceleration. An

electron-like group would theoretically be composed of staff nurses who accelerate best when their specific performance and group goals are clear cut. A proton-like group would theoretically be capable of uniform acceleration regardless of whether their desired specific performance, and group goals were clear cut or obtuse. Such a group could legitimately express a preference for either straight-line or orbital acceleration. For example, a proton-like group could predictably demonstrate maximum acceleration in a circular structure that affords a widening radius of responsibilities as the acceleration occurs.

Accelerating the Slow Moving Group

A small linear accelerator model might be more helpful in initially accelerating slow moving groups to facilitate the group's learning how to carry out a new complex responsibility, such as nursing audit. This accelerator model, analogous to provision of detailed prescribed instruction on nursing audit, would present a structure tailored to prevent the loss of group energy. Energy loss would predictably occur if the group tried to learn the complex audit process without instruction.

The Sudden Release of Group Energy

One characteristic of high energy particles in a nuclear accelerator is that all energy is suddenly released when collisions occur. There are occasions within the complex social field of an acute care hospital when a sudden release of group energy is necessary and desirable. For example, such a response would be appropriate if

hospital staffing were cut to a level which prevented attainment of minimum nursing criteria for preoperative patients.

The energies of the staff nurse group, under different circumstances, may need to be released over a period of time. Such a group is prolonging the energy peak. A staff nurse group, faced with a recurrent shortage of linen and patient care supplies during weekends and holidays, may need to prolong their release of energy, commitment, and action if they are to resolve the multifaceted, multidepartmental problem.

Selecting Specific Interactions For Specific Situations

Nuclear physicists possess sufficient knowledge of the subatomic particles, targets, and experimental environments to select one of the four types of atomic collisions. They know when, where, how, and under what conditions each type of interactive collision will occur. Can the executive role group occupant gain competence in selecting social interactions which will accelerate group growth? How might a self-directed group go about choosing the most effective interaction to address a specific concern? Analysis of a typical nursing problem in an acute care hospital can illustrate these capabilities in a self-directed group.

For example, the registered nurses of ward 3 South, at Hospital X, decided at their last audit meeting, after a detailed analysis of their audit findings, that in order to increase their compliance to audit criteria without increasing costs significantly, the unit would need to recommend that all nursing positions on their unit be filled with registered nurses. They are convinced that such a staff can be

more cost-effective for the patient population on 3 South than the present mix of registered nurses, licensed vocational nurses, and nurses' aides, now employed on the unit. The labor union, which represents the licensed vocational nurses and nurses' aides now employed in non-professional nursing positions on the unit takes the opposite position.

Only groups at the fifth stage of growth will be able to predict, and constructively resolve the incipient conflict and yet maintain their acceleration toward quality patient care. Groups at the growth stage are capable of addressing complex issues involving diverse groups pursuing opposing goals.

The intergroup executive role occupant knows that his group has created a situation in which they will directly collide with a group moving rapidly in the opposite direction. The intergroup executive knows that there would be no group energy available for negotiation or generation of the new solutions required in this complex situation if the high emotion and group energy were released suddenly. Her plan for constructive conflict resolution of this problem requires the stored energy of the group to analyze the conflict and generate new strategies capable of meeting the needs of both patients and health care workers.

Specific Aims and Hypotheses of the Study

The specific aim of this study is to determine which of two audit processes promotes more self-direction, energy, and action by

the nursing staff to improve patient care. The first audit process or involved form stipulates that the nursing staff who provide direct patient care will set priorities for evaluation, analyze audit results, recommend remedial action, and monitor progress toward patient care goals. This process is contrasted with the second audit process or prescribed non-involved form in which experts, or groups outside the unit staff, set criteria, audit charts, analyze findings, recommend corrective action, and monitor progress for the staff. The staff utilizing this second process will implement criteria and action recommended by others.

The involved form of the audit process means that the group generates a goal and plan of action to achieve that goal. This process would work effectively for groups which could accelerate in either the linear or circular pattern, analagous to a proton, as opposed to an electron, accelerating environment. Thus, groups would need to be capable of self-direction to effectively employ this model.

The non-involved form of the audit process means that the group follows prescribed standards and remedial action toward quality of care. This process would be particularly effective for groups needing a prescribed process, analogous to the linear accelerator model effective for either protons or electrons. Thus, self-directed groups are proposed as being analogous to protons and groups not yet at Mills' fourth level of self-direction would be analogous to electrons.

The ultimate goal is to accelerate groups to achieve at least Mills' fourth level of group process or self-determination. Using

the concepts of nuclear acceleration leads one to predict that there may be different processes necessary to accelerate groups to that level. The research question is: which of these two nursing audit processes will result in a greater pay-off for improved patient care?

The independent variable is level of nursing staff involvement in patient care evaluation. The dependent variables are compliance to audit criteria, self-reported change in attitude toward audit, self-reported intent to act to improve care, and recommended remedial actions completed.

The hypotheses to be tested are:

1. There will be a significant increase in compliance to audit criteria in groups which are actively involved in all steps of the audit process as opposed to groups which are involved only in implementation and compliance to criteria developed by others.

2. There will be a significant increase in positive attitude towards audit in groups which are actively involved in all steps in the audit process as opposed to groups involved in compliance to criteria developed by others.

3. There will be a more significant increase in self-reported intent to act toward improvement of the quality of patient care in groups actively involved in all steps in the audit process than in groups only involved in compliance to criteria developed by others.

4. More remedial actions will be completed by groups actively involved in all steps in the audit process than in groups involved in compliance to criteria written by others.

Definition of Terms

Active involvement means that at least five of the permanently assigned staff registered nurses will attend the meeting in which audit criteria are developed and compliance levels are set. This represents twenty-five percent of the total registered nurse staff who develop the criteria. All registered nurse staff members may recommend changes, veto, or accept the criteria until a seventy-five percent minimum agreement level is reached. The same five members, as a minimum, will be involved in the second meeting in which remedial action is recommended. Staff members attending the meetings are responsible for contacting all other staff registered nurses assigned to their unit to explain the criteria, obtain comments, criticism, and recommended changes from the staff members who were not involved in the meetings. The specific guideline for the nursing audit process which will be utilized is the California Nurses' Association outline (1974) contained in the Appendix.

Non-involvement means that the second unit staff will not be able to recommend changes in the criteria list, compliance levels, or recommend remedial action. The staff will not be asked to ratify the criteria, but will be asked to implement the nursing care indicated by the audit criteria list.

Measures of the Dependent Variable

The dependent variables are compliance to the audit criteria, completion of recommended remedial actions, self-reported intent to act toward improving the quality of patient care and self-reported

attitude toward nursing audit. The dependent variables will be described in more detail in the next chapter.

Summary

The conceptual framework for this study was presented in this chapter. The need for acceleration in nursing to parallel the growing demands of the health care system was discussed. The Mills' group process paradigm was presented and described the levels groups must attain if self-direction is to be reached. The primary limitation of the Mills' theory consisted of the fact that Mills studied groups insulated from outside social and environmental factors. An expansive analytical model is required for the study of group development among nurses employed in a complex social field. The underlying principles of and models for nuclear acceleration were discussed to expand the conceptual framework beyond the limitations of Mills' paradigm.

The discussion of nuclear physics noted that one essential reason for the acceleration of particles was to make particles visible. There is a similar need to accelerate nurses to make visible their efforts toward the continual improvement of patient care. The nursing audit process was presented as a method for acceleration, the attainment of group growth, and the visible progress toward the goal of quality patient care.

The nursing audit process was presented as a method for achieving group acceleration, which incorporates elements of the Mills' paradigm, and makes visible the progress of nurse groups toward

self-direction and the goal of quality patient care.

The repelling, attractive, and critical factors affecting group acceleration were discussed. The problems in social acceleration were analyzed, followed by a discussion on how self-directed groups could use acceleration to accomplish the group goal of quality patient care.

The chapter concluded with the hypotheses of the study and definition of terms.

Chapter Three
Design and Methodology

The research design and methodology will be presented in this Chapter. Problems encountered during the study will be presented within the discussion of each section. The plan and time schedule will be followed by presentation of the application of the independent variable to units A and B. The non-equivalent staff meetings for unit C and the procedures used on unit D will conclude this chapter.

The method to be used in the study is a field experiment. The design is an equivalent and non-equivalent group, multiple time series study (Campbell & Stanley, 1963).

0	0	X ¹	0	0	0	0	0	Unit A
0	0	X ²	0	0	0	0	0	Unit B
		X ³	0	0	0	0	0	Unit C
0	0		0	0	0	0	0	Unit D

X¹ = staff involvement in all steps in the audit process with a minimum of five staff nurses present at the audit meetings

X² = staff involvement in implementation of audit criteria developed by unit A and a minimum of five staff nurses present at the unit staff meetings

X³ = staff meetings conducted; unrelated to audit

0 = measurement of the dependent variables

1. investigator developed audit attitude questionnaire given to staff prior to the independent variable application as a test/retest, and given again at the end of the study
2. data collection from patient charts using criteria developed by unit A
3. recommended remedial actions regarding patient preoperative teaching tabulated during the last month of data collection

Action Plan

Action	Time	Unit A	Unit B	Unit C	Unit D
1) pre-test	3 weeks	yes	yes	no	yes
2) re-test	1 week later	yes	yes	no	yes
3) develop audit criteria	2 weeks later	yes	no	no	no
4) ratify criteria by unit staff	3 weeks	yes	no	no	no
5) audit charts	1 week later	yes	no	no	no
6) discuss results of audit, analyze discrepancies, recommend remedial action	same meeting	yes	no	no	no
7) staff meeting about audit	same month as 3).	no	yes	no	no
staff meeting unrelated to audit	same month as 3).	no	no	yes	no
8) present findings of unit charting using unit A criteria	same week as 6).	no	yes	no	no
present recommended remedial action developed by unit A; ask for implementation					
9) conduct staff meeting unrelated to audit	same month as 6).	no	no	yes	no
10) collect data from charts monthly using criteria from unit A for all four units	monthly	yes	yes	yes	yes
11) give audit attitude questionnaire to all units (same questionnaire as the test/re-rest)	last month	yes	yes	yes	yes

Table 2

		Time Schedule (Actual)											
		JUNE			JULY			AUGUST			SEPTEMBER		
		13	27	01	11	25	1	8	15	29	5	12	26
UNIT A	Pre	01	Re	02				X ^{1a}	X ^{1b}	03		04	05
												06	07
UNIT B	Pre	01	Re	02				X ^{2a}			X ^{2b}	04	05
											03		06
UNIT C	01			X ^{3a}							03	X ^{3b}	04
				02									05
UNIT D	Pre	01	Re	02							03		04
													05
													06
													07

Definitions:

- Pre = give pretest and consent
- Re = give re-test
- X^{1a} = develop audit criteria with unit staff
- X^{2a} = conduct staff meeting about audit in general
- X^{3a} = conduct staff meeting unrelated to audit
- X^{1b} = analyze discrepancies found on audit, with unit staff; develop recommended action
- X^{2b} = present unit A audit criteria to unit B and recommended action developed by unit A
- X^{3b} = conduct staff meeting, unrelated to audit
- 0 = abstract data from charts on all four units, using unit A criteria
- 0¹ = abstract data from charts on all four units, using unit A criteria
- 0² = abstract data from charts on all four units, using unit A criteria
- 0³ = abstract data from charts on all four units, using unit A criteria
- 0⁴ = abstract data from charts on all four units, using unit A criteria
- 0⁵ = abstract data from charts on all four units, using unit A criteria
- 0⁶ = abstract data from charts on all four units, using unit A criteria
- 0⁷ = give audit attitude questionnaire and audit charts as above

monitor recommended remedial actions complete

Note: data abstracted from charts on all four units, using unit A criteria for month of June to retrospectively obtain compliance levels before consents or questionnaires were given

The time series design was selected to measure the effects of presenting the study, obtaining consents to participate, giving the pretest and retest attitude questionnaire, conducting each unit meeting, and assisting unit A in criteria formulation, ratification, and recommended action formulation over time. History and maturation could predictably occur during the time required to complete the study through the application of the independent variable phase. Therefore, measuring the dependent variable monthly would uncover the combined effects, if any occurred.

To control for effects of testing on the dependent variable, pretesting and retesting using the same investigator developed audit attitude questionnaire was administered to units A, B, and D before the independent variable was introduced.

Purpose of the Study Groups

The purpose of unit A is to measure the effects of a total staff involvement in the audit process. The purpose of unit B is to measure the effects of staff involvement in implementing criteria developed by a source external to the unit. The purpose of unit C is to control for the Hawthorne effect by matching for the amount of time spent with unit staff by the investigator on units, A, B, and C. The purpose of the fourth group, unit D, is to determine whether or not change toward improving quality of care for nursing aspects of preoperative teaching will occur regardless of any formal audit activities. After four nursing units had agreed to participate in the study, the investigator

assigned the units to unit A, B, C, or D in the study by using a table of random numbers.

The Independent Variable

The independent variable is level of involvement of staff nurses in defining quality indicators against which their own progress toward meeting the quality indicators are measured. The CNA procedure for audit (see Appendix A) defines several steps to take in developing quality indicators. The CNA audit process procedure was used for one unit to test the level of involvement needed to predict action nurses would take towards improving quality of care. Staff involvement on this unit meant setting criteria, ratifying criteria, implementing care directed toward meeting the criteria, monitoring progress, analyzing discrepancies between actual and desired levels for meeting the criteria, recommending action to correct deficiencies, and re-evaluating.

The second audit model to measure level of involvement is to involve the nursing staff in implementing care directed toward meeting criteria and carrying out recommended action from a source external to their unit, in this case, unit A.

Staff involvement in audit was enhanced in unit A by the following conditions:

- 1) Three of the same staff members were at both audit meetings and were therefore, involved in setting criteria, analyzing discrepancies, and recommending remedial action.
- 2) Eight staff nurses were present at the second meeting during which charts were audited and remedial action planned.

- 3) The staff members who attended the first and second meetings developed their own plan for conveying the importance of staff member ratification to staff members who did not attend the meetings.
- 4) The criteria represented consensus agreement between the registered nurses on the unit as did the remedial action plan to develop a preoperative teaching checklist.
- 5) Feedback was planned initially to give the staff the last three months' compliance to the criteria. Feedback proved to be impossible for this investigator to accomplish because some charts were signed out for clinics or other audit studies. The staff would therefore not have been given an adequate sample for each month's compliance findings. This problem will be addressed in the section on data analysis.

Staff involvement in audit was minimized on unit B by the following conditions:

- 1) Staff were not involved in defining criteria, analyzing discrepancies, recommending remedial corrective action, or in ratification of the above.
- 2) Emphasis at the group meetings was placed on the importance of 'not re-inventing the wheel', using available audit criteria developed by others, and validating criteria developed by others to advance nursings' knowledge base, while containing health care costs. Emphasis was also placed on nursings' accountability to the patient to document the care given.

- 3) Staff members who attended the meetings were asked to be certain that they informed other unit staff of expectations of the audit, but no mention was made of ratification or of changing the criteria in any way.
- 4) One staff nurse attended both meetings, but otherwise four different nurses attended the first meeting than attended the second meeting. This was not as the investigator had planned and will be discussed in greater detail in data analysis, and procedure sections.
- 5) No mention was made by the investigator that unit A was the adjacent unit or that unit A had actually developed the criteria and compliance levels.

Measures of the Dependent Variable

Three measurements of the dependent variable were used: (1) **retrospective** charting by nurses, (2) remedial action carried out, and (3) self-reported attitude toward audit and intent to act to improve the quality of patient care.

Retrospective charting, reflecting that criteria were implemented, was judged to be a feasible method to measure whether or not nurses **adhere** to their own developed standards. The retrospective audit can also provide concrete objective information from which further problem **analysis** can be made by nurses themselves. The assumption is made in **this** study that audit measures (criteria) are refined enough to **measure** differences in the quality of preoperative teaching. There are two limitations to this method of measurement. First, quality of **care** lacks precise definition. Thus, the "quality" of preoperative

teaching reflected in unit A audit criteria may not agree with the definition held on other nursing units. The criteria may not be viewed as important enough to chart by the nursing staff of those units. The investigator emphasized the need to select indicators of quality nursing care based on their knowledge, current readings about preoperative patients, and their own nursing experience. The unit staff were also asked to use the Standard Nursing Care Plan (UCSF, 1975) developed at that hospital, as a basis for selecting five items for audit. Therefore, ratification by the rest of unit A staff and use of the Standard Care Plan for preoperative patients would reflect the definition of quality preoperative nursing care predominant within the institution. The results of the audit would then reflect the process of involvement in self-evaluation rather than disagreement over the definition of quality preoperative teaching.

The second limitation to the use of records to assess quality is that much of the nursing care given to the patient is generally agreed by most nurses to be absent from the charting. The assumption is made in this study that if preoperative teaching was not charted, it was not performed. In addition, it is conceivable that care can be recorded even if, in fact, it was not given. The assumption is made in this study, that the predominant recording method is that care not given, will not be recorded as given. The purpose of this study is to determine if nurses will chart preoperative teaching as being given if those same nurses established criteria stating that preoperative teaching should be reflected in the chart. Staff perception that nursing notes reflect the quality of care given in fact make nursing

notes a feasible method of measuring trends in care provided, despite disadvantages noted (Donabedian, 1966; Lang, 1974).

Charts were selected for audit in the following manner. Twenty random numbers were selected from a table of random numbers (Kerlinger, 1973). The monthly surgery schedule was used to identify and sequentially number each patient from 1 to the total number of patients for each unit.¹ Charts from this list were selected using the random numbers until 20 charts were selected for each unit for each month. One chart could not be located for each unit of the total 140 charts per unit due to incorrect patient number or incorrect unit. Time did not permit selection of additional cases to obtain the N=20 for each unit for each month. The impact of the 4 missing cases was judged by the investigator to have minimal effect on the overall results.

The investigator collected all the chart data over a period of months. Investigator bias was, thus, a limitation of this method of data collection, since the investigator knew the hypothesis and charts were clearly marked with the name of the nursing unit. Efforts were made by the investigator to precisely adhere to the unit A criteria throughout the data collection to minimize bias. In spite of the limitation of investigator bias, investigator-collected data appeared to be the most feasible method for collecting the amount of chart data

¹The weekend schedule and cystoscopic procedures were not included. The weekend schedule did not record the unit where the patient was located and most of the cystoscopic procedures were done under local anesthesia. One month operative schedule had days in which the room numbers were not recorded, thereby masking the identity of the nursing unit. In spite of these limitations, this method for random selection of surgical patients by unit proved to be the most feasible procedure.

in this study.

The second measure of the dependent variable is the recommended action completed. The assumption is made that self-direction toward high quality audit measures developed by the unit staff can lead to increased quality of patient care. The increased quality would be manifested through the action taken by staff members to reach their audit quality of care criteria.

Staff ability to continue, maintain, or increase activity to improve patient care was measured over seven months. The seven month time frame was selected based on a predicted initial increase in compliance on units A and B. This compliance could reflect an increased awareness in preoperative teaching through the mechanism of the audit meeting, and not represent a consistent change.

Development of the Audit Attitude Questionnaire

Action taken by nurses may not be the only change that occurs when self-directed audit processes are introduced. The usual nursing role may not encompass individual initiation of independent action. Therefore, a positive attitude change toward audit or initiating action is predicted as a precursor to some individual's taking action. Thus, a questionnaire was developed to elicit a change in attitude toward audit by the unit staff nurses in the study. Questions were developed to elicit the following information from the nurses: (1) their current perception of the quality of care on their unit, (2) type of action they would take to improve care, (3) attitude toward audit, and (4) the perceived degree of ease in making changes from the staff nurse position. Three filler items were placed in the

questionnaire to camouflage the audit specific questions.

The first questionnaire developed by the investigator was tested for content validity and clarity of instructions and wording by giving the questionnaire to fifteen graduate nursing students. The students were asked to complete the questionnaire and write down their comments about what they thought the investigator was trying to measure. The independent responses of the graduate students fell into the following categories: (1) how the nurse felt about quality of patient care on her unit, (2) what the nurse felt she would do about improving quality of care, and (3) whether or not the nurse would take any action to improve care. Minor revisions in wording were made before conducting the reliability test.

In addition to the graduate students, two content experts in the field were asked to independently read the questionnaire with two questions in mind. First, were the questions clear and concise? Secondly, what did the investigator want to measure with the questionnaire? One expert was the Director of Nurses in an acute care hospital, had written one book incorporating nursing audit into care plans, had conducted workshops for nurses on audit, and had a second book at press on how to develop an audit program in a hospital (Mayers, 1977). The second content expert was the full time audit project coordinator for the hospital, a position which she has held for several years (Smith, 1977). Both experts stated independently that the questionnaire would measure nurses' attitudes toward quality of care and action the staff nurse would take to improve the quality of care. The investigator decided that the questionnaire held face and content

validity for the purposes of this study (see Appendix B).

A reliability study of the questionnaire was conducted using the test-retest method. The questionnaire was given by the investigator to fifteen staff nurses working in a Bay Area Hospital, but not the same hospital in which the study was to be conducted. The same questionnaire was given again eight hours later on a busy Monday during the day shift. Instructions were written on each questionnaire asking the nurse to answer the second questionnaire without trying to remember how she answered the question in the morning.

The data were tabulated using a Spearman Rho on answers to questions one, three, and four with Likert-type answers on the audit attitude questionnaire. A confidence interval of .05 was selected prior to computing the statistical correlations. The results were .7166, 1.000, and .8095 respectively, and were significant at the .001 level. A Pearson r was also obtained to determine whether or not interval statistics could be used for the same questions. Interval level parametric statistics would permit more power to the data analysis by reducing the chances of rejecting the hypotheses when, in fact, the hypotheses were true. The Pearson r values for the three questions above were .7944, 1.000, and .9004 respectively and all were significant at the .001 level of significance for the fifteen nurses sampled. Therefore, the data will be analyzed using interval statistical tests, as the results indicated closely matched values between the parametric and nonparametric correlational tests and both tests were significant at the .001 level of significance. Therefore, the investigator judged the questionnaire to be reliable for the purposes

of this study.

Procedures

The investigator coordinated the study through the Staff Development Coordinator/Nursing Audit Committee Chairperson. There was a problem in locating a hospital in which four nursing units had not been involved in unit level nursing audit. The problem could have been anticipated since the California Nurses' Association had, in the last two years, conducted workshops throughout the state to teach the audit process to nursing service personnel. A second reason for predicting the difficulty in finding units is that the California Nurses' Association audit process model meets the Joint Commission on Hospital Accreditation requirements for quality of care studies. Thus, the "state of the art" in quality control programs within nursing service settings reveals that most units have had some exposure to the audit process model.

The investigator presented the proposed study to the audit committee without giving the details of the process to be used for the unit meetings or the hypotheses of the study and received permission to conduct the study. One of the audit committee members was a staff member on one of the proposed study units. Since this nurse did not know either the hypotheses of the study or type of meetings to be used, and because she agreed not to share her unit's involvement with other committee members, the investigator felt that the effects of her membership on the audit committee would have a minimal effect on the

study.

The acting chairperson of the committee was a Head Nurse on one of the units in a separate building from the one in which the study was conducted. This nurse was a team member and group member of the same research class as the investigator and knew the study in detail. She did not participate in any way in this study. Since this nurse was well aware of the importance of not explaining the project to others, the investigator again decided that the effect of her membership on the committee would have minimal effect on this study.

The Staff Development coordinator met with each head nurse on the four units, explained that an audit research study was being conducted, and that the investigator would contact her to explain the study and ask for her unit's involvement. The investigator then explained the study in general to each head nurse and asked if the unit would like to participate. All agreed to do so. One head nurse requested to have several staff nurses hear the proposal and to be involved in the decision making. Since the investigator wanted to allow the normal leadership pattern to operate in this study, the investigator went to the meeting, presented the project in general, and received permission. A letter containing the same content as that covered in the staff meeting was prepared and given to the other three head nurses to share with their staff.

