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**The Impact of Hospital Rationalization and the Interrelationships
among Organizational Culture and Nursing Care Processes on
Health Related Patient Outcomes**

By

Fadi El-Jardali

Thesis Submitted to the School of Graduate Studies and Research of
Carleton University in Partial Fulfillment of the Requirements for the
Doctoral Degree in Public Policy in the School of Public Policy and
Administration

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***The Impact of Hospital Rationalization and Interrelationships
Among Organizational Culture and Nursing Care Processes on
Health Related Patient Outcomes***

submitted by

Fadi El-Jardali (Student Number: 255652)

in partial fulfillment of the requirements
for the doctoral degree in Public Policy

Director
School of Public Policy and Administration

Thesis Supervisor

External Examiner

Carleton University

October 9, 2003

Date

ABSTRACT

Over the past 10 years, Ontario has enacted policy directions aimed specifically at controlling spending, reducing costs and improving efficiency in the hospital sector. As a result, Hospital rationalization has been a strategic response from hospital management to changing policy and budgetary pressures. Research indicated that the overall quality of health care has declined over the past few years and pointed to increasing concerns that hospital rationalization might have created an environment that increases the potential for clinical errors and patient injuries. Research suggests that the root causes of these errors and injuries are deeply embedded in hospital rationalization policies, organizational culture, care processes and practices in health care organizations. These concepts have been studied in the literature, as they exist independent of one another, each with potential relevance for quality of care and patient safety. The present thesis explores the “combined” impact of these concepts on nursing sensitive patient outcomes. The purpose is to develop an integrative conceptual model that provides a framework for understanding how hospital rationalization, organizational culture, and nursing care processes are linked and how this linkage impacts nursing sensitive patient outcomes. The purpose is achieved by (1) undertaking an inductive case study in a teaching hospital in Ontario and (2) conducting secondary data analysis of Ontario Registered Nurse Survey of Hospital Characteristics. The theoretical framework of the present thesis is based on both Donabedian’s framework of structure, process and outcome and Reason’s modeling of the cause of organizational accidents.

Qualitative and quantitative analyses uncovered four noteworthy findings: (1) Structural and cultural features in hospitals that were affected by rationalization and change in policy direction (i.e. staffing shortages, inadequate support services, poor work environment, non supportive administration, and poor teamwork) decrease the likelihood of good care process (more tasks undone) and this poor care process decreases the likelihood of good patient outcomes (more adverse events); (2) Nurses' perceptions about inadequate staffing was found to be a strong predictor of nurses' tasks undone which, in turn, predicts the occurrence of adverse events in all types and forms of acute care hospitals; (3); Hospital types (teaching/community) and forms (merged/non-merged) influence differently nurses' perceptions of staffing, support services, supportive administration, work environment and teamwork; and (4) Irrespective of hospital types and forms, tasks left undone by nurses can influence the occurrence/frequency of adverse events in acute care hospitals. Theoretical, policy and practical implications of these findings are discussed.

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CHAPTER I

INTRODUCTION AND THEORETICAL FRAMEWORK

Introducing the Research Problem

Like any complex system, health care can be risky. In the past few years, the risk of errors in hospitals leading to patient injury has become the focus of considerable attention. Health care professionals, health care organizations, as well as decision and policy makers' concerns about errors causing injuries to hospitalised patients are running high in the wake of an Institute of Medicine (IOM) report (Kohn et al., 1999). The results of two main US studies (one in Colorado and Utah, and the other in New York) imply that between 44,000 and 98,000 Americans die each year as result of medical error in hospitals (Brennan, et al., 1991; Leape, et al., 1991). While Canada still lacks valid and reliable data regarding error and patient injury, it has been estimated by extrapolating from the US data that up to 10,000 Canadians die from medical errors in hospitals every year while others suffer devastating consequences (McIver, 2001). The reasons for this are still unclear.

Recent studies imply that the root causes of medical error and patient injury are deeply embedded in the organizational structures, cultures, and processes of health care organizations (Leape, et al., 2000; Kohn et al., 2000; Reason, 1995). A recent inquest inquiring into the deaths of 12 children who had open-heart surgery at Winnipeg's health sciences Centre at 1994 found that each

of the children died under very specific circumstances. Nevertheless, it also said that systemic weaknesses in the program – including policies governing staffing, leadership, teamwork, communication, decision-making and quality assurance – contributed to problems in the procedures and outcomes of the program (Sinclair, 2000). As a result of incidents such as this, an appreciation for systems thinking has just begun to influence thinking about error and patient injury in Canada's health care system. At the same time, rationalization has been the dominant cost-reduction strategy in many health care policy reform initiatives in many Canadian provinces. Below, we describe hospital rationalization in the province of Ontario and the key policy directions of the Ontario Ministry of Health and Long-Term Care (1980-2000).

