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**Assessing Context of Care at the Unit Level of the
Organization**

by

Lynn Marie Babington

**A dissertation submitted in partial fulfillment
of the requirements of the degree of**

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Doctoral Dissertation

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Abstract

Assessing Context of Care at the Unit Level of the Organization

by Lynn Marie Babington

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This research explored methods of assessing organizational context of care at the work unit level. The purpose was to increase understanding of organizational perspectives and improve methods for contextual analysis in the study of clinical interventions and outcomes.

A secondary analysis of data obtained from the Critical Care Nursing Systems Study was conducted to examine the organizational context of care at the unit level. The study compared two different methods of organizational analysis, observation and survey, based on the same theoretical framework of organizations, contingency theory.

The study found that structured observation had a high percent agreement with standardized survey method for organizational analysis at the unit level. Observation, using structured guidelines to guide data collection, offers an alternative or supplement to the traditional survey method. Observation offers an “outsider’s” view of the organizational and allows patient care activities to be assessed at the unit, versus individual level. The observational guidelines allow trained observers to provide a structured

description of an organization at the unit level in multiple settings, thus allowing the clinical researcher to compare settings. Using observation and survey simultaneously provides methodological triangulation in examining organizations at the unit level.

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Chapter I

The Context of Care and its Importance in Clinical Research

Patient outcomes are a central theme of today's health care research, particularly when related to efficiency and effectiveness. Nurses are major providers of health care services, and thus, have an obligation to participate in quantifying, measuring, and improving the end result of the care they provide. While studies of treatment effectiveness have focused primarily on the particular treatments or interventions, the context in which patient care is delivered is increasingly being recognized as a factor influencing patient outcomes (Lang & Kraegel, 1989; Shortell, Morrison & Friedman, 1990; Shortell, Rousseau, Gillies, Devers & Simons, 1991; Crane, 1992; Verran & Mark, 1992). Despite this growing recognition, the methods used to assess context remain complex, expensive, and duplicative. These problems have prevented their widespread use.

Context has a pervasive influence. It shapes thinking, perception, and behavior (Gross, Pascale & Athos, 1993). Thus, the context or environment in which care occurs is postulated to influence the behavior of those providing care and thereby influence outcomes of that care. The focus of this project was to explore methods of assessing organizational context of care at the work unit level. This project compared organizational assessment data from the

Critical Care Nursing Study (CCNS) collected by paper and pencil survey with data derived from structured observation in order to establish congruence between methods of describing the organizational context of critical care at the work unit level. The CCNS study (Mitchell, 1994) will be described in more detail in the methods section.

The Research Problem and Aim

The purpose of this research was to compare two methods for contextual analysis of care-giving nursing units. The central concern of this project was to improve the ability to assess organizational context with the hope that a better tool for assessment might improve the ability to correlate context with patient outcome. Current limitations in understanding organizational context of care restrict the ability to determine its influence on patient outcomes. Understanding of organizational context is important for the organizational researcher to consider when evaluating planned organizational change and its influence on outcomes. Likewise, for the clinical researcher it is important to understand the organizational context of care and its influences on clinical interventions and patient outcomes.

This study was aimed at clarifying methods that might be useful for the clinical researcher to analyze the organizational context of clinical research, particularly research that is primarily focused

on analyzing clinical interventions and the influence of these interventions on outcomes. The focus of organizational context was on the work unit level of the organization. Developing and testing different methods for contextual analysis of the organization at the work unit level will assist the clinical researcher in characterizing and comparing units based on selected organizational dimensions. Organizational context was selected because it is one type of context which has been suggested to influence outcomes.

The specific aim of this research was to compare organizational assessment data using a survey method with data collected using an observational assessment method for their ability to differentiate critical care units on selected aspects of organizational subunit context.

The context of care and outcomes

The central concept in this study is the context in which clinical intervention and patient outcomes occur. Context is defined as "the interrelated conditions in which something exists or occurs" (Merriam, 1976, p. 245). The term "environment" can be used synonymously with context if defined as "the circumstances, objects, or conditions by which one is surrounded" (Merriam, 1976, p. 382). The environment (or context) can be conceptualized as:

a nested box problem, inside each box is a smaller box

whose dimensions are constrained by the larger box. Each box is independent to some extent of the large boxes (and the smaller ones within it) and can be analyzed as such. But, it is also quite dependent on the shape of those within and without it. (Perrow, 1986, p. 192)

From this perspective, the context of care can be defined broadly as the environment in which health care is provided. While that environment encompasses the physical environment and the aggregate of social and cultural conditions that influence the individual, organization, or community, the level of context of concern in this study focused on the immediate environment in which health care is delivered to clients, or specifically, the care-giving unit level of the organization.

As shown in Figure 1, the context of health care applying Perrow's conceptualization of environment or context includes: (1) the larger societal environment, or the sociopolitical, economic, and regulatory environment and how it influences the individual seeking care and the organizations or individuals who provide care. Examples include the general economic state of the community, the health care delivery system currently in place, and resources available for care, (2) factors influencing the organization where health care is delivered, such as location and accessibility, equipment and services, and resources, (3) the immediate care giving environment, or the unit level of the organization where care takes place, where in an acute care setting, a group of staff

nurses and other health care providers care for a group of clients, (4) the one to one relationship between practitioner and client including characteristics of the individuals receiving care and those providing care, such as physical condition, psychological makeup, internal and external resources, social support, and finances. The levels of context are interactive, permeable layers, as opposed to rigidly bounded boxes.

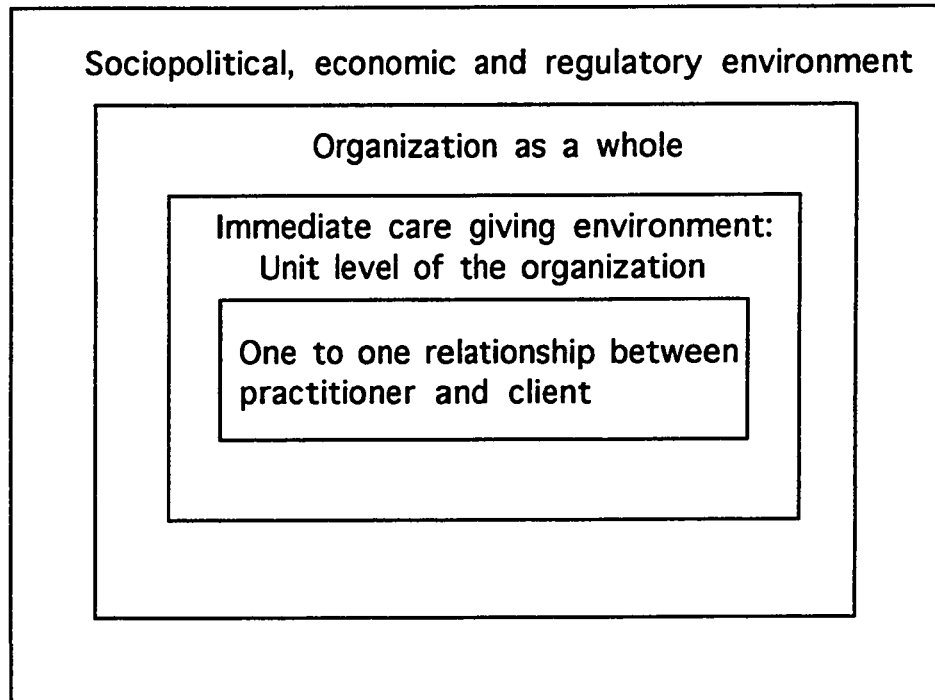


Figure 1. Environment as Nested Boxes¹

Nursing research has typically focused on understanding the one to one relationship between practitioner and client. While one to one

1. Based on Perrow's 1986 concept of nested boxes.

relationships can affect interventions and outcomes, it is also necessary to take a step back from that micro level and begin examining the immediate care giving environment—the context in which one to one relationships occur.

Caregiving unit and its relationship to outcomes

This project focused on contextual analysis at the unit level of the organization—the immediate environment where caregiving occurs. The work unit level of the organization or the care-giving unit as a subunit of the organization is a context important to clinical outcomes (Knaus, Draper, Wagner & Zimmerman, 1986; Mitchell, Armstrong, Simpson & Lentz, 1989).

The Knaus group compared the outcomes of 5030 patients from 13 hospitals and found important differences between predicted and observed death rates. These differences appeared to relate to the interaction and communication between physicians and nurses in the critical care unit leading the group to believe that environment and interaction at the work unit level can directly influence outcome from intensive care (Knaus et al., 1986). Also focusing on the unit level, the American Association of Critical Care Nurses developed a demonstration project with the purpose of documenting fiscal costs and patient care effectiveness of critical care nursing in a unit characterized by valued organizational attributes (Mitchell et al., 1989, p. 219). Positive outcomes for the patients and the organization were found to co-exist in this

valued organizational context. Both of these studies support the influence of organizational context on outcomes.

If outcomes are influenced by organizational context, it becomes important for clinical researchers to understand and control for this factor when comparing organizational units at this level. Not only is it important to understand how the unit level of the organization influences outcomes of clinical interventions, but also how unit level characteristics influence the clinical research process. Organizations consist of inter-related groups working in diverse, rapidly changing environments. Definitions of organization are based on differing views of the world. Viewpoint or perspective influences the way we think about the organization, the questions we ask, and methods we chose to guide inquiry.

Organizational perspective and its influence on inquiry

A social-structural view of the organization emphasizing structure, technology, and environment guided this inquiry. This view is rooted in sociological perspective which focuses inquiry at the aggregate versus individual level. Briefly, the structural viewpoint considers the roles people play, rather than the nature of personalities in these roles, the structures in which these roles are performed, patterned relationships within those structures, and administrative mechanisms needed to balance coordination and specialization of work roles enabling an organization to

accomplish its tasks (Perrow, 1970). This perspective is influenced by an open systems view in which organizations are considered open ecologic systems reacting to and influencing the environment under which they operate (Perrow, 1986; Hurley & Kaluzny, 1987).

Because all viewpoints are limited, their value lies in the particular camera angle which is selected (Perrow, 1970). The social structuralist view of the organization, specifically contingency theory, guided the larger study from which these data were drawn. Contingency theory proposes that the constitution of a "good" organizational arrangement depends on the goals of the organization and the conditions under which the organization is attempting to meet those goals (Mark, 1989). Therefore, the nature of the environment, how complex and stable, the nature of the task, how variable or difficult, and the characteristics of the workers become important in designing an organization of optimum effectiveness and efficiency (Mitchell, 1991).

For the clinical researcher interested in characterizing and comparing clinical research units, contingency theory of organization allows that comparison. Also imbedded in this organizational perspective is the focus on organizational structure and its influences on work processes and outcomes. It is assumed that organizational structure influences the process of providing care and this in turn has an impact on the ultimate outcomes of

care both for patients receiving care and the organizations providing care. Organizational structure is defined as a grouping of people, the allocation of responsibility, and formal and informal framework of organizational roles and procedures (Child, 1972; Scott, 1987; Mitchell et al., 1989). Organizational process describes the relationships between organizational members such as coordination and communication and outcomes include quality of patient care, worker satisfaction, and productivity.

Organizational assessment methods

Just as there are many different purposes for analyzing an organization, and different perspectives guiding the analysis, there are likewise many different methods employed in the assessment process. Most common are paper-pencil questionnaires distributed to workers and/or managers in an organization to solicit information on how it operates and their opinions on various issues. Often, these questionnaires are followed with selected interviews from individuals within the organization to validate findings. Data collected from individuals are then aggregated to construct a "picture" of the organization. While this approach gains useful data about the organization, there are some difficulties. Distributing and analyzing data from a questionnaire can be very expensive. Additionally, there is a certain amount of inherent bias in obtaining data only from the perspective of the "insider" or organizational member. Since most questionnaires and interviews are voluntary, it is also possible to obtain additional

bias through the self selection process. This is particularly a problem if individual data are aggregated to a group level.

An alternative approach to assessing and understand organizations is organizational ethnography. This method is derived from anthropology. The researcher is the instrument in this approach. Participant observation requiring deep immersion in a culture, preferably foreign to the observer for an extended period of time, is the preferred strategy (Sanday, 1979). One advantage of this approach is that ethnographic research allows the investigator to use the culture of the setting to account for observed patterns of human activity resulting in rich analytic description of a culture (Van Maanen, 1979).

While ethnography uses participant observation, observations in the ethnographic tradition are unstructured and observers are encouraged to totally immerse themselves in the organization under study. The type of observation that was employed in this study differs from that approach. Observation was guided by structured guidelines and observers did not immerse themselves in the study units.

Structured guidelines using categories derived from Van de Ven's patterned contingency theory (Van de Ven & Drazin, 1985) were used in this study by observers to guide organizational assessment at the work unit level. The data collected were for the most part

group level data, not individual data. For example, how a group of nurses assigned patients, communicated information, and handled conflict was observed and recorded. In the hospital setting, caregiving occurs as a group activity; therefore, patient outcomes might be assumed to result from composite not individual action. An outsider or at least someone not part of the work group observed activities at the group level. These data were analyzed and compared for each work unit to data collected using a survey method also based on contingency theory of organizations.

Significance of the Study

The significance of this study lies in its potential for advancing nursing and organizational science by: 1) suggesting methods of assessing the organization at the work unit level that are consistent with a particular view of the organization for use by the clinical researcher when characterizing and comparing units based on selected organizational dimensions, 2) enabling the clinical researcher to move intervention research beyond the factor isolating or factor relating level to the predictive level of theory development by including a contextual analysis of the organization at the work unit level, 3) describing how structured observation as an organizational assessment method can support, complement, and sometimes substitute for traditional methods; written questionnaires and interviews. Thus, this study aims to evaluate and identify efficient and valid approaches to contextual analysis.

This chapter outlined the problem, aim, background, and significance of this project. The next chapter will present relevant literature from nursing science, organizational science, and other multidisciplinary sources that inform this inquiry.

Chapter II

Review of Literature

The review of literature that follows suggests that there are limited and inadequate methods available for the clinical researcher to examine context of care at the unit level of the organization linking specific organizational perspectives and methods. Literature about the relationship between context and outcomes, organization as context, and the different perspectives used to understand organizations is presented. Studies examining the organizational context of health care at the unit level are critiqued along with their methods.

The relationship between context and outcome

The context of care includes the structures and processes under which care is delivered. Donabedian (1980) delineated and defined the relationship between structure, process, and outcome in his landmark work on quality assessment. Structure refers to the technical and professional characteristics of providers and their physical and organizational work environments; process refers to the activities and means by which care is provided; and outcome refers to change in a patient's current and future health status attributed to the antecedent health care (Donabedian, 1980). Multiple studies in hospitals have linked specific structural and process variables in organizations with positive outcomes, for

both patients and the organization. These variables of structure and process are considered contextual variables (Verran & Mark, 1992).

One of the early studies in nursing identifying the influence of organizational context on patient outcomes was Hegyvary and Chaming's (1975) study reporting different patient outcomes in two hospitals with comparable samples of patients and comparable medical care. They measured the relationship among preoperative stress, the provision of pre-operative instruction, and selected patient and organizational variables for similar groups of patients receiving abdominal hysterectomies in two neighboring hospitals. Study patients were interviewed regarding preoperative stress levels and assigned to three groups for pre-operative instruction. Groups 1 received oral pre-operative instruction; group 2 received written pre-operative instruction, while group 3 received no formal pre-operative instructions. The five postoperative outcomes that were measured included incidence of nausea and vomiting, number of doses of narcotics received, number of days to return to solid diet, incidence of complications, and length of postoperative hospitalization (Hegyvary & Chamings, 1975). Treatment regimens between the two hospitals were not different for these groups of patients and the medical staffs were largely interchangeable. Findings from this study indicated that the hospital setting was the only consistently significant variable related to postoperative outcomes for these patients, suggesting

that something in the context of the delivery of patient care affected patient outcomes (Hegyvary & Chamings, 1975). Others went on to identify specific organizational structure and process variables that might influence patient outcomes including characteristics of work patterns in which nurses function (Brooten, Kuman, Brown, Butts, Finkler et al., 1986; Ethridge & Lamb, 1989; Aiken, Smith & Lake, 1994).