After the units agreed to participate in the study, the units were randomly assigned to units, A, B, C, or D by the investigator. Units A and B turned out to be adjacent to each other. Although units do not share or float staff between them, an interactive effect

could have been in operation and will be discussed in the data analysis section. The other two wards in the study were located on different floors within the same building.

All audit attitude questionnaires were delivered to and collected from each head nurse by the investigator. All meetings held were conducted by the investigator throughout the study. Consents, demographic data, pretests, retests, and posttests were given to all four units by the investigator. All data collection from the medical records was completed by the investigator (see Appendices C, D, & E).

Preoperative teaching, a topic common to all four units, was selected by the investigator. The units, audit committee, or staff development nurses were not aware of the audit topic until all units had been randomly assigned to study units. Each head nurse was told how her unit would participate in the study.

Application of the Independent Variable to Unit A

The experimental variable is staff involvement in the audit process. Unit A received the audit attitude questionnaire as a pretest. The same questionnaire was given as a retest four weeks later. The purpose of the retest was to control for the effect of testing. The return rate was 92% on the first test, 50% on the retest, and 68% on the final questionnaire. Questionnaires were collected after three weeks for each questionnaire. Vacations, holidays, days off, and hectic work loads all contributed to delays in getting returns on all units.

The first meeting for unit A was held with four day shift nurses and the head nurse attending the audit meeting. The head nurse

scheduled the meeting for one hour immediately following the day shift tour of duty. The head nurse explained that more team members were unable to attend because several were attending the funeral of a patient who had died on their unit. At the audit meeting, criteria were developed for preoperative teaching and compliance levels were set using the CNA audit process with the investigator leading the staff through the process. Nurses were asked to use the Standard Care Plan for Preoperative Patients (UCSF, 1975), to select the most important indicators of quality nursing care for preoperative teaching. The nurses were told to include patient outcomes, nursing actions, a combination of both, or to write in any items not addressed in the Standard Care Plan. Round-robin method was employed to elicit one priority at a time from each nurse present. The priorities were then written on a large piece of paper on the wall. Discussion was held until five criteria and compliance levels had been agreed upon by the nurses present (see Appendix F). The investigator did not vote or add to the discussion to reach consensus, but asked clarifying questions to assure that the criteria were succinct and clear to all present.

The last step in the audit process for the first meeting was to tell the staff members that they needed to present the criteria and compliance levels to the other registered staff nurses on the unit. At least a sixty percent ratification was required by the hospital nursing audit committee. This group decided to set seventy-five percent as a minimum level and to include licensed vocational nurses in the ratification process. The investigator agreed to type

up the list of criteria discussed at the meeting and guidelines for obtaining staff ratification, input, criticism, recommendations for change and clarification (see Appendix G). The group decided that each staff member present would explain the criteria to five co-workers. The co-workers were asked to critique, modify, disagree with, or offer suggestions for the criteria. Co-workers were then to ratify or disapprove the criteria. The head nurse wrote a list of all members who were not present at this meeting, and posted it in her office. Members present at this audit meeting initialled each staff member's name as the explanation of the criteria was given. A notation was also made on the sheet as to whether or not agreement was given by the rest of the unit staff members. The investigator found the list posted in the head nurse's office and initialled by staff members within the three week deadline. Seventy-five percent of the staff were contacted and initialled the criteria.

The investigator explained during the meeting that there were several ways to measure whether or not audit criteria were met. Observation on the spot, patient questionnaires, and patient interviews were a few of the methods suggested. The nurses were asked to select the best method to reflect whether or not the criteria were met for preoperative teaching. The staff unanimously agreed that the charting could reflect whether or not the teaching was done. All of the data to measure level of compliance to the criteria could be obtained from the medical record.

The second unit meeting for this ward occurred three weeks later. This interval was considered by the staff to be enough time to reach

at least seventy-five percent of the registered nurse staff and obtain comments from those members. The investigator explained the importance of having at least the same members attend this second meeting. Three of the same members attended, but a total of eight nurses on the unit attended the second meeting, including the head nurse and evening charge nurse. At this meeting staff members presented comments they had received from others on the unit. Basically, the staff felt the criteria were important, were critical indicators of quality of patient care, but would not agree to chart the teaching because it took too much time at the end of the shift.

The investigator guided the group through abstracting five charts of patients on the unit at this time. Compliance to their criteria was zero, which the staff said they had expected. The staff analyzed the reasons why charting might not have occurred. The staff agreed that it was a combination of taking too much time to record the information and lack of clear charting expectations. The staff agreed that teaching was done, but not recorded. The group agreed to design a checklist, to involve the evening shift in the checklist development, and to help with the teaching whenever appropriate to decrease the total responsibility from the evening shift.

The head nurse offered to have the checklist printed on the back of the current checklist for preoperative patients as a pilot form (see Appendix H), when the unit staff designed and obtained staff comments on the form. The group decided to have all members' input and comments prior to implementation of the pilot form. The head nurse made a list of all staff members to contact. The procedure for obtaining comments was

identical to the process used at the first meeting. The group agreed that three weeks would be enough time to complete the pilot form and obtain staff comments. Written and oral communication were employed to gain 80% compliance.

Investigator involvement in the unit activities ended at this time. Subsequent action by the unit will be discussed in the data analysis section along with other measures of the dependent variable.

Application of the Independent Variable to Unit B

Unit B was pretested and retested with the audit attitude questionnaire. The return rate was 88% on the first test, 69% on the retest, and 81% on the final test. Unit meetings were planned in the same manner as in Unit A. To maximize the experimental variable of staff involvement in the audit process on unit A, unit B staff were not asked to set criteria or compliance levels.

The one hour meeting was held during the day shift and was attended by all five permanent staff members then on duty. The investigator defined audit, presented the legislative and accreditation reasons behind audit, and stressed the need for nurses to validate nursing evaluation tools already developed. Nursing evaluation tools from the H.E.W. report (1974), Qualpacs Scale (1975), Slater Scale (1975), ANA Guidelines (1974), and Quality Assurance criteria (Mayers, et al., 1977) were shown to the group. The point of emphasis by the investigator was that the need existed to avoid 're-inventing the wheel', to use tools already developed, to add to nursings' body of knowledge about the effects of nursing care on patient outcomes, to be accountable to the client as a professional nursing responsibility,

and to also meet PSRO and JCAH requirements.

The assistant head nurse asked to have the meeting taped for other staff members who could not attend. The investigator decided to permit this, since the taping was the normal way for this unit to communicate to those who could not attend a meeting. Prior to adjourning the meeting, the investigator told the group that it was very important to have the same five people present at the next meeting. The nurses agreed to try to attend the meeting.

At the second meeting, the investigator discovered (by reading the bulletin board) that the head nurse was terminating employment to travel abroad and to complete her Masters' degree. The head nurse, thus, did not attend the second meeting, but worked on the unit, to enable other staff members to attend. The effect and implication of the head nurse termination will be discussed in the data analysis section. Because the study was already underway, and because the audit process itself is not primarily dependent upon the head nurse alone, the investigator chose to continue the study, acknowledging the fact that this imposes limitations on the study.

Only one out of the five members who attended the first meeting was present at the second meeting. Four staff members were present or 25% of the Registered nurse staff members. Two evening nurses attended, one of whom was the charge nurse. Again, sick calls, days' off, and vacations were the major reasons given for others' non-attendance. At this meeting, the investigator summarized what was discussed at the last meeting. None of the members present had listened to the tape recording of the first meeting.

The investigator reviewed the criteria (generated by unit A, but unknown to the unit B staff; see Appendix I), and explained the compliance levels. The nurses were told that the next step would be for them to reach the rest of their staff to explain the audit expectations. The investigator stressed to the staff that they make sure that staff not present must understand what was expected of them. The investigator gave no opportunity for the staff members present to change the criteria. Members at the meeting agreed to inform the rest of the staff members about the criteria.

The last item on the meeting agenda was presentation of the checklist idea developed by unit A, again unknown to the unit B staff. The group was told that the checklist was developed in another hospital that was also looking at preoperative teaching, to maximize the impact of external imposition of the criteria. The investigator told the group that the pilot checklists would be ready in about three weeks and that she would bring the checklists to the unit. Thus, at the end of this second unit meeting, the staff were agreeable to sharing the information about audit expectations, criteria, compliance levels, and the expected checklist for charting. The investigator also developed a letter for the staff members to use in communicating with members not present, to equalize the effect of the ratification sheet developed for unit A staff members (see Appendix J).

The purpose of unit B was to formulate an alternative model for audit minimizing active staff involvement. Unit B had equivalent time for meetings, had fewer members present at the audit meetings, used more methods for communicating to other staff members, but was not

involved in the audit except to implement recommendations from another source.

The new head nurse was selected after both meetings had taken place. The investigator initiated a call to the head nurse and made an appointment to see her. The head nurse said on the phone that she remembered that the project was underway, but had forgotten the details. At the meeting, the head nurse said that the unit would continue to participate as they had agreed upon. The newly appointed head nurse was one of the staff nurse members at the meeting held before the study began, and was thus involved in the initial decision that the unit would participate, but was not present for either audit meeting. The head nurse said she had listened to the audio tape, but really could not understand the audit. The investigator asked if others had listened to the tapes or commented about the criteria for audit. The head nurse said she had seen no evidence of the criteria list, and that it had probably been thrown away. She was unaware of anyone who has listened to the audio tape.

The investigator agreed to present the criteria and checklists to the day shift and a 30 minute meeting was arranged by the head nurse. The investigator was invited by the head nurse to call the evening charge nurse to set a time for the evening shift and did so.

At the day shift meeting, three people attended. The head nurse left fifteen minutes after the meeting started to attend another meeting. The investigator asked the staff members if it would be helpful to post the criteria list (surrounded by a bright pink colored piece of paper) on the bulletin board above the table where

staff members charted. The group agreed to the idea. One of the members asked if the completed checklist meant that criteria had been met. The investigator agreed that such action would meet the criteria. The action was the same expectation set by the unit A staff.

The evening shift meeting occurred the same evening, but the charge nurse and one other nurse were ill. Only two of the permanent members were present. The two staff nurses met with the investigator. The same content was presented to the evening nurses that was presented in the morning. Both nurses listened attentively, appeared very interested in audit, and asked if the investigator could help them do more audits. When given the supply of pre-op checklist forms with the pilot checklist printed on the reverse, the nurses took the forms, wrote a note in their communication book about the pilot forms, and replaced the old forms with the pilot forms at the nurses' desk. Both nurses took a form saying they were going to do pre-op teaching right now and would use the pilot form. The investigator gave a home phone number, in answer to their question of how the charge nurse could reach the investigator if any questions arose. The investigator has also done this on all the units. Investigator involvement on this unit ended with this meeting.

In sum, unit A had more staff members involved in the meetings and more of the same staff members present at both meetings. The staff and head nurse developed specific plans for obtaining ratification of the criteria, for development of the pilot checklist, and for launching the use of the checklist.

Unit B received more attention from the investigator, had fewer staff members present at the audit meetings, but experienced a change in head nurse leadership during the study.

Application of the Non-Equivalent Staff Meetings on Unit C

Unit C was not given the pretest or retest audit attitude questionnaire to control for the effect of testing. The return rate on the final questionnaire was 71%. Two meetings were conducted by the investigator using a specific patient as the topic for each meeting. The purpose of the meetings with the investigator was to control for the Hawthorne effect. Audit criteria, the audit process, or reasons for audit were not mentioned. One staff member asked what the meeting had to do with audit, and was told by the investigator that one way to look at quality of care was to look at a specific patient with other nurses who offered input and comments. At both unit meetings, staff members had to be called out of the room to attend to patients. Six staff members attended the first meeting, but four were left by the time the meeting ended forty five minutes later. Four of the same staff members attended the second meeting as well. A total of seven staff nurses were present at the second meeting. A specific, but different, patient was used as the focus of both staff meetings. The meeting lasted forty five minutes with much outside noise entering in from nearby construction, and a few interruptions to tell a nurse that a patient needed attention.

Procedures For Unit D

The purpose of unit D was to determine whether or not change

toward improving quality of care would take place regardless of any formal audit activities. History and maturation, or interaction with members from other units might influence action taken in the same direction as in the experimental units. Therefore, no unit meetings were held. Pretest, retest, and posttest audit attitude questionnaires were given to staff members on this unit. The return rate was 70% on the first test, 70% on the retest, and 78% on the final test.

Summary

In summary, research design and methodology have been presented and actual time schedules discussed. The independent and dependent variables were defined, in addition to validity and reliability studies carried out on the audit attitude questionnaire. Application of the independent variable to the experimental nursing units and non-equivalent unit procedures to the control nursing units were presented. The equivalent experimental unit B received more attention from the investigator, but experienced a change in head nurse leadership during the study. The impact of the change will be further addressed in the section on results.

Chapter Four

Results

The results of this study will be presented in three parts. In part one, homogeneity of the nurse sample will be presented by analysis of the demographic data for the nurses in the sample. Specific unit characteristics, analysis of the pretest and retest audit questionnaire results, and the first two months' retrospective chart audit findings will be presented to examine homogeneity of the four nursing units prior to the implementation of the independent variable. In part two, each hypothesis will be examined and relevant data presented and analyzed. Part three will present the intervening variables and unexpected findings and will conclude this chapter.

Part One: Description of the Nurse Sample

Did the nurses on the four study units come from the same population? The following variables were determined in advance to have some relationship to the dependent variables and were examined to uncover that information: age, sex, nursing position held, latest nursing educational preparation, amount of time worked in the hospital, and number of months since the last educational program was completed. Measures of the dependent variables, chart audit and audit questionnaires, were also compared prior to application of the independent variable to determine if the study units differed on

these variables. Each measure will be discussed in turn.

The Nurses in the Sample

The median age² in this study was 25 years (see Table 3). The range extended from 21 years to 50 years of age. Analysis of variance by age indicated no significant differences between units. All nurses were female³ (see Table 4). Eighty-one percent (N=54) of the nurses held staff nurse positions (see Table 4). Four nurses were head nurses and nine were charge nurses. Chi-square analysis indicated no significant difference between units on the above variables.

The most recently completed educational program for 67% (N=42) of the nurses was a baccalaureate program in nursing (see Table 4). The most recently completed educational program for 17% (N=11) of the nurses was a diploma nursing program. Eleven percent (N=7) had most recently graduated from Associate of Arts programs. Five percent (N=3) had most recently graduated from Masters' programs, including the head nurses of units B and D. Chi-square analysis indicated no significant difference between units on the educational variable.

The median amount of work experience since graduation of the

²Although the data were interval level, the distribution of values did not conform to a normal distribution. Therefore, ordinal level statistics were used.

³All nurses who returned the questionnaire were female. There was one male nurse on one of the four study units.

Table 3

Significant Differences Among Units According to Specific Demographic Data:

Kruskal-Wallis 1-Way ANOVA					
	<u>Unit A</u>	<u>Unit B</u>	<u>Unit C</u>	<u>Unit D</u>	$\frac{x^2}{\text{corrected for ties}}$
Amount of time since last educational program (in months)	N=20 Mean ranks 27.07	N=14 Mean ranks 26.68	N=15 Mean ranks 45.40	N=15 Mean ranks 32.27	10.27** 10.40*
Age (in years)	N=22 Mean ranks 30.50	N=14 Mean ranks 28.36	N=16 Mean ranks 40.97	N=15 Mean ranks 36.97	4.28 4.35
Amount of experience since last graduation (in months)	N=21 Mean ranks 31.05	N=14 Mean ranks 23.75	N=15 Mean ranks 42.30	N=15 Mean ranks 35.07	7.38 7.40
Amount of time employed in this hospital (in months)	N=21 Mean ranks 33.33	N=14 Mean ranks 29.43	N=15 Mean ranks 28.17	N=15 Mean ranks 40.70	3.97 3.99

* Significant at 0.015

** Significant at 0.016

Table 4
Significance of Differences For Age, Sex, and Educational Program
in Experimental and Control Groups: Chi-square

Variable	Groups						Chi-square
	Experimental			Control			
	Unit A (N 22) #	Unit B (N 14) #	Unit C (N 16) #	Unit D (N 15) #	Total # %		
Sex							
male	0	0	0 ^a	0 ^b	0	0	NS
female	22	14	15	12	63	100	
Position							
staff nurse	18	10	14	12	54	80.6	
head nurse	1	1	1	1	4	6.0	1.64
charge nurse	3	3	1	2	9	13.4	
Educational Program		(N=13) ^c		(N=12) ^d			
AA	3	2	1	1	7	11.1	
Diploma	4	3	2	2	11	17.5	
B.S.	14	7	13	8	42	66.7	3.41
MA/MS	1	1	0	1	3	4.8	

^a Question not answered; N=15

^b Question not answered; N=12

^c 1 was returning for MS degree

^d 2 were returning to school for BS

nurses in this study was 2.8 years (see Table 3). The range extended from no experience to 24 years experience. Unit B had the lowest median length of experience of 2 years with a range extended from 0 to 6 years. Analysis of variance by length of work experience since graduation indicated no significant differences among units.

The median amount of time nurses in this sample had been working in this hospital was 17 months (see Table 3). The range extended from no experience in this hospital to 18 years experience in this hospital. The nurses on Unit B had less work experience in this hospital than did nurses on the other three study units. Analysis of variance by length of experience in this hospital indicated no significant differences among units.

The median amount of time since completion of the last educational program for nurses in this study was 14 months (see Table 3). The range extended from 0 to 120 months. Analysis of variance by time since completion of the last educational program indicated significant differences among units, $\chi^2 = 10.27$, $p = .02$; corrected chi $\chi^2 = 10.40$, $p = .02$. Mann-Whitney U analysis of time since completion of the last educational program indicated that significant differences occurred between units B and C, $U = 42.5$, 2-tailed $p = .02$, and between units A and C, $U = 62.5$, 2-tailed $p = .003$. No other significant differences were found between the other units (see Table 5).

Thus, the demographic data yielded a wide range of values on age, nursing experience, length of experience in this hospital, and amount of time since completion of the last educational program.

Table 5

Significant Differences Between Units On Amount of Time Since Completion
of Last Educational Program: Mann-Whitney U

Unit B Mean rank N=14	Unit D Mean rank N=15	U	2-tailed prob.
13.82	16.10	88.5	0.47
Unit A Mean rank N=20	Unit B Mean rank N=14		
17.63	17.32	137.5	0.93
Unit A Mean rank N=20	Unit C Mean rank N=15		
13.63	23.83	62.5	0.003*
Unit A Mean rank N=20	Unit D Mean rank N=15		
16.82	19.57	126.5	0.43
Unit C Mean rank N=15	Unit D Mean rank N=15		
18.40	12.60	69.0	0.07
Unit B Mean rank N=14	Unit C Mean rank N=15		
10.54	19.17	42.5	0.02*

* significant differences

Unit B had the lowest ranges of scores on all three variables, although statistical significance was not demonstrated except for the amount of time since last educational program. Therefore, the four groups of nurses came from the same population on measures of the demographic data except on length of time since completion of last educational program. Unit B's lower range of age, experience, length of experience in this hospital, and time since last educational program suggests that the nurses on that unit have been recently exposed to school-bred ideals for professional role expectations. That recent exposure suggests a greater flexibility in adapting to changing role expectations, occurring within the hospital, from external evaluation of patient care by supervisors to the internal staff nurse evaluation of patient care. The staff nurses on unit B, with less work experience in this particular hospital, would also be free of present effects of having enacted past role expectations of external evaluation.

Description of the Nursing Units in the Sample

The nursing units in this study will be described as follows. First, the unit census, number of patients sent to surgery (see Table 6), average patient occupancy rate, regular nursing staff paid hours, staff compensatory time, overtime, sick leave, vacation, holiday time, and amount of temporary staff employed will be discussed for each unit to ascertain the homogeneity among the units. Secondly, similarities and differences among units on the test and retest audit attitude

Table 6

Number of Patients Undergoing General

Anesthesia In Surgery By Unit By Month

	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
UNIT A	51	36	54	39	38	26
UNIT B	39	40	54	47	38	32
UNIT C	65	82	67	66	65	43
UNIT D	76	106	85	90	72	73

questionnaire administered prior to application of the independent variable will be presented. Finally, results of the retrospective patient teaching chart audit prior to application of the independent variable will be discussed for each unit. Description of the nursing units will conclude with the similarities and differences among units on the retrospective patient teaching chart audit results.

The following unit data were calculated by averaging the unit monthly figures over the six month period from July through December for each unit. The monthly figures for each unit were obtained from computer print-outs given to the head nurses by month.

Unit A was a 45 bed general surgical nursing unit with an average of 866 patient days per month and an 82% average occupancy rate. The average monthly number of surgical patients who underwent general anesthesia was 41. The number of registered nurses employed was 24 in June and 25 in December. There was a turnover rate of 8%. Regular staff paid hours were 5472, with 116 compensatory hours given and 28 overtime hours taken per month. The average monthly sick leave was 199 hours, with 359 vacation hours, and 324 holiday hours taken per month. The average cost of temporary help employed was \$858 per month. The highest census occurred in July and the highest rate of temporary staff was paid in October. During those months, regular staff may have been diverted from additional projects such as audit to the direct care of patients or in providing assistance to temporary staff. The lowest census, lowest sick rate, lowest number of surgical patients sent to surgery, and least number of vacation hours occurred in December. These factors meant that in December

more staff time was available for a new project such as audit.

Unit B was a 24 bed general surgical nursing unit located adjacent to unit A. Unit B had an average of 581 patient days per month and a 79% average occupancy rate. The average monthly number of surgical patients who underwent general anesthesia was 42. The number of registered nurses employed in June was 16 and 17 in December. There was a turnover rate of 47%. Regular staff paid hours were 3525, with 63 compensatory hours given and 17 overtime hours taken per month. The average monthly sick leave was 109 hours, with 204 vacation hours, and 299 holiday hours taken per month. The average cost of temporary help employed was \$431 per month. The highest census and occurrence of sick leave occurred in July. The lowest census, sick leave, patients sent to surgery, use of temporary staff, and vacation time occurred in December. These factors meant that in December more staff time was available for a new project such as audit.

Unit C was a 35 bed general surgical nursing unit with a predominance of vascular surgical patients. Unit C had an average of 879 patient days per month and an 82% occupancy rate. The average number of surgical patients who underwent general anesthesia was 65. The number of registered nurses employed in both June and December was 21. There was a turnover rate of 29%. The highest census, overtime, and the highest number of patients who underwent general anesthesia occurred during August. The highest number of vacation hours and highest cost for temporary staff occurred during September. The lowest census, temporary staff costs, and vacation time occurred

in December. These factors meant that in December more staff time was available for a new project such as audit.

Unit D was a 34 bed general surgical nursing unit with a predominance of gynecologic, urologic, and renal patients. Unit D had an average of 856 patient days per month and an 82% average occupancy rate. The average number of surgical patients who underwent general anesthesia was 84. The number of registered nurses employed in June was 20 and 18 in December. The turnover rate was 23%. Regular staff paid hours were 4590, with 58 compensatory hours given, and 23 overtime hours taken per month. The average monthly sick leave was 176 hours, with 267 vacation hours, and 239 holiday hours taken per month. The average cost of temporary staff was \$1252 per month. Unit D had the highest occupancy rate, highest number of patients who underwent general anesthesia, and highest vacation time in August. The highest staff sick leave, temporary staff employed, and above average number of patients who underwent general surgery occurred in October. This unit had the lowest overtime, vacation time, temporary staff employed, below average sick leave, and patients who underwent general surgery in December.

Summary of Similarities and Differences Among the Nursing Units

The major similarities noted among the units occurred in total bed capacity, amount of temporary staff, amount of sick leave, number of patients undergoing general anesthesia, and staff turnover rate. Units A, C, and D had similar patient occupancy rates and similar total bed capacity per unit. Units C and D had similar staff nurse turnover rates, sick leave taken, vacation time taken, and over-all

paid regular nursing hours. Units A and B had similar average number of patients undergoing general surgery, similar patient diagnosis, and surgical procedures. Thus, similarities among units occurred, but did not occur on all four of the study units. Comparison of results from this study must be made noting that all four units did not have the same similarities on these selected unit variables.