While health care is a provincial responsibility under Canadian federalism, the federal government plays an important role in setting health care policy. By the late 1960s, the Ontario government established a global budgeting system to pay for hospitals whereby the province transferred an amount equal to the previous year's base allocation for operating costs and equipment depreciation, plus an amount to cover anticipated growth.

By the 1970s, inflationary pressures and overcapacity in the inpatient sector were evident, and the federal government faced an escalating financial commitment to hospital programs. In an effort to control growth in provincially health plans, the federal government replaced its fifty-fifty cost sharing arrangement with a system of block funding and transfer of tax points tied to

population growth and GDP growth. This new arrangement shifted the onus for cost containment to the provinces by requiring them to raise additional funds to cover cost increases that could not be accommodated for by the federal transfer.

By the 1980s, therefore, there was growing pressure on provincial governments to introduce mechanisms to control costs in the health sector and hospitals, as the single largest line item in the health care budget, were the obvious place to start. The first concerted effort by the province of Ontario to encourage hospitals to be more cost-conscious was the implementation of the Business Oriented New Development (BOND) program in 1982. The BOND program was moderately successful in reducing deficit financing in its first few years, but ultimately failed to result in any fundamental re-orientation of hospital administration and program delivery (Hanlon, 2001). The provincial ministry of Health recognized that more fundamental change was needed in the way hospitals were funded. The global budgeting system, and its built in growth formula, provided only weak incentives for cost effective care through such means as reducing length of stay and shifting to outpatient modes of care. In the late 1980s, the provincial government undertook reform of hospital funding arrangements with the implementation of transitional funding. The transitional funding system changed the growth formula to recognize changes in admissions rather than changes in patient days, and ensured that hospitals of similar size and service mix received comparable levels of funding by implementing a method of weighting costs by severity and resource intensity. This transitional

funding scheme was intended to encourage the growth in outpatient care by making this type of care financially worthwhile for the hospitals (i.e. ensuring that the expansion of outpatient activity is counted as growth and not the opposite, as was the case under global budgeting). These measures prompted many hospitals to undertake closer scrutiny of internal operations, including the rationalization of core service outputs, and the move toward re-engineering of operations and the organization's product mix.

The transitional budget system was replaced in the early 1990s by a more prospective oriented system based entirely on case mix groups and resource intensity weights. While in early 1990s, the ministry of health developed a consultative approach to hospital restructuring, the ministry imposed the first relative (per capita) reductions in block transfers to hospitals since the inception of the provincially run hospital insurance plan.

The implementation of the Canada Health and Social Transfer (CHST) scheme by the federal government in 1996 meant that the federal share of direct funding continued to decline and that the provinces would receive one lump sum for all of its cost shared programs rather than targeted monies. In order to tackle its own deficit, the federal government significantly cut the CHST, thereby worsening the fiscal situations of the provinces. The experience of a deep recession in the mid 1990s, persistent fiscal deficits and mounting provincial debt and interest payments placed even greater strains on Ontario's ability to fund its hospital and health care systems. The Ontario Ministry of Health announced

deep budget cuts to hospitals of close to 20% (\$800 million reduction in monies transferred to hospitals) over a 2-year period in 1995/1996 and 1996/1997. While funding developments had brought about significant downsizing of the inpatient sector (approximately 8000 acute care beds were removed from 1991 to 1996) and rapid growth of outpatient modes of delivery, the numbers of hospitals operating in the province remained virtually unchanged. The provincial government established the Health Services Restructuring Commission (HSRC) and gave it responsibility for reviewing hospital services in larger districts across the province with a view to identifying further inpatient reductions and ordering mergers and closures of facilities to achieve administrative economics of scale. In all, the HSRC ordered 33 public hospitals to close and merged a further 44 hospitals into 14 separate entities (Hanlon, 2001).

In short, over the past 10 years, Ontario has enacted policy directions aimed specifically at controlling spending, reducing costs and improving efficiency in the hospital sector (Ontario government controls the health care “purse-strings” (97% of the ministry budget consists of transfer payments) but it does not manage health services on a daily basis). As a result, rationalization was a strategic response from hospital management to changing policy and budgetary pressures. Restructuring of acute-care services in Ontario’s hospital system have been under way for the past several years in the name of rationalization and cost reduction. The specific effects of rationalization policies can be seen in the changes in patient care services delivered by hospitals:

decline in the number of inpatient days, changes in the type of inpatient admissions; and shifting services to out-of-hospital settings (Sochalski, 1997). According to recent findings (Aiken, et al., 2001) from a survey of a representative sample of nurses drawn from hospitals in Ontario, Alberta and British Columbia, nearly half of respondents believed that the quality of patient care in their institutions had deteriorated in years following restructuring. Nurses were considerably more likely to report that nursing sensitive patient outcomes such as medication errors and patient falls occurred with regularity in their institutions (Aiken et al., 2001). In January 2002, Ontario released its Report entitled "A Public Dialogue On Health Care: A Report To The Ministry Of Health And Long- Term Care". The report outlines the findings of the ministry's mailed and internet questionnaire study which illustrates that people in Ontario believe that the overall quality of health care has declined over the past few years. In this report, major concerns were raised about the shortages of staff or overworked staff and the poor service in key service areas such as hospitals.