Work patterns and outcomes for patients and organizations

Brooten and colleagues (Brooten et al., 1986) measured the effects of nurse specialist care for low-birthweight infants and their families. Seventy-nine infants and 72 mothers were divided into two groups. The control group included 40 infants and 36 mothers who received routine care at the time of the study. The experimental group consisting of 39 infants and 36 mothers were assigned to a masters prepared nurse specialist in the hospital. This nurse specialist worked with the families and the infant while in the hospital and for 18 months after discharge. The results of this study were that the babies in the experimental group were discharged a mean of 11.2 days earlier than the control group with a hospital cost savings of \$17,420 per child. There were no differences in rehospitalizations, acute-care visits, failure to thrive, child abuse, foster placement, or developmental quotient of infants (Brooten et al., 1986). This study, while focusing on organizational outcomes such as cost, demonstrated that the organization of care or assignment to a nurse specialist

influenced the cost of care without negatively influencing patient outcome.

Other research on the organization of nursing care and its influence on patient and organizational outcomes includes the multiple studies comparing different methods of nursing care delivery, such as team nursing, primary nursing, total patient care, and case management (Manthley, 1980; Zanzers, 1988) . Case management, a popular care delivery system today, is defined as a multidisciplinary care delivery method that aims by case type to achieve a purposeful and controlled connection between quality of care and cost (Babington, 1993).

Ethridge and Lamb (1989) evaluated the outcomes of nursing case management with acutely ill patient receiving hip replacements, and chronically ill patients with respiratory disease. This case management model included a network of nursing care delivery managed by a bachelor's prepared case manager. Home care, hospice, community wellness centers and in-hospital nursing were part of the system. Length of stay was reduced by 2.1 days for the hip replacement patients and 3.5 days for the respiratory patients receiving nursing care under the case management model.

Another group, the Johns Hopkins Group reported anecdotally the following outcomes resulting from the introduction of a case management model of care: 1) increased collaboration between

nurses and physicians, 2) increased accountability for patient outcomes, 3) decreased confusion regarding nursing and medical plans of care, 4) reduced and more appropriate use of resources, and 5) increased quality with actual/potential decreased costs (Ling, 1993).

Nursing care and patient outcomes

Aiken and colleagues recently reported lower mortality among a set of hospitals known for good nursing care (Aiken, Smith & Lake, 1994). They investigated whether hospitals known to be good places to practice nursing had lower Medicare mortality rates than hospitals otherwise similar with respect to a variety of non-nursing organizational characteristics, such as size and medical school affiliation. Thirty-nine hospitals known for good nursing care and identified as “magnet” hospitals were matched with 195 control hospitals selected from all non-magnet US hospitals. Medicare mortality rates of magnet versus control hospitals were compared. The magnet hospitals’ observed mortality rates were 7.7 percent lower than the matched control hospitals. After adjusting for differences in patient characteristics affecting predicted mortality, the magnet hospitals still observed a 4.6 percent lower mortality. Aiken and colleagues (1994) concluded that the same factors that lead hospitals to be identified as effective from the standpoint of the organization of nursing care are associated with lower mortality among Medicare patients.

Coordination and collaboration at the unit level and patient outcomes

Knaus and colleagues (1986) conducted an extensive study with 5030 adult patients hospitalized in 13 intensive care units (ICUs) to develop a severity of illness instrument, APACHE II. The degree of interaction and coordination between physicians and nurses in the ICUs was a factor that differentially accounted for differences in predicted and observed mortality rates. The unit with the lowest ratio of actual to predicted death rates was characterized as having excellent communication between physicians and nursing staff, protocols allowing independent nursing responsibilities, and a comprehensive educational support system for nurses supported by a masters prepared clinical nurse specialist, in contrast to the unit with a much higher ratio of actual to expected deaths. This study suggests a relationship between contextual variables within the organization and patient outcomes.

Mitchell and colleagues (1989) explicitly examined contextual variables at the work unit level and patient outcomes. They examined a patient care unit that had valued organizational attributes in a demonstration project sponsored by the American Association of Critical Care Nurses. Outcomes data that were examined included: 1) in-hospital mortality ratio of observed to predicted deaths, 2) complications related to infections, 3) immobility and fluid balance, 4) patient satisfaction with nursing care, 5) hospital length of stay, and 6) hospital accounting costs.

Findings indicated that desirable clinical outcomes of low mortality, no new complications, and high patient satisfaction existed in the ICU with valued organizational attributes.

Case studies of unit level organizational context and outcomes

Despite studies suggesting a relationship between context of care at the unit level and outcomes, it has been difficult to identify the specific organizational structural and process dimensions that directly relate to positive patient outcomes or organizational outcomes. Shortell and colleagues' recent study of 42 critical care units examined the extent to which differences in performance were associated with selected managerial and organizational practices (Shortell, Zimmerman, Rousseau, Gillies, Wagner et al., 1994). The analytical model used in the study suggested that the unit performance would be influenced by available technology, the nature of the work to be done, staffing, and caregiver interaction. Caregiver interaction was defined as a composite construct including culture, leadership, communication, coordination, problem solving and conflict management. Patient data were collected using the APACHE III methodology (Zimmerman, 1989) for risk adjustment. Data from caregivers were collected using an organizational assessment questionnaire (Shortell et al., 1991), and specific unit data were obtained on length of stay, nurse staffing, turnover, technological availability, and task diversity. Performance included five dimensions: risk-adjusted mortality, risk-adjusted average length of stay, nurse turnover, evaluated

technical quality of care, and evaluated ability to meet family member needs (Shortell et al., 1994).

Findings revealed that technological availability was significantly associated with lower risk-adjusted mortality and diagnostic diversity was significantly associated with greater risk-adjusted mortality. Caregiver interaction comprising culture, leadership, coordination, communication, and conflict management abilities of the unit was significantly associated with lower risk-adjusted length of stay, lower nurse turnover, higher evaluated technical quality of care, and greater evaluated ability to meet family member needs. However, no significant relationship was reported between caregiver interaction and risk adjusted mortality (Shortell et al., 1994).

In an attempt to further delineate the relationship between organizational practices and performance outcomes, Zimmerman and colleagues (Zimmerman, Shortell, Rousseau, Duffy, Gillies et al., 1993) used a subsample of nine ICUs from Shortell's study (1994). The Zimmerman group hypothesized that high performing critical care units would possess the following characteristics: a) a strong team-oriented culture in which nurses and physicians set high standards and supported each other in attaining them, b) effective nurse and physician leadership which emphasized high standards, staff empowerment, and influence over budgetary and patient care decisions, c) coordination mechanism involving a

variety of written rules and policies, plans and schedules, one-on-one communications, and meetings both within the unit and with outside units, d) open, accurate, and timely communication within the unit and other units, and e) collaborative problem-solving involving frequent interaction and consultation between nurses and physicians in which differences and concerns were openly discussed (Zimmerman et al., 1993).

Data were collected as previously described for the Shortell study using interviews, direct observation, a questionnaire, and chart review. The APACHE III tool was used to measure clinical performance which was defined as patient efficacy, or risk adjusted survival, and efficiency, or actual to mean predicted length of stay for each unit (Zimmerman, 1989). Organizational analysis was conducted through two day on-site visits in which observations, interviews, and record reviews were conducted, and a questionnaire was distributed to physicians and nurses working on each unit. The units were ranked by the team of on-site observers from one to nine based on the investigators' summary reports listing "best" and "worst" practices and subjective performance rankings. These rankings were made without knowledge of preliminary or final performance data. Performance was defined as: a) ICU effectiveness measured by the ratio of actual to predicted hospital death rates, and b) ICU efficiency measured by the ratio of actual to predicted ICU length of stay. Results comparing the actual performance ratings with the

predicted performance ratings showed that critical care units with superior risk-adjusted survival could not be distinguished by structural and organizational questionnaires or by global judgment following on-site analysis (Zimmerman et al., 1993).

Zimmerman and colleagues (1993) concluded that the inaccuracy of their subjective rankings was related to an inability to distinguish effectiveness and efficiency on the study units. They suggested studying additional performance measures such as patient satisfaction, staff productivity, or use of specific clinical services might result in more performance variations between the units. They also recommended that performance assessment cannot be based on structural or organizational questionnaires and interviews alone suggesting that greater emphasis should be placed on direct observations of study units.

Contextual variables related to organizational outcomes

Still other studies examined organizational contextual variables related to organizational outcomes, rather than patient outcomes. For example, Scott & Shortell (1988) examined organizational climate as a contextual variable in the organization and related it to staff satisfaction, an organizational outcome variable. They found that organizations characterized by participative decision making, clear policies and rules, autonomy in decision making, and use of a variety of coordinating mechanisms were associated with the following organizational outcomes or positive outcomes for

staff; low staff turnover, high morale, and improved job satisfaction.

The large body of literature on job satisfaction in nursing also supports the relationship between organizational contextual variables of structure and process with the organizational outcome of job satisfaction. Autonomy, responsiveness and support of supervisors, low routinization, and participative decision making are all organizational contextual variables that relate to job satisfaction (Price & Mueller, 1981; Weisman, 1981; Duxbury, Henly & Armstrong, 1982; Hinshaw & Atwood, 1982; Blegen & Mueller, 1987).

Support for the relationship between context and outcome

Based on these studies and others that postulate a relationship among structure, process, and outcomes, a variety of projects are currently underway focusing on the influence of work environment, as one context of care, on patient outcomes. The National Institute of Nursing Research and the Division of Nursing funded three separate five year Innovative Nursing Practice Model projects. The goal of these projects is to examine the effects of nursing practice models on quality of care provided, costs of care, and retention of nurses involved in implementing care (Moritz, 1993; Ingersoll, Schultz, Ryan & Kitzman, 1993; Ingersoll, Gerber, Gordon, & Moritz, 1993; Gerber, Veran & Milton, 1993; Gordon, Weisman, Bergner, Wong & Cassard, 1993; Ingersoll, Bazar & Zentner, 1993). These

studies are directed at the work unit level of the organization and presume a relationship between organizational context and outcomes. The results from these studies have been mixed, however. The Johns Hopkins group found no differences in patient outcomes whether patients were cared for on a self-managed nursing unit or traditional one, although nursing satisfaction and retention was improved (Cassard, Weisman, Gordon & Wong, 1994). The other studies in this program have not published their results.

Another example of a wide-scale research program directed at altering the clinical environment of care is Strengthening Hospital Nursing: A Program to Improve Patient Care funded by Robert Wood Johnson and Pew Charitable Trust Foundations (1992). There are 30 projects throughout the country aimed at changing the clinical environment of nursing care to improve work conditions for nurses and improve outcomes for patients. Once again, implicit in this approach is the relationship between organizational context and outcomes.

The studies cited suggest a relationship between the structures in which care is delivered, the processes involved in providing care, and outcomes; for both the patients receiving care and the organizations providing that care. This link between context of care, including organizational structure and process variables, and outcomes of care make context an important element to be considered in clinical research.

Clinical researcher's interest in the context of care

Clinical researchers are concerned with developing and testing interventions and their influence on patient outcomes. Much of this research has focused at the micro level, emphasizing the one-to-one relationship between practitioner and client, with little examination of the conditions under which care occurs, or the context of care. Hegyvary (1993) noted a paucity of research related to context of care in reviewing patient care outcomes as a function of symptom management intervention.

Hegyvary's (1993) paper reviewed and analyzed symptom management research in the health professional literature over a five year period of time (1987-1991), using Dickoff and James (1968) theory development framework for classifying the research.

This framework described four levels of theory development:

1. Factor-isolating theory defines a conceptual entity, factor or phenomenon.
2. Factor-relating theory depicts situations in which factors are associated with each other, but the analysis stops short of determining causal relationships.
3. Predictive theory relates not only factors, but conditions under which factors are related.
4. Prescriptive theory or situation producing theory results in generalizations that serve as guides for practice. These theories focus on goals or intended outcomes of clinical activities and the conditions under which these causal linkages pertain.

Hegyvary, 1993, p. 149

Hegyvary's (1993) analysis found that there were wide-scale efforts in factor-isolating and factor-relating investigations of outcomes of symptom management but, despite the need for prescriptive theories to guide practice, few studies of symptom management existed at this level. While recognizing that there is still a need in some areas of symptom management research for factor-isolating and factor-relating research, Hegyvary suggested that predictive and prescriptive theories are necessary to guide practice.

Theory development at this level requires rigorous complex intervention studies and causal analysis requiring assessment of structure, process, and outcome in multiple contexts (Hegyvary, 1993). Examining context of care, or the conditions under which care occurs, is necessary to develop theories that guide practice. Hegyvary (1993) called for a shift in thinking, beyond the simple micro level of the practitioner-patient dyad to complex macro designs. This argument supports the need for useful and accurate methods of analyzing context for the clinical researcher to move research to the level of predictive and prescriptive theory development.

Organizational context of care

The condition under which care occurs is the context important to clinical researchers. The organization is one context influencing care. Organizations are complex phenomena that can be understood

in many different ways. The perspective that is chosen influences how an organization is viewed and analyzed. Scott (1987) reviewed 50 years of literature on organizations and discerned three different definitions: 1) highly formalized collectives oriented to the pursuit of specific goals, 2) collectivities of informally structured participants who share a common interest in the survival of the enterprise, and 3) coalitions of groups based on interests and power differentials and highly influenced by their environment (Scott, 1987, p. 20-27). Experts in organizational science do not agree on a single perspective, yet believe that a variety of perspectives and approaches are useful when examining an organization. To better understand the different perspectives on organization and how they influence inquiry, an overview of several organizing schemas will be presented.

Organizational perspectives

Bolman & Deal (1984) categorize different organizational perspectives into four frames; structural frame, human resource frame, political frame, and symbolic frame. The structural perspective on organizations is based on a rational systems view of the organization. Organizations are viewed as entities with formal roles, relationships, rules, policies, and hierarchies to coordinate. Organizational structure is designed to fit the environment and technology (Bolman & Deal, 1984). Scott's (1987) first definition of organization as formalized collectives could be grouped within this frame.

In contrast, the human relations frame emphasizes the interdependence between people and the organization. Focus in this frame is on developing a better fit between personal needs, skills, and values, and the formal roles and relationships required to accomplish collective goals and purposes. Highly formalized collectives organized for the pursuit of common goals, as defined by Scott (1987), is a view that fits in the human relations frame. Research on job satisfaction as an organizational outcomes fits within this frame, emphasizing the importance of organizational climate.

The political frame focuses on power, conflict, and the distribution of scarce resources as the central issues to organizations. The organization is viewed as an arena of scarce resources where conflict is expected. Power and influence are used to negotiate, bargain, compromise, or coerce (Bolman & Deal, 1984). An organization that fits in this frame is defined by coalitions of groups based on interest and power differential (Scott, 1987).

The symbolic frame focuses on problems of meaning in an organization. Organizational events are viewed as ambiguous and uncertain, therefore, humans create symbols to help them deal with the uncertainty (Bolman & Deal, 1984). Research directed at the influence of culture and meaning on the process of providing care fits within this frame.

Astley & Van de Ven (1983) developed a different approach to classifying organizational perspectives. The question that guided the development of their classification schema for viewing organizational perspectives arose from the following question. Are organizations functionally rational, technically constrained systems, or are they socially constructed, subjectively meaningful embodiments of individual action (Astley & Van de Ven, 1983)? This question continues to be a central debate in organizational theory. Arising from this debate, Astley and Van de Ven developed a typology with two analytic dimensions on which to classify organizational perspectives, the level of organizational analysis and the relative emphasis placed on voluntaristic versus deterministic assumptions about human nature.