The major differences noted were that unit B underwent a 47% staff nurse turnover, a change in head nurse, and used the least amount of vacation and sick time. These differences on unit B are commensurate with the preceding nurse sample analysis. In addition, the unit B staff would have less vacation time taken because of the short tenure of the staff nurses. Unit D had almost twice the number of patients who underwent general anesthesia as did either units A or B. Unit D also experienced the highest rate of temporary staff employed. Unit A experienced the highest number of regular staff paid hours, the highest sick leave, the highest vacation rate, and the lowest turnover rate of 8%.

Unit D may experience more difficulty meeting charting expectations than the other three study units due to high employment of temporary staff and high number of preoperative patients. Thus, most preoperative teaching needed to occur on this unit, but fewer permanent staff were available to routinely complete such teaching.

In sum, there were differences among all four units in this study. December appeared to be much less active for all four units, thus offering a comparison basis in which all units could have had more time for the patient preoperative teaching and charting.

Conclusions and implications drawn from the results of this study must, however, be made in view of the differences and similarities noted among the units.

Similarities and Differences Among Units on the Audit Attitude Questionnaire Pretest and Retest Before Application of the Independent Variable

The purpose of the audit questionnaire given to staff nurses on units A, B, and D was to examine the predominant attitude toward audit, usual action taken to improve care on the unit, and intent to act to improve care. The test was administered twice on units A, B, and D before application of the independent variable to determine whether the test itself had an effect on the responses to this test.

The action which a staff nurse reported she would usually take on a unit-centered problem was measured by the responses to question two of the questionnaire which asked: "Which action do you usually take, if you become dissatisfied with the quality of nursing care on your unit?" Chi-square analysis of the responses indicated no significance among the three groups on this variable. Although unit A scored higher on the responses "more than 1 action", "talk with other staff members", and "tell the head nurse", the differences were not significant on the pretest. Although unit A on the retest had an increase of 1 response in "more than one action", and the least number of responses in "talk with other staff members", the differences were not significant.

The extent to which a nurse would take steps to improve care in situations in which at least one other department besides nursing

was involved was measured by the responses to question five of the questionnaire, which asked: "If you felt very strongly that the check out times for patients should be more flexible to accommodate individual patient needs, what would you do about it?" The responses were coded into categories by an independent coder who was unaware of the hypotheses of this study. The categories were: (1) no action, (2) tell the head nurse, (3) tell the nursing department, (4) take action on the unit, (5) take action outside the unit, and (6) take more than 1 action. Analysis of responses by means of chi-square indicated no significant differences among the four groups on the pretest or retest. The responses in the categories: "take action on the unit", "take action outside the unit", and "take more than 1 action" decreased on unit A on the retest, but the differences were not significant. Although unit A had fewer responses in the category "take more than 1 action" than did units B or D on the retest, the differences were not significant. Since the audit process, the independent variable, involves unit level action and usually more than one action, from the above analysis it might be expected that unit A could more readily accept and utilize the audit process than unit B.

Attitude toward audit was measured by the responses to question four, which asked: "Which of the following best describes your overall feelings about Nursing Audit: Dislike Indifferent Like ?" Analysis of the responses by means of ONEWAY analysis of variance indicated no significant differences among the four groups on the responses to this question on either the pretest or retest (see

Tables 7 & 8). Although unit A had more responses in the "Like" category on the pretest than did units B or D, the differences were not significant. Although unit A had fewer responses and unit D had more responses in the "Like" category on the retest, the differences were not significant. Thus, there was a decrease in attitude toward audit on the experimental unit A and an increase on the control unit D, but not to a significant degree. Therefore, results of this study must be analyzed to determine whether any differences between the units occurred as a result of the more positive attitude toward audit on unit D or the application of the independent variable on unit A.

Thus, analysis indicated that all four units were taken from the same population on measures of attitude toward audit, usual action taken for a unit problem, and intent to act on a problem involving at least one other non-nursing department. Although some differences were noted, the differences were not statistically significant. Thus any significant changes would be a result of the independent variable.

Differences Between Units on Retrospective Chart Audit Before Application of the Independent Variable

The audit criteria list for preoperative patient teaching was developed by unit A as a result of application of the independent variable to unit A. This criteria list was used by the investigator to retrospectively collect data from patient charts for the two months prior to application of the independent variable. The purpose of the retrospective chart audit was to determine if the units were drawn from the same population before application of the independent variable.

Table 7
Significance of Differences on Specific Pretest Measures
of Dependent Variables By Unit: ANOVA

Variable	Experimental		Control		df	SS	F-Ratio	F-Prob.
	Unit A (N=21) $\bar{X}$	Unit B (N=14) $\bar{X}$	Unit D (N=14) $\bar{X}$					
Attitude toward quality of care	4.1905 (N=22)	4.4286*	4.000		2	1.2924	3.430	0.04
Ease of change	2.8182	2.8571	3.0714		2	0.5844	0.299	0.74
Attitude toward audit	(N=20) ^a 2.5000	(N=13) ^a 2.2308	(N=13) ^a 2.3846		2	0.5719	0.993	0.38

* Unit B differs significantly using a Student-Newman-Keuls test (Winer, 1971)
a Question not answered; case deleted from computations.

Table 8

Significance of Differences on Specific Retest Measures

of Dependent Variables By Unit: ANOVA						
Variable	Unit A (N=12) X	Unit B (N=11) X	Unit D (N=13) X	df	SS	F-Ratio F-Prob.
Attitude toward quality of care	4.000	4.3636	4.1538	2	0.7623	2.968 0.07
Ease of change	2.500	3.0000	3.2308	2	1.7176	2.172 0.13
Attitude toward audit	(N=11) ^a 2.3636	2.1818	(N=11) ^a 2.4545	2	0.4242	0.714 0.50

^a If question was not answered, case was deleted from the computation.

Twenty patient charts were randomly selected from the operating room schedule for each unit for each month. Charts were audited by the investigator using the unit A audit criteria list. This criteria list had six criteria; each criterion received either a "1" for a "yes" answer, meaning the criterion had been charted, or "0" for a "no" answer if not charted. Each unit could score from 0 - 20 points on each criterion and that score was reported in percents of "yes" scores for each criterion. For the six criteria, this would mean a possible score ranging from 0 - 120. Criteria two, four, and five contained subcriteria. For example:

Did the nurses' notes state that the patient expresses an understanding of what to expect postop. (immediate)?	<u>AT LEAST 3 of the 6</u>		YES	NO
a. tubes	YES	NO		
b. dressings	YES	NO		
c. other apparatus	YES	NO		
d. food and fluid	YES	NO		
e. ambulation	YES	NO		
f. pain	YES	NO		

For these criteria, at least three of the six subcriteria needed to be charted to obtain a "yes" for that criterion.

Two assumptions were made when collecting the data. First, all criteria were of equal importance. Secondly, if the preoperative teaching was done, it was charted. If the chart did not reflect preoperative teaching, it was assumed that preoperative teaching was not done. A general statement such as "Pt. teaching done" would not meet the specific criteria specified by unit A.

Analysis of chart data was done by means of MANOVA of the percent score of compliance for each variable, for each month on all four units. However, use of analysis of variance procedures assumes

that the variance is independent of the means and that the variance is constant. Conformation to this assumption is not possible with binomial data, such as the "yes" or "no" responses on the audit criteria. Therefore, arc sine transformations were computed for monthly unit proportions to permit parametric statistical analysis of the data. The formula $\text{Sin}^{-1}\sqrt{\frac{Y}{n}}$ was applied to the proportions (percent scores for each criterion) to obtain a constant variance ($\frac{1}{2n}$) and remove the connection between the mean and variance of the binomial random variable characteristic of data obtained on "yes" or "no" response questions (Bostrom, 1978; Brownlee, 1960).⁴ A MANOVA program was used to detect significance of audit findings between units at adjacent months. The significance level was set at .005 because of the multiple breakdowns used to contrast units and months.

There were no significant differences among units from months 1-2 and 2-3 before the independent variable was applied (see Figure 1). All four units scored 0 on the criterion patient understands what to expect preoperatively. Therefore, any further differences in subsequent unit audit findings would be a result of the independent variable for this particular criterion. All units obtained the highest scores on the criterion Patient understands the operative procedure and nursing history completed during months 1, 2, and 3. Although unit D scored the highest and units C and A scored the lowest on those criteria, the differences were not significant. Thus, the criteria developed by unit A represented five of the six

⁴Statistical consultation was provided by Alan Bostrom, Ph.d., Statistician, at UCSF Scientific Computing Center. All data were analyzed by computer.

Figure 1
Mean Monthly Score By Units (Averaged Over the 7 Months)

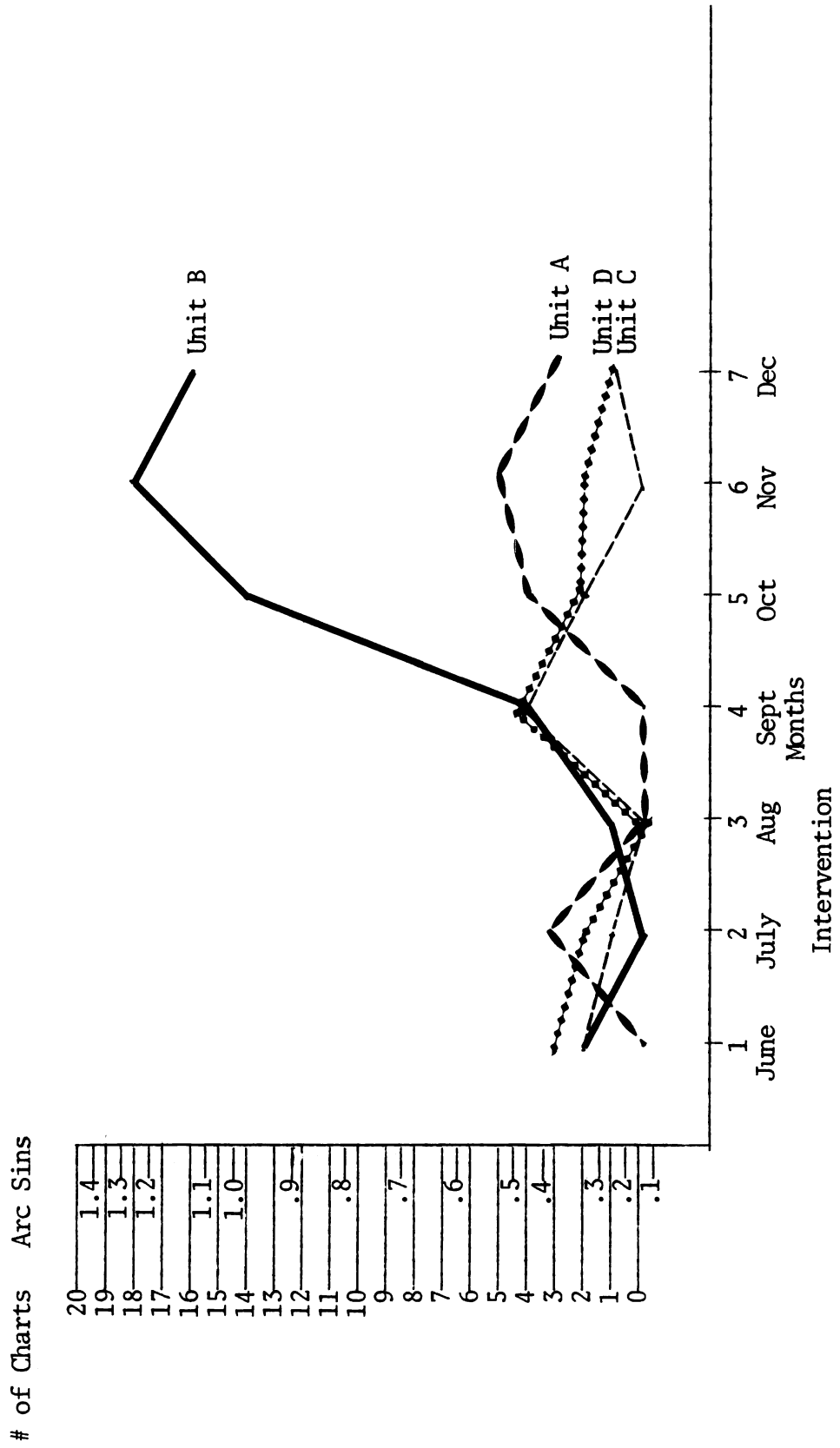


Table 9

Significance of Differences in Compliance To Preoperative Patient Teaching

<u>Audit Criteria Unit By Month 1 & 2: ANOVA^a</u>						
	<u>Criterion</u> <u>2</u>	<u>Criterion</u> <u>3</u>	<u>Criterion</u> <u>4</u>	<u>Criterion</u> <u>5</u>	<u>Criterion</u> <u>6</u>	<u>Criterion</u> <u>7</u>
Unit A	.1588	.1588	.1588	.7854	.7854	.1588
Unit B	.3218	.2255	.1588	1.0472	.5796	.1588
Unit C	.3305	.3305	.3305	.8646	.5387	.1588
Unit D	.4086	.3305	.2314	1.2403	.8646	.1588
<u>df</u>	3	3	3	3	3	3
<u>SS</u>	.22019	.011067	.014043	.076223	.044871	0
<u>F-ratio</u>	.587	.295	.374	2.033	1.197	0
<u>P</u>	.627	.830	.774	.110	.309	1.0000

^aComputed on arc sin transformations of monthly unit proportions.

implicit charting expectations already in progress on some units. The criterion presence of preoperative pilot checklist on chart was developed by unit A and implemented in October, month 5 of the study.

Part Two: Results of the Study

The Effects of Nursing Audit on Compliance to Audit Criteria

Hypothesis 1

Hypothesis one stated that nurses who were involved in setting their own audit criteria, ratifying the criteria, analyzing discrepancies, and recommending remedial actions for improvement would score significantly higher increases on their scores than groups of nurses who were not involved in that process. Analysis of the results of the audit scores among units and between adjacent months were obtained for the criteria. A seventh criterion was developed and implemented in October by the unit A staff as a remedial action to increase audit scores. The criterion was presence of the pilot patient teaching checklist on the chart. The seven criteria statements were changed to questions and used by the investigator to collect data on all four units. The seven criteria were: (1) the presence of the pilot patient teaching checklist on the chart, (2) the patient was taught how to turn, cough, and deep breathe, (3) the patient demonstrated the ability to turn, cough, and deep breathe, (4) the patient verbalized an understanding of the postoperative routines, (5) the patient verbalized an understanding of the operative procedure, (6) the nursing history was completed, and (7) the patient verbalized an understanding of what to expect

preoperatively.

Table 10 shows that there were significant differences in audit scores among units since application of the independent variable. The detailed results of the chart audit will be presented in two sections. The results from the experimental units will be presented in the first section. Unit A scores will be analyzed, followed by unit B scores. Units A and B scores will then be compared by presenting the significant differences by adjacent months. The control unit results will be presented in the second section. Unit C scores will be analyzed followed by unit D scores. Units C and D scores will then be compared by presenting the significant differences by adjacent months. Finally, experimental and control units' scores will be compared by presenting significant differences by adjacent months.

Audit Results by Percentage Scores: Experimental Units

Unit A demonstrated an increase in percentage scores on four of the seven criteria when comparing scores across the seven months in this study (see Table 11 and Figures 2-8). There was an increase in scores on five of the seven criteria and a decrease in scores on the remaining two criteria when comparing month 1 with month 7 scores. The increases in scores did not start until October on this unit. The staff on this unit had, by October, developed the criteria, obtained staff ratification of the criteria, and had developed and ratified a pilot checklist to employ as a charting guideline. Thus, unit A demonstrated a variable change in meeting their own charting expectations, but the changes were not to the extent hypothesized. Further reasons for the findings on this unit will be presented in

Table 10

Significant Differences in Charting of Preoperative Patient Teaching Audit
Comparing Months 1 & 2 with Months 3 through 7 Among Units: MANOVA^a

Criterion	Mean	DF	SS	MSS	F	P
1	.1588 .2655	1	.07	.07	5.204	.02*
2	.2606 .4164	1	.14	.14	11.106	.00*
3	.2267 .3535	1	.09	.09	7.341	.01*
4	.2180 .3642	1	.12	.12	9.770	.00*
5	.9429 .9877	1	.01	.01	.919	.35
6	.6677 .7359	1	.03	.03	2.127	.15
7	.1588 .2679	1	.07	.07	5.433	.02*

^aSignificance level at 0.05

*Significant difference

Criterion 1: Pilot preoperative checklist on chart

Criterion 2: Patient taught to turn, cough, deep breathe

Criterion 3: Patient demonstrates ability to turn, cough, deep breathe

Criterion 4: Patient verbalizes understanding of postoperative routines

Criterion 5: Patient verbalizes understanding of operative procedure

Criterion 6: Nursing history completed

Criterion 7: Patient verbalizes understanding of what to expect preoperatively

Table 11

Percentages of Compliance to Audit Criteria By Unit and Month

<u>Month</u>	<u>Unit</u>	<u>Criteria</u>						
		<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>
June	A	0	0	0	0	50	50	0
	B	0	10	5	0	75	30	0
	C	0	11	11	11	58	26	0
	D	0	16	11	5	90	58	0
July	A	0	0	0	0	50	30	0
	B	0	0	0	0	65	40	0
	C	0	5	5	5	55	25	0
	D	0	10	5	10	75	50	0
Aug	A	0	0	0	0	55	40	0
	B	0	5	5	0	60	35	0
	C	0	0	0	0	60	50	0
	D	0	0	0	0	63	58	0
Sept	A	0	0	0	5	40	25	0
	B	0	20	10	5	65	45	0
	C	0	5	0	5	60	40	0
	D	0	20	10	30	90	60	0
Oct	A	15	20	15	25	75	58	10
	B	0	70	55	25	85	45	0
	C	0	10	10	5	60	30	0
	D	0	10	10	5	80	30	0
Nov	A	11	26	11	15	63	32	11
	B	65	90	75	80	74	53	70
	C	0	0	0	0	42	30	0
	D	0	10	5	10	95	80	10
Dec	A	50	15	15	25	45	20	20
	B	21	78	63	63	95	74	42
	C	0	5	5	5	55	45	0
	D	0	5	5	5	95	55	0

Criterion 1: Pilot preoperative checklist on chart

Criterion 2: Patient taught to turn, cough, deep breathe

Criterion 3: Patient demonstrates ability to turn, cough, deep breathe

Criterion 4: Patient verbalizes understanding of postoperative routines

Criterion 5: Patient verbalizes understanding of operative procedure

Criterion 6: Nursing history completed

Criterion 7: Patient verbalizes understanding of what to expect preoperatively

Figure 2

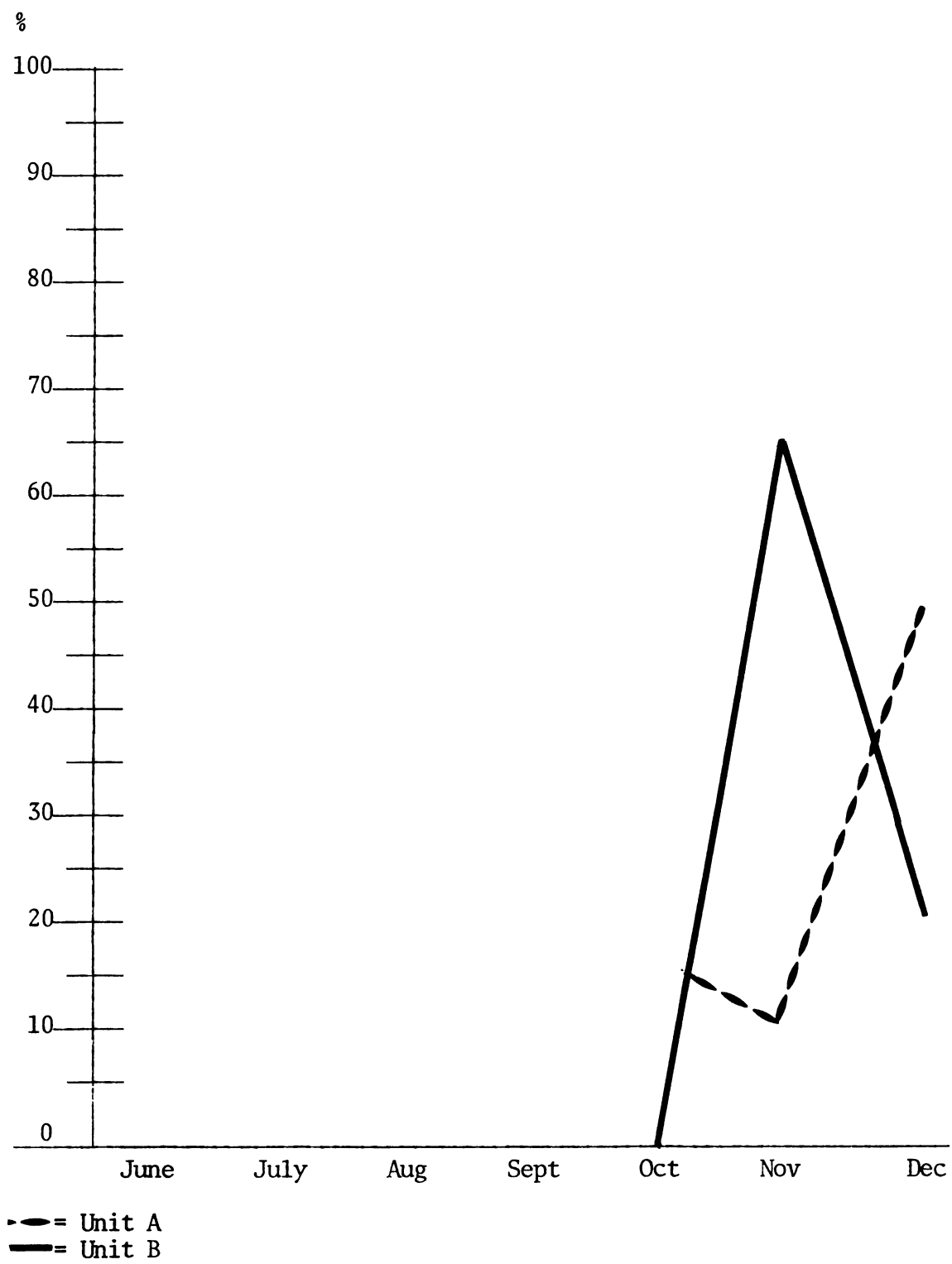
Pilot Preop. Teaching Checklist (Criterion 1)

Figure 3

Taught Patient Cough, Deep Breathing, Turning (Criterion 2)