In the context of literature findings, there is an increasing concern that hospital rationalization might have created an environment that increases the potential for clinical errors and patient injuries (Nicklin, 2001; American Nurses Association, 1998).

In addition to hospital rationalization, patient safety, human factors and nursing literature discuss the contribution of external environment to organizations (economic restraints, rationalization policies), organizational

structure, organizational culture and nursing care processes as they impact quality problems, and nursing sensitive patient outcomes (Aiken et al., 1997; Carthey et al., 2001; Davies, 2000; Gaba, 1991; Gaba, 2000; Garside et al., 1998; Jones et al., 2000; Grabowski et al., 1996; Reason, 1995; Shortell et al., 1991; West, 2000; Ghassin et al., 1998). Many of these studies conclude that the root causes of errors that injure patients are deeply embedded in the organizational structures, culture, processes, and practices of health care organizations (Reason, 1995; Leape, et al., 2000; Kohn et al., 2000). But are each of the following concepts - hospital rationalization, organizational culture and nursing care processes linked? If so, how are they linked? And does this linkage impact nursing sensitive patient outcomes?

We cannot proceed to examine the above questions without a clear understanding of the concepts of hospital rationalization, organizational culture and nursing care processes and nursing sensitive patient outcomes. Below we introduce each of the concepts.

Hospital Rationalization can be defined as a pragmatic ideology strongly influenced by economic rationalism and the pluralist/power perspective of change (Stace 1996). Hospitals are open systems, strongly shaped by the characteristics of their environment. The demographic and socioeconomic structure of population in the area served, government regulation, scarcity of resources, economic values, economic system and the value of health care are expected to influence the structural features of hospitals. The changes within

organizations are often caused by environmental pressures to which the organization has to respond, sometimes in order to survive (Nolan, 2000). With unremitting pressure from the external environment to simultaneously reduce costs, hospital rationalization is conceptualized as arising mainly from several influences of pressures such as economic restraints, government regulations and political restraints. Since mid 1990's, hospital rationalization in Canada has been described as a policy formulated by governments and management to ensure health care efficiency and control cost escalation.

Most of the organizational literature, in fact, considers that the objective of hospital rationalization is to achieve higher levels of productivity / lower staffing requirements and efficiency, thus enabling hospitals to deliver care at lower costs without decreasing patient satisfaction and the quality of care (Aiken, et al 2000; Markham and Lomas 1995). Hospital rationalization is manifested by systems redesign and organizational restructuring and involves multiple and complex simultaneous forms of change such as exchange of services with another hospital, mergers, downsizing, closings, conversions to non-acute care, as well as service delivery modifications such as vertical and horizontal integration of services and restructuring of the governance and management infrastructures. While debates continue on whether hospital rationalization enhances efficiency and quality of care, little evidence has been available to assess the impact of hospital rationalization on the quality of care (Aiken, 2000).

Organizational Culture: Cooke and associates (1998) defined organizational culture as the shared beliefs and values guiding the thinking and behavioral styles of most people in the organization. How structure, authority, responsibility, rewards and incentives and information systems are designed in an organization will drive most people's behaviors and directly influence the organization's culture. Although the understanding of organizational culture still remains methodologically and theoretically complex, many recent literatures argue that an organizational culture has a direct impact on its effectiveness and have some bearing on clinical performance and health care quality (Dension, 1990; Davies et al., 2000; Jones, 2000; Shortell et al., 2000).

Nursing Care Processes: is a key factor in the outcomes of hospitalized patients. Nurses are the only professional caregivers in hospitals who are at the bedside of hospitals patients around the clock. What nurses do-or do not do – is directly related to a variety of patient outcomes, including in-hospital deaths (Aiken et al., 1994). The literature discusses that nursing has been a prime target for work redesign due to rationalization, resulting in changes in numbers and skill mix of nursing staff as well as fundamental reorganizing of clinical care at the inpatient level (Sochalski, et al 1997). Aiken et al., (1997) theorize that nurses affect patient outcomes by their actions and their influence over the actions of others, that is, patient outcomes are in part the result of nurses' direct clinical interventions on behalf of individual patients. They add that nurses influence the actions of other hospital personnel through the unit level

organizational policies, norms, and culture they develop and maintain. In turn, nurses' clinical interventions and their success in establishing institutional norms consistent with good patient care are influenced by larger organizational context in which they practice. Organizational context has become an increasingly powerful factor affecting the implementation of clinical interventions, and through them, the outcomes of health care (Aiken et al., 1997).