From a voluntaristic orientation, individuals and their created institutions are autonomous, proactive, self-directing agents; individuals are the basic unit of analysis and source of change in organizational life. In contrast, the deterministic orientation focuses on the structural properties of the context, not the individuals. Individual behavior is seen as reacting to structural constraints that provide organizational life with an overall stability and control (Astley & Van de Ven, 1983).

At the micro level of analysis, from a deterministic orientation, theories and research focus on roles, work groups, and sub-units

within organizations. The basic component of structure is roles rather than individuals in those roles. Within this view, decisions are viewed as rational, power is generally from the top down, and success is achieved when appropriate structure for adaptation to the environment occurs (Dienemann, 1987). The dominant schools of organizational thought within this view include structural functionalism and systems theory, both of which were influenced by classical management theory (Fayol, 1949), theory of bureaucracy (Weber, 1957), and structural contingency theory (Woodward, 1965; Lawrence & Lorsch, 1967; Thompson, 1967) to name a few. This grouping of organizational views is similar to Bolman and Deal's (1984) structural frame, although Bolman and Deal do not specifically address level of analysis, based on a rational systems view of the organization.

At the macro level, deterministic theories are dominated by the natural selection view focusing on characteristics of total populations of organizations or industries rather than the single organization. The evolution of corporate society and its economic infrastructure is driven by environmental forces. Success is determined by the environment, power is viewed as outside the organization, and decisions are generally self-serving (Astley & Van de Ven, 1983). Schools of organizational thought dominating this view include population ecology (Hannan & Freeman, 1977; Aldrich, 1979), industrial economics, and economic history. Bolman and Deal's (1984) political frame applied to groups of

organizations, rather than a single organization, is similar to this grouping of organizational perspectives.

From the voluntaristic or behavioral perspective the micro level of analysis is dominated by the strategic choice view. Action theory (Child, 1972), in which political considerations influence organizational structure over technical criteria, influences this perspective. Strategic choice draws attention to individuals, their interactions, social constructions, autonomy, and choices, rather than to the constraints of their roles and functional interrelationships in the systems (Astley & Van de Ven, 1983). Decisions are considered situational, power is concentrated from the bottom up, and success is determined by rapid innovation that shapes the environment (Dienemann, 1987). The importance of symbolic meaning and human resources draw similarity between this grouping of organizational views and some of the views of organization placed in Bolman and Deal's (1984) symbolic and human resource frames.

At the macro level, behavioral or voluntaristic views of organization are grouped as collective action theories where power is collectively held, success is when interorganization cooperative alliances exist, and decisions are generally cooperative (Dienemann, 1987). Human ecology, political economy, and pluralism dominate the schools of thought influencing this perspective. Collective survival is emphasized and achieved by

collaboration between organizations through interorganizational networks (Astley & Van de Ven, 1983).

Astley and Van de Ven's (1983) system for organizational perspectives is very different from Bolman and Deal's four frames, yet, both provide a framework or way of viewing the different organizational perspectives that exist and influence organizational inquiry. Selected frameworks for grouping organizational perspectives was presented to illustrate that multiple perspectives exist and influence the approach and measurement of the organization.

Contingency theory

The study from which this dissertation drew data used contingency theory. Contingency theory takes a structural perspective of organization, probing behind the individual and, examining the context in which individuals relate and work together. This perspective allows focus on structure and process variables within an organization that are most likely to influence the outcomes of clinical interventions.

Contingency theory proposes that there is no one "best way" to achieve organizational goals. The type of organizational design that will result in maximal organizational effectiveness and efficiency will be determined by the nature of the environment, its complexity and stability, the nature of the tasks to be performed,

how varied and difficult, and characteristics of the workers. (Perrow, 1986; Mitchell, 1990; Mitchell, 1994; Shannon & Mitchell, 1994; Shortell & Kaluzny, 1994). Contingency theory fits within the sociological view of organization emphasizing organizational structure, goals, and environment. The roles people play, the structures in which roles are performed, and the relationships of groups to each other are also examined. The structural view of organization, contingency theory being one such perspective, provides the most convenient tool for analyzing differences among organizations (Perrow, 1986). Van de Ven and colleagues' (Van de Ven & Delbecq, 1974; Van de Ven, 1976; Van de Ven & Ferry, 1980; Van de Ven & Drazin, 1985) systems approach to contingency theory was used to examine the unit level of the organization using two different methods for this study. Contingency theory hypothesizes that optimal performance of a unit is based on matching the mode or pattern of operation to the variability or difficulty of a task (Mitchell, 1990; Mitchell, 1994). Although the focus of this study was not specifically on organizational performance as it relates to the technology and structure of the organization, the underlying theory for viewing organizational structure imbedded in contingency theory was used.

As an organizational perspective, contingency theory fits within Scott's (1987) definition of organization as a highly formalized collective oriented toward the pursuit of specific goals. Bolman and Deal (1984) placed contingency theory within the structural

frame viewing organizations as structured entities with formal roles, relationships, rules, policies, and hierarchies to coordinate. Contingency theory in Astley and Van de Ven's typology (1983) fits within the systems structural view of organizations, focusing at the micro level, recognizing the influence of environment on the organization. A critique of selected organizational studies that use contingency as an organizational perspective follows.

Studies based on a contingency view of organizations, a critique of methods

The methods used in these studies to examine the unit level of the organization are critiqued for their relevance, reliability, and usefulness to the clinical researcher whose primary interest is in understanding the context of care as it influences interventions and patient outcomes. Before critiquing specific studies, a general framework on organizational analysis is presented. This framework is based on Van de Ven's work.

Organizational assessment framework

Van de Ven and colleagues (Van de Ven & Delbecq, 1974; Van de Ven, 1976; Van de Ven & Ferry, 1980; Van de Ven & Morgan, 1980; Van de Ven, 1981) developed a research program including a framework for organizational assessment, a set of measurement instruments, and a procedure of analysis based on their view of organizations. Identified in this framework are the dimensions of context, structure, and behavior that are important for explaining

the performance of organizations, work groups, and individual jobs.

Following are assumptions basic to the framework:

Complex organizations are open systems consisting of many different forms of structure and processes. The action system is a repetitive cycle of transforming inputs into outputs through iterative choices made by the organization regarding the organizations' environment, people, money, and work. Organizational behavior, therefore, consists of a series of goal-directed events, segmented by like functions and activities. Depending on the nature of its work and the function it contributes to the larger organization, each component adopts a particular program for organizing cyclical activities into predictable patterns of behavior. The structure of an organizational component is found in the program it uses to govern the behavior of its members. The development and maintenance of relationships within and between organizational components are exhibited in the flows of information and resources among positions. Overall then, the complex organization consists of many differentiated but interdependent subsystems, each with its own program for structuring its cyclical activities and these subsystems are linked together as a overall organizational system through information and resource flows.

(Van de Ven & Ferry, 1980, p. 6-7)

Implicit in this definition is the assumption that a thorough assessment of a complex organization requires an operational theory and methodology that cuts across and links the overall organization, work unit, and individual job levels of analyses. Van de Ven and colleagues (Van de Ven, 1976; Van de Ven & Ferry, 1980; Van de Ven & Morgan, 1980) recommended four different levels of analysis: the overall organization, work units, individual jobs, and relationships between jobs and work units within the organization.

Van de Ven's framework is based on contingency theory, concerned primarily in examining the match between the technology and structure of an organization, and organizational performance or outcomes. While the CCNS study from which the data for this project were derived measured technology, structure and performance at the unit level using Van de Ven's framework, this project did not include an analysis of technology or performance. The purpose of this project was to compare different methods of examining the unit level of the organization. While the organizational researcher is interested at a thorough analysis of the organization at multiple levels, this project is directed at providing the clinical researcher with alternative methods of examining the unit level of the organization where clinical interventions are tested.

Taking Van de Ven's framework and focusing at the unit level of the organization, the major dimensions of structure were identified as complexity, defined as the amount of specialization and the degree of personnel expertise; formalization, defined as standardization of procedures; and centralization, defined as hierarchical decision making. Structure was analyzed in terms of:

1. Role specialization, defined as the subdivision of tasks among unit personnel;
2. Standardization, defined as the degree to which task activities are specified in detail and the degree to which standard operating procedures are established to guide performance;

3. Discretion, defined as the degree to which unit personnel have the authority to make decisions on how the work is done and how exceptions are handled;
4. Expertise, defined as the degree of knowledge or skills of unit personnel.

(Van de Ven, 1976)

Organizational processes were viewed as the patterns of relationships among unit personnel who execute the work. The interdependence is reflected in the flows of work among unit personnel and the extent to which they rely upon each other to receive their work, perform their individual tasks, and send their completed work on to others to complete the total job.

Coordinating processes to manage this interdependence are based on the manner which unit personnel handle their communications and conflict resolution. Processes were analyzed in terms of:

1. Interdependence: work flow patterns and job dependence on supervisor and among members at different stages of task performance,
2. Coordination: frequency of information flows; written reports, discussions, meetings,
3. Conflict resolution: frequency and modes of resolution used.

(Van de Ven & Ferry, 1980, p.157)

These definitions of organizational structure and process are used to evaluate the methods of examining the unit level of the organization used in several studies in health care organizations. Before the studies are presented and critiqued a discussion of methods of organizational assessment is presented.

Organizational assessment methods

The four most common methods used in organizational assessment are interviews, questionnaires, observation, and reviewing archival materials. Each of these methods has relative advantages and disadvantages. A careful analysis of the following variables should be considered before choosing a method or combination of methods: 1) what is to be measured, 2) how are the results of the assessment to be used, 3) what size and type of organization is to be assessed, and 4) what variables or dimensions are to be measured (Lawler, Nadler & Cammann, 1980). Lawler and colleagues suggest the following issues to consider when choosing an organizational assessment method or combination of methods:

1. Difficulty of use: how difficult is it to design, score, and store data?
2. Replicability or reliability: how consistent and stable, are the data?
3. Statistical validity: are measures significantly related to other measures that they should be related to or lead to?
4. Face validity: do they appear to measure what they are suppose to measure?
5. Freedom from bias: is there a systematic tendency for them to be influenced by or to reflect anything other than the variable they are suppose to assess?
6. Member acceptability and reactivity: has member acceptability been considered? How much do the methods change the situation simply because they are being used?
7. Flexibility and adaptability: how much can the method be altered and changed in response to the data that are collected?

8. Ethical issues: are invasion of privacy and respondent anonymity issues?
9. Richness of data produced: how rich and complex are the data?
10. Sample size and selection: when, what and how much to sample?
11. Cost: what is the relative cost?

Interviews are the most frequently used method for assessing how an organization functions. Most people like to talk about their work. An interview conducted by a skilled interviewer can be an empathetic device allowing members to share feelings and develop rapport with the interviewer (Lawler et al., 1980). This rapport can aid in information collection, but may not always be desired, depending on the goals of the assessment. Interviews can be expensive and time consuming. Interviewers can bias the responses by their choice of questions and the interviewer's bias can influence what is recorded and omitted. Self-report bias is a basic problem with the interview method. The interview reflects the feelings of the respondent not necessarily information on actual behavior within the organization. Respondents may have biased perceptions, provide incomplete information, or give the interviewer the information they want to hear. Interviews vary on the amount of structure and formality they follow. Interviews can be structured with fixed responses required, structured with open ended questions, or unstructured and can be given individually or in groups.

Interview as a method of obtaining information on the organization is most useful when beginning an in-depth organizational assessment to build rapport between consultant and employees (Lawler et al., 1980). Open-ended interviews are best used at the time of entry in an organization, whereas structured closed-ended interviews are best used when large-scale data collection is the goal. The drawbacks, however, are multiple. Interviews tend to be expensive, subject to many biases, and difficult to code because of open ended responses.

Questionnaires are self-administered, structured interviews allowing simultaneous data collection from multiple people in an organization (Lawler et al., 1980). Questionnaires have a number of distinct advantages. For example, responses can be easily quantified because of the fixed-response format. Numerical responses can be summarized, aggregated, and statistically analyzed with little interpretation required. They are also easy to use with large samples of people. And although, initially expensive to develop, once developed, questionnaires are relatively inexpensive to administer. However, there are drawbacks to the questionnaire method. Similar to the interview method questionnaires tend to gather data on people's reports of behavior rather than actual behavior and thus can be biased. There are also difficulties with respondents tending to give the same answer to questions next to each other and paying less attention to questions at the end of the questionnaire.

Questionnaires also tend to “over question”, including additional questions not directly relevant to the question at hand (Lawler et al., 1980). Questionnaires can be open-ended or closed, although in organizations, most are of the closed format. They can be general or very specific. As with interviews, it depends on the goal of the survey as to which type of questionnaire is chosen. Questionnaires are most useful when specific data are needed from a large number of individuals.

Reviewing an organization’s documents, records, and written materials can be a rich source of information. Reviewing archival materials as a method has the advantages of being unobtrusive, nonreactive, inexpensive, relatively little chance for bias, and easy to store and analyze. The most serious problems with using the data obtained from this method are the quality of the data, obtaining access to the data, coding, interpreting, and analyzing the data.

Observation is the final method most often used in organizational analysis. It is the most straightforward way of collecting data about behavior in organizations in order to remove the bias of self report. The major advantage of observation as a method is that it enables direct collection of data about behavior itself rather than reports of behavior, thus, giving it high face validity. It also allows observers to discover patterns of behavior that are difficult to uncover in questionnaires or interviews. Observation

allows data to be collected as behavior occurs rather than retrospectively as is the case with self-reporting methods (Lawler et al., 1980).

It is also an adaptive method allowing observers to alter their observations depending on the situation. Observation as a method of data collection in organizations is not without problems including extensive need for interpretation and coding except in the most structured forms, adequate sampling people, time, space, and events, quality of the observer, effect of the observer on those being observed, and cost of training, sampling, coding, and analysis.

There are basically three types of observations; structured, where instruments and procedures direct the observer to specifically observe certain behavior; semi-structured, where observing is minimally structured but recording is specified; and unstructured, where there are no specific directions regarding what should be watched or recorded. The roles observers take in an organization vary widely also. At one extreme are observers who become full participants in the organization by not disclosing their role with those being observed. At the other extreme is the nonparticipant observer who is introduced into the organization as someone who is there simply to observe. Unstructured participant observation provides the most data but it also requires the most skilled observer and is open to bias in sampling, recording, and in potential

for replicability. Structured nonparticipant observation has the advantage of producing observations that are easier to store and analyze, tend to be reliable and statistically valid, and present fewer sampling problems (Lawler et al., 1980). Training programs for observers are typically used with this method to help eliminate the possibility of observer bias. Observation as a method is useful in many situations where there is no substitute for “seeing it happen” (Hanlon, 1980). Observation can also be used as a valuable selective validity check for data collected through other self-report methods.

The choice of data collection methods is an important one, with each method having distinct advantages and disadvantages. A careful analysis of the assessment situation on a number of dimensions must be considered including what is to be measured, how the results of the assessment will be used, and the size and type of organization (Lawler et al., 1980). Different data collection methods have been used in the following studies and will be critiqued for their appropriateness, usefulness, and relative advantage over alternative methods. Additionally, the studies will be critiqued on how they identified and measured the structure and process variables in the organizations.

The effect of technology on structure at the unit level of the organization

Comstock and Scott (1977), using a sample of 142 patient care wards from 16 acute-care hospitals, tested the proposition that

technological predictability affects structure at the unit level of the organization. This study examined the unit level of the organization on the following characteristics, technological predictability, task predictability, workflow predictability, qualifications of staff, standardization of policies and procedures, centralization of decision making, size of the subunit, and differentiation of staff roles. Qualifications of staff, standardization of policies and procedures, centralization of decision making, size, and differentiation of staff roles were similar to the characteristics of organizational structure identified by Van de Ven; role specialization, standardization, discretion, and expertise. Comstock & Scott's (1977) study did not, however, contain any measures of organizational processes suggested by Van de Ven & Ferry (1980), such as interdependence, coordination, or conflict resolution.