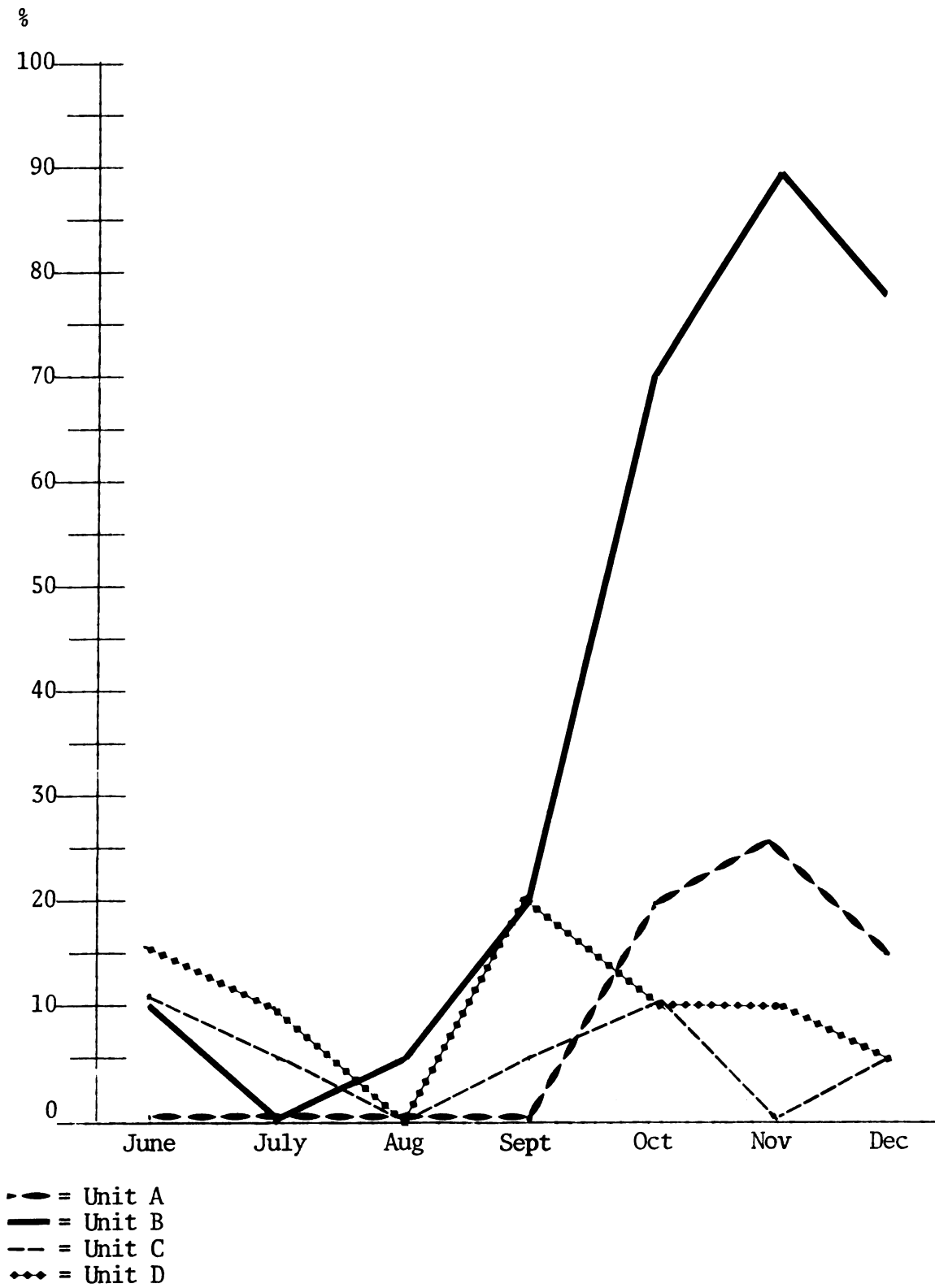


Figure 4

Patient Returned Demonstration: Turn, Cough, Deep Breath (Criterion 3)

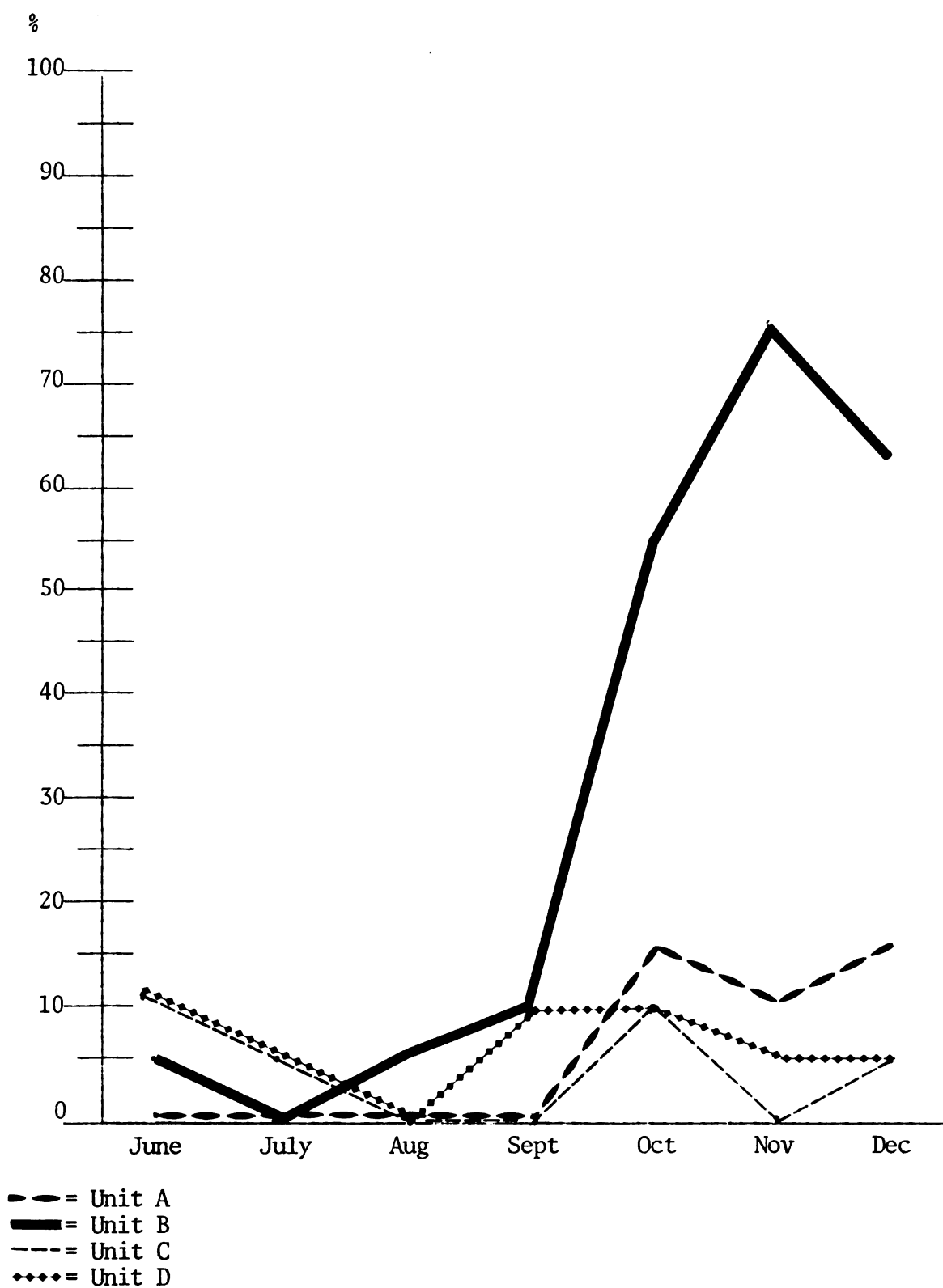


Figure 5

Explained What To Expect Postop.; Patient Verbalized Understanding
(Criterion 4)

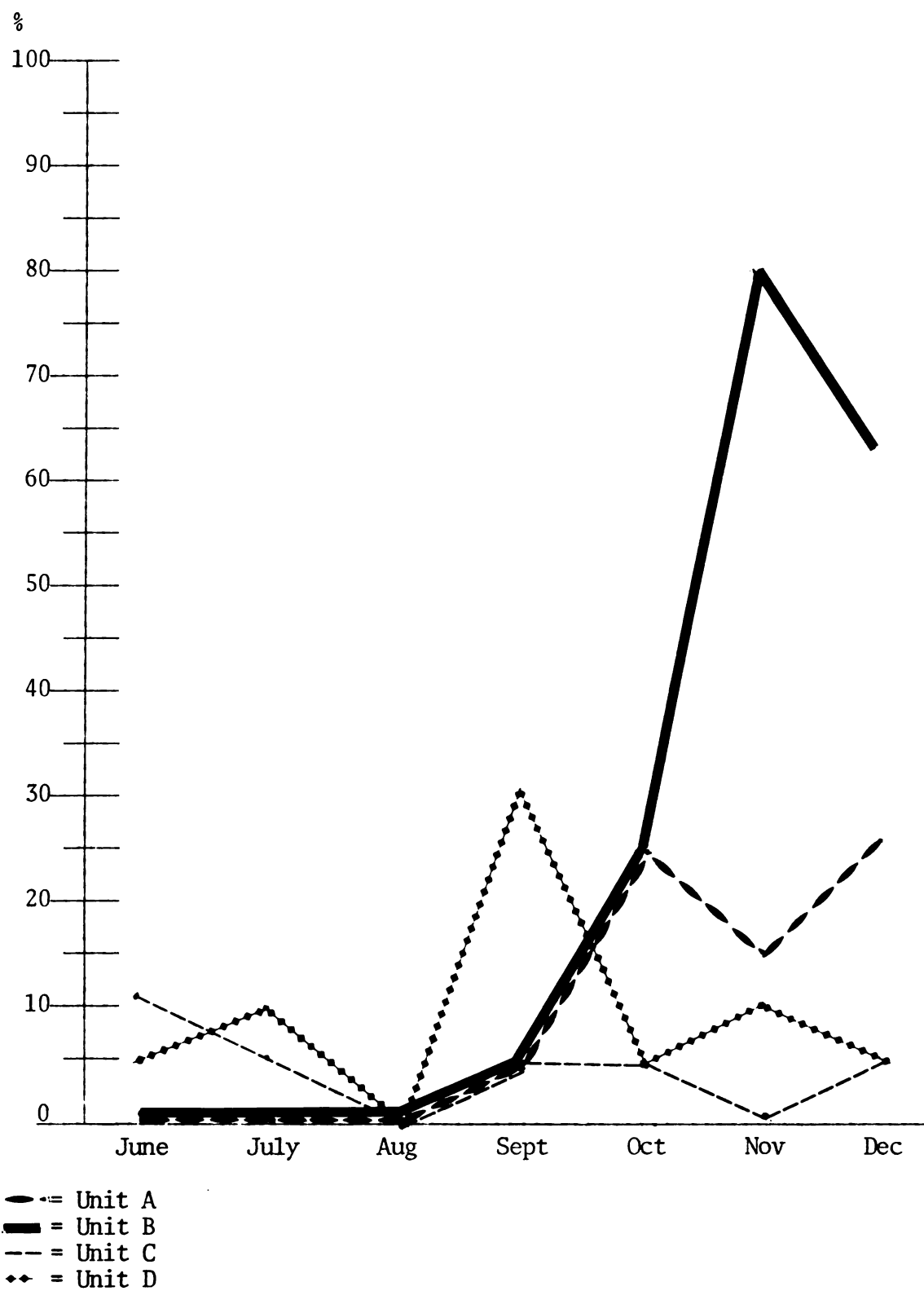


Figure 6

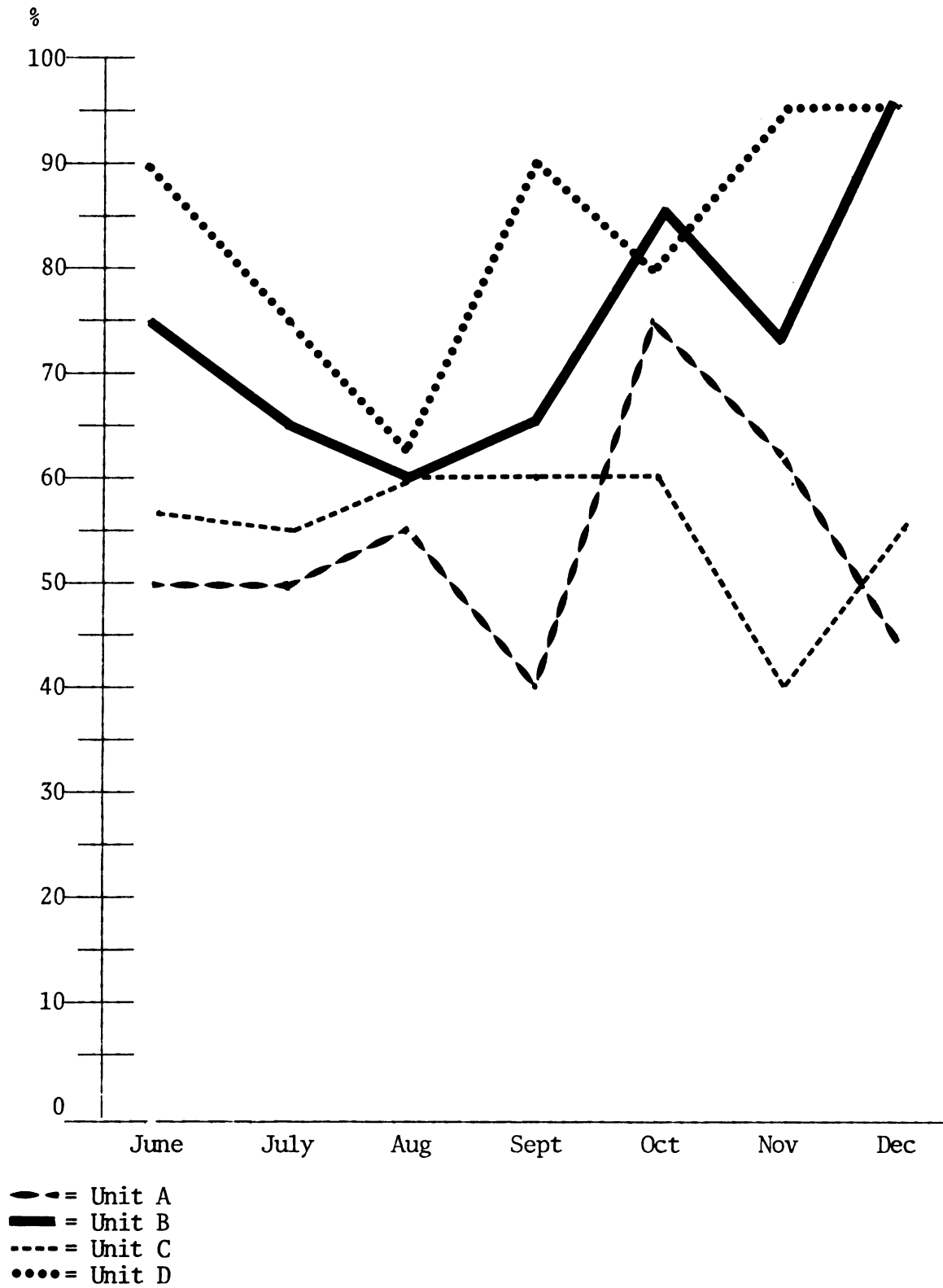
Patient Understands Operative Procedure (Criterion 5)

Figure 7

Nursing Admission History Complete (Criterion 6)

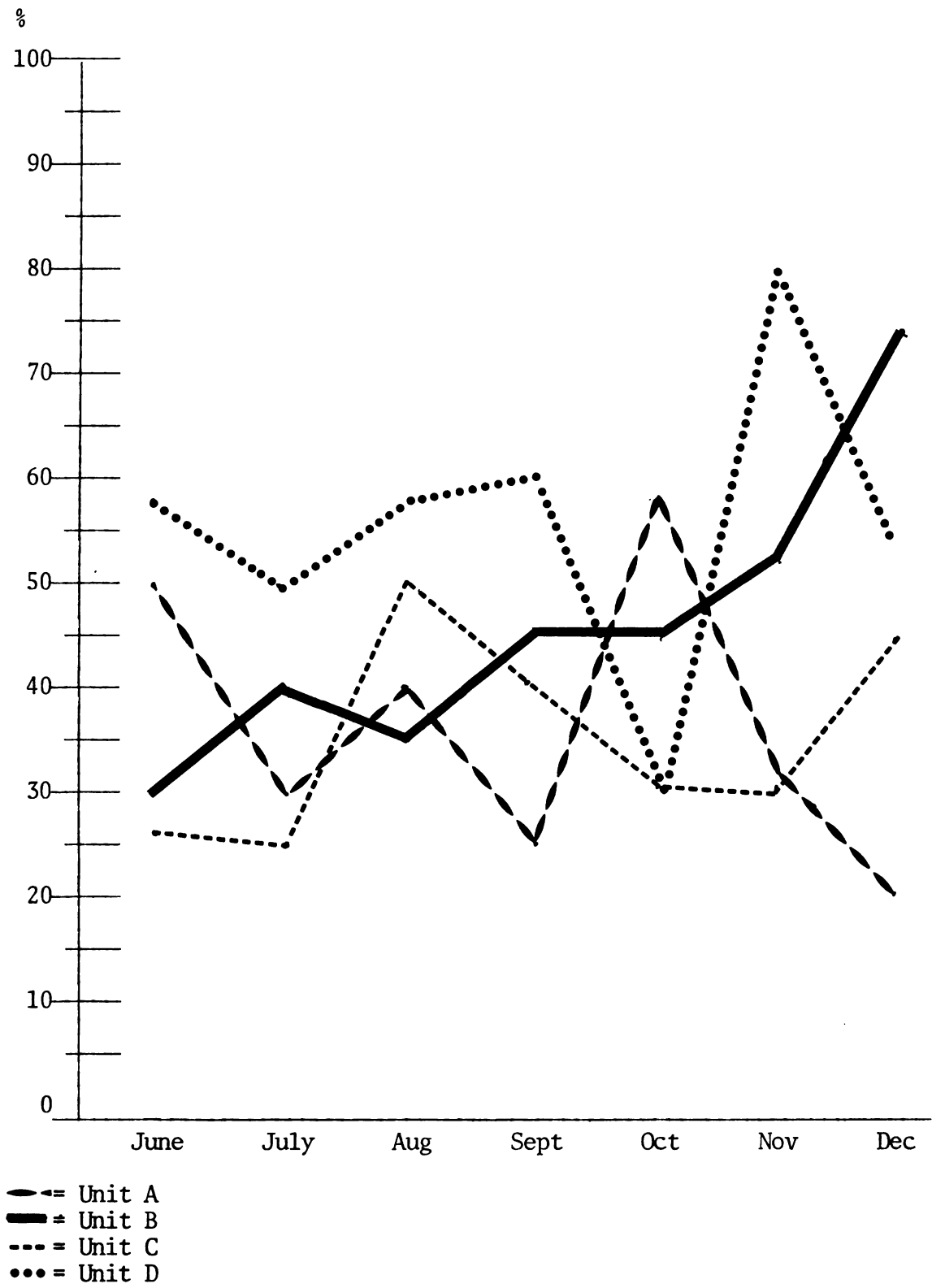
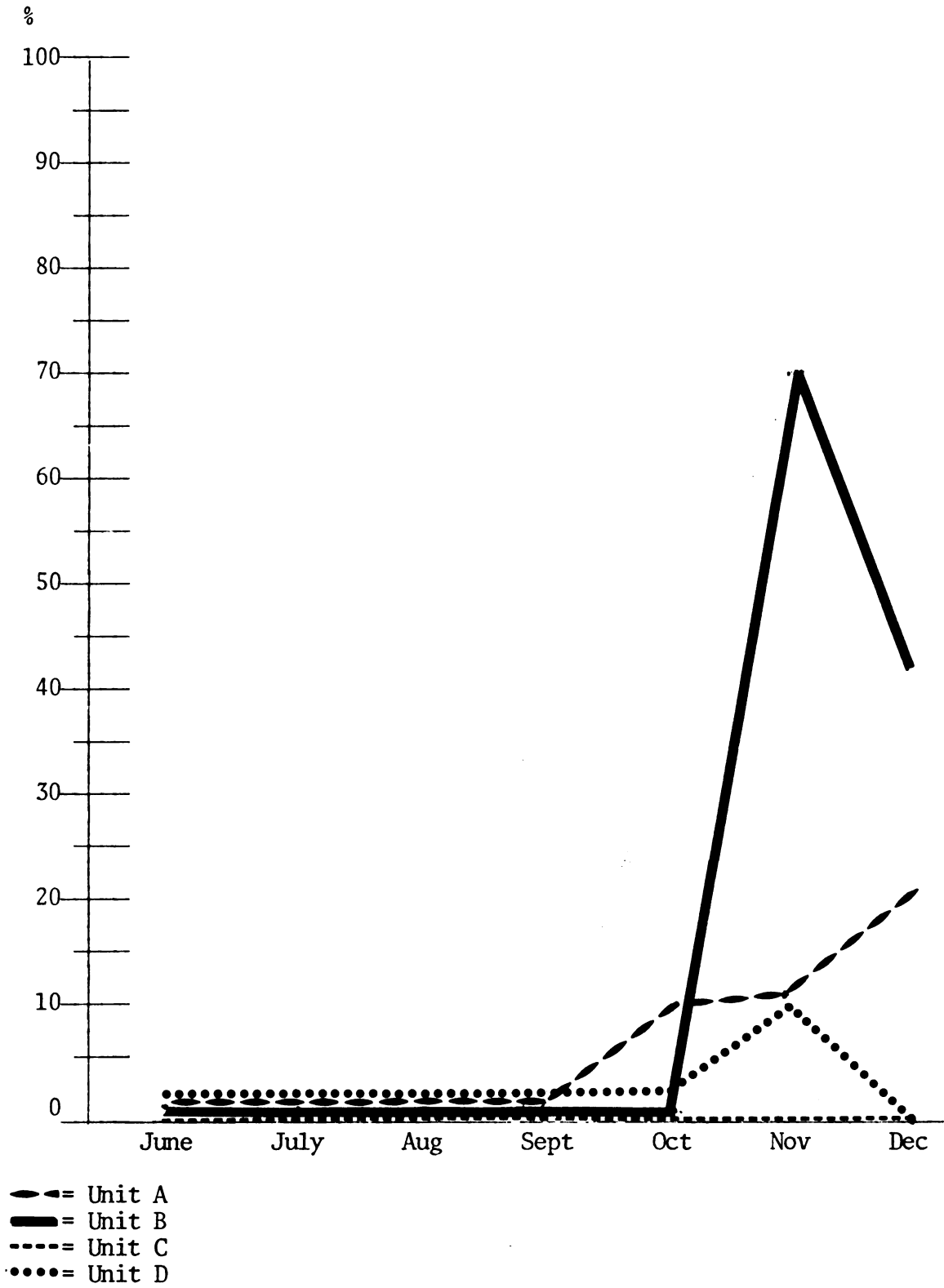


Figure 8

Explained Preop. Nursing Care - What To Expect (Criterion 7)



part three of this chapter.

Unit B demonstrated an increase in percentage scores on two of the seven criteria when comparing scores across the seven months in this study (see Table 11 and Figures 2-8). There was an increase in scores that peaked during months 5 and 6 followed by a decrease in scores for the remaining five criteria. The increases in scores on this unit started in August and September. There was an increase in the scores on all seven criteria when comparing month 1 with month 7. Thus, unit B demonstrated an increase in meeting the externally-set charting expectations. This finding was in the opposite direction from the hypothesis in this study.

In sum, there was some evidence that unit B scores were decreasing by month 7, while unit A scores were increasing on specific criteria. Unit A did not demonstrate the more significant increase in scores across the months as predicted. Therefore, hypothesis one was rejected. Possible explanations for these findings will be presented in part three of this chapter.

Comparison Between the Experimental Units

Unit A with Unit B.

Analysis of the seven criteria by means of MANOVA indicated significant differences between units A and B on four of the criteria when comparing audit scores by adjacent months (see Table 12). Unit A showed a more significant increase in scores than did unit B on the criterion use of the pilot checklist between months 6-7, $p = .000$.

Table 12

Significant Differences of Charting Compliance to Preoperative Teaching Audit
 Criteria Comparing Unit A and Unit B By Adjacent Months: MANOVA

Criterion	Months						F-ratio
	1 - 2	2 - 3	3 - 4	4 - 5	5 - 6	6 - 7	
1	.0 1.00	.0 1.00	.0 1.00	1.141 .25	14.318 .00**	16.781 .00**	F p
2	.531 .60	.089 .93	1.134 .26	.993 .33	.668 .51	.004 .10	F p
3	.089 .93	.089 .93	.185 .85	1.510 .13	1.556 .12	.767 .45	F p
4	.0 1.00	.0 1.00	.0 1.00	.0 1.00	9.758 .00*	1.842 .07	F p
5	.240 .81	.207 .84	.819 .42	.323 .75	.003 .10	4.814 .00*	F p
6	1.933 .05	.491 .63	1.387 .17	2.326 .02	2.369 .02	2.501 .01	F p
7	.0 1.00	.0 1.00	.0 1.00	.531 .60	13.570* .00	3.496* .00	F p

* Unit B significantly higher than unit A

** Unit A significantly higher than unit B

Criterion 1: Pilot preoperative checklist on chart

Criterion 2: Patient taught to turn, cough, deep breathe

Criterion 3: Patient demonstrates ability to turn, cough, deep breathe

Criterion 4: Patient verbalizes understanding of postoperative routines

Criterion 5: Patient verbalizes understanding of operative procedure

Criterion 6: Nursing history completed

Criterion 7: Patient verbalizes understanding of what to expect preoperatively

Unit B showed more significant increases in scores than did unit A on the criteria: use of the pilot checklist between months 5-6, $p = .000$; the patient verbalized an understanding of what to expect postoperatively between months 5-6, $p = .000$; the patient verbalized an understanding of the operative procedure between months 6-7, $p = .000$; and the patient verbalized an understanding of what to expect preoperatively between months 5-6, $p = .000$ and months 6-7, $p = .001$.