Nursing Sensitive Patient Outcomes: Nursing researchers have identified multiple patient outcomes that are more sensitive to the nursing care provided (Maas, Johnson & Kraus 1996). Nurse-sensitive outcomes include avoidance of medication administration errors and the prevention of patient falls. The Institute of Medicine has identified both medication errors and patient falls as key adverse events and the rates of their occurrence are key patient outcomes to monitor within inpatient hospital settings (Wunderlich & Slaon, 1996). The American Nurses Association has also identified patient falls as an important measure of nursing quality in the acute setting (Pollard, et al., 1995).

The concepts of hospital rationalization, organizational culture, and nursing care processes have been studied disparately in the literature, as they exist independent of one another and each with potential relevance for quality of care and patient safety. Yet, they are not well understood as conceptually or empirically as they exert their combined impact on nursing sensitive patient outcomes. The segmented examination of each of those concepts in the literature may be due to a lack of the use of a well-developed conceptual model

that would have assisted in the generation of competing hypotheses. This present thesis explores and examines the question around the combined impact of hospital rationalization, organizational culture, and nursing care processes on nursing sensitive patient outcomes. Thus, the purpose of this thesis is to develop an integrative conceptual model that provides a framework for understanding how hospital rationalization, organizational culture and nursing care processes are linked and how this linkage impacts nursing sensitive patient outcomes.

The purpose of this thesis will be achieved by:

- 1- An inductive case study in a teaching hospital in Ontario to validate what is identified from the existing literature and to determine whether the identification and descriptions of the main concepts from the literature as they relate to quality of care and nursing sensitive patient outcomes are congruent with the nurses' perceptions of hospital rationalization, organizational culture and nursing care processes. The case study will assist in generating hypotheses.
- 2- In order to test the hypotheses generated by the case study, a secondary data analysis of Ontario Registered Nurse Survey of Hospital Characteristics which includes sufficient number of hospitals will be conducted. The secondary data analysis will be informed by the case study, which will provide the foundation, framework and hypotheses.

Theoretical Framework

Our framework benefited from knowledge drawn from a number of fields. At the conceptual level, our framework concentrates on the concepts of hospital rationalization, organizational culture, nursing care processes, and nursing sensitive patient outcomes. In order to understand how those concepts in the literature can be addressed theoretically, we base our framework on both Donabedian's framework of structure, process and outcome and Reason's modeling of the cause of organizational accidents.

James Reason's accident causation model serves to explain the causation and the contributing factors in organizational accidents. It is a model that has been adopted and applied by a number of organizations, namely the National Patient Safety Agency in Britain, and most recently in Canada by the National Steering Committee on patient safety (2002), which was created on the initiative of the Royal College of Physicians and Surgeons of Canada. Becher (2001) suggested that Reason's model of organizational accidents provide important new insights into the nature of quality of care problems.

Reason's model was originally developed for use in industrial systems. In order to integrate nursing processes and hospital setting in our framework, we incorporate Donabedian's framework of structure, process and outcome. Donabedian's framework which includes the three key components to a system (structure, process, outcome) organized system thinking as it relates to quality of

care and is still the framework for academic quality of care research (Hodges, Icenhour & Tate, 1994).

Donabedian's Framework of Structure, Process, and Outcome

Avedis Donabedian (1980) who is recognized as the founder of the health care quality movement, identified the concepts of structure, process and outcomes as potential targets for the assessment of quality of care. Donabedian's structure, process, and outcomes model organized thinking as it relates to quality of care and is still the framework for academic quality care research (Hodges, Icenhour & Tate, 1994). Quality of care measures traditionally focus on the structure (e.g., resources, standards, policies, organizational factors such as staffing, workload, etc.), process (i.e., what caregivers do), and outcomes (i.e., health-related patient outcomes) of care and their interrelationships (Donabedian 1966, 1980). The Donabedian model posits causality, so that structure influences process and process affects outcomes. Donabedian considers that we can get the most complete, credible and useful information by studying structure, process and outcome in conjunction. Donabedian's model is illustrated below:

Figure 1: Donabedian's Framework of Structure, Process, and Outcome

Reason's Modeling of the Cause of Organizational Accidents

Reason argued that the human error problem can be viewed in two ways: the person approach and the system approach. Each has its model of error causation. The longstanding and widespread tradition of the person approach focuses on the unsafe acts – errors and procedural violations – of people at the sharp end: nurses, physicians, surgeons, anesthetists, pharmacists, and the like. It views these unsafe acts as arising primarily from aberrant mental processes such as forgetfulness, inattention, poor motivation, carelessness, negligence, and recklessness (Reason, 2000). Followers of this approach assume that bad things result from bad people. However, the basic premise in the system approach is that humans are fallible and errors are to be expected, even in the best organizations. Errors are seen as consequences rather than causes, having their origins not as much in the perversity of human nature as in “upstream” systemic factors. These include recurrent error traps in the workplace and the organizational processes that give rise to them. Countermeasures are based on the assumption that “though we cannot change the human condition, we can change the conditions under which humans work” (Reason, 2000). Human factors researchers argue that poor work environments and care processes can promote human error and can lead to adverse patient outcomes, and that such error can be minimized by better system design (Weinger, 1998; Leape, 2000; Reason, 1995; Becher, et al., 2001). For them, the individual making the error is

not the sole or ultimate cause. Instead, the error manifests a wider problem, and it is this broader causal context that requires analysis (Bogner, 1994).

Reason conceptualized the causation of organizational accidents (Reason, 1994). An organizational accident refers to an event that had its origins in a wide variety of latent failures that were associated with generic organizational processes. Before we list the stages of organizational accident, we define the terms latent failures and active failures.

Latent failures stem from fallible decisions, often taken by people not directly involved in the workplace. These failures provide the conditions in which unsafe acts occur. They are the delayed action consequences of top management decisions and organizational process. The adverse consequences of latent failures are influenced by external and internal environmental factors and are not apparent immediately. Latent predisposed conditions are embedded in organizational spheres (e.g. understaffing, time pressure, workload, inexperience) (Reason, 2000). Active failures, however, are the unsafe acts committed by those in direct contact with the human-system interface (e.g. Nurses and physicians) whose actions can have immediate adverse consequences / outcomes. Human factors researchers argue that the damaging consequences of latent failures may lie dormant within the system for many years before they combine with active failures and local triggers to create an accident opportunity (Reason, 1995; Baker and Norton, 2001).

According to Reason (1991), an organizational accident occurs through 5 stages. First, organizational processes (e.g. planning, designing, and scheduling) give rise to latent failures. These organizational processes are shaped by economic, political, and operational constraints. Second, latent failures are transmitted to specific workplaces and create local conditions that promote the commission of errors and violations. Third, while performing particular tasks under these conditions, individuals commit errors and violations (Active errors). Fourth, errors and violations penetrate various defense barriers and safeguards that prevent foreseeable injuries. Defenses may be structural such as staffing levels and equipment design, or process related, such as inter-professional communication and problem-solving skills. Finally, an organizational accident occurs and produces adverse outcomes.

Reason 1997

Figure 2: Reason Conceptualization of the Stages in the Development & Investigations of an organizational Accident

The above model which illustrates the key concepts of causation of organizational accident has been accepted and broadly applied in health care as in other industries (Reason, 1997).

Donabedian's framework of structure, process and outcome and Reason's modeling of the cause of organizational accidents are the theoretical base for our framework. But how do the concepts of hospital rationalization, organizational culture, nursing care processes and nursing sensitive patient outcomes fit into theoretical base? Before we discuss this question, let us first undertake an in-

depth examination of the existing literature that pertains to each of the concepts in order to derive variables to be incorporated in the theoretical base.

The Concept of Hospital Rationalization

Rationalization can be depicted in the literature as a pragmatic ideology strongly influenced by economic rationalism and the pluralist/power perspective of change (Stace, 1996). Most of the organizational literature, in fact, considers rationalization to be the rational behaviour for an organization in serious financial trouble (Mintzberg and Westley 1992). The objective of hospital rationalization is to achieve higher levels of productivity / lower staffing requirements and efficiency, thus enabling hospitals to deliver care at lower costs without decreasing patient satisfaction and the quality of care (Aiken, et al 2000; Markham and Lomas 1995). Hospital rationalization is manifested by systems redesign and organizational restructuring and involves multiple and complex simultaneous forms of change such as exchange of services with another hospital, mergers, downsizing, closings, conversions to non-acute care, as well as service delivery modifications such as vertical and horizontal integration of services and restructuring of the governance and management infrastructures.

Debates continue on whether hospital rationalization achieved by systems redesign and organizational restructuring enhances efficiency or instead facilitates market power, possibly damaging quality (Ho and Hamilton, 2000). Jones and associates (2000) argue that health care industry's merger,

acquisition, downsizing and re-engineering activities have not produced the expected outcomes in terms of efficiency and productivity. Markham and Lomas (1995) classified the benefits and disadvantages of hospital rationalization into four areas: economic and financial benefits, quality of services, human resources and organizational and managerial. Expected benefits include cost savings via economies of scales (e.g. increased productivity/lower staffing requirements, improved utilization of resource capacity, reduced duplication and improved resource allocation), response to community needs, comprehensiveness of care, improved quality of care and accreditation standards, improved access to care (e.g. shorter waiting lists, accessibility to new technology), development of human resources, better coordination of care and reduction of risks. Expected disadvantages relate to increased financial costs to create a new corporation, lack of easy access to certain services, insecurity of human resources (e.g. loss of autonomy, feelings of alienation), loss of managerial and organizational culture, and disruption of routines at the clinical and organizational level. Studies show that nursing staff as a result of systems redesign are dissatisfied with many aspects of their job, worried about job security, have low morale, and have many concerns about the quality of care provided to patients (Barry-Walker, 2000). Stace (1996) indicates that a turnaround organizational change (i.e. rationalization, downsizing, restructuring) might have a negative impact upon quality of care. Little empirical evidence has been available to assess the impact of hospital rationalization on the quality of care (Markham and Lomas, 1995;