The methods used to collect data at the work unit level included a questionnaire completed by the hospital administrator or designee, interviews with the head nurse of each ward, questionnaires administered to all registered and practical nurses on each ward, a weekly census of patients in different categories of surgical and medical care for each ward for a four month period, and independent ratings from nurses on the predictability of post surgical care for selected patients on the wards.

While Comstock & Scott's (1977) study produced findings supporting the relationship between technology and structure at the unit level of the organization, it was not without a tremendous amount of effort. Use of multiple data sources and data collection methods lend support for the validity of the results; however, the complexity, cost, and effort required to obtain unit level organizational data limit the usefulness of this approach to the clinical researcher.

The effects of organizational structure at the unit level on nursing turnover

Alexander (1988) used secondary analysis of a multi institutional primary data set to designed to develop and test an organization model of nursing turnover in hospitals. The basic premise of the study was that unit-level organizational arrangements represent the most immediate structural context for the role of the nurse and the task of patient care, therefore, work arrangements closest to the production task of patient care will have the greatest effect on nurses' task performance, organization, integration, job satisfaction, and intent to leave the organization (Alexander, 1988). Four sets of organizational variables were analyzed at the unit level to assess their independent and combined effects on nursing turnover in hospitals.

The data for the study were obtained as part of the Institutional Differences Study, utilizing a large primary database to examine

the relationship between features of hospital organization and patient outcomes (Flood & Scott, 1987). Seventeen hospitals and 1726 registered and licensed practical nurses in 146 units within the 17 hospitals participated in the study. The two data collection instruments were a one hour structured interview with the head nurse, and a questionnaire issued to all nursing staff. The interviews and questionnaires provided data on turnover rate, size and composition of staff, organizational chart, type of patient care unit, and nurse's perception of the distribution of influence and standardization of procedures, self-reports on professional activity, and selected background and experience characteristics. As a general measurement strategy, two or more indicators of each theoretical dimension were used. The major dimensions used to measure the unit level of the organization included:

1. Staff integration: indicated by the ratio of RNs assigned to the unit.
2. Centralization: indicated by RN influence in unit-related decisions and decision making authority of the head nurse.
3. Communication/coordination: indicated by the frequency of contact and communication among nurses during a shift, the frequency of patient care conferences, and explicitness of unit policies and procedures.
4. Evaluation: indicated by the perceived accuracy of head nurse performance evaluation, and the number of patient care hours performed by the head nurse per week.

(Alexander, 1988, p. 65)

Though the organizational dimensions measured in Alexander's study were similar to the structural and process dimensions of organization identified by Van de Ven & Ferry (1980), there was no

measurement of conflict resolution, and no explicit organizational theory identified in this study. Without an acknowledged theory, inquiry can be misguided. For the clinical researcher whose primary interest is not in the organization itself, a theory must be identified to guide the methods chosen for the inquiry.

The relationship of unit level technology and structure to quality of care

Alexander & Bauerschmidt (1987) examined the fit between technology and structure on nursing units and the effectiveness of the units as indicated by quality of nursing care delivered. They developed a model suggesting the appropriate fit between technological and structural dimensions on nursing units. Data from 27 nursing units were obtained by having five randomly selected personnel and the head nurse from each unit complete a questionnaire. Technology, structure, and the quality of care were measured.

Structure was defined as the allocation of work roles and administrative mechanism to control and integrate work activities.

The three dimensions of structure that were measured were:

1. Vertical participation describing a situation in which superiors seek input from subordinates for decision making and subordinates consult with their superiors concerning job-related tasks, including the ideas of configuration, centralization, and vertical differentiation.
2. Horizontal participation referring to participation by the individual in decision making and task definition,

incorporating the ideas of specialization and task coordination.

3. Formalization referring to the extent to which rules, procedures, and instructions exist.

(Alexander & Bauerschmidt, 1987, p. 3)

Structure was placed on the continuum between mechanistic structure defined as low degree of participation, highly specific task descriptions, and highly formalized procedures and organic structure defined as high degree of participation, low specification of tasks and few procedures. Structure was measured by a 12 item, five point, Likert-type scale questionnaire developed from the 21 item questionnaire of Leifer and Huber employed to measure organicity of structure (Leifer & Huber, 1977). Reliability and validity were established for the questionnaire measuring structure.

Alexander and Bauerschmidt's study (1987) used a theoretically based, valid, and reliable tool to assess the organizational context of care at the unit level. The dimensions of structure and process measured in Alexander and Bauerschmidt's study were similar to those identified by Van de Ven & Ferry (1980) except for lack of assessment of conflict resolution. Van de Ven & Ferry (1980) defined structure as role specialization, standardization, discretion, and expertise, and defined processes as interdependence, coordination, and conflict resolution.

Seeking opinions from organizational members through a questionnaire does present the problem of reporting bias, however. In Alexander and Bauerschmidt's questionnaire (1987), many of the questions appeared to be highly personal, not necessarily representing the view of the majority of staff on the unit. For example, "I am not likely to express my feelings openly about my job" or "I do not play an active role in making decisions in my work group" (Alexander & Randolph, 1985). By selecting participants from each unit, as was the sampling process used in Alexander and Bauerschmidt's study, it is possible to select staff who may choose not to participate or share feelings about work even though that may not be the general style of the unit. Although that did not seem to be a problem in this study, it represents a potential problem with using questionnaires. The clinical researcher is interested in actual organizational behavior and how it influences interventions and outcomes, therefore, must be aware of biases inherent in a particular method of organizational assessment.

Development of a an organizational questionnaire tested at the unit level

Shortell and colleagues (Shortell, Rousseau, Gillies, Dever, & Simons, 1991) developed an organizational questionnaire tested at the unit level of the organization in 42 intensive care units throughout the country. The goal of this project was to develop a tool that was theoretically based, reliable, valid, relevant to the

unit of analysis, and easy to use. The most important practices and processes in an organization that were theorized to be most related to effective performance, defined as quality and efficiency of care provided to patients, were; organizational culture, leadership, communication, coordination, problem solving-conflict management, and team cohesiveness (Shortell et al., 1991).

Unit culture was identified as the norms, values, beliefs, and expectations shared by people who work on a given unit.

Leadership was defined as the capacity of individuals to influence others toward the accomplishments of organizationally relevant goals. Communication was measured along the dimensions of openness, accuracy, timeliness, understanding, and satisfaction. Coordination within units was defined as the degree to which work activities are coordinated within the nursing and physician groups and between the groups within the unit. Between unit coordination defined coordination between the ICU and other units in the hospital. Problem solving and conflict management were measured on four different approaches; open collaborative problem-solving, arbitration, avoidance, and forcing. Cohesiveness was defined as the degree to which people identify with the work unit (Shortell et al., 1991).

The questions that were developed for the questionnaire were pilot tested, and later revised, and the revised instrument was administered to a national sample of 42 medical/surgical ICUs. Nine sites randomly selected were also observed and selected ICU

staff interviewed by study team members using semi-structured tools to confirm findings obtained from the survey. The questionnaire demonstrated consistently higher reliability than most existing measures and also provided greater evidence of convergent and discriminate validity (Shortell et al., 1991). While representing a useful tool for organizational scientists who subscribe to a cultural view of organization, the theoretical framework is inconsistent with the systems structural view. The tool is based on the theory that leadership, organizational culture, communication, coordination, problem solving-conflict management, and team cohesiveness are the critical element of organizational structure and process at the unit level. This theory is derived from a human relations view of organization that is different than the structural view discussed thus far. For the clinical researcher subscribing to a cultural view of organization, this tool may be useful.

The methods used to collect data in these studies must be examined for their relevance and usefulness to the clinical researcher. The four studies presented all used interviews or questionnaires to assess the organization. Interviews or questionnaires are frequently a primary method for assessing how people feel about various subjects and the assumption is made that behavior will be consistent. Past experiences with human behavior indicate that peoples views are not necessarily good guarantees of

subsequent behavior (Perrow, 1970). Multiple sources of information is optimal to avoid limited data.

Summary

This review has demonstrated that the context of care influences how care is provided and ultimately the outcomes of care. Context is an important variable to consider in clinical research, particularly at the unit level where care is delivered. The methods used to examine context at this level of organization should be theoretically based, useful, and relevant to the clinical researcher. Currently, there are few tools available consistent with a theoretical perspective of organizations that are relevant for the clinical researcher to use in assessing the context of care at the unit level of an organization. Interviews and questionnaires have been used in organizational research to assess the context of care at the unit level and have in some circumstances been followed by observation to validate findings. However, observation alone has not been used to assess the context of clinical care.

Since one of the major goals for the clinical researcher is to understand the influence of organizational context on interventions and ultimately outcomes, it is important that actual behavior, not only perception of behavior be noted. Observation as a method of examining the context of care at the organizational level provides an opportunity to observe actual behavior, rather than perception of behavior. The data obtained using observation may be more

useful to the clinical researcher. Currently, there are no structured guidelines to assist observers in examining the context of care at the unit level of a health care organization. Therefore, it is unknown whether observation using structured guidelines is a valid and reliable method of assessing the organizational context of care at the unit level. This study was designed to address that question.

The theoretical framework chosen to guide the assessment of the patient care units was contingency theory based on a systems structural view of the organization. Selection of this theoretical framework was based on the decision to test the two alternative methods of organizational assessment by using data from the CCNS study which was drawn from a test of contingency theory.

However, contingency theory is not the only organizational theory that might be relevant for guiding the assessment of organizations. A cultural view of organization could as easily have guided the development of the structured guidelines and survey instruments and tested in a completely different sample of patient care units. Contingency theory does have the advantage of probing behind the individual and examining the context in which individuals relate and work together. The structural perspective from which contingency theory is derived is the most dominant organizational theory and focuses on structure and process variables within an organization that are most likely to influence the outcomes of clinical interventions. Since clinical researchers are interested in

the influence of context on patient outcomes, the structural perspective is an acceptable viewpoint to use in examining organizational context.

Clinical researchers need a variety of methods available to assess the organizational context of care. If this study finds that observation using structured guidelines proves to be a valid and reliable method for assessing the context of care at the unit level, it will provide an alternative to the questionnaires and interviews.

Chapter III

Methodology

This chapter presents the research design, sample, research instruments, procedures for data collection, and a discussion of protection of human subjects.

Research design

This study was an exploratory study exploring the organizational context of health care and how that context can be analyzed at the unit level. A secondary analysis of data obtained from the CCNS study, a multi-site study aimed at examining the relationships between the organization of patient care and clinical and organizational outcomes, was conducted to examine the organizational context of care at the unit level. Two different methods of organizational assessment, structured observation and survey, were used to conduct a contextual analysis of the organization at the unit level. Findings from these two methods were used to describe and differentiate the study units on the organizational contextual variables that were measured. Additionally, the findings from the two methods were compared to determine if concurrent validity existed for the observational guidelines.

The complexity of organizations and humans that make up these organizations necessitate combinations of different research methodologies to collect accurate data for understanding organizations. The structured observational guidelines depended upon an outsider's view of the organization. When combined with the survey method, reflecting the insider's view, a more complete picture of the organization emerged.

Methods

The sample for this study was derived from a sub-set of the CCNS study data. The CCNS study sample consisted of 25 critical care units in 14 hospitals within a single geographic area, representing small rural, medium sized rural, urban community, urban tertiary, urban academic medical center and an urban managed care system (Mitchell et al., 1990). The CCNS study measured quality of care, patient and organizational outcomes by surveying and observing unit managers, staff nurses, and physicians regarding organizational structure and process. Additionally, quality of care was observed and charts reviewed for a sample of patients in each unit. Medical records on patients for a 12 month period were also reviewed using the APACHE III severity of illness instrument (Mitchell et al., 1990).

The sample for this project was a convenience sample from the CCNS study including 11 of the 25 units represented. The sample

of 11 units for this project was chosen to represent one critical care unit from each of the hospitals represented in the CCNS study. This would have resulted in a sample of 14, except, the two rural hospitals and one community hospital were not included in this study because of incomplete observational data.

Seven research assistant observers were involved in data collection for the CCNS study; however, only five of those seven observers were used in this study. The other three observers collected data from units not included in this study. Behavior and interaction between critical care nurses, physicians, and patients on each study units were observed using the semi-structured guidelines. Therefore, the participants in the study included those critical care nurses assigned to each of the study units, physicians, other health care providers, patients, and family members who were present at the time of observation.

Variables and instruments

Organizational assessment was accomplished using two different methods and those methods were compared. Van de Ven's patterned systems contingency theory of organizations guided these assessments. A central hypothesis of this theory is that optimal performance of a unit is based on matching the mode or pattern of operation to the uncertainty defined as variability or difficulty of a task (Mitchell, 1990; Mitchell, 1994). At the unit level, optimal performance was determined by the "fit" between the

organizational structures and processes and organizational technology. For the purposes of this project, only the organizational assessment data, specifically the measures of structure and process, not the organizational technology or performance data from the CCNS (Mitchell, 1994) study were used.

Therefore, based on Van de Ven's patterned systems contingency theory, the dimensions of organizational structure and processes that were measured included the structural dimensions: standardization, expertise, and discretion, and the process dimensions: work and information flow, and conflict resolution. Instruments for each study method will be described separately.

Survey method

Following are the variables, their definitions, and the instruments used for measurement in the written survey. See Appendix A for properties for each instrument and examples of questions from the survey.

Dimensions of Organizational Structure

1. Standardization: the degree to which tasks are specified in detail as measured by the indicator work standardization constructed using selected questions from Charns Work and Standardization subscale (Strayer & Charns, 1982; Alt-White, Charns & Strayer, 1983).
2. Potential for expertise: degree of knowledge and skills of personnel as measured by the indicators years of expertise and certification based on responses to questions from the nurse demographic questionnaire

related to nursing experience, critical care experience, and CCRN certification (Mitchell, 1994).

3. Discretion: discretion to act within one's scope of practice and knowledge as measured by the indicators:
 - a) Work autonomy based on questions from Moos Work Environment Scale (Moos & Billings, 1991),
 - b) Total autonomy based on questions from Batey Autonomy Scale (Batey & Lewis, 1982),
 - c) Job influence based on questions from Charns/Allen Job Influence Scale (Allen, Calkin & Peterson, 1988; Strayer & Charns, 1982; Alt-White, Charns & Strayer, 1983),
 - d) RN influence based on a question from Charns Influence subscale (Strayer & Charns, 1982; Alt-White, Charns & Strayer, 1983).

Dimensions of Organizational Process

1. Work and information flow: inter professional collaboration and the use of mechanisms that facilitate the flow of information as measured by the indicators:
 - a) Unit process based on questions from Charns Job Inventory subscale (Strayer & Charns, 1982; Alt-White, Charns & Strayer, 1983).
 - b) Collaboration based on questions from Charns Job Inventory subscale (Strayer & Charns, 1982; Alt-White, Charns & Strayer, 1983).
 - c) Coordination at the unit level based on questions from Moos Work Environment Scale (Moos & Billings, 1991).
2. Conflict resolution: strategies most frequently used for managing conflict as measured by the following indicators all based on questions from Charns Job Inventory subscale (Strayer & Charns, 1982; Alt-White, Charns & Strayer, 1983).
 - a) Direct confrontation
 - b) Use of authority and forcing
 - c) Use of avoidance and smoothing

These data were collected from staff nurses on each critical care unit through a written questionnaire. The questionnaire was distributed to all RN staff members in the 25 units that were part of the CCNS study. Participation was voluntary with 517 nurses completing the questionnaire for an average return rate of 52 percent. Each question represents the individual view of the work unit; however, questions were phrased as group level indicators. For example, the questions on Moos Work Environment Scale ask the respondent to indicate true or false to general statements about the work environment such as: 1) things are pretty disorganized, 2) activities are well planned, 3) this is a highly efficient, work oriented place. Responses were aggregated to the unit level and reliability tested at the unit level.