Analysis of the seven criteria by means of MANOVA indicated a significant difference between units A and B when comparing the combined changes in scores over the last 5 months of the study with the first 2 months (see Table 13). Unit B showed a more significant increase in scores on the criterion the patient was taught to turn, cough, and deep breathe, $p = .005$.

In sum, unit B, rather than unit A as had been hypothesized, showed significantly higher scores on three criteria between months 5 and 6 and on two criteria between months 6 and 7. Unit A scored significantly higher on presence of their own developed pilot checklist between months 6 and 7 than did unit B. Unit B, rather than unit A as hypothesized, scored significantly higher when comparing month 1-2 scores with months 3 through 7 on one criterion. Thus, active involvement in developing criteria did not increase scores for those criteria to a significant degree as predicted.

Audit Results by Percentage Scores: Control Units

Unit C demonstrated an increase in percentage scores on one of

Table 13

Significant Differences of Charting Compliance to Preoperative Patient Teaching Criteria
Comparing Unit A and B By Months 1 & 2 with Months 3 through 7: MANOVA^a

<u>Criterion</u>	<u>Unit</u>	<u>Months 1 & 2</u>	<u>Months 3 through 7</u>	<u>df</u>	<u>SS</u>	<u>MSS</u>	<u>F</u>	<u>p</u>
1	A	.1588	.3662	1	.000101	.000101	.008	.929
	B	.1588	.3781					
2	A	.1588	.3435	1	.102958	.102958	8.237	.005*
	B	.2403	.8047					
3	A	.1588	.2887	1	.086339	.086339	6.907	.009*
	B	.1921	.6697					
4	A	.1588	.3680	1	.034164	.034164	2.733	.099
	B	.1588	.5867					
5	A	.7854	.8443	1	.00357	.000357	.029	.867
	B	.9925	1.0737					
6	A	.6825	.6267	1	.032464	.032464	2.597	.108
	B	.6322	.7895					
7	A	.1588	.2867	1	.015658	.015658	1.253	.262
	B	.1588	.4347					

^aCalculated from arc sin transformations of monthly proportions

*Significant differences

Criterion 1: Pilot preoperative checklist on chart

Criterion 2: Patient taught to turn, cough, deep breathe

Criterion 3: Patient demonstrates ability to turn, cough, deep breathe

Criterion 4: Patient verbalizes understanding of postoperative routines

Criterion 5: Patient verbalizes understanding of operative procedure

Criterion 6: Nursing history completed

Criterion 7: Patient verbalizes understanding of what to expect preoperatively

the seven criteria: nursing history completed when comparing month 1 with month 7 scores (see Table 11, p. 96 and Figures 2-8, pp. 97-103). There was no change on two criteria: use of the pilot checklist and the patient verbalized an understanding of what to expect preoperatively. There was a decrease in scores on the remaining four criteria. Thus, a significant change in charting according to the externally set criteria did not occur during the time period of this study.

Unit D demonstrated an initial increase in scores followed by a decrease on three criteria: the patient was taught to turn, cough, and deep breathe, the patient verbalized an understanding of what to expect postoperatively, and the nursing history completed (see Table 11, p. 96 and Figures 2-8, pp. 97-103). There was an increase in scores on one criterion the patient verbalized an understanding of the operative procedure, when comparing month 1 with month 7 scores. There was no change in two criteria: use of the pilot checklist and the patient verbalized an understanding of what to expect preoperatively. There was a decrease in scores on the remaining four criteria.

Unit D scored the highest among the four units six times on the criteria: the patient verbalized an understanding of the operative procedure; five times on the criteria nursing history completed; and twice on both patient verbalized an understanding of the post-operative procedures and the patient was taught to turn, cough, and deep breathe. Thus, unit D scores were the highest scores on selected criteria. Since, unit D was a control unit, it must be

concluded that the scores represent the normal pattern of charting on the unit. Possible explanations for the findings on this unit will be presented in Chapter Five.

Comparison Between the Control Units

Unit C with Unit D.

Analysis of the seven criteria by means of MANOVA indicated significant differences between units C and D on two of the seven criteria (see Table 14). Unit C showed a significant decrease in scores on the patient verbalized an understanding of the operative procedure between months 5 and 6, $p = .001$, while unit D scores increased. Unit D showed a significant increase in scores over unit C on nursing history completed between months 5 and 6, $p = .000$. Unit D showed significantly greater decrease in scores than unit C on this same criterion between months 6 and 7, $p = .000$. Although unit D had scores equal to or exceeding unit C scores on all criteria across the seven months of this study, differences in the degree of change in scores between adjacent months were not significant. Thus, there were fewer significant changes in scores between the two control units than between the two experimental units. The independent variable, therefore, had an effect on the experimental units' audit scores, but not on the control units' audit scores. Thus, it can be concluded that history, maturation, interaction, and Hawthorne effects were successfully controlled for with units C and D.

Table 14
Significant Differences in Charting Compliance to Preoperative Patient Teaching Audit
Criteria Comparing Unit C With Unit D Between Adjacent Months: MANOVA

Criterion	Months						F-ratio F-prob.
	1 - 2	2 - 3	3 - 4	4 - 5	5 - 6	6 - 7	
1	.0 1.00	.0 1.00	.0 1.00	.0 1.00	.0 1.00	.0 1.00	F p
2	.07 .10	.185 .85	1.078 .28	1.078 .28	.531 .60	.531 .60	F p
3	.0 1.00	.0 1.00	.531 .60	.531 .60	.089 .93	.089 .93	F p
4	.764 .45	.185 .85	2.425 .02	2.425 .02	.531 .60	.531 .60	F p
5	.538 .60	.642 .53	2.183 .03	.403 .70	3.496 .00*	.334 .74	F p
6	.082 .94	.667 .51	.299 .77	.811 .42	5.565 .00**	3.652 .00**	F p
7	.0 1.00	.0 1.00	.0 1.00	.0 1.00	.531 .60	.531 .60	F p

Significance level set at .005

* Unit D significantly greater increase than Unit C

** Unit D decreased significantly more than Unit C increased

Criterion 1: Pilot preoperative checklist on chart

Criterion 2: Patient taught to turn, cough, deep breathe

Criterion 3: Patient demonstrates ability to turn, cough, deep breathe

Criterion 4: Patient verbalizes understanding of postoperative routines

Criterion 5: Patient verbalizes understanding of operative procedure

Criterion 6: Nursing history completed

Criterion 7: Patient verbalizes understanding of what to expect preoperatively

Comparison Between Experimental and Control Groups

Unit A with Unit D.

Analysis of the seven criteria by means of MANOVA indicated significant differences between units A and D on five of the seven criteria when comparing audit scores by adjacent months (see Table 15). Unit A showed significantly greater increase in scores than did unit D on the criteria: presence of the pilot checklist on the chart between months 6 and 7, $p = .000$; the patient was taught to turn, cough, and deep breathe between months 4 and 5, $p = .000$; the patient verbalized an understanding of postoperative procedures between months 4 and 5, $p = .000$; the patient verbalized an understanding of the operative procedure between months 4 and 5, $p = .000$; and nursing history completed between months 4 and 5, $p = .000$. Unit D scored significantly higher than unit A on the criteria: the patient verbalized an understanding of the operative procedure between months 3 and 4, $p = .000$; and on nursing history completed between months 5 and 6, $p = .000$.

Analysis of the seven criteria by means of MANOVA indicated no significant differences between units A and D when comparing audit scores from months 3 through 7. Although, there were significant differences between specific months on selected criteria, there were no significant differences between experimental unit A and control unit D when comparing the combined changes in scores for the last five months of the study.

Table 15

Significant Differences of Charting Compliance to Patient Preoperative Teaching
Audit Criteria Comparing Unit A and Unit D by Adjacent Months: MANOVA^a

Criterion	Adjacent Months						
	1 - 2	2 - 3	3 - 4	4 - 5	5 - 6	6 - 7	
1	.0 1.00	.0 1.00	.0 1.00	1.141 .25	.090 .93	4.139 .00**	F p
2	.151 .88	.53 .60	1.858 .06	3.989 .00**	.113 .91	.040 .97	F p
3	.220 .837	.089 .93	.531 .60	1.141 .25	.017 .99	.090 .93	F p
4	.163 .87	.53 .60	2.508 .01	8.507 .00**	.893 .38	.893 .38	F p
5	.746 .46	.64 .53	4.631 .00*	5.088 .00**	2.691 .01	0.672 .51	F p
6	.321 .75	0.013 .99	.667 .51	8.385 .00**	12.650 .00*	.383 .71	F p
7	.0 1.00	.0 1.00	.0 1.00	.531 .60	.476 .64	1.754 .08	F p

^a Significance level set at 0.005

* Unit D significantly greater increase than unit A

**Unit A significantly greater increase than unit D

Criterion 1: Pilot preoperative checklist on chart

Criterion 2: Patient taught to turn, cough, deep breathe

Criterion 3: Patient demonstrates ability to turn, cough, deep breathe

Criterion 4: Patient verbalizes understanding of postoperative routines

Criterion 5: Patient verbalizes understanding of operative procedure

Criterion 6: Nursing history completed

Criterion 7: Patient verbalizes understanding of what to expect preoperatively

Unit A with Unit C.

Analysis of the seven criteria by means of MANOVA indicated significant differences between units A and C on two of the seven criteria when comparing audit scores by adjacent months (see Table 16). Unit A showed a significantly greater increase in scores than did unit C on the criteria: the presence of the pilot checklist between months 6 and 7, $p = .000$; and on nursing history completed between months 4 and 5, $p = .000$. Analysis of the seven criteria by means of MANOVA indicated no significant differences between experimental unit A and control unit C when comparing the combined changes in scores over the last five months of the study.

Thus, unit A scored significantly higher than unit D and unit C on specific criteria between specific months. No significant differences occurred between unit A and the control units when comparing the combined changes in scores since application of the independent variable. Thus, the involved audit process did not cause more overall significant increases than if no auditing process occurred.

Unit B with Unit C.

Analysis of the seven criteria by means of MANOVA indicated significant differences between units B and C on five of the seven criteria (see Table 17). Unit B showed a significantly greater increase in scores than did unit C on the criteria: presence of the pilot checklist on the chart between months 5 and 6, $p = .000$ and months 6 and 7, $p = .000$; the patient was taught to turn, cough, and deep breathe between months 4 and 5, $p = .000$; and months 5 and 6, $p = .000$; the patient demonstrated the ability to turn, cough and deep

Table 16

Significant Differences of Charting Compliance To Patient Preoperative Teaching
 Audit Criteria Comparing Unit A and Unit C by Adjacent Months: MANOVA^a

Criterion	Adjacent Months						
	1 - 2	2 - 3	3 - 4	4 - 5	5 - 6	6 - 7	
1	.0	.0	.0	1.141	.090	4.139	F
	1.00	1.00	1.00	.25	.93	.00**	p
2	.220	0.089	.105	.919	1.134	0.863	F
	.83	.93	.92	.37	.26	.40	p
3	.220	0.089	.0	.115	.184	.000	F
	.83	.93	1.00	.91	.86	1.00	p
4	.220	.089	.001	1.848	.047	.047	F
	.83	.93	1.00	.07	.96	.96	p
5	.017	.000	.455	2.628	.053	1.954	F
	.97	1.00	.65	.01	.96	.05	p
6	.727	.491	.073	3.980	1.434	1.669	F
	.47	.63	.94	.00**	.15	.10	p
7	.0	.0	.0	.531	.002	.354	F
	1.00	1.00	1.00	.60	.10	.73	p

^a Significance level set at 0.005

** Significant difference; Unit A = 0.7854; Unit C = 0.1588

Criterion 1: Pilot preoperative checklist on chart

Criterion 2: Patient taught to turn, cough, deep breathe

Criterion 3: Patient demonstrates ability to turn, cough, deep breathe

Criterion 4: Patient verbalizes understanding of postoperative routines

Criterion 5: Patient verbalizes understanding of operative procedure

Criterion 6: Nursing history completed

Criterion 7: Patient verbalizes understanding of what to expect preoperatively

Table 17
Significant Differences in Charting Compliance to Preoperative Patient Teaching Audit
Criteria Comparing Unit B with Unit C Between Adjacent Months: MANOVA

Criterion	Months						F-ratio F-prob.
	1 - 2	2 - 3	3 - 4	4 - 5	5 - 6	6 - 7	
1	.0 1.00	.0 1.00	.0 1.00	.0 1.00	12.13 .00*	4.25 .00*	F p
2	.067 .95	.356 .73	.54 .59	3.823 .00*	3.531 .00*	.982 .33	F p
3	.029 .98	.356 .73	.185 .85	2.460 .02	2.808 .005*	.763 .45	F p
4	.220 .83	.089 .93	.001 1.00	1.848 .07	8.455 .00*	1.303 .19	F p
5	.129 .90	.209 .84	.053 .96	1.108 .27	.030 .98	.634 .53	F p
6	.289 .78	1.964 .05	.823 .42	.221 .83	.117 .91	.084 .93	F p
7	.0 1.00	.0 1.00	.0 1.00	.0 1.00	13.858 .00*	1.624 .11	F p

Significance level set at .005.

* Unit B significantly greater increase than unit C

Criterion 1: Pilot preoperative checklist on chart

Criterion 2: Patient taught to turn, cough, deep breathe

Criterion 3: Patient demonstrates ability to turn, cough, deep breathe

Criterion 4: Patient verbalizes understanding of postoperative routines

Criterion 5: Patient verbalizes understanding of operative procedure

Criterion 6: Nursing history completed

Criterion 7: Patient verbalizes understanding of what to expect preoperatively

breathe between months 5 and 6, $p = .005$; the patient verbalized an understanding of postoperative procedures between months 5 and 6, $p = .000$; and the patient verbalized and understanding of what to expect preoperatively between months 5 and 6, $p = .000$. Thus, unit B scores changed more, as hypothesized, than did unit C scores.

Unit B with Unit D.

Analysis of the seven criteria by means of MANOVA indicated significant differences between units B and D on all seven criteria when comparing audit scores by adjacent months (see Table 18). Unit B showed a more significant increase in scores than did unit D on the criteria: presence of the pilot checklist on the chart between months 5 and 7, $p = .000$ and months 6 and 7, $p = .000$; the patient was taught to turn, cough, and deep breathe between months 4 and 5, $p = .000$; the patient demonstrated the ability to turn, cough, and deep breathe between months 4 and 5, $p = .000$; the patient verbalized an understanding of the operative procedure between months 4 and 5, $p = .000$; the patient verbalized an understanding of postoperative routines between months 4 and 5, $p = .000$, and months 5 and 6, $p = .000$; the nursing history completed between months 6 and 7, $p = .000$; and the patient understood what to expect preoperatively between months 5 and 6, $p = .000$.

Unit D showed a more significant increase in scores than did unit B on the criteria: the patient understands the operative procedure between months 5 and 6, $p = .000$. In sum, unit B scores increased more significantly between months, as hypothesized, than

Table 18

Significant Differences in Charting Compliance to Preoperative Patient Teaching Audit
 Criteria Comparing Unit B with Unit D Between Adjacent Months: MANOVA

Criterion	Months						F-ratio F-prob.
	1 - 2	2 - 3	3 - 4	4 - 5	5 - 6	6 - 7	
1	.0 1.00	.0 1.00	.0 1.00	.0 1.00	12.134 .00*	4.252 .00*	F p
2	.116 .91	1.055 .29	.089 .93	8.962 .00*	1.329 .18	.069 .95	F p
3	.029 .98	.356 .73	.089 .93	5.278 .00*	1.897 .06	.331 .74	F p
4	.163 .87	.531 .60	2.508 .01	8.507 .00*	4.747 .00*	.170 .87	F p
5	.140 .89	.119 .91	1.555 .12	2.847 .005*	2.876 .004**	1.889 .06	F p
6	.679 .50	.342 .74	.130 .90	1.879 .06	4.070 .00**	4.841 .00**	F p
7	.0 1.00	.0 1.00	.0 1.00	.0 1.00	8.962 .00*	.298 .77	F p

Significance set at .005.

* Unit B significantly greater increase than unit D

** Unit D significantly greater increase than unit B

Criterion 1: Pilot preoperative checklist on chart

Criterion 2: Patient taught to turn, cough, deep breathe

Criterion 3: Patient demonstrates ability to turn, cough, deep breathe

Criterion 4: Patient verbalizes understanding of postoperative routines

Criterion 5: Patient verbalizes understanding of operative procedure

Criterion 6: Nursing history completed

Criterion 7: Patient verbalizes understanding of what to expect preoperatively

did unit D scores.

Based on the findings reported, hypothesis 1 was rejected. Although there were significant differences when comparing adjacent month scores, the changes were in a direction opposite of the hypothesis. Active involvement, alone, in setting audit criteria did not significantly increase compliance to those criteria than did non-involvement in setting criteria. Reasons for the increased scores by the unit B staff who were not involved in developing the criteria will be presented in part three of this chapter.

The Effects of Two Nursing Audit Processes on Self-Reported Increase in Positive Attitude Toward Audit

Hypothesis 2

Hypothesis 2 stated that nurses who had developed their own audit criteria and implemented unit level changes to improve their scores toward meeting the criteria would have a more positive attitude toward audit. The attitude which a staff nurse reported she had toward audit was measured by the responses to question four of the audit questionnaire which asked: "Which of the following best describes your over-all feelings about Nursing Audit: Dislike Indifferent Like ?" Analysis of the posttest scores by means of ANOVA indicated no significant differences among the four groups on this variable (see Table 19).

Analysis of the pretest, retest, and posttest scores for

Table 19
Significance of Differences on Specific Posttest Measures of

Variable	Dependent Variables By Unit: ANOVA					
	Unit A (N=17) $\bar{X}$	Unit B (N=15) $\bar{X}$	Unit C (N=15) $\bar{X}$	Unit D (N=14) $\bar{X}$	df	SS
Attitude toward ^a quality of care on unit	4.00	4.20	4.00	4.21	3	.65
Perceived degree ^a of ease in making changes	(N=16) ^c 2.56	(N=14) ^c 2.57	(N=14) ^c 2.43	3.14	3	4.27
Attitude toward ^b audit	2.47	2.20	2.30	2.29	3	.68
						F
						F-prob.
						.53
						.28
						.57

a = Highest score possible is 5; lowest score possible is 1.
b = Highest score possible is 3; lowest score possible is 1.
c = If question not answered, case was deleted from computations.

attitude toward audit by means of Student-Newman-Keuls⁵ indicated no significant differences within each of the four nursing units. Although unit A showed the highest percentage of "like" responses, an increase from the pretest to the posttest, and a decrease in "dislike" responses, the differences were not significant. Although unit D showed an increase in "indifferent" responses, and a decrease in "like" responses, from the pretest to the posttest, the differences were not significant.

Therefore, active involvement in the nursing audit process by the unit A staff nurses did not cause an increase in positive attitude as hypothesized. Hence, hypothesis 2 was rejected.

The Effects of Two Nursing Audit Processes on Self-Reported Intent to Act to Improve Patient Care

Hypothesis 3

Hypothesis three stated that staff nurses who had developed their own audit criteria and implemented changes to meet their criteria would show a significant increase in intent to act for a unit level problem and a problem involving at least one other department. The action which a staff nurse reported she would usually take on a unit-centered problem was measured by the responses to question two of the questionnaire which asked: "Which action do you usually

⁵Winer (1971). This test is used to detect significant differences when the N for each group is different. The range 2.86 to 3.43 was used for the 0.05 level of significance.

take, if you become dissatisfied with the quality of nursing care on your unit?"

When each unit's scores in percents were examined, unit A showed the largest percent of responses in the category "take more than 1 action" than did units B, C, or D, but the difference was not significant. All four units showed the highest percentage of responses in the category "talk to other staff members".

Responses to this question were coded into two categories by the investigator to test for significance among the four groups. Action which involved working with others or more than one action was considered "more active". Action which did not involve active participation in initiating or participating in group action was considered "less active". The responses "give opinion", "tell the head nurse", "talk to other staff members", "follow recommendations", and "give the best care possible to patients assigned to me" were coded into "less active". The responses: "ask to work on a committee", "form a committee", and "take more than 1 action" were coded into a second category "more active".

The unit level problem of improving quality of care (question three on the questionnaire) predictably would involve all unit staff members, because of the twenty-four hour nursing care required by patients. Thus, group action would be indicated. Group action, such as "forming a committee" and "taking more than one action", would require action, commitment, time, and energy by staff nurses who work on unit problems. Since the involved audit process utilized a group approach to improved patient care and involved taking more than one

action, it was predicted that unit A staff would increase the responses in the "more active" category.

Analysis of the responses to this question by means of chi-square indicated no significant differences among the four groups (see Table 20). Although unit A had the highest percent of responses in the second category on all three tests, the differences were not significant when groups were compared on each test. Although unit B and D had one individual who would form a committee to take action, this difference was not significant. Therefore, active involvement in the audit process did not produce a significant change from "less active" to "more active" responses which nurses would take to resolve a unit level problem.

The action a staff nurse would take to improve care in which at least one other department besides nursing was involved was measured by the responses to question five of the audit questionnaire given to staff nurses. This question asked: "If you felt very strongly that check-out times for patients should be more flexible to accommodate individual patient needs, what would you do about it?"

Responses to this question were coded by an independent coder who was unaware of the hypotheses of this study. The categories were: (1) no action/no answer, (2) tell the head nurse, (3) tell the nursing department, (4) take action on the unit, (5) take action outside the unit, and (6) take more than 1 action.

Table 20

Significance of Differences on Posttest Self-Reported Intent to Act: Chi-square
 Variable: Question 5: Audit Attitude Questionnaire: "If you felt very strongly that the check-out times for patient should be more flexible to accommodate individual needs, what would you do about it?"

Category	Experimental Groups			Control Groups			Chi-square	df	Significance
	Unit A	Unit B		Unit C	Unit D				
	#	%	#	%	#	%			
I. No initiated action No answer Give opinion	3	17	2	13.3	7	46.7	4	28.6	7.35 0.29
II. Action Taken on unit	8	47.1	9	60.0	5	33.3	4	28.6	
III. Action outside unit	6	35.3	4	26.7	3	20	6	42.9	

Variable: Question #2: Audit Attitude Questionnaire: "What action do you USUALLY take, if you become dissatisfied with the quality of nursing care on your unit?"

Category	Experimental Groups			Control Groups			Chi-square	df	Significance
	Unit A	Unit B		Unit C	Unit D				
	#	%	#	%	#	%			
I. Talk about it; no overt action; "less active"	12	70.6	12	80.0	12	80.0	12	85.7	1.11 .78
II. Overt action taken; "more active"	5	29.4	3	20.0	3	20.0	2	14.3	

Differences Among Units

When unit responses were compared by percent scores to the responses, unit C showed the most total responses in "no action", "tell the head nurse", and "tell the nursing department" and the fewest responses in "take action on the unit", "take action outside the unit", and "take more than one action" than did the other three study units. Thus, unit C staff would initiate less action on their own to improve patient care, but would inform others of problems. Unit A had the highest percent of responses in the category "take action on the unit", while unit D had the highest responses in the category "take action outside the unit" and "take more than 1 action". Thus, unit A, which had the involved form of the independent variable, did report more intent to take action on the unit. That finding was consistent with the action unit A recommended, remedial action, the pilot checklist, that involved unit level action. Had the audit process not been a satisfying experience for the involved unit A group, self-reported intent to act would have decreased. Unit D, in contrast, appeared to favor taking action outside the unit. This finding was consistent with the question in which one other non-nursing department was involved. However, the reason for this finding on unit D, one of the control units, was not known.