Aiken et al 2000). Some organizational researchers acknowledge that significant potential exists for negative outcomes due to rationalization (Markham and Lomas, 1995). For example, Ho and Hamilton (2000) found that organizational restructuring is associated with increased readmission rates for heart attack patients, and increased likelihood of early discharge newborns. Others consider systems redesign and organizational restructuring as critical factors that have created an environment that increases clinical errors through the disruptions of the integrity of many healthcare teams (from staff and physicians and front-line workers to senior management) in hospitals and other health care organizations (Nicklin, 2001). In the name of systems redesign and organizational restructuring, workload increased, communication patterns between health care professionals were dissolved, and an overall feeling of job insecurity added to the instability of the work environment (Nicklin, 2001).

Problems in the work re-design and workforce management reflected in the responses of the 43,000 nurses in a recent study of staffing in five countries - United States, Canada, England, Scotland, and Germany in 1998-1999 contribute to uneven quality of care, medical errors and adverse patient outcomes (Aiken et al., 2001). Findings from a study of magnet hospitals suggest that restructuring hurt care giving in a set of hospitals with excellent nursing care and patient outcomes, without any apparent offsetting positive outcomes (Aiken et al., 2000). Similarly, another recent study that examined innovative downsizing strategies used by 20 acute care hospitals in Ontario

showed that organizational restructuring and systems redesign in the health care sector can have potentially more life threatening and immediate implications than they do in most other industries (Bauman et al., 1996). Survivors of work force reduction in that study have been shown to experience a number of negative consequences including job insecurity, stress, reduced organizational morale, lowered commitment to the organization and increased job dissatisfaction. The results of a study that examined the effects of hospital restructuring and downsizing on full – time nursing staff in Ontario show that restructuring tend to be associated with less work satisfaction and poorer psychological well being, besides having potentially harmful effects on organizational functioning (Burke et al., 2000).

Vincent (1989) identifies several organizational factors that may create latent failures in organization. Besides the wider economic and political environment, that Vincent argued it may be implicated in some medical accidents, organizational factors such as poor staffing could lead to overworked staff, fatigue, and possible error. Shift patterns, workload and carrying out several tasks at once have all been found to increase errors in other settings. Administrative factors may influence the availability of test results and records, the ease of communication between team members, the availability of necessary staff, and so on. Organizational literatures show that common organizational factors such as team factors (stability), interpersonal and communications issues (poor communication), lack of experience, interdepartmental coordination,

training, staff shortages, shift patterns, workload, work environment, allocation of resources, inadequate equipment, even the wider economic and political environment are responsible for many inefficiencies and errors organizationally complex environment like a hospital (Vincent, 2000; Carthey, et al., 2001; Reason, 1995; Baker & Norton, 2001; West, 2000). But what evidence already exists in the literature in terms of 'what' and 'how' can some of those organizational factors lead to latent failures and errors in organizations?

There is a growing body of research demonstrating an inverse relationship between nurse staffing and adverse events among patients (Lee, Chang, Pearson, Kahn, & Rubenstein, 1999; Van Servellen & Schultz, 1999). Kovner and Gergen (1998) examined the relationship between nurse staffing levels for surgical patients and a set of adverse events in more than 500 U.S. hospitals in 10 states. A significant inverse relationship was found between the number of registered nurses per patient day and urinary tract infections, pneumonia, thrombosis, and pulmonary compromise. The researchers estimated that one additional RN hour per surgical patient per patient day was associated with 8% decrease in urinary tract infections and more than an 8% decrease in pneumonia. Aiken, Smith, and Lake (1994); Hartz et al., (1989); and Scott, Forrest, and Brown (1976) found a negative and statistically significant relationship between nursing care intensity and patient mortality rates. That is, the higher the nurse staffing, the lower the mortality rate. By using data from a variety of sources, Aiken and associates (2000) describe in a study the different