Observational method

The second method used to assess critical care units employed observers who used structured observational guidelines to collect data. These structured guidelines were also based on Van de Ven's patterned systems contingency theory of organizations and included the same organizational structure variables: standardization, expertise, and discretion, and the same process variables: work and information flow, and conflict resolution as the written survey. Guidelines were used by the observers to assess the clinical environment at the work unit level, including interactions between nurses, patients, physicians, families, and other health care providers. These guidelines were developed by

the investigator of this study with assistance from the CCNS research team.

Developing the guidelines

The CCNS research team were involved in "brainstorming" ideas in the early developmental stage. The ideas originating from this brainstorming session were compiled by the investigator of this study and organized into a set of guidelines using Van de Ven's (1976) framework. These guidelines were used by observers to collect field note data in the critical care units. Guidelines were organized into three general categories (Appendix B) to facilitate data collection:

- A. Coordination/Information Flow
 - 1. Communication
 - 2. Patient care information and communication
 - 3. Conflict management
 - 4. Unit work and information flow
- B. Centralization/Decentralization
 - 1. Direct supervision
 - 2. Staff nurse discretion
- C. Standardization
 - 1. Standardization of work processes
 - 2. Standardization of work outputs
 - 3. Standardization of work skills

The first general category, coordination/information flow is comparable to the same organizational process indicators examined using the survey data: work and information flow and

conflict management. The second two categories, centralization/decentralization and standardization are analogous with the organizational structural variables, standardization, expertise and discretion examined using the survey data.

Listed within each category were specific questions to ask and activities to observe. For example, under the category of communication, the observer was instructed to focus on the content, function and direction of communication. For example, who talks to whom about what? Is most of the communication social? professional? What are the sources of information on the unit? Does the unit have multiple bulletin boards? What do they contain; directives from supervisors, kudos for staff, or professional development information? (see Appendix B for the complete Observational Guidelines.)

Similarly, the observational guidelines in the category of Centralization/Decentralization instruct the observer to focus on discretion and includes items such as: 1) Are there numerous standing orders? 2) Do nurses have authority to initiate and/or omit treatments for patients? 3) Who makes the decision to close admissions to the unit because of inadequate staffing? 4) How are staffing decisions made? 5) Who makes patient assignments?

Each of the nine sub-categories in the structured guidelines includes examples of activities to observe and questions to ask. In

addition to observers collecting data on each unit, data on direct supervision were obtained from a questionnaire sent to the nurse managers. It contained questions regarding demographics of the organization such as; size, payer type, patient mix, and committee structure. Also, specific questions about the unit were asked, such as: 1) Does the unit have a paid medical director position? 2) How often are staff meetings held? 3) Are peer evaluations used for performance appraisal? 4) Is there a dress code?

The original intention in developing these semi-structured guidelines was to assist the trained observers in collecting field note data from the study units. These field note data would be used to supplement the survey data collected on each unit to reveal a "picture" of the organizational unit. It was not the original intention to develop guidelines for use beyond the CCNS study. It did, however, become apparent to this investigator and the study group that the guidelines were quite useful. Additionally, after exploring the literature and speaking to experts in the field of organizational assessment (Van de Ven, personal communication 1992; Gerber, Gordon, Ingersoll & Moritz, Miller, personal communication 1993), this set of structured guidelines appears to provide a unique tool for assessing organizations at the unit level.

Observational guidelines were developed for the CCNS study to provide multiple observers with a common framework to use in observing and transcribing organizational activity, thereby,

increasing the probability that credible findings would be produced (Lincoln & Guba, 1985). Based on a deductive approach, guidelines for collection of data by observers were developed for the purposes of assessing the internal environment of a particular work unit, in this case a critical care unit.

How Data were Collected

Sources of data

The setting in which the guidelines were used for observing activities at the unit level were 11 of the 25 critical care units that were part of the CCNS study. Observations made using the guidelines were in two forms. Some of the observers hand wrote field notes which were later transcribed and others dictated field notes onto tapes which were then transcribed. The guidelines were used to collect field note data on each study unit for two to five months, completing data collection in the 25 units in approximately 12 months.

At two different times during the 12 months of data collection, at approximately three months and eight months, the group of trained observers were asked to describe their experience using the guidelines. Evaluating and testing are keys to controlling bias in observation. Comments from the group were consistently positive as expressed by the following statement, "It's really nice having a format to follow for each unit so that I know what kinds of activities to observe and what kind of questions to ask."

Participant observation

Participant observation for this study was defined as an assigned observer entering a study unit, maintaining a high degree of contact with the work group, but making no attempt to alter the social setting, collecting patient data for the larger study, and simultaneously observing activities and behaviors on the unit. Those being observed were aware of the researcher's presence, and may or may not have been aware that specific observations on their behavior were being observed and later recorded. There was no attempt to hide this fact from staff. However, not all staff attended informational meetings or read the materials that were distributed regarding the study.

Multiple types of data can be derived from participant observation (Spradley, 1980). Participant observation represents not only a source of data, but a basis for understanding what the data mean (Polit & Hungler, 1978). The participant observer strives to secure information within the context, experiences, structures, and symbols that are relevant to those being studied. Observational methods differ in the degree of structure imposed on the researcher when recording and encoding information. Unstructured methods generally involve the collection of extensive amounts of descriptive information which is analyzed in a qualitative fashion (Polit & Hungler, 1978). The semi-structured guidelines for

organizational assessment in this study were used to cue the observer for specific activities to observe and questions to ask.

Field notes were collected by the researchers on each study unit based on the guidelines developed for organizational assessment at the work unit level. Additionally, non-structured field notes in the form of impressions and interpretations of activities were recorded. The success of participant observation is the ability of the observer to develop the skill of making detailed mental notes that can later be committed to paper or recorded on a tape (Bakeman & Gottman, 1986). Observers in this study used both methods to transcribe their observations. At times, they used a tape recorder to dictate their observations immediately after leaving the unit. These data were then transferred to a written format using the computer software Ethnograph (Seidel, Kjolsoth & Seymour, 1988) to organize the data. Other times, the observers chose to hand-write their observations which were also transferred to the Ethnograph format for easier analysis.

Potential sources of error

Two major sources of error can be attributed to participant observation, "control effect" and "biased-viewpoint effect" (Webb, Campbell, Schwartz, Sechrest & Grove, 1981). The "control effect" is when the observation itself becomes a working agent (Webb et al., 1981). As a potentially obtrusive method, observing may influence their performance of those being observed. Attempts to

reduce the potential for subject reactivity was made by minimizing the intrusion in the natural flow of events (Bryman, 1989). With this goal in mind, observers in this study did not participate in patient care activities or otherwise engage in interaction with the staff.

"Biased viewpoint effect" describes the situation when observers selectively expose themselves to the data, selectively perceive it, and over time shift the calibration measures used in observation (Webb et al., 1981). In other words, the human observer will be variable during the course of observations. People who are interested and involved in something tend to make finer distinctions about it, and overestimate favorable qualities regarding the study unit (Webb et al., 1981). Timing of data collection is similar, such that a selective population periodically appears before the observer, while another population is never observed. Attempts to minimize these potential problems were made by observing activities at varying times on the study units, assuring that a portion of the observations were made during each time period where different groups of staff worked.

Characteristics of the observers

Since there were five different observers responsible for using the observational guidelines to assess unit level activities, one would expect their style to be slightly different. Of the five observers, three had a background in organizations, either experience in

management, administration, or educational expertise in administration, and two did not. One was an expert in maternal child nursing, and one a medical/surgical nursing educator. The investigator was one of the observers responsible for data collection on four of the units in the study. All observers were graduate level students of nursing, were involved in development of the guidelines, and were trained in how to use the guidelines.

The observers were part of the study team for the CCNS project and spent several sessions, about one to two hours, learning about the study, the clinical settings where data would be collected, and the process of writing field notes. Training included a discussion of observation as a research methodology, reading a series of papers on field research and ethnography, a practice session viewing a videotape that included excerpts from patient rounds and a nursing conference in an ICU followed by a discussion of the content, and a discussion of the structured guidelines, specifically how to categorize observations made on the units. Training was part of the regular team meeting for the CCNS project and occurred over several meetings. Before the structured guidelines for observation were used for data collection, the observers reviewed and critiqued them. Additionally, the guidelines were sent to an expert panel to review for content validity. This expert panel consisted of the Advisory Committee to the Critical Care Nursing Systems Study.

Procedure for Analysis

There were three steps used to analyze the data in this study. First the observational data from selected units was analyzed using content analysis techniques. Then the analyzed survey data from the CCNS study was reviewed. Finally, the findings for the selected units using the observation method were compared with the findings for those same units obtained using the survey method.

Content analysis of the observational data

Coding the data

Transcribed text from field note data for each unit was read and coded by the investigator according to the procedure described below. The end product for each unit was a folder with transcribed data and codes written in the side columns. After all data from the 11 units in the study were initially coded, the investigator re-examined each entry to validate original assignment of an item to a particular code. The units varied in the amount and quality of data available. Some units had more recorded observations than others.

Validity issues relevant to the use of content analysis

Krippendorff's (1980) typology for validity in content analysis guides this discussion. He recommended addressing validity at several critical points in the analysis. Following are three types of validity concerns addressed by Krippendorff and considered in this study.

First, data-related validity assesses how well a method of analysis represents the information inherent in or associated with the available data. Since the guidelines were semi-structured, and the observations generally followed the format outlined by the guidelines, analysis was consistent with the data available. The guidelines provided the coder with distinctive categories in which to place the data. They were generally mutually exclusive and exhaustive except in the specific examples that are presented in a later section.

Second, correlational validity assesses the degree to which findings obtained by one method correlate with findings obtained by another. One of the explicit purposes of this study was to examine and compare data collected using two different methods, based on the same theoretical framework, therefore these criteria were met.

Third, process-oriented validity assesses the degree to which an analytical procedure models, mimics, or functionally represents relations in the context of data. The procedure just described on how data were coded and analyzed allowed an accurate representation of relations in the data. The procedure outlined suggested coding some types of observations into two different categories. For example, the description of the nurse caring for the patient experiencing chest pain was coded as an example of expertise and an example of a nurse exercising clinical discretion. By allowing a single observation to be placed in two categories for analysis, the analysis procedure used in this study mimics the

reality of the human interactions and relations that were observed in an observational setting.

Coding reliability

A procedure to test reliability for coding unit data was developed prior to coding the data. One of the principal investigators from the CCNS study from which these data were derived was designated to assist in the process. This precaution was necessary to protect the identity of study units and participants. Rules for coding were reviewed with the CCNS colleague. The investigator also reviewed in detail how coding decisions were made for one unit in the study. This process helped develop consistent expectations for coding rules between the investigator and the CCNS colleague. Then data from one unit were selected and were independently coded by the CCNS colleague. Of the 46 possible categories, four were coded differently by the investigator and the CCNS colleague resulting in 87 percent reliability between coders. The four items in question were independently coded as either coordination/information flow or standardization. This represented an acceptable level of coding agreement. Reliability for grouping the coded data was also established and will be presented in a subsequent section.

Analyzing the content

The first phase of this study was to analyze the content of the field notes for each unit individually. Content analysis describes a procedure for analyzing written, verbal, or visual materials in a

systematic and objective fashion, with the goal of quantitatively measuring variables (Polit & Hungler, 1978).

Content analysis as a research method has typically been applied to the analysis of written communications, and linguistic expression. It is a technique that utilizes a number of controls and yields more objective and systematic information than is typically obtained in a casual review or critique of communication content (Krippendorff, 1980). The researcher enhances objectivity by conducting the content analysis on the basis of explicitly formulated rules. The rules serve as guidelines to enable two or more persons analyzing the same materials to obtain the same results. The analysis is rendered systematic by the inclusion or exclusion of materials according to consistently applied selection criteria (Polit & Hungler, 1978, p. 381). One of the goals of content analysis is to quantify qualitative data. Krippendorff's (1980) techniques were used for content analysis of the field note data, work unit level organizational assessment data, collected by multiple observers on multiple units using the guidelines developed for this project.

For each unit, field note data, transferred to the Ethnograph format, were carefully read by the investigator and statements were placed in one of the nine sub-categories of the guidelines:

- Coordination/Information Flow
 - Communication
 - Patient care information and communication
 - Conflict management
 - Unit work and information flow
- Centralization/Decentralization
 - Direct supervision
 - Staff nurse discretion
- Standardization
 - Standardization of work processes
 - Standardization of work outputs
 - Standardization of work skills

Simple coding rules were established to guide this process. The first rule was to code each observation according to how the observer identified it. For example, in one of the study units, the observer recorded the following observation under the category, unit work and information flow:

"The unit secretaries are called certified health unit coordinators. They function very well, they seem to really be involved in what goes on in and knowledgeable about what's going on in the unit."

Another example, under the category, standardization of work processes:

"There are quite a few policies and procedures around. They're easily accessible. All the patients have care plans and their documentation is just superb."

The rule coding each observation according to how the observer identified it was followed unless the observation actually fit into two categories, the observer did not categorize the observation, or the observation was incorrectly placed in a category.

For example, one of the observers categorized the following observation under general communication, function:

"I think ambiguities are managed on a one-to-one basis, it so appears with the nurse manager taking a very important role in everything. She does patient care and she's right at the front line and is also quite friendly with the staff so she takes a very active role in that."

Coding for this observation was changed by the investigator to organization/unit work and information flow - nurse manager. Even though the observer is correct that this observation refers to general communication, it more specifically relates to how the nurse manager communicates and should be specifically coded as such. The structured guidelines indicate that all observations related to the nurse manager should be placed in this category. For example the observational guidelines cued the observer to note how visible/accessible/approachable nurse managers were and their general communication style. (See Appendix B for details)

The following observation was not categorized by the observer:

" I asked her about care planning and she talked about the fact that they were supposed to be using the care plan form and then do focus charting based on nursing diagnosis. She seemed to think that perhaps the care planning had slacked off due to the implementation of a new acuity system."

The investigator coded this observation under standardization of work processes. The structured observational guidelines identify this category and instruct the observer to examine policies and procedures related to patient care and standards of care. Nursing

care plans and clinical pathways are examples of standards of care for individual patients. Another observation that was not placed in a category by the observer was the following:

"Patient observed to be having increased chest pain and the nurse was very concerned the patient might be extending her MI, so she sent the visitors out, did a 12 lead ECG, gave MS, and called the physician. She also set up for an emergency. The patient responded, fell asleep, and the physician came in to see the patient."

This observation was coded by the investigator as an example of expertise, recognizing a potentially difficult situation and using good clinical skills to respond. It was also coded under discretion because it provided an example of how a nurse on that particular unit used clinical discretion to care for a patient.

The most common observations that were coded under more than one category included observations about charge nurses or the nurse manager. These observations generally included information about how the charge nurse organized and managed the unit and their communication style. Frequently, there were additional observations about staffing and patient assignments, and organization of patient transfers due to high census and need for patient care beds. These observations, according to the observational guidelines, can also be coded under the category, discretion, as the observations also address who determines staffing needs, and who has the authority to close beds or transfer patients. (see Appendix B for details).

Categorizing the data

Once content analysis was performed on data, a separate file was created for each of the variables of interest: standardization, expertise, discretion, work and information flow, and conflict. In other words, any observation for a specific unit that was coded expertise was filed under a separate file, identified by unit, on expertise. Once four separate files were completed containing all the observations from the 11 units in the study, the data from each unit were compared to each other and sorted. Conflict management was handled differently and will be discussed in a subsequent section.

The investigator began comparing data from each unit for a particular variable with that from the other 10 units. This "back and forth" comparison resulted in grouping of units into relative categories for each of the four variables. The 11 units sorted as follows: three were low, four were medium, and four were high on the variable of expertise. The end result of this process was that organizational assessment observations made using the structured guidelines were content analyzed and placed into qualitative categories for each variable by the investigator. This process allowed comparisons to be made with the survey data.