The categories of responses to question five were further collapsed into four categories: "no action", "unit action", "action outside the unit", and "more than one action". The interdepartmental problem would predictably need more action because action would need

to occur at the unit and interdepartmental level. In addition, the problem would need to involve unit staff and at least admissions office staff. Therefore, group action would be indicated. Since the involved audit process, the independent variable on unit A, utilized a group approach to improve preoperative patient teaching, described a process for taking action (unit level and interdepartmental), and involved taking more than one action, it was predicted that unit A staff would increase the responses in the "unit action", "more than 1 action", and "action outside the unit" categories. Analysis of responses to the question by means of a chi-square showed no significant differences among the four units (see Table 21). Although unit D scored more responses in "action outside the unit" and "take more than one action", the differences were not significant. In sum, differences among the four units were most noticeable between unit C and units A, B, and D, but the differences were not significant. While unit A staff reported more active action for a unit problem, unit D staff reported more intent to act for a problem involving at least one other non-nursing department. Thus, active involvement in development of audit criteria did not cause a significant increase in intent to act for a unit problem or a problem involving at least one other department. Hence hypothesis 3 was rejected.

The Effects of Two Nursing Audit Processes
on Completed Remedial Action

Hypothesis 4

Hypothesis four stated that there would be more recommended remedial actions taken to meet the preoperative criteria by nurses who were involved in both setting the criteria and recommending actions to meet those criteria than by nurses who were not involved. The consensus agreement⁶ from the unit A staff was that preoperative patient teaching was being done, but not recorded. The reason for lack of recording was that it was time consuming to chart the care specified in the audit criteria. The staff therefore decided to develop a checklist. The unit staff decided to take the following additional actions to improve their scores: (1) involve the evening staff nurses in the checklist development, (2) assign each staff member to obtain suggestions from five co-workers, (3) ask each co-worker to approve or disapprove the checklist, (4) have the head nurse arrange to get the pilot checklist copied onto the reverse of the current hospital preoperative checklist, and (5) assign one staff nurse to work with the evening shift in implementing the checklist.

The two fold purpose of the checklist was to serve as a reminder to the nurse of the key preoperative teaching points and to facilitate documentation of patient teaching, particularly when the ward

⁶Obtained by ratification of the criteria and discussed at the second audit meeting (see p. 65).

was busy.

Analysis of Recommended Actions Completed

Unit A

The head nurse on unit A was interviewed by the investigator to determine how many of the recommendations had been completed.

Analysis of the responses to the interview questions indicated that all of the remedial actions had been completed in spite of delays in getting the checklist copied. The head nurse stated that eighty percent of the staff had been contacted about the checklist. The staff agreed to do the preoperative teaching specified by the audit criteria and to chart that teaching, using the pilot checklist, if the checklist made the recording more feasible to accomplish. In addition to the above actions agreed upon at the second audit meeting, the head nurse (1) worked the evening shift in which use of the pilot checklist was initiated and (2) checked the charts intermittently to review progress on the pilot checklist use. Therefore, as hypothesized, the head nurse took more independent subsequent action than originally planned at the second audit meeting. Thus, the involved form of the independent variable caused some subsequent action.

Unit B

The head nurse on unit B was interviewed by the investigator for two reasons: (1) to review the investigative study with her and ask for continued unit participation and (2) to ask her to implement the pilot checklist recommended by unit A. Analysis of the responses to

the interview questions indicated that the head nurse did not recall the study details, would continue to participate in the study, would agree to use the checklist, but would not have the checklist copied, distributed, or inform the staff when to begin using the checklist. The reason given for the latter was that the head nurse had other projects she needed to address, and viewed audit as a project with long-range, rather than immediate effects.

Thus, the unit A staff completed and exceeded their own recommended actions to develop and institute a pilot preoperative teaching checklist agreed upon at the second audit meeting. Unit B's new head nurse did not agree to take the action necessary to implement the pilot checklist. Therefore, hypothesis 4 was accepted.

Unanswered Questions

Two questions, however, still remained unanswered. First, would unit B staff use the checklists if the checklists were made available? Secondly, would unit A use the checklist to a greater extent than unit B?

In an effort to answer those two questions, the investigator copied and distributed the pilot checklists and held two meetings with the unit B staff to inform them of the checklist. Hence, the staff on unit B received more attention from the investigator, while the staff on unit A received more attention for this phase of the study from their head nurse. The increased attention on unit B might have been perceived as a motivating factor because of the time and

attention received from an "expert" in the area of audit. Staff might have been willing to invest the effort in using the audit criteria and checklist already developed. Unit A staff, in contrast, had more attention from their head nurse. Head nurse attention could have represented commitment to the project and thus, motivate the staff to achieve the unit-developed audit criteria. The net effect on both units will be presented in the next section of this chapter.

In contrast to the nursing staff, both head nurses received the same amount of attention from the investigator. On unit A, the investigator's attention was focused on the meeting which determined which of the recommended remedial actions had been completed. The purpose of the meeting was to monitor the staff-determined changes to achieve the audit criteria. In contrast, on unit B, the investigator's attention was focused on the meeting which reviewed the purposes of the study and the progress of the preoperative patient teaching criteria. Thus, the attention given by the investigator to unit B was to both obtain and explain use of the criteria and checklist. This meeting represented imposed, rather than staff-determined change.

Thus, the type of investigator involvement that occurred on units A and B was congruent with the hypothesis of the study. However, the differences noted between units cannot be attributed solely to operation of the independent variable. The new head nurse on unit B had other immediate nursing priorities which pre-empted the unit's formalized compliance with the pilot checklist and adherence to criteria.

Comparison of Units A and B Use of the Pilot Checklist

Unit A

Analysis of scores on the criteria presence of the pilot checklist indicated an increase from month 5 through 7. Analysis of the effects of presence of the pilot checklist upon scores on the remaining six criteria indicated a variable effect from month 5 through 7. For example, although the presence of the checklist increased in month 7 to 50%, scores on the remaining six criteria ranged from 15% to 45%. Hence, presence of the checklist did not ensure that charting of preoperative patient teaching would increase, as predicted by the staff on unit A. In sum, although the development and institution of a pilot checklist (the recommended remedial action) was completed, subsequent action to use the checklist consistently did not occur on this unit.

Unit B

The investigator introduced the checklist on the first day of month 6 of the study on this unit. Analysis of the scores on the criteria presence of the preoperative pilot checklist on the chart indicated an increase to 65% in month 6 followed by a decline to 21% in month 7. Analysis of the effects of the checklist on the remaining six criteria indicated increases on five of the six criteria during month 6. Analysis of the effects of the checklist during month 7 on the remaining six criteria indicated decreases on four and increases in two audit criteria scores. The presence of the pilot checklist decreased in month 7 to 21%. However, scores on the remaining six

criteria ranged from 42% to 95%. Hence, the presence of the checklist was not essential in gaining compliance during month 7.

In sum, analysis of the effects of the checklist on increased scores on the remaining six criteria indicated opposite effects between units A and B. Although the checklist was developed by unit A, unit B, not unit A as had been hypothesized, used the checklist as a charting guide during month 6. Further analysis of unit A audit results would be indicated to determine the reasons for this effect. The presence of higher scores on unit B suggested at least two possibilities. First, charting may well have been viewed as an important part of the staff nurse responsibilities on unit B. Therefore, the audit meetings which stressed the need to document quality and the specific criteria generated by unit A might have created an awareness as to how to carry out that responsibility. A second and rival explanation is that nurses excel when specific detailed criteria or standards were given to them, to a much greater degree than when staff develop their own criteria.

Part Three: Intervening Variables and Unexpected Findings

Head nurse interviews were conducted by the investigator to identify possible intervening or extraneous variables and to explain the unexpected findings on unit B (see pages 96-103). The interview schedule contained open-ended questions and was pilot tested using a head nurse from the same hospital, but one who was not involved in the study. The questions were revised and tested again using a nurse

familiar with audit, but not employed in the study hospital. All four head nurses were then interviewed individually using the same interview schedule (see Appendix K).

Each head nurse was asked if she was aware of any changes within the hospital during the course of the study which could have had an effect on the results of this investigative study. It was thought that changes within the hospital could have occurred and influenced the results by increasing or decreasing staff motivation to complete and chart preoperative patient teaching. Some of the head nurses identified census, turnover rate, and amount of temporary nursing staff employed as having a possible effect on this study. A decrease in census could mean more time available for teaching and charting. An increase in temporary staff, census, and turnover rate could mean less time available for staff to do patient teaching because temporary staff and new employees would be less aware of the charting and teaching expectations. Analysis of the December scores on all four units when census, temporary staff, and sick leave were decreased on those units indicated a variable effect of these factors on audit scores. For example, on unit C, five out of seven audit criteria scores increased from 0 to 5%, from 42 to 55%, and from 30 to 45%. On unit B, five out of seven audit criteria scores decreased, and two criteria scores increased from 74 to 95% and from 53 to 74%. However, the increases anticipated did not occur to the extent suggested by the head nurse responses.

Each head nurse was asked if she thought that the Joint Commission on the Accreditation of Hospitals (JCAH) visit in November had

any effect on this investigative study. The investigator had knowledge of the JCAH visit and of the JCAH emphasis on audit, nursing care planning, patient teaching, and documenting nursing care given. It was thought that knowledge of this emphasis by the JCAH might have served as a motivating factor to the staff nurses to increase their charting efforts. Head nurses' responses to the question indicated that the JCAH did not serve as a motivating factor. The audit results on the control units C and D should have increased dramatically during this month, had the JCAH visit been a motivating factor. Analysis of the audit scores on all criteria indicated no significant increases in the control units C and D scores except on unit D for the criteria nursing history completed. Therefore, there was minimal to no effect from this source.

Each head nurse was asked if she thought the new Preoperative Checklist, initiated hospital-wide in August, had any effect on this investigative study. The investigator had knowledge of the checklist both as a result of auditing the charts and because the unit A pilot checklist was copied onto the back of this hospital preoperative checklist. It was thought that the top line of the hospital checklist which read: "Preoperative teaching completed and charted" might have served as a reminder to the nurse to chart patient teaching each time a particular nurse sent a patient to surgery. The audit results on the control units C and D should have increased during the subsequent months had the new hospital preoperative checklist been a motivating factor. Analysis of the audit scores on all criteria indicated no significant increases in the scores of control units C

and D. Analysis of the head nurse responses to the question also indicated no such impact on the charting. Although unit C scores increased on two criteria in August and unit D scores increased in September, neither unit maintained these scores across the remainder of the months in this study. Therefore, there was minimal effect from this source.

Each head nurse was asked if she was aware of ongoing audit activities in progress on other units. For example, the investigator had knowledge that the operating room supervisor was conducting a patient teaching study and that audit implementation was being studied by other nursing units within the hospital. It was thought that awareness of some of these activities on the part of the nurses on the study units might serve as an additional motivating factor because of the changes or new ideas generated by those activities. Head nurse responses indicated that they were unaware of the details of other hospital audit activities. Hence, it is concluded that there was no effect from this source.

Each head nurse was asked if she thought the all day workshop on Quality Assurance given by the nursing staff development department in June could have had an effect on the study. The investigator had knowledge that the workshop took place and thought that awareness and knowledge of the audit process acquired during the workshop might have served as a motivating factor to increase unit audit activities. Head nurses' responses to the question indicated that although the staff members who attended the workshop evaluated the workshop favorably, there were no subsequent efforts to initiate new audit

activities. This effect could have been predicted since the study units had agreed to participate in this investigative study and were aware that new activities in the area of audit might influence the findings in this study. Hence, there were no discernable effects from this source.

Each head nurse was asked if there were any unit projects related to charting, preoperative nursing care, or patient teaching taking place during this investigative study. It was thought that emphasis on one of the above areas might serve as a motivating force to remind staff of preoperative teaching and motivate recording of that teaching. Analysis of the head nurse responses to the question indicated that although there was a project on each unit by individual staff members, there was no increase either in the project activities or in staff conversation related to charting or audit on the control units. The new head nurse on experimental unit B did hold weekly conferences in month 6 and 7 to review care planning and document progress made on all three shifts relative to the patient problems identified. The head nurse on experimental unit A emphasized charting as part of the recommended remedial action (see pages 65 & 128). Hence, there was no effect from unit projects on the control units. However, there could have been a major effect from the head nurse weekly conferences on care planning and documentation of patient progress in the chart which was operating on unit B. This effect could explain, in part, the unexpected findings on audit scores for this unit (see pages 96-103, 138).

In sum, the JCAH visit, the new hospital preoperative checklist,

census, turnover rate, temporary nursing staff employed, and other hospital audit activities had minimal to no effect on this study. The high turnover rate and change in head nurse on unit B, similarities and differences in the head nurse expectations for charting on units A and B indicated that these factors should be examined for their possible effect on audit scores on those units. This will now be done.

The Unexpected Findings

Similarities and Differences On the Experimental Units

The head nurses on units A and B were individually shown the audit scores graphs (see Figures 1-8, pp. 93, 97-103), which displayed the results for all four units in this study. The investigator stated the hypotheses of the study and asked both head nurses, individually, if she had any comments about what could have caused the findings. It was thought that awareness of the particular unit scores relative to the scores of the other units in the study could have motivated the head nurse to search for possible differences between units, capable of explaining the unexpected findings. Head nurse responses to the results indicated that both head nurses wanted optimum patient care for each patient. This care included an expectancy of the patient's being capable of self-care upon discharge. Both head nurses stated that preoperative teaching and charting were important. Thus, the head nurses' expectations for staff's preoperative patient

teaching and documentation were the same on both experimental units. Therefore, any changes in audit scores should have occurred as a result of the independent variable.

However, differences, both in the degree of importance of charting and the specific action taken to demonstrate that importance, were apparent in the responses of the head nurse. First, the head nurse on unit A stated that when the unit was very busy, patient care was most important and charting of that care was second. In contrast, the head nurse on unit B stated that both giving care and charting were of equal importance. Thus, unit B staff were expected to plan, give, and document their nursing care on all patients, while unit A staff were expected to give the care, and document if time permitted. Hence, unit B audit scores could have surpassed unit A scores because of this real difference in the expectations of the two head nurses.

In addition, unit A had a low staff turnover and therefore had a higher utilization of vacation time. Change toward new staff nurse role expectations could take longer to occur because of these factors. Staff on this unit may predictably have had a set of implicit group norms and would have enacted current staff nurse role expectations over a longer period of time.

Secondly, the head nurse on unit B took specific action to help the staff find ways to incorporate care planning, and documentation into the unit routine. For example, in November the head nurse began conducting weekly conferences with her staff to examine the continuity of care being given. This she did by both critiquing a written care plan and by comparing the expected patient progress with the

documented progress charted on all three shifts. In contrast, the head nurse on unit A focused on the development of the pilot checklist and preoperative patient teaching. Thus, the unit B head nurse presented the process of planning, giving, documenting, and evaluating continuity of care through written care plans and charting conferences. She also demonstrated the process of integrating those expectations into daily work routines.

This finding led the investigator to ask staff nurses on units A and B what they thought their head nurse considered to be most important to patient care on their unit. Analysis of the responses from four nurses on unit A and from three nurses on unit B to the question indicated that the staff of both units thought that optimum patient care for each patient was most important. Differences in the responses from nurses on units A and B were that the nurses on unit B cited specific actions by their head nurse such as standard nursing care plans, staff conferences, explicit staff expectations for performance on nursing histories, written care plans, patient problem lists, and documentation. Those specific actions were absent from the unit A staff responses. One unit A staff nurse response indicated problems in getting patient care completed without inconveniencing the patient. Specific examples of those problems were (1) completing preoperative chest x-rays before the patient needed preoperative enemas and (2) communicating critical indicators of patient progress to the physician staff. Although the unit B staff also mentioned a problem with communication with the physician staff, unit B staff had specific plans for increasing the communication.

Therefore, the clear, explicit, and high expectations for staff nurse performance, the specific actions for meeting those expectations, and the focus on the total process of planned nursing care, instead of self-determination alone as had been hypothesized, could account for the increase in scores on unit B and not on unit A.

The Effects of Feedback of Audit Results Upon Subsequent Action
Taken By the Experimental Units: Long-Range Follow-up

Was there any subsequent action taken by the experimental units as a result of the investigator's presenting the study results? It was thought that knowledge of the results comparing all four units, awareness of the differences in staff nurse expectations, and rationale for the hypotheses in the study could have resulted in subsequent action taken by the head nurses to incorporate this knowledge into their unit practice.

A second post-study interview was conducted by the investigator four months post-study and one month post audit results feedback. Analysis of responses to the interview questions by the unit A head nurse indicated that she had taken several follow-up actions. Weekly care plan conferences, inclusion of more staff in subsequent audits, review of the standard nursing care plans, and plans for initiating problem oriented records were established. Thus, specific actions had been taken to incorporate several staff nursing expectations into a plan for implementation. Although, the above actions can not be entirely attributed to feedback on audit results, it is likely that

the feedback contributed to the subsequent action.

On unit B, the December decrease in audit scores and the absence of a plan to monitor the unit's future progress was part of the feedback presented to the head nurse. Analysis of responses to questions by the unit B staff nurses at the feedback meeting indicated that follow-up action had been taken to continue their high level of documented nursing care. For example, the unit initiated inclusion of the standard care plan for preoperative teaching in the patient's chart for planning and charting purposes. Thus, according to the unit B staff nurses, the decrease in audit scores noticed on this unit in December, would be reversed and scores should increase. Only another audit would, of course, provide data as to whether this occurred or not. Although, the subsequent action could not be entirely attributed to the audit feedback, the above findings were indicators that the feedback may have contributed to subsequent action.

In sum, there was evidence of subsequent action taken by the experimental units as a result of the feedback on audit results. Knowledge of the results of the study comparing all four units could have contributed to the motivation for the subsequent action. Implications of feedback on subsequent action will be discussed in chapter five.

Summary of Chapter Four

In this chapter, descriptions of the nurses and nursing units

in the sample were presented. Similarities and differences in audit scores, attitudes toward audit, and intent to act before application of the independent variables were analyzed. Results of the study followed with hypotheses one, two, and three rejected. Hypothesis four was accepted. The chapter concluded with the discussion of the intervening variables, unexpected findings, and subsequent action on long-range follow-up of the experimental units.

Chapter Five

Discussion of Findings and Implications

Introduction

In this chapter, discussion of the findings will be presented using Mills' group paradigm and the nuclear acceleration model as descriptive, analytic, and prescriptive models for change. Following the discussion of findings, the implications for nursing service, nursing education, and professional nursing organizations will be presented. This chapter will conclude with a brief summary of the conclusions, discussion of the findings, and implications.

The conceptual framework for this thesis stated that the quality of patient care in nursing had to occur in groups because nurses were highly interdependent on one another to attain patient care goals. Mills' paradigm will be used to assess the level of group growth and the progress of each study group toward the self-determination necessary to improve patient care. Acceleration was described as the passport to the level of self-determination. Nuclear acceleration offered an analogy for examination of how groups might accelerate and for identifying factors which might effect that acceleration.

Similarities Among Units

Mills' first level of group process, group interaction, is present on any nursing unit between the staff on different shifts

during the change of shift report and among staff members during their shift. Mills' second level of group process, group sustenance, is characterized by group norms. Group norms were observed on all four units in this study.

Norms are the ideas about how group members should act, should feel, and should express their feelings about a given subject. Group members share the same ideas about what members should do and feel, how their behaviors should be regulated, and what sanctions should be applied when the behaviors do not coincide with group norms. For example, unit D consistently scored higher on the audit criteria than did unit C. There was little to no deviation from that pattern during the seven month period of this study. Therefore, charting specific preoperative patient teaching was a norm on unit D and not charting specific preoperative patient teaching was the norm on unit C. In comparing the two experimental units, charting of specific preoperative patient teaching, if time permitted, was the norm on unit A. In contrast, unit B's consistently higher scores indicated that giving patient care and charting was the norm. Analysis of staff nurse interviews on unit B noted in Chapter Four indicated confirmation of charting as a group norm. Mills' third level of group process, pursuit of a collective goal, was not observed on any of the four study units at the beginning of the study.

Differences were noted among the units during the course of the study. Therefore, each unit will be presented separately, using both the Mills' paradigm and the nuclear acceleration model.

Unit A

The results of the audit study on unit A indicated that although the audit process was implemented, the remedial actions taken were not effective in producing dramatic increases in audit scores during this study. The unit A staff had the audit topic and the process of pursuing a collective goal given to them by the investigator through random assignment of the independent variable. Thus, pursuit of a goal and the specific goal of preoperative patient teaching was imposed, rather than proposed and accepted by the group staff members. Part of the unexpected findings in this study may be explained by the fact that this group did not excel as expected because the group was not responsible for either the initial pursuit of a goal or the specific goal to be pursued.

Two of the necessary elements in Mills' third level of group process are the presence of a technical system capable of achieving the group's goals and a strong commitment to those goals. Thus unit A's limited utilization of its self-developed pilot checklist may represent their need to further develop the technical system to incorporate their plans of action into their daily nursing practice. The head nurse exceeded expectations for instituting the pilot checklist, thereby indicating commitment to that goal. However, the head nurse also stated that her primary commitment was to patient care and that charting was secondary. Therefore, the strong commitment to documentation was undoubtedly not being communicated in daily practice. Efforts to advance this group would predictably need to strengthen: (1) the real life commitment to the pursuit of unit

goals determined by the unit, (2) the staff's ability to perceive and detect barriers to attainment of the goal of preoperative patient teaching, and (3) to plan ways to incorporate new goals into daily practice. Thus, further staff nurse analysis of the results of the audit, their plan of remedial action, and identification of obstacles need to be accomplished.

The introduction of the audit process to this group produced group action to plan a collective unit goal and to meet their expectations for preoperative teaching. However, this process did not appear in the time period of this study to "switch the polarity" of unit A to accelerate the group to the extent predicted. Employment of the nuclear accelerator model leads one to ask: what factors, in addition to the group process already addressed, could have served as barriers to the group acceleration? The major barriers, according to one evening nurse, were the time and energy diverted from patient care to efforts to communicate effectively with physicians and attempts to schedule tests and procedures to meet the needs of both patient and hospital departments. Therefore, the "switch in polarity" to accelerate this group could have required training in constructive conflict resolution to enhance the skills required for effective resolution of both patient and hospital needs. A second barrier to acceleration could have been the lack of an accelerating environment. It may well be that setting high expectations and the on-going search for ways to meet those expectations accelerates nurses more than self-determination, at this particular point in time.

What nuclear model, circular or linear, is analogous to the

social environment necessary for unit A's acceleration? Unit A expended large quantities of time and effort in developing the pilot checklist, but did not fully utilize that tool to meet their group goal. Staff members reported that their energies were fragmented by attempts to comply with the needs of other departments and to communicate with physicians. Such fragmentation is similar to the loss of energy by electrons when accelerated in a circular path. This energy is retained when electrons are accelerated in a linear accelerator.

The nursing service analogue on unit A to the electrons' affinity for straight line acceleration is the process by which change is accomplished through acceptance of effective prescribed action for acceleration. For example, unit A will be less likely to experience a loss of group energy when it adopts the successful techniques for integrating preoperative patient teaching, charting descriptive of the continuity of care, and patient care planning developed by another nursing unit than when it independently creates those techniques. Post study follow-up indicated that unit A had adopted some of the successful techniques for attainment of the goal of preoperative patient teaching.