initiatives that hospitals undertook during the restructuring period, discuss how nurse staffing changed relative to the case mix of patients receiving care, and examine changes in nursing practice environments from 1986 to 1998. The authors show that nurse staffing, one of the characteristics of hospitals most often targeted during restructuring and re-engineering initiatives, is significantly related to patient outcomes. There is evidence that lower nurse to patient ratios lead to complications and poor patient outcomes (Baumann, et al. 2001). Conversely, higher staffing levels are linked to better outcomes (Baumann, et al. 2001). Similarly, Belgen, Goode, and Reed (1998) found that higher levels of RNs on the staffs of units were associated with lower rates of decubiti, patient complaints, and nosocomial infections and that a higher nursing skill mix was associated with significantly lower rates of medication errors and patient falls (Belgen & Vaughn, 1998). Silber and associates (1995) have shown that nurse-staffing levels contribute significantly to how well hospitals rank on hospital mortality and failure to rescue rates, with higher nurse staffing levels associated with lower mortality and failure rates. Murphy (1993) evaluated the impact of downsizing in a study of 281 hospitals. Those hospitals that made across the board staffing reductions of 7.5 % or greater or brought their average below 3.35 FTEs per hospital bed were more likely to have higher mortality and morbidity rates than other hospitals in the sample. Flood and Diers (1988) studied the impact of the total number of nursing staff assigned to care for hospitalized patients on any given shift in terms of quality and cost outcomes. These

researchers reported an increase in both length of stay and complications for patients cared for on a general medical nursing unit, which was consistently understaffed (e.g. reduced direct hours of nursing care) during a three-month period. Generalized infections and urinary tract infections were the most common complication. Some research studies focused not only on staffing ratios, but on staffing levels as well. For instance, Needleman, et.al., (2001) found strong evidence of an association between patient outcomes and RN share of total staffing. Results showed that higher RN staffing was associated with a 3 to 12 percent reduction in the rates of patient outcomes potentially sensitive to nursing.

Literature indicates that workload would lead to poorer outcomes for patients. A Study by O' Brien – Pallas and colleagues indicates that nurses in most clinical units in Ontario, particularly nurses in medical surgical units work at intensities that could harm their patients. Similarly, another study show that a high percentage of nurses in Canada, the United states, the UK and Sweden have reported work pressures are severe enough to affect patient care (Aiken, et al., 2001). Recent studies indicated that as workload increases, thought processes and attention span narrow leading to the increase in the likelihood of error. The main finding in stress research is that as workload and stress increase, an individual's thought processes and breadth of attention narrow (Sexton, et al., 2000).

A study that reports on the preliminary results of an international study on how nurse staffing levels and the nursing practice environment affect the quality of care and patient outcomes in hospitals reveal that one out of every five staff nurses working in acute care hospitals in Pennsylvania reported the quality of care on their unit as fair or poor. Workload played a role in these quality assessments, but it was the consequences of workload, such as tasks undone (i.e. reports of unfinished nursing tasks at the end of the last shift) that played a much more prominent role (Sochalski, 2001).

In short, literature expressed serious concerns in terms of how economic emphasis through hospital rationalization can threaten patient care through its impact on organizational structure and its potential to create latent failures in organizations. By examining the impact of hospital rationalizations on organizational structure, the following variables are derived: Staffing, Workload, Time Pressure, Support Services. Hospital rationalization in this thesis project is characterized by cutbacks and amalgamations.

The Concept of Organizational Culture

Cooke and associates (1998) defined organizational culture as the shared beliefs and values guiding the thinking and behavioral styles of most people in the organization. How structure, authority, responsibility, rewards and incentives and information systems are designed in an organization will drive most people's behaviors and directly influence the organization's culture. Although the

understanding of organizational culture still remains methodologically and theoretically complex, many recent literatures argue that an organizational culture has a direct impact on its effectiveness and have some bearing on clinical performance and health care quality (Dension, 1990; Davies et al., 2000; Jones, 2000; Shortell et al., 2000).

Organizational culture has been the focus of qualitative and quantitative studies (e.g. Hofstede, et al., 1990; Koene 1997). Health care and organizational researchers argue that the nature of organizational culture in hospitals might have some bearing on clinical performance and health care quality and that a variation of organization cultures is a determinant of variation in patient outcomes (Davies 2000; Shortell 1994; Aiken 1997). They argue that organizational culture is a crucial variable in the management of organizational performance. A cross-sectional examination of organizational culture, the prevalence of quality improvement activities, and specific employee, patient, and fiscal outcomes for six specific patient conditions was conducted (Shortell, O'Brien, Carman, Foster, Hughes, Boersteler, & O'Connor, 1995). Findings indicated that an organizational culture that is flexible, risk-taking and participative is significantly related to the proliferation of quality improvement activities throughout the organization, improved patient outcomes, and improved employee job satisfaction.