Comparing observational findings with survey findings

Once observational data for each of the 11 units was content analyzed with respect to degrees for each dimension and categorized as representing high, medium, and low, results were compared to quantitative data from the same units. These data were obtained from a survey distributed to all nursing staff.

How survey results were grouped

The CCNS survey team transformed the survey data from scale-based scores to continuous Z scores for each of the following dimensions: standardization, expertise, discretion, and work and information flow. Conflict management was analyzed and scored differently and will be addressed in a subsequent section. This investigator identified the Z scores for each of the 11 units for this study. The Z scores for each of the categories were sorted into evaluative categories that matched the categories established for the observational data.

Data from 11 units obtained from the nurse surveys were compared with matched data collected using the observational guidelines. Comparisons were possible because the observational data were content analyzed and quantified as previously described.

Protection of Human Subjects

Data used in this study were originally collected for the CCNS study and issues related to confidentiality and the protection of human subjects were followed according to the plan approved by University of Washington Human Subject # 24-027-C which included approval for secondary analysis of data. This study used secondary data to examine the issues presented. Additional concerns for the study units, their staff, and patients who were involved in the CCNS study were minimal. Data were examined by the investigator and confidentiality regarding the identity of the individual units was maintained. All reporting of data was in summary fashion so that the identity of any respondent is not known.

Chapter IV

Findings

The findings from data analysis are presented in this chapter. Coded data from each of the study units were assigned to one of the identified groupings for each of the four variables: standardization, expertise, discretion, and unit work and information flow. Reliability for grouping data and specific examples are presented. The final section in this chapter presents findings from comparison of observational assessment data and survey data.

Categorizing the data

Files for each variable contained sub-files from each unit with all text coded for that particular variable. These files were developed before the units were divided into different groups for each of the four variables as follows:

Standardization

Standardization was defined as the degree to which tasks are specified in detail. The areas of the observational guidelines which included items on standardization included:

Standardization of Work Processes

1. Policies and procedures related to patient care: How many? Format (detailed or general)? Are they used? Up to date? Specific to the unit?
2. Standards: Do they use a specific textbook, or have they developed their own? Is the QA program based on these

standards? Are standardized patient care plans used?
Are they individualized?

Standardization of Work Outputs

1. Is the formal QA program based on unit standards? Is it practical? Are all staff involved?
2. How are unusual occurrences handled (incident reports)?

Standardization of Work Skills (Knowledge and Expertise)

Orientation

1. Do they have a formal orientation program? Preceptor program? Orientation checklist? Are staff adequately oriented? Skills updated?
2. How is orientation to the unit handled for floats/agency nurses?

Education

1. Are their current references available? Are they used?
2. Do staff attend outside CE programs? In-house offerings?
3. How are new procedures or equipment introduced? Formally or informally?

Each unit file was reviewed and all data coded in one of the above categories was copied to a separate file on standardization. The end product was 11 sub-files on standardization.

During this process, it became clear to the investigator that in addition to observations related directly to standardization as presented above, it would be useful to also include references made to patient care information and communication, since the manner in which patient care is provided, organized, and standardized is an important indicator of overall standardization. Included were the following items:

Patient Care Information and Communication

1. Where is patient care information maintained, at the desk or by the bedside? Is it easily accessible?
2. Forms: Are they accessible to staff?
3. Patient care conferences: Who plans them, attends, conducts them? What is the nature of the communication? Collaborative? to solve problems? Deal with ethical issues? Plan discharges?
4. Shift to shift: How is the report given? Who attends? General communication?
5. Patient care assignments: Who makes them? Is there negotiation? Are the nurses generally satisfied with the assignments?
6. Medical rounds: Who attends? What is nursing's role? Collaborative?

In addition to the above items on standardization, the demographic survey data for each unit was reviewed and items pertaining to standardization were included in each unit's file. These included the following questions:

1. Does your unit have interdisciplinary care rounds?
2. Nursing care rounds?
3. Is peer evaluation used as part of the performance appraisal process?
4. Is this a formal process?
5. Is there a formal dress code for the unit?

Once these files were constructed, grouping began. Data from the units were compared with each other and divided into three groups representing medium, medium/high, and high levels of standardization. This method involved continually re-reading the unit files and constantly comparing the data with each of the other ten units. By constantly comparing the data between the 11 units,

the units could be divided into three distinct grouping based on data on the variable standardization. Table 1 presents the 11 units represented by letters A through K divided into three distinct groups based on medium, medium-high, or high degrees of standardization compared with data from all 11 units.

Table 1
Standardization Groupings for Observational Data

Medium	Medium/High	High
B	A	C
I	G	D
J	H	E
	K	F

The observational data from all of the units on the variable standardization revealed a relatively high degree of standardization of work processes, work outputs, and work skills. Standardization was defined as the degree to which tasks are specified in detail. In this sample of 11 units, there was not one unit that the investigator felt could be described as low on the variable standardization based on the observational data. Therefore, the units were divided into three groups labeled medium, medium/high, and high.

A unit from the group labeled high on the variable standardization was described as having a formal dress code, many references that staff were required to be familiar with, standardized patient care plans, a formal staff orientation program, a procedure for

orientation to new equipment, a required yearly skills update for all staff, many policies and procedures, standard protocols for many groups of patients, guidelines for staffing and patient assignment, and a formal peer review process. In contrast, a unit placed in the medium group on the variable standardization was described as not having any standardized patient care plans, although individualized care plans were required for all patients. Many educational opportunities were available to staff, but no requirement for skills updates. Patient care standards and specific policies and procedures existed for some groups of patients, but relatively few existed and were infrequently used. Data from the medium/high group on the variable standardization could be described as falling between these two groups.

Expertise

Expertise was defined as the degree of knowledge and skills of personnel. The items in the observational guidelines that addressed expertise included:

Standardization of Work Skills

Expertise

1. Are staff recognized for CCRN or other advanced certification?
2. Is there a clinical ladder?
3. Other ways of recognizing expertise? Formal/informal? Are there repercussions? Incentives?

Research

1. Is there an active research program/ For nursing?
2. Does the unit have a journal club?

Each unit file was reviewed, all data coded in one of the above categories, and copied to a separate file on expertise. After creating the 11 sub-files on expertise, the investigator became aware that it would be useful to include additional descriptions that observers noted that exemplified expertise.

For example, when observers were describing clinical situations, they often provided lengthy descriptions of expert nursing practice, such as a nurse recognizing a patient problem and following up on it. The example was given of a patient who became agitated and required attention while receiving a continuous morphine drip. The nurse caring for the patient felt that the patient was not receiving the proper amount of morphine because his behavior was inconsistent with previous behavior. After evaluating other clinical parameters, she called the pharmacy and suggested that the new IV bag that she hung might contain the wrong dosage of morphine. The pharmacy agreed to send a new IV with morphine and examine the one in question. This example represents a high level of clinical expertise and was placed in that unit's sub-file on expertise.

Additionally, some of the observers actually commented directly about the expertise of the nursing staff, such as, "there's a lot of expertise here, the nurses are really good at what they do and feel confident in their skills." There were also comments related to poor nursing care. One observer described a unit where it was

common for nurses to talk very loudly about difficult patients in inappropriate places on the unit. The same process that was used for the variable, standardization, was used to group the data on expertise. Data were compared among units and divided into three groups representing low, medium, and high levels of expertise. This method involved continually re-reading the unit files and constantly comparing individual unit data with that of the other 10 units. Table 2 presents the 11 units (A-K) grouped according to low, medium, and high levels of expertise.

Table 2
Expertise Groupings for Observational Data

Low	Medium	High
B	A	C
G	D	F
I	E	H
	J	K

To illustrate the differences between the three groups, the data about expertise will be summarized from one unit in each of the groupings. One of the units grouped as high on expertise provides recognition for CCRN activity, a separate fund to pay for CCRN certification, and a wide variety of educational resources. Additionally, two descriptions of clinical expertise were presented. The clinical description previously presented where a nurse recognized an inappropriate patient response to a pain medication and followed up on it is an example of clinical expertise. The other example presented in the data described a nurse consulting an expert nurse from another unit in the hospital

requesting clinical assistance to insert a special intravenous line in a patient with a history of peripheral edema resulting from radiation. The nurse was concerned with the patient's response to the intravenous line and negotiated with the physician on what type of line to use, then sought expert help from another nurse for insertion. This was another example of clinical expertise.

In contrast, data from one of the units grouped in the low group revealed a lack of resource materials and reference books on the unit and staff were never observed to use the reference materials that were available. The observer for this unit also described a discussion by a group of physicians on patient care rounds about poor nursing care.

The medium group contained units where there were descriptions of CCRN certification, ACLS certification, and use of clinical references when needed, but these units lacked direct examples of clinical expertise. It was the lack of examples of clinical expertise that separated units in this group from those in the group identified as high in expertise.

Discretion

To act within one's scope of practice and knowledge defined discretion. It contained three major components: 1) decentralized decision making, 2) autonomy defined as the extent to which workers are encouraged to make decisions, and 3) influence on

patient care decisions. The items on the observational guidelines that address this variable included:

Discretion

1. Do nurses play an active role in initiating and providing patient care treatments? Can they order special beds/nutritional support/comfort measures/activity levels? Are orders required for these treatments? Are they obtained before or after the treatments are initiated?
2. Do nurses delay or omit treatments? How do they communicate their decisions to others such as physicians and family members?
3. Who determines staffing needs on a shift by shift basis? charge nurse/nurse manager?
4. Who has the authority to close beds due to staffing? Cancel elective surgeries? Transfer patients?

In addition to these items, the investigator determined that the following items on the observational guidelines under the category, patient care information and communication, were indicators of discretion and useful in grouping the data:

Patient care information and communication

1. Patient care conferences: Who plans them, attends, conducts them? What is the nature of the communication? Collaborative? To solve problems? Deal with ethical issues? Plan discharges?
2. Patient care assignments: Who makes them? Is there negotiation? Are the nurses generally satisfied with the assignments?
3. Emergency communication: Who calls the physician?

Once these files were constructed, grouping began. These data suggest that there was less variability observed in discretion than

for standardization and expertise. Separation of the units into three distinct groups proved difficult and the investigator made the decision to separate the units into two groups instead. Units were divided into two groups representing medium/high and high levels of discretion based on constant comparison with the other 10 units. Table 3 presents this data.

Table 3
Discretion Groupings for Observational Data

Medium/High	High
B	A
D	C
E	F
G	J
H	K
I	

Units placed in the high group on the variable discretion typically were self-governed or practiced shared governance. Staffing decisions were made by the charge nurses not the central nursing office or the nurse manager, and in many of the units, decisions to close beds or cancel elective surgeries were at the discretion of the nurse in charge. Additionally, clinical situations were described where staff nurses practiced with a "fair amount of discretion in terms of initiating care and making changes in a patients plan for care." In these units, nurses met patient needs and later called the physician to inform and obtain orders.

The major difference between the high group and those units placed in the medium/high group on the variable, discretion, was the staffs ability to control staffing and patient bed assignments. For units placed in the medium/high group, these decisions were the responsibility of the central nursing office or the nurse manager, not the charge nurse managing the unit. Additionally, few of these units practiced self-governance or shared governance. It was hard to differentiate discretion in clinical care between the two groups. Data from units in both the medium/high and high groups indicated similar ability to influence patient care.

Work and Information Flow

The variable, work and information flow examined modes of coordination and decision making. It involved examining written and verbal communication, MD-RN communication and unit coordination. The items on the observational guidelines that addressed this included:

General Communication-"who talks to whom, about what?"

1. Content: Is the communication on the unit generally related to patient care, or are other topics discussed? What is the level of intimacy in communication? For example, do staff talk about the weather, sports, movies, or personal issues.
2. Relational: Are relationships maintained? Through collaboration? Problem solving? Conflict management? Social support? Teamwork? How are ambiguities managed/uncertainties reduced?

3. Direction: What is the common or frequently used direction of communication-top down, bottom up, lateral?
4. Sources of information: a) bulletin boards-What kind of information do they contain? eg. educational materials, general notes etc., comics, pictures of unit staff, kudos recognizing staff accomplishments, b) rounds- Observe both nursing and medical rounds. What kind of information is discussed? Who participates?

Patient care information and communication

1. Where is patient care information kept, at the desk or by the bedside? Is it easily accessible?
2. Forms: Accessible to staff?
3. Patient care conferences: Who plans them, attends, conducts them? What is the nature of the communication? Collaborative? To solve problems? Deal with ethical issues? Plan discharges?
4. Shift-to-shift report: How is it given? Who attends? General communication?
5. Patient care assignments: Who makes them? Is there negotiation? Are the nurses generally satisfied with the assignments?
6. Medical rounds: Who attends? What is nursing's role? Collaborative?
7. Nursing staff cooperation: Is it easy to get help from peers?
8. Emergency communication: Who calls the physician?

Organization/Unit work and information flow

1. Nurse manager: How visible/accessible/approachable? What is the general communication style- informal/written memo's/meetings/combination? How often is feedback from staff solicited- informally or in writing?
2. What is the effect of the architectural layout of the unit on work flow? Communication?

Each unit file was reviewed and all data coded in one of the above categories was copied to a separate file on work and information flow. The 11 resulting files contained a tremendous amount of data related to work and information flow. The same constant comparative method was used to place the units into three distinct groups after examining and comparing their data; low, medium, and high. Table 4 summarizes the groupings.

Table 4
Work and Information Flow Groupings for Observational Data

Low	Medium	High
H	B	A
E	D	C
J	G	F
	I	K

The group identified as high on the variable, work and information flow was characterized by units described by observers as exhibiting: "good collaboration with other departments", "positive, cooperative atmosphere with lots of teamwork", "excellent information sharing at shift report", "lots of written communication on bulletin boards", "easy, accessible patient care forms", and "multi-disciplinary, collaborative patient care rounds".

The low group was characterized by units described as "top down communication, not much opportunity for staff input", "nurses are on their own, not a lot of voluntary teamwork", "communication

with other departments is difficult", "unwelcome atmosphere", and "medical teams often don't cooperate and the nurse is the in-between".

The medium group fell in between these two extremes.

Observations on these units included the following statements: 1) "good teamwork, but sometimes confusing as to which medical team has primary responsibility, therefore, communication with the doctors is difficult", 2) "different nursing shifts make report difficult and often confusing", 3) "absent nurse manager, but lots of top-down communication from the central office, and 4) "good teamwork on the day shift, but a hostile night shift". The units placed in this group had mixed data, some indicated cooperation, information sharing, and communication, while other observations indicated the opposite. Once the observational data were analyzed and grouped, these groupings were compared with the survey data results.

Reliability for grouping the coded data

The file on discretion containing all the coded data from the 11 units on this variable was given to the CCNS colleague for independent grouping. After reviewing with the investigator the procedure and guidelines for grouping data, the CCNS colleague independently analyzed the data and grouped the units into medium/high or high based on the discretion data. Table 5 reports the resulting groupings.

Table 5
Interrater Reliability Groupings for the Variable, Discretion

Medium/High	High
B	A
D	C
E	F
G	K
H	
I	
J	

There was 91 percent agreement between the investigator and the CCNS colleague in grouping the discretion data from the 11 study units. The only unit that was not placed in the same group by both reviewers was unit J. The investigator placed unit J in the high group and the CCNS colleague placed it in the medium/high group.

Comparison of observational data with survey data

One of the major goals of this study was to contribute to understanding how analysis of context of health care at the organizational level by comparing different methods and tools used in organizational analysis. This section of the study involved examining the analyzed survey data from a sample of the CCNS study data and comparing the findings with those just presented. The survey findings on each of the four variables of interest, standardization, expertise, discretion, and work and information flow will be presented first. Then these findings will be compared to the findings from the observational data.