Thus, unit A has taken exploratory steps in pursuit of a collective goal as a result of imposed pursuit of a collective goal in the form of preoperative patient teaching audit. Advancing the group mandates a strengthened commitment to the group goal and revised action plans to achieve that goal. Those revised action plans need to be accomplished through in-depth analysis by the unit A staff of

the comparative audit results and the processes used to attain those results. The accelerating environment necessary to the unit A advancement should include setting high expectations, communicating confidence in the staff's ability to meet the expectations, and training in constructive conflict resolution. The accelerating process model for preoperative teaching on unit A, at their present stage of group growth, is the linear accelerator design. The components of this design include clear, explicit, and high expectations; specific actions necessary to meet those expectations; and the rationale for both the expectations and the specific actions. The group would thus, retain the information necessary to make their own decisions for improving patient care at the same time as they gain from successful experience of colleagues.

Unit B

Unit B was functioning at Mills' second level of group purpose, sustain the group, at the beginning of this study. By the end of the study, the group had progressed through the third stage, pursuit of a collective goal. For example, the staff nurses had explicit, clear, expectations for continuity of patient care which would be attained by their specific plans for care planning and documentation. The audit results demonstrated a dramatic increase in scores from September through November. Thus, the necessary ingredients to unit B's pursuit of a collective goal were present in the form of goals and the technical system capable of developing plans for attainment of those goals.

Unit B had demonstrated evidence of activity in Mills' fourth

level of group growth, self-determination by generating new goals. For example, the group B goals were sequential and cumulative. Care planning with documentation of the planning, integrating community resources, discharge planning, pursuit of self-directed educational experiences by staff nurses, and using standard care plans were several of the goals on this unit.

One element also essential to groups at the level of self-determination is the presence of a feedback system. The head nurse on unit B did initiate a feedback system in November and December through weekly care planning and charting conferences. However, the head nurse did not have a system for the continual feedback essential for groups at this level to take self-directed action to maintain or change their course of action. Thus, the level of group purpose for self-determination has not yet been fully accomplished.

The essential elements of unit B's growth are the maintenance of the lower levels of group progress in addition to the exploration for intergroup activities, Mills' fifth level of group growth. For example, staff nurses were working with physicians on improving communication about patient care plans, and were also incorporating hospital and community resources in planning patient care. However, the responses on the audit attitude questionnaire did not indicate a significant change in intent to take action outside the unit to improve patient care. Unit B, therefore, would predictably accelerate from Mills' fourth to fifth level of purpose when the group includes intergroup activities as a part of their role. Participation in joint patient care audits with other departments is one mechanism

which provides a mutual goal-setting framework for such intergroup activities. Thus, developing a feedback system and participation in intergroup activities are predictably areas for development on this unit.

What other factors, besides the group itself, could have caused the acceleration on experimental unit B? How might the group be further accelerated?

The effect of the audit meetings on unit B's acceleration offered another factor which could have contributed to the high scores. Analysis of the audit scores on unit B indicated an increase in scores between months 3 and 4 and 4 and 5. This increase occurred prior to the change in head nurse in month 4 and prior to the head nurse charting classes initiated in month 6. There were no other intervening or extraneous variables introduced on the unit. Therefore, the audit meeting on this unit accounted for the increase in audit scores between months 3 and 4 and 4 and 5. The major points of emphasis at the unit B meetings were the need to: (1) avoid re-inventing the wheel when audit tools had already been developed, (2) use and validate tools already developed, (3) add to professional knowledge about the effects of nursing care on patient outcomes, (4) develop accountability to the patient/client as a professional responsibility, and (5) meet PSRO and JCAH requirements for patient care evaluation studies.

Thus, "active" involvement for unit B staff occurred in taking action to meet the audit criteria expectations, rather than the "active" involvement in the development of audit criteria and

implementation as on unit A. The rationale for using "other-developed" audit criteria may have, in fact, stimulated more action by nurses, because of the combination of reasons for use of "other-developed" criteria.

A further explanation for the increased results in audit scores on unit B was the difference in turnover rates of 8% on unit A and 47% on unit B. New staff members on unit B would have been exposed to audit and to the preoperative patient teaching charting expectations within the first few weeks of their employment.

Unit B may experience difficulty in meeting new expectations, such as audit, because expectations must be communicated repeatedly to the new staff members. The lower total unit patient census, sick leave, and vacation time meant that more permanent staff were available to care for fewer patients. This availability could offset some of the difficulty experienced with a high turnover rate. In addition, forty-seven percent of the unit B staff, therefore, would have been exposed to those expectations within their first six months in the hospital. The new members, as new employees, would have predictably tried to meet expectations and to incorporate them into their staff nurse role.

In contrast, a low staff turnover rate meant that staff nurses enacted past staff nurse expectations over a protracted period of time. Thus, staff nurses would need to see the reason for changes in their role, and the staff group as a whole would have to change their group norms to meet the new role expectations. This change could predictably take a longer period of time for the unit A staff,

than for the unit B staff which had more nurses unfamiliar with prior role expectations. One fourth of the new nurses on unit B had been out of school less than one year and were therefore recently exposed to role expectations. Independent nursing assessment, written care plans, and charting were familiar routine to the recent graduate nurses. The explicit head nurse expectation for implementation of those same concepts in their work setting would predictably take less time for the unit B group. In sum, less experience in the hospital, less past work experience, and a high turnover rate could account for the increased audit scores on unit B.

How might group B be further accelerated? The current environment on unit B appeared to be an accelerating one for the staff. The nuclear acceleration model suggests that employment of the accelerated unit B group be utilized in interactions with other departments and research and development projects to both utilize the accelerated professional resource and to further accelerate the group.

A reward system in addition to an expanded role expectation, may prove to be a critical factor in the acceleration of advanced groups. Would acceleration be maintained or enhanced by provision of increased pay, recognition, paid time off for professional development, or established times for project development? Would acceleration be maintained and enhanced if the individual nurses in the accelerated group were able to select the personalized reward that served as their critical factor? Future planning efforts toward accelerating nurses would thus need to include both an analysis and prescription of reward systems fundamental to continued acceleration.

In addition to the reward system, what audit process would accelerate unit B? The acceleration demonstrated by group B resembled the proton acceleration described in Chapter Two. This group used the charting criteria and checklist developed by another unit after hearing an introduction to the need for audit and the rationale for the use of pre-developed criteria. Thus, the group chose to follow prescribed actions of other groups. In addition, the unit also developed their own mechanism for planning and charting preoperative patient teaching by using the standard nursing care plan. Therefore, the group appeared capable of deciding to use either a structured or non-structured approach (analogous to the linear and cyclotron accelerator models) for achieving their unit goals.

In sum, unit B showed evidence of group process at Mills' self-determination level. Efforts to advance the group would need to include a consistent feedback system and development of intergroup activities. The acceleration of this group appeared to be advanced, with the group able to accelerate whether criteria and specific actions were designed by others or by their own group. Determination and implementation of a reward system and an expanded range of staff roles permitting development of projects, and research for improving patient care could predictably maintain group B's present momentum. The accelerating process model for preoperative patient teaching on unit B, at their present stage of group growth could be either the linear or the circular cyclotron design. The group has demonstrated the ability both to make that selection and to accelerate in either design.

The Control Units C and D

Mills' paradigm and acceleration models can not be effectively employed to describe the control units. This study was designed to control for history, maturation, interactive, and Hawthorne effects by not involving units C and D in the audit process. Thus, the information obtained on units A and B for describing the group by using Mills' paradigm and acceleration models was not available for units C and D. More information about units C and D is needed to provide a sound basis for analyzing the groups and for predicting accelerating processes for those units. A group assessment tool could be developed using Mills' paradigm, acceleration models, and knowledge about acceleration in nursing groups obtained from units A and B. This assessment tool could be employed to permit selecting an accelerating environment, defining areas necessary for advancing the level of group process toward self-direction, critical accelerating factors for each particular group, and an audit process model for feedback and evaluation of patient care.

Efforts must therefore be made to make units C and D visible. The audit process has proven helpful for this purpose on units A and B, and could be employed on units C and D. There would not be the need to impose a specific goal on the units, because there would not necessarily be the need to compare units on the same topic as in this investigative study. Thus, units would then be more involved in generating their own collective goal.

Summary of the Discussion of Mills' and Nuclear Acceleration

All four nursing units demonstrated different characteristics among the units on the monthly charting scores, unit characteristics, and selected demographic data. Mills' paradigm was useful in describing, analyzing, and predicting needed areas for group growth. Concepts of nuclear acceleration were useful in describing, predicting, and prescribing acceleration plans for each unit. Similarities and differences were detected on all four units using both the Mills' paradigm and the nuclear accelerator model. Thus, the many variables imbedded in social reality which are fuzzy and unclear can be clarified to permit their isolation, identification, and analysis. The Mills' paradigm and nuclear acceleration models constitute a dynamic framework for ordering, directing, and measuring the particularized responses of nursing groups to the common challenge of attaining and maintaining excellence in patient care.

Implications

Implications for nursing practice have emerged in three major areas. First, acceleration in nursing toward improved patient care on a variety of nursing units needs further exploration and development. The second area that emerged from this study is the impact of the head nurse as a single critical influence capable of accelerating staff nurse potential. Finally, audit as a mechanism for unit goal setting and feedback on unit progress is underutilized.

Implications for nursing practice will be presented in each area, and the chapter will conclude with questions for further study.

Acceleration: The Passport To Innovative Change

Physicists accelerate particles to "see" them. This same need for acceleration in nursing to "see" nurses, and to tap their dormant potential as activists for excellence in patient care has been proposed in this paper. Results of this study indicated that three out of the four units did not demonstrate improved performance in meeting the audit criteria. This finding was expected on the two control units which were used as control groups. The third unit, unit A, was expected to show a significant increase in compliance to their own criteria, but failed to do so over the seven month period of the study. Acceleration demonstrated on unit B represents a passport to the innovative change made possible when groups of nurses begin to tap their capabilities for patient care. Acceleration is needed first to describe the strengths and weaknesses of unit groups. This information is necessary to the prescription of an effective model for acceleration.

The implications for PSRO legislation are that the statute must include provision whereby each professional group retains accountability and responsibility for monitoring their own practice. Such activity by professional groups permits visibility of practitioners and thus the potential for prescribing acceleration plans which ultimately stimulate action to improve the patient care. Nurses have

demonstrated willingness to examine their practice, but efforts must be made to continue to make that expectation explicit. Failure to do so results in the untapped potential of the largest group of health care providers as advocates for high quality patient care.

Implications for nursing service administration lie in the arrested and untapped resources of unit staff nurses. What specific actions could the nursing service department employ to tap staff nurse resources? Departmental policies stating the explicit expectation for unit level audits are essential for optimum utilization of staff nurse resources. Results and remedial action shared routinely at head nurse meetings with budget figures, staffing pattern trends, and other cost accounting mechanisms would provide a more complete picture and basis for decision making. Priorities and decisions based on realistic constraints could be made on the basis of cost, effectiveness, and impact on patients, staff, and organization. In addition, the value of self-directed evaluation at the patient care level would be explicitly expressed and reinforced by nursing administration. Allocation of financial and staff resources to head nurses should be an inherent element in the effort to improve patient care.

Inservice or staff development implications lie in the need to teach the audit process to unit staff members and to help staff identify their own learning needs which emerge from using the process. For example, use of reliable and current information as a basis for setting audit priorities and for developing remedial action plans may be facilitated by the inservice department. Secondly, inservice and

staff development of head nurses is essential. Defining programs that teach the process used by the head nurses capable of accelerating staff nurses, implementing, and evaluating such programs is perhaps a more critical staff development uncovered in this study. Use of participant observation to detect styles of leadership permitting staff growth toward improved patient care offers an excellent challenging role for the staff development department.

Setting high standards both by nursing administration and head nurses and communicating that staff are competent to achieve the high standards are implications mandated by the findings in this study. Thus, the nursing administration's role lies in setting departmental standards beyond the immediate level of achievement. This action needs to be supplemented by demonstrating to head nurses ways in which action can be taken to implement and incorporate action to achieve standards set.

Head nurses in turn need to institute mutual goal-setting with their staff members to set high standards, and to communicate standards and expectations explicitly. Specific actions can be then planned to attain those goals. Plans of action could include weekly conferences to discuss and evaluate patient care goals, to share ideas and validate care planning by individual nurses, and to reaffirm commitment to the search for ways to integrate and incorporate goals into daily work patterns. The head nurse must herself demonstrate what she expects of the staff. If care planning and charting are essential to the goals for the unit, the head nurse must demonstrate to the staff how she implements those same

expectations in her own practice.

A second major implication for head nurses from this study is the need to examine the group composition of staff members. The blend of young enthusiastic staff nurses with the resources of the more experienced staff members enhances the effect of both. This blend may vary from unit to unit, thus each head nurse is in the optimal position to evaluate the staff composition, and select new employees based on the group needed to accelerate and improve patient care.

Implications for the departmental audit committee rest in the challenge to facilitate unit level audits, the search for ways to make nursing data easily retrievable from medical records and unit sources, discovery of ways to provide feedback routinely to units on progress of patient care evaluation, and in the facilitation of interdepartmental audits. One critical resource to be provided by nursing administration, staff development or inservice, or members of the audit committee is that of assistance with the analysis of discrepancies uncovered in unit centered audits. The same audit criteria applied to several units may uncover different problems on different units. For example, lack of consistent feedback may cause a discrepancy on one unit, while lack of clear direction may be evident on a second unit, and lack of constructive conflict resolution on a third unit. Time, effort, and financial resources may be lost if the same remedial action is taken for all three units.

Two major recommendations for future audit studies are proposed. First, investigator bias in abstracting the data from charts can be

minimized by having other personnel complete the abstracting with appropriate inter-rater reliability studies. Medical records' personnel, students, or clerical staff could be employed and trained to complete the abstracting once the audit criteria were explicitly and concisely worded. The second recommendation would be to use immediately available sources of data, such as patient charts on the unit, whenever possible. This procedure eliminates the inherent problem, such as the chart not completed or signed out to another department, that can occur when charts are abstracted after the patient leaves the unit. Staff nurses can also benefit from having immediate feedback on their progress, rather than awaiting data collection and tabulation from Medical Records.

Employment of the nuclear accelerator model provides the framework for addressing the last two implications. The environment in which acceleration toward self-directed change toward improving the quality of patient care is analogous to the magnetic field in nuclear accelerators. In this study, one accelerating environment has been briefly described. It is imperative that each unit ascertain the accelerating environment in terms of the constellation or combination of factors expressed consistently, which fosters advancement.

Once the environment for the unit has been identified, the critical factor needs to be uncovered to accelerate the group even further. Administrative policies, presence of the head nurse as executive role occupant, constructive conflict resolution, and audit have been proposed in this study. Further studies need to be carried out to determine the range of critical factors which may accelerate

or "switch polarity" in acute care nursing settings. Nursing administrative planning needs to look forward to structural changes, research and development projects, and new nursing role expectations that may predictably emerge when unit staff become self-directed and accelerated.

Recommendations For Further Study

This study has left several questions unanswered and uncovered many new areas for investigation. First, what are the effects of feedback on unit progress toward their criteria? What is the optimum frequency with which staff need feedback on progress? What will be the effects over time of the unit B focus on individual care planning and charting on meeting the general preoperative teaching criteria developed and initially implemented both on units A and B? Five major recommendations for further study are proposed.

The first two recommendations are for further study of both acceleration models and Mills' paradigm. The nuclear acceleration models and Mills' paradigm have served as objective models for describing a social environment which can become obscure and fuzzy. Use of the models raises further provocative questions. In the nuclear acceleration models for example, would the models proposed for units A and B prove to be effective for accelerating those groups? What are the effects of accelerated groups on patient care delivered? Is the energy released by rapidly accelerating nuclear particles analogous to energy released by humans? Are the types of

conflicts nurses experience in the daily work setting analogous to the types of collisions of accelerated nuclear particles? Can nurses prescribe the type of "collision" needed to resolve conflicts?

For the Mills' paradigm, what are the effects of staffing, patient census, patient acuity, and experience of staff nurses on the nursing group level of group process within each 8 hour shift? What are the effects of the variability of the group process level on patient care? Does a process such as audit accelerate groups from one level to the next higher level over a period of time? These questions represent several further areas for investigation. Answers to these questions would help nurses to understand to what extent the Mills' and accelerator models ease the quest toward excellence in patient care.

A third area for study are the effects of feedback on subsequent progress toward attaining criteria standards and self-direction. The form and frequency of feedback may vary from unit to unit over a period of time. The need for feedback may vary according to the relative importance of criteria within the same list of criteria. Therefore an equivalent, non-equivalent multiple time series study is recommended. Cooperative efforts between several hospitals would increase the sample size and could include acute care, outpatient, and skilled nursing care facilities.

The fourth major area for further investigation is the comparative descriptive studies of head nurse styles of leadership. Participant observation of three or four head nurses in several settings needs to be undertaken. This particular study has demonstrated the

effects of different leadership styles on one measure of patient care - that of preoperative patient teaching. The focus of the study was not developed around head nurse leadership styles, but the results of the study indicate the rich field for further descriptive studies. Effective styles of head nurse leadership could be obtained from observation of head nurses and could lead to staff development programs for head nurses. This program could be combined with future audit studies to measure the impact of nursing practice upon outcomes of patient care.

The final recommendation for further study is to examine the relative and combined effects of two additional processes upon subsequent action to improve patient care. Self-directed behavior change to improve patient care has been described in the results of one other recent study (Kramer & Schmalenberg, 1978). This leads to the question, which process, audit or constructive conflict resolution, brings about an increase in self-directed behavior change for patient care? In what order should the processes be introduced for maximum effect on nurses' taking action to improve the patient care? What are the effects over time? These questions offer provocative directions for further investigative study in the search for ways to promote and provide excellence in patient care.

Summary

In this chapter, conclusions were drawn from the data analysis in which hypotheses one, two, and three were rejected. Hypothesis

four was accepted. The premise that audit was a critical accelerator to the growth of unit staff was rejected. The conclusion was drawn that audit facilitated goal-setting and stimulated self-directed action by staff members, but not to the degree originally hypothesized. The critical role of the head nurse was presented as an unpredicted accelerator of unit staff.

Implications for nursing service administration, head nurses, the nursing audit committee, and staff development were drawn and discussed. Implications for use of the audit process focused on application of the goal-setting and feedback steps applied to nursing service and nursing unit administration.

Finally, recommendations for three areas of further study were presented. The investigation of the effects of feedback on subsequent self-direction toward quality of care was identified as an area for further study. Recommendations for descriptive studies of different leadership styles of head nurses were described. The chapter concluded with identification of the need to examine the relative effects of the audit process and constructive conflict resolution and the combined effects of both on subsequent self-direction to improve the quality of patient care.

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CALIFORNIA NURSES' ASSOCIATION/REGIONAL MEDICAL PROGRAMS
QUALITY OF PATIENT CARE PROJECT

The California Medical Association, the California Hospital Association, the California Nurses' Association and the California Medical Records Association have endorsed an audit model for patient care evaluation. With funding from Regional Medical Programs, a faculty of doctors, nurses, administrators and medical records personnel have been trained as instructors in patient care audit. The mutual goal of the four Associations is a multidisciplinary approach to patient care audit.

Patient care audit is an objective, retrospective evaluation of patient care based upon the documentation of that care in the medical record. The focus is taken away from the doctor or nurse and placed on the patient. Objectivity is built in by having no personal involvement. It is a method of measuring quality by concentrating on a few key elements of care.

Although on-going multidisciplinary audit is our ultimate goal, we expect many different rates of progress. Fortunately this model adapts itself well to separate audits by each discipline or a combined multidisciplinary audit. A short history of the CNA/RMP project follows.

In 1970, Dr Clem Brown of Chestnut Hill, Pennsylvania, developed a "Bi-Cycle" approach to identifying needs for continuing medical education. This approach was modified and adopted by CMA/CHA for implementation in California. With RMP funding, workshops were conducted throughout the state for hospital teams in audit.

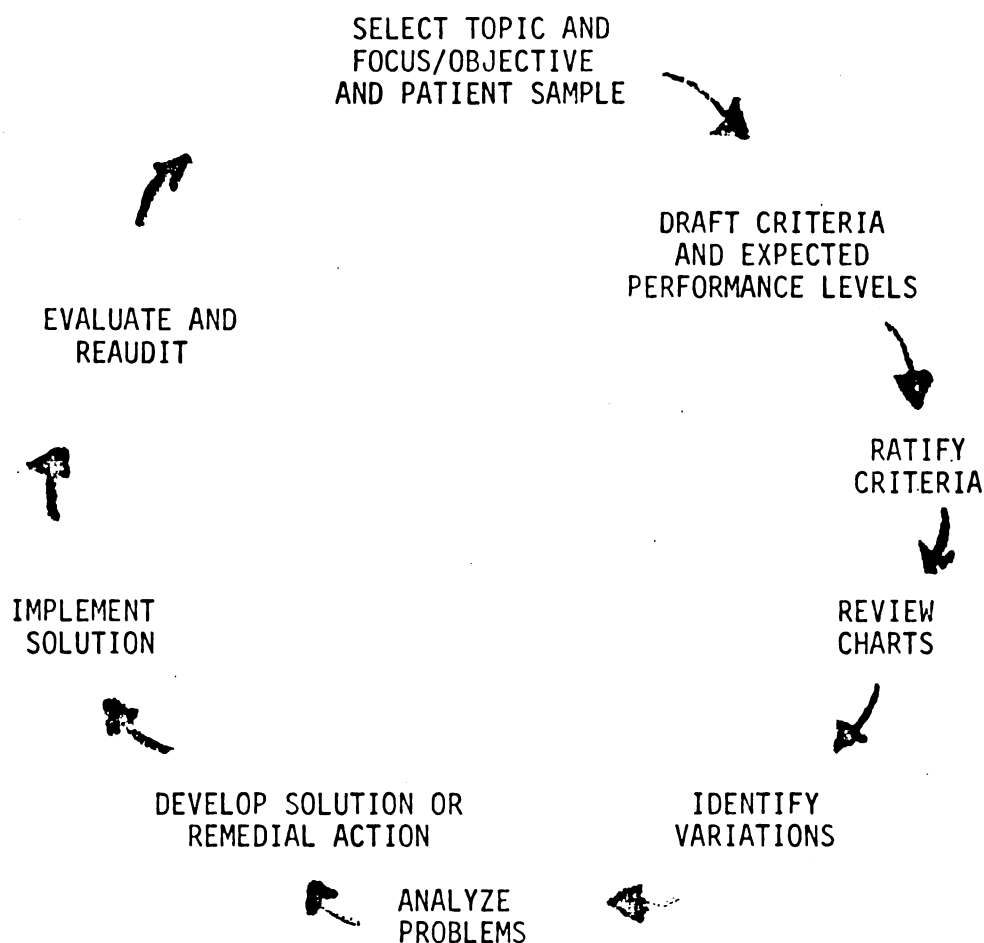
In 1974, the California Nurses' Association received a grant to train faculty to teach patient care audit. Primary faculty for the first series of training sessions included Helen Benedikter, RN, BS; and Rodger Shepherd, MD; a member of the CMA/CHA workshop faculty. (Miss Benedikter is author of "The Nursing Audit...A Necessity How Shall It Be Done?"). Upon completion of their training, the registered nurses are qualified to teach other RNs in their local nursing workshops the principles of the patient care audit process so that RNs will more actively participate in the combined CMA/CHA workshops. In addition to the nursing workshops, the CNA faculty participate as certified instructors in the CMA/CHA workshops.

The CNA/RMP model meets the requirements of the Joint Commission on Accreditation of Hospitals for an acceptable audit in the state of California. The requirements are:

1. Criteria must be established.
2. Actual practice must be measured against the criteria.
3. Actual practice findings must be analyzed.
4. Appropriate corrective action must be taken.
5. Corrective action must be followed up to assure its implementation and appropriateness.
6. Results of audit activity must be reported to those to whom accountable.
7. Reaudit must be scheduled.

This audit is not meant to be a model of clinical practice or a research tool. It is not peer review of peers, but rather it is peer review of quality of care.