Standardization

The survey data measured standardization by the indicator work standardization constructed using selected questions from Charns Work and Standardization subscale (Strayer & Charns, 1982; Alt-White, Charns & Strayer, 1983). All scales used in the survey were converted to a 1-100 scale resulting in Z scores. The Z scores reported for the 11 units analyzed for the variable standardization ranged from 46.45 to 62.50. The units were separated into three groups based on the Z scores. (Table 6)

Table 6
Z Scores and Standardization Groupings for Survey Data

Medium	Medium/High	High
46.45 (J)	50.60 (G)	57.83 (F)
47.50 (H)	50.99 (A)	60.80 (C)
49.40 (I)	54.17 (B)	61.93 (D)
	55.36 (K)	62.50 (E)

When comparing these groupings with the observational data findings, there was 82 percent agreement. Two of the units were grouped differently, units B and H. Table 7 summarizes this comparison.

Table 7
Comparing Standardization Groupings

Z score groupings	Medium	Medium/High	High
	J	G	F
	H	A	C
	I	B	D
		K	E
observational data groupings	Medium	Medium/High	High
	B	A	C
	I	G	D
	J	H	E
		K	F

Discrepancies

The Z score placed unit B in the medium/high group, while the observational data placed it in the medium group. The Z score also placed unit H in the medium group, while the observational data placed it in the medium/high group. It should be once again noted that while the Z scores represent a continuous variable score (1-100), the method used to assign units to different groups from the observational data was not a ranking method. In other words, the findings presented above for the observational data do not mean that in the medium group, unit B was ranked the lowest, followed by unit I and then unit J. The assignments to different groups was accomplished by constantly comparing data between the units, not ranking them.

Assuming that survey data accurately measured standardization, there are three possible interpretations for these two discrepancies:

- A. The investigator incorrectly placed the units in their respective groups based on the observational data.
- B. Data collected by the observers were insufficient or inaccurate.
- C. The "insider's view" or staff nurse view of standardization for their unit yielded different results.

The investigator assigned unit B to the medium group on standardization based on constant comparison of data from that unit with data from the other 10 units in the study. Data collected by the single observer for unit B noted that standards of care did not seem to be used, standard patient care plans existed but were outdated and not used, and there were no specific patient care rounds in which the nurses participate. It was also noted that there were very few up-to-date references available for the nursing staff and they did not seem to be used and there was no specific nursing research or journal club for the unit. These were some of the data, when compared with other units data on standardization, that led the investigator to assign unit B to the medium group on this variable.

Similarly, unit H was assigned to the medium/high group based on the data collected by the observer and compared with the other

units data. Some of the data that led to this assignment included the following observations: a formal dress code for the unit, lots of policies and procedures, orientation program for float and agency nurses, and skills testing for all staff.

It is possible that the three observers for these units did not collect sufficient or accurate data on standardization. It is also quite possible that an "insider's view" more accurately measures the variable standardization. It should be noted however, that assignment only varied by a single group for both of these units. In other words, the units were *not* assigned using the observational data to the medium group, while being assigned using the Z scores to the high group.

Expertise

The survey data measured the potential for expertise as measured by the indicators years of experience and certification based on responses to questions from the nurse demographic questionnaire related to nursing experience, critical care experience, and CCRN certification (Mitchell, 1994). The Z scores ranged from 42.18 to 77.27. Units were separated into three groups based on the the Z scores. (Table 8)

Table 8
Z Scores and Expertise Groupings for Survey Data

Low	Medium	High
41.18 (J)	57.14 (A)	75.00 (H)
52.38 (K)	58.33 (D)	75.86 (F)
54.84 (I)	60.17 (B)	77.27 (C)
	66.07 (E)	77.27 (K)

When comparing these groupings with the observational data findings, there was 82 percent agreement. Two of the units were grouped differently, units B and J. Table 9 summarizes this comparison.

Table 9
Comparing Expertise Groupings

Z score groupings	Low	Medium	High
	J	A	H
	K	D	F
	I	B	C
		E	K
observational groupings	Low	Medium	High
	B	A	C
	G	D	F
	I	E	H
		J	K

Discrepancies

There were two discrepancies in assigning the units to groups, units B and J. The investigator assigned unit B to the low group,

while the Z scores resulting from the survey data assigned unit B to the medium group on expertise. Unit J was assigned to the medium group by the investigator and to the low group from the survey Z scores.

The following data provide support for why the investigator assigned unit B to the medium group on expertise: lack of resource materials and reference books which are seldom used, an example of a discussion between physicians about poor nursing care, no data on whether staff are certified or recognized for certification, and no specific discussion of or example of nursing expertise. The most likely reason for the discrepancy in assigning unit B to different groups is that there was not much data coded under this category.

When examining the observational data coded under expertise for unit J, the following observations assisted the investigator in assigning the unit to the medium group: very senior staff, recognized and rewarded for CCRN activity, most staff are CCRN certified, there is a clinical ladder program for staff, and a specific example of expert nursing care. One of the most plausible explanations for why the survey data ranked unit J in the low group based on Z scores was that maybe the senior staff who are predominantly CCRN certified did not participate in the survey. Since the survey measured years of experience and CCRN activity as the only indicators of expertise, this is likely. When compared

with the other units, the staff on this unit had fewer years experience and less participation in CCRN activity.

There are several difficulties with comparing the variable expertise. The survey measured expertise by examining years of experience and CCRN certification only, while the observational data included examples of expert practice and observational judgments about the expertise of the staff. These additional data provide a more complete assessment of nursing staff expertise. Observers also provide an "outside" analysis of nursing expertise and this may be useful and quite different than if you were to ask nurses on a survey to describe or even rank the expertise of their staff.

Discretion

Survey data measured discretion by the indicators: work autonomy based on questions from Moos Work Environment Scale (Moos & Billings, 1991), total autonomy based on questions from Batey Autonomy Scale (Batey & Lewis, 1982a; 1982b), job influence based on questions from Charns/Allen Job Influence Scale (Allen, Calkin & Peterson, 1988; Strayer & Charns, 1982; Alt-White, Charns & Strayer, 1983), and RN influence based on a question from Charns Influence subscale (Strayer & Charns, 1982; Alt-White, Charns & Strayer, 1983). The resulting Z scores ranged from 59.87 to 80.61. Units were divided into two groups based on the Z scores. (Table 10)

Table 10
Z Scores and Discretion Groupings for Survey Data

Medium/High	High
59.87 (H)	70.40 (J)
60.48 (G)	70.46 (A)
67.83 (I)	72.76 (K)
67.84 (E)	77.34 (D)
68.43 (B)	78.72 (C)
	80.61 (F)

When comparing these groupings with the observational data findings, there was 91 percent agreement. Only one of the units was grouped differently, unit D. Table 11 summarizes this comparison.

Table 11
Comparing Discretion Groupings

Z score groupings	Medium/High	High
	H E	J D
	G B	A C
	I	K F
observational data groupings	Medium/High	High
	B G	A J
	D H	C K
	E I	F

Discrepancies

There was one discrepancy in assigning the units to groups, unit D. The investigator assigned unit D to the medium/high group, while

the Z scores resulting from the survey data assigned unit D to the high group. Lack of discretion on controlling staffing and patient bed assignments led the investigator to assign unit D to the medium/high group versus the high group on discretion. The most likely reason for the discrepancy between the observational data and the survey data in assigning unit D to a group was that the staff view themselves as having more discretion than the observational data suggest.

Work and Information Flow

The survey data measured work and information flow by the indicators: unit process based on questions from Charns Job Inventory subscale (Strayer & Charns, 1982; Alt-White, Charns & Strayer, 1983), collaboration based on questions from Charns Job Inventory subscale (Strayer & Charns, 1982; Alt-White, Charns & Strayer, 1983), and coordination at the unit level based on questions from Moos Work Environment Scale (Moos & Billings, 1991). The Z scores ranged from 54.45 to 82.74. Units were separated into three groups based on the Z scores (Table 12).

Table 12
Z Scores and Work and Information Flow Groupings for Survey Data

Low	Medium	High
54.45 (H)	69.29 (A)	77.36 (G)
63.34 (J)	71.09 (D)	77.81 (K)
64.75 (E)	71.49 (I)	78.76 (C)
	74.08 (B)	82.74 (F)

When comparing these groupings with the observational data findings, there was 82 percent agreement. Two of the units were grouped differently, units A and G. Table 13 summarizes this comparison.

Table 13
Comparing Work and Information Flow Groupings

Z score groupings	Low	Medium	High
	H	A	G
	J	D	K
	E	I	C
		B	F
observational data groupings	Low	Medium	High
	E	B	A
	H	D	C
	J	G	F
		I	K

Discrepancies

There were two discrepancies in assigning the units to groups; units A and G. The investigator assigned unit A to the high group, while the Z scores resulting from the survey data assigned unit A to the medium group on work and information flow. Unit G was assigned to the medium group by the investigator, but to the high group from the survey Z scores.

The following data provided support for why the investigator assigned unit A to the high group on work and information flow:

many examples of teamwork for example comments such as easy to get help from peers, staff meetings are used for information sharing and problem solving, accessible user friendly documents, highly visible and approachable nurse manager, excellent collaboration with physicians, and architectural layout fosters good communication. Only positive observations were coded for the variable work and information flow for unit A, therefore, when compared with the other units in the study, this unit was assigned to the high group. One of the possible explanations for the discrepancy in group assignment was that this unit experienced some turmoil during the data collection time. Observational data was collected before and also for a few weeks after the survey was distributed. About the time the survey was distributed, two hospitals, each having a unit in this study, merged. Perhaps the nurses in unit A did not feel that they were receiving enough information about the merger and how it would affect their unit at the time they participated in the survey. This would be reflected in their view of the unit, thus, in the survey data.

Unit G was assigned to the medium group on the variable, work and information flow because of several observations: a paucity of written communication was observable and very complicated staffing forms. These negative comments when compared with the coded data on work and information flow from the other units resulted in Unit G being assigned to the medium versus the high group.

Summary: comparing observational and survey data

When comparing the observational data groupings with the survey data groupings, there was an overall agreement rate of 93 percent. Out of 104 possible grouping assignments, there were seven discrepancies between the two different data groups and 97 agreements. Out of the 11 units and the four variables: five units expressed 100 percent agreement, five units expressed 75 percent agreement, and one unit (unit B) had agreement for 50 percent of the groupings. Table 14 summarizes these data.

Table 14
Match Between Survey and Observational Data Groupings

Unit	Standard	Expertise	Discretion	Work/Info Flow	percentage agreement in all categories
A	X	O	X	X	75
B	X	X	O	O	50
C	X	X	X	X	100
D	O	X	X	X	75
E	X	X	X	X	100
F	X	X	X	X	100
G	X	O	X	X	75
H	X	X	X	O	75
I	X	X	X	X	100
J	X	X	O	X	75
K	X	X	X	X	100
percentage agreement	91%	82%	82%	82%	
*X = agreement **O = no agreement					

Conflict

Conflict was the other variable that was measured as an indicator of organizational processes. Items in the observational assessment guidelines that addressed this variable included:

Conflict Management

What is the general nature of the conflict? Who gets involved? How is it resolved? Is there harassment?

1. Nurse-nurse
2. Nurse-physician
3. Unit staff (nurses and others) and other departments

Observations about specific incidence of conflict were recorded for each unit. Coding data was not difficult since the observers were specific in referring to conflict in their descriptions. However, there was difficulty in comparing and grouping units based on this variable. Data provided by the observers simply described specific conflicts, the parties involved, and how conflict was resolved. Several examples follow:

"In terms of conflict management, the only conflict that I actually saw was between two nurses when they were sort of arguing over the management of a patient. The patient care provider at the time had an idea on what she was going to do with this particular patient and another nurse who was taking care of her before, disagreed and they argued about it and then settled the issue fairly quickly. So, for those two particular people, they were able to get through a conflict through negotiation."

"Nurse-physician conflict seems to be handled directly at the source of the problem. One observation involved an MD who was really upset because his patient did not get an a.m. chest x-ray. He first approached the patient's nurse wanting to know why it wasn't done on night shift. She said it should have been done on night shift. She called the charge nurse

and got her involved in the conversation with the MD. The charge nurse reiterated that the x-ray should have been done on nights and she would send a memo to the clinical nurse specialist. She then proceeded to type this information into the computer."

"One particular example of a discussion within the bioethics conference about a patient (details omitted to protect the patient's identity). It was a real conflict when the bioethics conference began, this particular patient as the center of discussion. But, interestingly enough, the primary nurse presented the case to the physician the rest of the group as if this was *your* mother and she did just a wonderful job. By the end of the discussion, the physician could really see her point. It was interesting to observe the style she used to help convince this physician that he needed to think of some other ways of approaching this problem. So if you consider this an example of conflict, then it was resolved through collaboration."

In several units, there were no observations of conflict or how conflict was resolved. The major problem in analyzing, comparing, and grouping conflict as a variable was that it is not a continuous variable. In other words, conflict can not be grouped into low, medium, and high levels as the other variables were. How conflict was handled could be categorized, but this requires a framework on conflict resolution.

The survey data measured conflict using the conflict resolution scale from Charns Job Inventory subscale (Strayer & Charns, 1982; Alt-White, Charns & Strayer, 1983). Survey respondents were asked to indicate how conflict was handled between three different groups: differences among nursing staff,

differences between nurses and doctors, and differences between staff on the unit and hospital support departments. The following indicators resulted from the survey responses and were used to measure conflict: direct confrontation, use of authority and forcing, and use of avoidance and smoothing.

Since the observational assessment guidelines did not ask observers to describe conflict using this same framework, it was difficult to compare findings between the two methods. The investigator could have chosen to interpret observations related to conflict and assign them to one of the categories measured in the survey. For example, the investigator could have chosen to interpret the description previously presented of the bioethics conference and how conflict was handled as being analogous to the constructive confronting style defined in the survey instrument. However, the observer defined this style as collaboration not confrontation. It was not the original intent for observers to force their descriptions of conflict into one of the categories measured in the survey since this conflict framework was not used, therefore, it would be inappropriate for the investigator to do so in the analysis.

The observational data on conflict were used descriptively to provide a richer view of the different units, however comparison between observational and survey data on this variable was not possible. In order to validate the observational guidelines in

respect to conflict, the variable would have to be defined and described using the same framework as the survey instrument.

Summary

In this sample, structured observation has a high overall agreement with a survey method for organizational analysis at the unit level. Comparing two different methods of organizational analysis, observation and survey, based on the same theoretical framework of organizations resulted in 93 percent agreement between methods.

Observation, using structured guidelines to guide data collection, yields data that can be systematically analyzed through content analysis and categorized, thus allowing data between different study units to be compared. Interrater reliability for initial coding was 87 percent and for grouping the coded data was 91 percent.

Chapter V

Summary and Discussion

The purpose of this research was to increase understanding of organizational perspectives and improve methods for contextual analysis in the study of clinical interventions and outcomes. The central concern of the study was to improve the ability to assess organizational context with the hope that a better tool for assessment might improve the ability to correlate context with patient outcome. Multiple studies suggest a relationship between organizational context and patient outcomes (Hegyvary & Chamings, 1975; Brooten et al., 1986; Ethridge & Lamb, 1989; Knaus et al., 1986; Mitchell et al., 1989). These studies support the importance for the clinical researcher to examine the context of care and its influence on patient care interventions and outcomes. Inclusion of contextual analysis will move clinical research beyond the factor isolating and factor relating levels of theory development to development of predictive and prescriptive theories (Hegyvary, 1993). A goal of this study was to provide the clinical researcher, who is not primarily interested in the study of organizations, with theoretically based, valid, and reliable methods to assess the context of clinical care.

Contingency theory, a systems structural theory from the related field of organizational science, was used to guide the development and testing of two different methods of organizational assessment

at the unit level. The theoretical perspective colors the lenses from which the organization is viewed. This influences the questions asked and focus of the assessment. It was not the purpose of this study to develop an organizational theory, or test contingency theory; rather, the purpose was to use an accepted organizational theory to develop and test different methods of assessment at the unit level. Validating different methods of organizational assessment provides the clinical researcher with theory based methods to use in better understanding the context of clinical care and how it influences interventions and outcomes. Contingency theory was used principally because it was the theory that was tested in the CCNS study from which the data were derived.

In this sample, structured observation had high overall agreement with standardized survey method for organizational analysis. This study compared two different methods of organizational analysis, observation and survey, based on the same theoretical framework of organizations, contingency theory, and found 93 percent agreement. Observation, using structured guidelines to guide data collection, offers an alternative or supplement to the traditional survey method. Observation offers an "outsider's" view of the organization and allows patient care activities to be assessed at the unit, versus individual, level. It has been suggested that greater emphasis must be placed on direct observation when assessing organizations (Shortell et al., 1991; Van de Ven, 1992;

Zimmerman et al., 1993) This research suggested that the structured observational guidelines tested were easy to use, easy to analyze and reliable.

Several questions were raised when examining data from this study. One important question was, "What can be learned about a unit from the observational data that isn't evident in the survey data?" The observational data provided a rich source of examples for all variables of interest. For example, specific descriptions of clinical expertise, clinical situations demonstrating collaboration, teamwork, handling conflict, and discretionary behavior were described. These descriptions provide additional insight into organizational units.

Another question the data suggest was, "Is there a difference in findings when data are collected by surveying the individual versus observation at the group level by an outsider?" The 93 percent agreement between the two groups of data suggest that there was congruence. However, there are likely some situations where one level of examination may be more accurate than another. For example, it may be more useful to use a group level to assess nursing care in hospitals, since most nursing care is delivered under a group practice model in the hospital setting. Thus, for the organizational researcher, it is probably useful to gather data on the organization from both sources.

Another question arising from the data was whether trained observers, using a structured observation guideline can substitute for a traditional survey method to assess an organization at the unit level. While the findings from this study do not conclusively answer this question, they do suggest that both methods produce similar findings. For the organizational researcher, adding observation to the assessment of an organization strengthens the findings. Rich descriptions result when combining both methods. Additionally, confirmation of survey results is possible. For the clinical researcher, who is not primarily interested in the organizational setting, these findings suggest that substituting the survey method with trained observers using guidelines is possible.

Limitations and Contributions of this Research

While results from this study suggesting concurrent validity between two different methods of organizational analysis has intuitive appeal, these results should not be generalized to other situations beyond this study. Confidence in reliability of the results would be strengthened by further research, using larger samples of organizations and nursing units.

The perspective used to assess the organizational context of care also limits the generalizability of the findings. Contingency theory, a systems structural theory, provided the framework for organizational analysis at the unit level in this study. The

question remains whether concurrent validity would hold between observation and survey if a different organizational perspective was used to guide the analysis. For example, if a similar study was conducted using a cultural view of organizations to guide assessment, could one still expect congruence between the two methods of assessment, observation and survey? This study suggests congruence between methods, regardless of the perspective or organizational theory used to guide the assessment, but further study testing this assumption is needed.

An additional limitation of the study was the observational guidelines. There were some problems with these guidelines in how they were used by multiple observers to collect data for this study. The observers were not consistent in providing specific examples in all areas suggested by the guidelines. Furthermore, some of the observers provided clear, lengthy descriptions to illustrate variables, while others did not. For example, there were several excellent clinical situations described that illustrated expert nursing practice, however, not all unit data contained these descriptive illustrations. It was interesting to note that the most complete observational data in this study were provided by the observer with no background or knowledge base in the study of organizations. This suggested that the structured guidelines and corresponding training program provided the naive yet intelligent observer with enough structure and guidance to observe and document organizational activity.

An additional concern with the guidelines was that some variables, for example, discretion and expertise, lacked the specificity required for accurate assessment. Specific recommendations for changes will be presented in the next section. The variable conflict presented the most difficulty in analysis. Observational guidelines instructed observers to describe the general nature of specific conflict situations and how they were resolved while the survey instrument asked respondent to rate how often different groups of people used specific conflict management methods. Comparison between the two groups of data was impossible. Measurement of this variable needs further development.

Contributions to research and practice

The observational guidelines allow trained observers to provide a consistent description of an organization at the unit level in multiple settings thus allowing the clinical researcher to compare settings. In many clinical research projects, observers are already present on the study units collecting data. In these situations, it may be more cost effective and expedient to train the on-site observers to collect organizational assessment data rather than use a survey method.

An additional strength of this research was using survey and observation simultaneously, providing methodological triangulation in examining organizations at the unit level. Triangulation as a

research strategy was used in this study to examine whether observational data enhance or could substitute for a complex organizational analysis conducted using a survey method. Observation as a method provided another viewpoint in analysis of the organization. The purpose of using multiple methods in a single study is to overcome the deficiencies and biases inherent in any single method, and then more accurately depict the phenomenon being investigated (Denzin, 1978; Jick, 1979). For the organizational researcher, the ability to use methodological triangulation in organizational studies strengthens their findings.

The complexity of organizations and humans that make up these organizations suggest that organizational research should use a combination of different research methodologies to collect accurate data for understanding organizations. The structured observational guidelines depend upon an outsider's view of the organization. When combined with a survey method, reflecting the insider's view, a more complete picture of the organization emerges. Triangulation is achieved by combining the methods. In this study, the instruments used for each method of data collection were developed using the same theoretical perspective, but data were collected using different investigators, and different data sources.

The structured observational guidelines from this study were the first reported to be based on a systems structural view of

organizations. Valid theory based observational guidelines used in conjunction with a theory based survey allow not only methodological triangulation, but the possibility of theoretical triangulation as well. For example, it is possible to assess an organization using the organizational guidelines from this study based on a systems structural view in conjunction with a survey instrument based on a different view of organizations, such as Shortell's ICU questionnaire (1991). To date, few organizational studies have employed both theoretical and methodological triangulation in the same study. Mitchell's (1991) study was one exception. She used both theoretical and methodological triangulation to examine change in an organization and found that multiple perspectives were useful in understanding the impact of change over time. The advantage of combining several types of triangulation in a single study is that a more comprehensive and accurate picture of the phenomenon under study is obtained (Denzin, 1978). Using multiple triangulation as a research strategy in the study of complex organizations, will increase understanding.

Directions for further research

To increase generalizability of the findings, similar studies need to be conducted in different settings. For example, repeating this study in a different set of critical care units would be useful. This study could also be replicated in acute care units versus critical care units within hospitals. Designing a similar study based on a

different organizational perspective would strengthen the finding that congruence holds between observation and survey methods.

The observational guidelines should also be revised to clarify and assist the observer in collecting organizational assessment data at the unit level. Specific revisions include the following. Under the category, patient care information and communication, a direct question about RN-MD collaboration would be useful. The variable discretion could be clarified by instructing observers to record clinical examples of nurses practicing discretionary behavior. Data addressing standardization of work skills, particularly relating to the variable expertise could be improved by instructing observers to record specific examples of expert nursing practice, and also ask observers to provide their opinion based on some analysis of the expertise of the nursing staff.

The most problematic variable in this study was conflict management. Data collected on conflict and how it was resolved provided descriptive data only. In order to compare data on conflict between different units, using different methods, it is necessary to use a consistent framework. A separate research project that defines and describes conflict in a way that allows measurement through observation and also through a survey method is necessary. The resulting tool would then need to be tested and validated.

If the observational guidelines tested in this study are to be used successfully in other settings, consistency in data collection between observers must be improved. It would be useful to develop guidelines for observer training. Observer training increases the reliability and validity of the data obtained. These guidelines should include instruction in observation as a method, collection of field note data and the transcription process, organizational assessment, the theoretical basis for the observational guidelines, and the importance of providing clear, descriptive observations in all categories on the observational guidelines.

With the modifications suggested and guidelines for training observers, the observational guidelines could be used to assess the context of care at the work unit level in units engaged in clinical research projects. However, contingency theory, the underlying theory used to develop the observational guidelines, should be examined for consistency with the clinical research that is being conducted. The resulting organizational data could then be used to describe and compare the different clinical sites. Context, particularly the structures and processes at the unit level of an organization, are important to consider as they influence the interventions provided to patients and ultimately outcomes.

Summary

This study compared two different methods of organizational analysis at the work unit level, observation and survey, and found that they produce similar results. By beginning to identify and test alternative methods of analyzing organizations, the context of health care can be better understood. Training observers to use structured guidelines provides a useful alternative to the traditional survey method. Although observation as a method can be expensive, it may be cost effective in clinical trials or intervention research to train an observer or group of observers to assess context of care at the unit level of the organization and make comparisons between sites. Since clinical research often involves on-site researchers, training these researchers to use the guidelines would not be cost prohibitive. Actual clinical behaviors can be observed and valid comparisons made between research sites.

For the clinical researcher, observation alone may be adequate to provide data on the context of care at the unit level of the organization. The organizational researcher may find the structured observational guidelines useful in providing a validity check for other self-report methods used in organizational analyses and for triangulating methods and theories in organizational research. Having a variety of methods available to the researcher allows methodological and theoretical triangulation to be used in organizational research, thus providing a more

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comprehensive and accurate picture of the context for clinical actions and outcomes.

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Appendix A

Summary of Instrument Properties used in the Survey

Dimension	Instrument/Scale (source)	Reliability
1. Standardization	Charns Coordination Subscale (Strayer & Charns, 1982; Alt-White, Charns & Strayer, 1983)	.82
	**sample question- To what extent do hospital policies and procedures help you do your job? to a very limited extent (1)...to a great extent (5)	
2. Potential for Expertise Demographic questionnaire	NA (Mitchell, 1994)	
	**sample question- Are you CCRN certified? yes.....no	
3. Discretion		
	A. Moos Work Environment Scale (Moos & Billing, 1991)	.67
	**sample question- In your work environment, employees are encouraged to make their own decisions? true.....false	
	B. Batey Autonomy Scale (Batey & Lewis, 1982a; 1982b)	.84
	**sample question- On my critical care unit, nurses feel free to question a doctor about an order if they think the order will not benefit the patient? strongly disagree (1).....strongly agree (7)	
	C. Charns/Allen Job Influence (Allen, Calkin & Peterson, 1988; Strayer & Charns, 1982; Alt-White, Charns & Strayer, 1983)	.86
	**sample question- How much influence do you have impacting multidisciplinary patient care decisions? no say at all (1).....a great deal of say (7)	
	D. Charns Influence Subscale NA	
	**sample question-How much influence do staff nurses have on making decisions that affect patient care on your unit? no say at all (1).....a great deal of say (7)	
4. Work & Information Flow		
	A. Charns Job Inventory Subscale	.86
	**sample question- Meetings I attend on the unit are a waste of time. strongly disagree (1).....strongly agree (7)	
	B. Charns Job Inventory Subscale	.81
	**sample question- On my unit, nurses and doctors collaborate in patient care decisions? strongly disagree (1).....strongly agree(7)	
	C. Moos Work Environment Scale	.93
	**sample question- On my critical care unit, there is a lot of time wasted because of inefficiencies. true..... false	

Critical Care Nursing Study Project

Observational Guidelines

Purpose:

Identification of broad observational categories to be used when recording field notes.

Categories of Observation:

1. Coordination/Information Flow
 - a. Communication
 - b. Patient care information and communication
 - c. Conflict management
 - d. Unit work and information flow
2. Centralization/Decentralization
 - a. Direct supervision
 - b. Staff nurse discretion
3. Standardization
 - a. Standardization of work process
 - b. Standardization of work outputs
 - c. Standardization of work skills

Directions: Write field notes based on your observation in a narrative format using the above 3 categories and 8 subcategories as broad headings. The following questions are merely suggestions for observational field notes. They will not apply to every setting. Not all of your observations will fit into one of these categories. Write them under the heading of "other". Remember, these categories are meant to be useful in transcribing and analyzing field notes, but are not meant to be exclusionary.

Coordination/Information Flow

Communication

General-"Who talks to whom about what?"

1. Content

Is the communication on the unit generally related to patient care, or are there other things discussed? What is the level of intimacy in the communication? eg. talking about the weather, sports, movies vs. personal issues

2. **Function**
Command-directions, instructions, publication
Relational-are relationships maintained? through collaboration? problem solving? conflict management? and social support? teamwork? How are ambiguities managed/uncertainties reduced?
3. **Direction**
What is the most common or frequently used direction of communication-top down, bottom up, lateral?
4. **Sources of information**
 - a. Bulletin boards-what kind of information do they contain? eg. educational materials, general notes etc., comics, pictures of unit staff, kudo's recognizing staff accomplishments.
 - b. Rounds-observe both nursing and medical rounds. What kind of information is discussed? Who participates?

Patient care information and communication

1. Where is the patient care information kept (at the desk, by the bedside)? Is it easily accessible?
2. Forms- accessible to staff?
Patient care conferences- who plans them, attends, conducts them? What is the nature of the communication? collaborative? to solve problems? deal with ethical issues? plan discharges?
4. Shift to shift- how is report given? who attends? general communication?
5. Patient care assignments- who makes them? is there negotiation? are the nurses generally satisfied with the assignments?
6. Medication rounds- who attends? what is nursing's role? collaborative?
7. Nursing staff cooperation- Is it easy to get help from peers?
8. Emergency communication- who call the physician?

Conflict management

What is the general nature of the conflict? Who gets involved?
How is it resolved? Is there harassment?

1. Nurse-nurse

2. Nurse-physician
3. Unit staff (nurses and others)- other departments

Organization/Unit work and information flow

1. Nurse Manager- how visible/accessible/approachable? What is his/her general communication style- informal/written memos/meetings/combination? How often is feedback from staff solicited- informally/in writing?
*may also record observations about this behavior as it pertains to charge nurses, assistant nurse managers, or whomever functions in the first line supervisor role on the unit.
2. Provide a rough drawing of the architectural layout of the unit. What effect does it have on work flow? communication?

Centralization/Decentralization

Direct Supervision

*most of the information will be obtained from nurse managers regarding scheduling, performance appraisal process, hiring etc..

Discretion

1. Do nurses play an active role in initiating and providing patient care treatments? eg. special beds/nutritional support/comfort measures/activity levels? Are orders required for these treatments/ Are they obtained before or after the treatments are initiated?
2. Do nurses delay or omit treatments? How do they communicate their decisions to others (physicians, family members)?
3. Who determines staffing needs on a shift by shift basis? charge nurse/nurse manager?
4. Who has the authority to close beds due to staffing? cancel elective surgeries? transfer patients?

Standardization

Standardization of Work Process

1. Policies and Procedures related to patient care- how

many? format (detailed or general)? are they used? up to date? specific to the unit?

2. Standards- do they use a specific textbook or have they developed their own? Is the QA program based on these standards? Are standardized patient care plans used? Are they individualized?

Standardization of Work Outputs

1. Is the formal QA program based on unit standards? Is it practical? Are all staff involved?
2. How are unusual occurrences handled (incident reports)?

Standardization of Work Skills (Knowledge and Expertise) Orientation

1. Do they have a formal orientation program? preceptor program? orientation checklist? Are staff adequately oriented? Skills updated?
2. How is orientation to the unit handled for floats/agency nurses?

Education

1. Are there current references available? Are they used?
2. Do staff attend outside CE programs? in-house offerings?
3. How are new procedures or equipment introduced? formally or informally?

Research

1. Is there an active research program? for nursing?
2. Does the unit have a journal club?

Expertise

1. Are staff recognized for CCRN or other advanced practitioner certifications?
2. Is there a clinical ladder?
3. Other ways of recognizing expertise? formal/informal? Are there repercussions? Incentives?

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HEALTH CARE MANAGEMENT CONSULTANT, Private Practice

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SAINT CABRINI HOSPITAL, Seattle, Washington
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1982-1984

CCRN Certification

1980

US Public Health Service Scholarship

1977

Josephine Brown Award for Excellence in Public Health Nursing

1976

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