EDUCATIONAL PATIENT CARE AUDIT CYCLE



WHY DO IT?

1. To document acceptable patterns of patient care.
2. To assure recognition and correction of deficiencies which may occur in the pattern of patient care.
3. Staff participation in the completed audit cycle ensures the most meaningful kind of continuing education in the hospital.
4. To assess needs for organizational changes in the hospital.
5. To assess needs for continuing education programs relevant to the hospital practitioner.

Dr George Miller states that "the great need in continuing education is not that of providing new knowledge, but rather of helping people to use more effectively the knowledge they already have".

Continuing education has become a great concern to all hospital staffs. The CNA/RMP audit model stresses the role of the community hospital as the ideal source of continuing education that will be clinically oriented and relevant to patient needs.

Steps involved in the CNA/RMP audit model include:

1. SELECTING A TOPIC

Topic is the subject selected for investigation or audit. It is the broad category of a disease, problem, procedure, psychosocial aspect, etc. An area where medical or nursing intervention would have impact and which affects a large number of consumers or providers. The topic should be one of high frequency where medical or nursing care can significantly affect the patient disability or recovery. The topic should be generally agreed upon care - not an issue of controversy.

2. PICK A FOCUS/OBJECTIVE

This is the narrower aspect of the topic. It eliminates a considerable number of variables and is thus more efficient. For example, by narrowing the topic, Medical Records is not obliged to go through two months of patient records and charts to determine the aspects of patient care being monitored.

Every patient goes through several critical stages in his hospitalization - each one with different problems and expectations for both medicine and nursing. Patient care changes as patient health status changes. As an example, different types of care required for the patient suffering myocardial infarction the first 24 hours after admission; or after admission to the CCU theatre; or admission to regular medical service. The same is true for the surgical patient: status pre-operative; status post-operative; prevention of complications pre-operative and post-operative; discharge status. Basically focus is the determination by medicine and nursing at what stage in hospitalization a problem does exist, and at what stage a medical or nursing decision to intervene will be most beneficial to the patient.

Identify Patient Sample

A patient sample is a homogenous patient population that would reflect similar needs. (Note: A doctor's medical orders and the nursing care plan are for the individual patient.) The overall trend or pattern of care which identifies the patient sample increases the specificity of criteria and eliminates variables. Parameters can include sex, age, race, first admission, primary diagnosis, uncomplicated, child vs adult.

One may want to monitor several aspects of care for one topic and, therefore, will have several types of focuses for one topic, as well as different patient samples.

EXAMPLE

Topic: Diabetes

Focus: (1) Evaluate nursing care first 24 hours after admission of diabetic coma.

(2) Patient education in newly diagnosed diabetic.

(3) Discharge status of uncontrolled diabetic.

(4) Prevention of complications in diabetic coma.

Patient Sample: Further specificity such as all diabetics between 18 and 50 who are on insulin, etc.

3. CRITERIA

Criteria are those essential items that act as most pertinent indicators of quality of care which patients in the chosen category should be receiving. They are quality attributes or characteristics that can be measured. They must never be considered the only standards of care.

Note: If the elements are essential or unique to that disease, they are more likely to be important indicators of care for that disease. For example, contractures with CVA, diabetic testing own urine, cardiac understanding effects of medication.

It is necessary to differentiate clinical criteria (the nursing care plan and standing orders) from audit criteria.

- (a) A post-operative hysterectomy requires routine post-operative care for abdominal surgery. Only the specific criteria for hysterectomy (e.g., vaginal discharge) should be used for audit.
- (b) All patients need psychological support but its pertinence as a criteria is much more specific for the post-operative mastectomy patient than the post-operative appendectomy patient.

The brevity and simplicity of the CNA/RMP audit model is dependent on the specificity and retrievability of the criteria. Abstraction is done by nonprofessional personnel. It is the use of explicit criteria prior to review that builds in objectivity. This model eliminates the need for subjective judgment.

Criteria should be internalized. This audit model develops criteria to be ratified. All those whose charts will be audited are involved. The audit committee has input from all departments. The nurse or doctor with expertise in a particular field helps develop criteria. Criteria should change as new knowledge is introduced.

The characteristics of criteria are abbreviated as RUMBA. If it doesn't RUMBA, throw it out!

- R ealistic-reasonable.
- U nderstandable.
- M easurable-includes setting time limits.
- B ehavioral-change in behavior or health status as a result of intervention.
- A chievable-considering local setting and capability of that group.

Medical and nursing care have many subjective aspects. If they are not retrievable, but are important, we have the professional obligation to make them retrievable or develop tools for measurement. For example, if the criteria reads "documentation of difference between systolic and diastolic pressure every day" nurses for a particular disease may observe and note this, but do not document this information. If the information is important, the nurse can be educated to document the difference.

Criteria may be divided as follows:

- (A) Structure is what makes care possible - staffing patterns, physical environment, mechanical equipment, etc. In the 1920's, the Joint Commission on Accreditation of Hospitals began using structure criteria to accredit hospitals.
- (B) Process is the steps taken to produce an outcome. It is the appropriate management or activity itself. It is the goal directed activity to achieve a satisfactory outcome. Focus on the professional and what they did to or for the patient is a part of this process.

Example of Process

Post-operative Cholecystectomy

- (1) Recorded intake and output until afebrile for 48 hours.

Hypertension

- (1) If systolic or diastolic goes above ____ mm of admission blood pressure, doctor to be notified within 10 minutes.

(To insure quality this audit might also include documentation of specific signs and symptoms showing knowledge of disease process.)

- (C) Outcome is the alteration or change in the health status or behavior of the patient. It is the end result of the steps that were taken in the process of care of the patient. It is the degree of success or failure of patient management since the focus is on the patient.

Specific examples of outcome criteria:

Anorexia Nervosa: Maintains weight within 5 lbs of desired weight. (See chart for weight and height.)
Primary Emphysema: Return demonstration by patient or family of correct way to do postural drainage for this patient.
Long Term Colostomy: Secondary diagnosis: Discharged with bowel routine maintained.

EXAMPLES OF SHORT-TERM OUTCOMES

Post-operative Management

(1) No pain medication for 36 hours prior to discharge.

Rehabilitation (return to Activities of Daily Living-ADL)

(1) Ambulates with assistance in walker by ____th day.

Tonsillectomy (Hydration Pre-operative)

(1) Will have received ____cc of fluid by midnight pre-operative (when patient goes on NPO)

SAMPLE AUDIT CRITERIA

TOPIC: Diabetes

FOCUS/OBJECTIVE: Education of patient or family prior to discharge.

PATIENT SAMPLE: Male or Female with primary diagnosis of diabetes between 18-50 years of age discharged on insulin.

CRITERIA:

- A. Patient or family demonstrates ability to plan a complete 24 hour menu within the diet restrictions prescribed by the doctor.
- B. Patient or family demonstrates ability to determine and administer the proper dose of insulin, twice before discharge.
- C. Patient or family demonstrates the proper technique and reading of sugar and acetone urine testing twice before discharge.

4. EXPECTED LEVEL OF PERFORMANCE

The Expected Level of Performance is the threshold for action. It is the level of discomfort below which you feel professionally committed to take action. It is the realistic level that can be achieved, having eliminated most of the controlled variables in the patient population. Other audits set their ELP at 100%, then list the variables. This part of the CNA/RMP audit is why it is more simple and efficient than other audits. The gap between the expected level of performance and the actual performance may be used to set priorities. The major goal is to improve patient care. The expected level of performance can also indicate the worth of the criteria. If ELP is set at 70% or below, it is usually not important enough to include in the audit criteria. If ELP is set at 100%, it might be more appropriate to include that criteria as standing orders. If ELP is set below 100%, it leaves room for innovative management and other approaches.

5. RATIFICATION

Ratification reinforces the philosophy of this audit model: CRITERIA WITH COMMITMENT. Ratification motivates the hospital staff to bring about change. It is the process by which approval, modification or rejection of draft criteria is obtained. A consensus of approval may be obtained at hospital staff meetings, team conferences, or by mail. What is important, however, is that everyone involved has input and a chance to disagree.

Because their charts will be audited by these criteria, it promotes hospital staff to a commitment to first recognize a problem and then to do something about that problem. This step in the model involves more people and better ideas as well as helps to clarify criteria. It is a very useful continuing education tool. In addition, it informs professionals of standards by which their performance is judged.

6. CHART RETRIEVAL AND ABSTRACTION

Personnel assigned from Medical Records abstract the charts by diagnosis and defined parameters (patient sample). Data displays are prepared identifying variations between Expected Levels of Performance and Actual Performance. All charts not meeting ELP are presented back to the professional staff on the committee for Problem Analysis.

7. PROBLEM ANALYSIS

Problem Analysis is an important step in analyzing the variations of Expected Level of Performance from Actual Performance Levels. It is another reason to have all health disciplines sit in and approach the problem of audit from their respective viewpoint. Sometimes the precise problem is evident. Usually, however, only the symptom is apparent at first. Charts that did not meet ELP may then be analyzed to differentiate between problem discrepancy and problem deficiency. There must be a systematic approach to problem analysis:

- (a) Who should be doing what?
 - 1. What professional skill, act or knowledge is the crux of the problem?
 - 2. What category of personnel is expected to do this?
- (b) Why aren't they doing it?
 - 1. Do they have the tools?
 - 2. Could they do it if their lives depended on it? If not, then personnel do not have the necessary skills.
 - 3. What's in it for them? Is it important, do they see the consequences?

NOTE: A performance discrepancy is any result that does not meet expected level of performance because it is unclear, lacks specificity, or variables were not controlled. A performance deficiency is any discrepancy that cannot be explained by uncontrolled or uncontrollable variables.

In an outcome audit, the problem possibly may be specific to one discipline's poor performance. For example, lack of documentation, lack of knowledge, poor admission protocol, lack of equipment. It might, therefore, be more expedient to develop solutions within that one discipline and perhaps do their own process audit.

8. PLANNING REMEDIAL OR CORRECTIVE ACTION

Recommendations are documented along with date for implementation and person responsible. This is done in committee meeting with professional staff.

9. SCHEDULE REAUDIT

Date is set to evaluate success of implementation. It is recommended that reaudit be scheduled within a specific time limit to see if corrective action was implemented and if it has been successful.

10. MULTIDISCIPLINARY APPROACH

The outcome of patient care is the result of the participation of many health disciplines. Patient care need not be separated into a multitude of facets. In most cases, a process audit is specific to medicine or nursing such as justification for admission, appropriate anesthesia, diabetic teaching, or preventing bedsores. At times medical and nursing criteria overlap and are known as Crossed Criteria, such as in coronary care unit monitoring.

The end result of the multidisciplinary approach can do much to increase staff morale and education while simultaneously increasing patient satisfaction with management by congruent objectives. Physicians have shorter periods of interaction with the patient and, therefore, are drawn to look at process. The nurse, over a longer period of contact, develops what she considers objectives for the change in the patient health status.

Combining medicine and nursing to achieve an overall view of quality is a realistic goal. Quality control provides the structure for quality, the building in of standards or criteria for excellence. Quality assurance involves both the evaluation of the success of control and taking action when it is indicated. Quality assurance must include feedback and mechanisms to implement corrective action.

"If each health professional who becomes active in care of the patient develops his or her own objectives and activities, the possibility of the patient realizing the full potential for achievement of specific health/wellness outcomes may be thwarted. Such action can retard progress or cancel the effectiveness of other team members."²

"Lack of preventive management in criteria is typical of audits conducted by a medical committee without registered nurse involvement. When nursing care criteria are included, the preventive critical management takes on greater prominence."³

-30-

Written by Gloria W Dunham, RN
Coordinator, CNA/RMP Quality of Patient Care Program Project

¹ Brown, C R Jr, Uhl, S M: Mandatory continuing education: Sense or nonsense? JAMA 213:1660-1668, Sept 7, 1970.

² Zimmer, Marie J, Quality Assurance for Outcomes of Patient Care, Nursing Clinics of North America, Volume 9, Number 2, June, 1974.

³ Quality Review Bulletin, Comparative Analysis-Bacterial Pneumonia Audits, Joint Commission on Accreditation of Hospitals, September, 1974, Volume 1, No 1.

Appendix B

SOCIAL SECURITY NUMBER: _____

Nursing Questionnaire

The purpose of this questionnaire is to find out about your feelings and thoughts about quality of patient care. Your answers are confidential and are only used by the investigator (Marjorie Wheeler, graduate nursing student) for this study.

Please complete the questionnaire as completely as possible. Please feel free to add any additional comments you may wish to add.

1. The over-all quality of nursing care on my unit is: (PLEASE CIRCLE ONE)

Excellent Very good Average Fair Poor

2. Which action do you USUALLY take, if you become dissatisfied with the quality of nursing care on your unit? (PLEASE CIRCLE ONLY ONE)

- a. give my opinion when someone asks me
- b. tell the head nurse or supervisor
- c. talk over my concerns with other nursing staff members
- d. follow recommendations for improvement submitted by other nursing staff
- e. ask to be a part of a nursing committee working in my area of concern
- f. try to give the best care possible to patients assigned to me
- g. form a committee of nursing staff to explore areas of concern
- h. none of the above. I would do:

3. How easy, from the staff nurse position, do you feel it is to make changes for improve patient care? (PLEASE CIRCLE ONE).

Very Somewhat Easy Somewhat Very
Difficult Difficult Easy Easy

4. Which of the following best describes your over-all feelings about:

Nursing care plans:

Like very Like Indifferent Somewhat Dislike
much somewhat Dislike very much

Supervising others:

Like very much	Like somewhat	Indifferent	Somewhat dislike	Dislike very much
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Team Conferences:

Like very much	Like somewhat	Indifferent	Somewhat dislike	Dislike very much
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Nursing Audit:

Dislike	Indifferent	Like
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5. If you felt very strongly that the check-out times for patients should be more flexible to accommodate individual patient needs, what would you do about it?

Appendix C

Nursing Study No. 930222-01

The attached consent and questionnaire are part of the study described to you by Marjorie Wheeler, a graduate student in nursing. This particular study will look at ways in which nurses might work effectively to continue to improve quality of patient care.

Please complete the consent, the lower part of this page, and the attached questionnaire to begin your part in participating in the study.

Thank you for your help and participation.

I. Please complete the following general information.

1. Social Security Number: _____-_____-_____.

2. Age: 3. Sex: 4. Current nursing position:
(Circle one)

UNIT:	Staff	Head	Charge
	Nurse	Nurse	Nurse

5. Amount of nursing experience since graduation from a nursing program:

Years: Months:

6. Time worked in this hospital:

Years: Months:

7. Most recent nursing educational program completed: (Circle only one)

AA	Dip	BSN	MS	PhD/DNS
----	-----	-----	----	---------

8. Number of years since last nursing educational program:

Years: Months:

II. Please complete the consent and the questionnaire.

Appendix D

Consent to Act As A Research Subject⁷

Study No. 930222-01

Marjorie Wheeler, a graduate nursing student, has explained the study to me. She may be reached at 388-5575, if I have any further questions.

- 1) I understand that the purpose of this study is to explore how nurses might best improve quality of patient care.
- 2) I understand that participation in the study means completion of three questionnaires which will be given on duty time and take no longer than 10 minutes to complete the questionnaire. The purposes of the questionnaires are to find out how nurses feel about quality of patient care, and how nurses feel they could bring about improved patient care.
- 3) I understand that nurses' notes of patients on my unit will be used as documents of nursing care given. The specific names of the nurses who write the nursing notes will not be used.
- 4) I understand that the findings in the nurses' notes are confidential and are shared only with the nurses on my unit. I understand that the answers to questionnaires are confidential and will be used by the investigator only. My name will not appear on any questionnaire.
- 5) I understand that every effort will be made to safeguard the trust and confidentiality of those who participate.

I understand that although there are no benefits to me personally, the results of the study may promote a better understanding of methods by which nurses can improve the quality of patient care.

- 6) I understand that I am not being compensated in any way for my participation. I understand that I may withdraw from the study at any time without penalty and definitely without jeopardy to my professional employment.

Date:

Signature:

⁷Consent obtained from unit D staff.

Appendix E

Consent to Act As A Research Subject⁸

Study No. 930222-01

Marjorie Wheeler, a graduate nursing student, has explained the study to me. She may be reached at 388-5575, if I have any further questions.

- 1) I understand that the purpose of this study is to explore how nurses might best improve quality of patient care.
 - 2) I understand that participation in the study means completion of a questionnaire which will be given on duty time and take no longer than 10 minutes to complete the questionnaire. The purpose of the questionnaire is to find out how nurses feel about quality of patient care, and how nurses feel they could bring about improved patient care.
 - 3) I understand that nurses' notes of patients on my unit will be used as documents of nursing care given. The specific names of the nurses who write the nursing notes will not be used.
 - 4) I understand that I will be asked to attend two staff meetings in addition to completing the questionnaire and nurses' notes. There will be a total of two staff meetings lasting one hour each, approximately one month apart, given on duty time.
 - 5) I understand that the staff meetings and the findings in the nurses' notes are confidential and are shared only with the nurses on my unit. I understand that the answers to questionnaires are confidential and will be used by the investigator only. My name will not appear on any questionnaire.
 - 6) I understand that every effort will be made to safeguard the trust and confidentiality of those who participate.
- I understand that although there are no benefits to me personally, the results of the study may promote a better understanding of methods by which nurses can improve the quality of patient care.
- 7) I understand that I am not being compensated in any way for my participation. I understand that I may withdraw from the study at any time without penalty and definitely without jeopardy to my professional employment.

Date:

Signature:

⁸Consent obtained from units A, B, and C staff.

Appendix F

Nursing Audit: Unit ATOPIC: Preoperative Teaching

All patients over 18 years of age

Exclude: Emergency admissions of patients who went to surgery within 4 hours of admission to the unit.

The following criteria are submitted to the 9 NS staff for ratification, by

Karen, Cathi, Noreen, Barbara, and Sandy

The following criteria are to be recorded at least once before surgery.

	<u>Acceptable Findings</u>
1. The nurses' notes state that the patient was:	
a) taught how to cough, deep breathe, use the blow glove ⁹ and reasons for doing so.	95%
b) able to demonstrate ability to use the blow glove, and to turn, cough, and deep breathe.	85%
2. The nurses' notes state that the patient expresses and understanding of what to expect immediately post-op: (to include <u>AT LEAST 3 OF THE 6</u> of the following)	90%
a) tubes	
b) dressings	
c) other apparatus	
d) food and fluid	
e) ambulation	
f) pain	
3. The nurses' notes state that the patient verbalizes an understanding of his operative procedure.	95%
4. The nursing history will be completed** within 48 hrs. of admission to include:	75%
a) verbalizes fears and concerns	
b) verbalizes expectations	

** history is considered acceptable for this audit if occupation, hobbies, where pt. lives, visitors, and bathing sections are not yet completed.

⁹Standard Care Plan has been revised. Use of blow glove has been deleted.

	<u>Acceptable Findings</u>
5. The patient has been instructed on and expresses an understanding of <u>AT LEAST 3 OF THE FOLLOWING</u> preop. routines:	95%
a) tests	
b) NPO	
c) shave in the O.R.	
d) time of O.R.	
e) preop. med.	
f) visitors	
g) enema	
h) shower	

Ratification: Try to reach ALL RN, LVN staff.
(Minimum = 75% of the permanently assigned staff
on the unit)

8/9/77

Appendix G

Staff Ratification of Audit Criteria¹⁰

Audit is one way to evaluate the quality of patient care trends.
The purposes of audit are to:

- identify and uncover problem areas of high priority
- work at resolving problems uncovered
- document the quality of care given

To ratify the criteria you will need to read the criteria and ask yourself the following questions:

- Do the criteria reflect quality nursing care of high priority?
- Are the criteria important to preop. nursing care?
- Is the wording of the criteria clear?
- Are the criteria feasible to accomplish?
- Are there suggestions or comments to offer?

Ratification Means:

You agree that the criteria are important.

You agree that the criteria reflect quality of patient care of high priority.

You agree that it is feasible.

You agree to carry out the criteria and record your actions.

You comments, suggestions, and discussion are essential to the success of the quality of care evaluation.

¹⁰ Used on Unit A.

Appendix H

Pilot Preoperative Patient Teaching Checklist¹¹

PRE OP TEACHING

BREATHING EXERCISES WITH RETURNED DEMONSTRATION _____

NPO _____

PREMEDICATION _____

PAR _____

DRESSING _____

AMBULATION AND IN-BED EXERCISES _____

PAIN AND PAIN MEDICATION _____

APPARATUS - IV, NG, FOLEY, OSTOMY BAG, TRACH
(CIRCLE APPROPRIATE ONES)¹¹Pilot checklist used on both units A and B.

Appendix I

Nursing Audit: Unit BPREOPERATIVE TEACHING EXPECTATIONS:

	<u>Acceptable Findings</u>
1. Was the nursing history* completed within 48 hrs. of admission to the unit?	75%
2. Did the note state that the patient:	
. verbalized his fears and concerns re: surgery?	
. verbalized his expectations re: surgery?	
. verbalized an understanding of his operative procedure?	95%
3. Did the nurse record that the patient had been instructed on and expressed an understanding of the following preop. routines?	
. tests	
. NPO	
. shave in the OR	
. time of OR	
. preop. med	
. visitors	
. enema	
. shower	95%
(at least 3 of the above should be recorded)	
4. Did the nurses' note state that the patient expressed an understanding of what to expect immediately postop.?	
. tubes	
. dressings	
. other apparatus	
. food and fluid	
. ambulation	
. pain	90%
(at least 3 of the above six should be recorded)	

*If occupation, hobbies, where patient lives, visitors, and bathing sections are not completed, history is still acceptable for this audit.

	<u>Acceptable Findings</u>
5. Did the nurse record that the patient was taught how to cough, deep breathe, use the blow glove ¹² and the reasons for doing so?	95%
Did the nurse record whether or not the patient was able to demonstrate the ability to use the blow glove, to cough, turn, and deep breathe?	85%

**We would expect to find the above charted 100% of the time.
Acceptable findings are the levels below which we would need to take corrective action as top priority.

¹²Standard Care Plan has been revised. Use of blow glove has been deleted.

Appendix J

Staff Communication of Audit Criteria - Unit B

Audit is one way to evaluate the quality of patient care trends.
The purposes of audit are to:

- identify and uncover problem areas of high priority
- work at resolving problems uncovered
- document the quality of care given

To carry out audit activities you will need to read the criteria and to clearly understand what the expectations are for this audit, ask yourself the following questions:

- Do I understand what the criteria are?
- Do I understand why it's so important to record the quality of care given?

The criteria (or expectations; or standards) are attached for you to read.

How To Meet the Preop. Teaching Expectations:

- The Checklist: A checklist was developed to help chart and document the quality of patient teaching that was being done. This checklist is to be used on a pilot basis to see if that helps to document patient teaching.

This checklist will be in the patient's chart, as a pilot study form. It will be removed by Medical Records for me to audit.

- The PM Shift: Someone will need to go over the criteria (expectations) with the PM shift, particularly since the topic is preop. teaching.
- All Shifts: All shifts will need to help in the process of preop. teaching so that the PM shift isn't left alone to do all the preop. teaching. They will need the help of all shifts. The checklist was designed with this in mind.

Appendix K

Interview Schedule: Head Nurses

_____, before I fill you in on the preliminary results and report of the nursing audit study, I'd like to ask you a few questions about your unit activities.

1. Since May of last year, other than my study, have there been any unit activities related to nursing audit in any way?

Another nursing audit started? Classes or conferences held on nursing audit?

In what way has your unit been involved in that activity?

2. Have you heard of any nursing audit activities conducted by other nursing units in this hospital?

What were the results of those activities?

If yes, tell me what you've heard.

3. Have you staff made any comments about nursing audit?

If yes, what were the comments?

4. Do you know of any changes on your unit that could possibly have an impact on this nursing audit study?

If yes, what have those changes been? How might those changes affect this study?

5. Have there been any other projects or activities related to preoperative patient teaching that have taken place since May?

If yes, what were the projects or activities?

In what way was your unit involved?

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