Based on data collected from 17,440 patients across 42 ICUs, a study by Shortell et al., (1994) examines the factors associated with risk-adjusted

mortality, risk-adjusted average length of stay and nurse turnover. The authors present a model that suggests that unit performance will be influenced by available technology, the nature of the work to be done (i.e. task diversity), staffing, and how well caregivers (physicians, nurses, and related health professionals) work together (i.e., caregiver interaction). Using Apache III methodology for risk adjustment, findings reveal that caregiver interaction compromising the culture, leadership, coordination, communication, and conflict management abilities of the unit are significantly associated with lower-risk adjusted length of stay and lower nurse turnover.

Literature shows that employees' perceptions of social integration, work environment, and autonomy drive most people's behaviours and influence the organizational culture.

Social integration is defined as the degree or level of supportive relationships with co-workers. Alternate terms for social integration include group cohesion and social support. Poole (1985) argues that social interaction is a cornerstone of culture formation and is influenced by the favorableness of the organization's communication climate. Poole emphasizes the impact of interaction between individuals in organizations as the source of adaptation of an individual's understandings of the work setting toward greater congruence with the organizational culture. The social context has an affect on culture in two ways: First socialization processes of training and indoctrination mold the newcomers' understanding of the work situation. Second, the impact of the

social context can also arise from the interaction between organization members, who are all part of the social context. Organizational culture then “emerges out of the interactions that members of a work group have with each other” (Schneider & Reichers, 1983). Poole (1985) considers that an important facilitator of this kind of interaction is the communication climate in the organization. When a positive communication climate stimulates interaction between organization members, more agreement on perceptions of organizational culture is expected. Literature shows that effective communication has several positive effects such as fewer and shorter delays in delivering patient care, increases in morale and job satisfaction (Sexton, et al., 2000). Further, good team relations affect patients, even reducing mortality, and there is evidence that better patient outcomes occur when there is good collaboration between nurses and physicians (Aiken, et al., 1998; Healy, C., et al., 1999; Laschinger, H.K.S., et al., 2000; Bags & Schmitt, 1988). For example, the report of the Manitoba Pediatric Cardiac Surgery Inquest into the deaths of 12 children noted that nurses were never treated as full and equal partners in the surgical team and that serious and legitimate concerns were disregarded (Baumann, et al., 2001).

A study by McMahon 1990 noted that increased levels of supportive, helpful, and friendly communication were associated with the primary nursing model of care delivery. Chandler (1982) investigated the source and process of nurse empowerment and found that being empowered was defined by nurses as

having supportive relationship with patient, families and medical staff. Some studies have found that social integration is one of the determinants of job satisfaction. Hinshaw and associates (1987) found that social integration had a direct effect on organizational work and professional or occupational job satisfaction. Leppa's (1996) study on work group disruption indicated positive correlations between nurse/nurse interactions and RN perceptions of quality of care and patient safety.

Literature also argues that employee perception of the work environment influence the organizational culture. Redman & Ketefian, (1995) argued that as organizational structures and processes are redesigned, the quality of the work environment and employees perceptions of this work environment can be greatly affected.

Autonomy is defined as perceived independence or control over work activities (Alexander, Weisman, & Chase 1982). Slavitt, et al., (1978) reported that nurses from both the hospital and outpatient setting ranked autonomy as the most important determinant of job satisfaction. In one study, autonomy was positively correlated with job satisfaction (Roedal & Nystrom, 1988). Laschinger & Havens (1996) reported that work empowerment and control over practice in combination were significant predictors of both staff nurse job satisfaction and overall work effectiveness. In their magnet hospital study, Kramer & Schmalenberg (1988 a & b) found autonomy to be a key characteristic of an innovative, quality-driven environment, which both retains and attracts nurses to

the hospital setting. In a subsequent study by Aiken, Smith and Lake (1994), these magnet hospitals were matched with hospitals that had not received this magnet designation but were similar with respect to a variety of non-nursing organizational characteristics. Researchers investigated whether hospitals that were considered good places to practice nursing had lower mortality rates when compared to other non-magnet hospitals. After adjusting for difference in predicted mortality, magnet hospitals were found to have a 4.6% lower mortality rate. The researchers concluded that the reduced mortality rate at magnet hospitals was derived from the greater status, autonomy, and control over practice afforded to nurses in these hospitals, and the subsequent impact of these variables on the actions of the nurses on behalf of their patients.

A study by Bluthé (2001) shows how nurses working in three hospitals in Ontario, Canada, experienced organizational restructuring, particularly how restructuring compromised their ability to provide effective care by negatively affecting their roles as individuals, members of nursing teams, and hospital employees. This study shows that restructuring often changed the age mix of the nursing team, rising the average age of nurses. Junior nurses were laid off first; senior nurses had greater job security and more opportunities to bump. In the new teams, older nurses could no longer trade clinical expertise for technical knowledge or physical help. With increasing work pressure, social integration among nurses declined. The nursing teams became less integrated and members became more individualistic. The work pressure precipitated by

restructuring caused them to provide “only the basics of care” and to neglect patients’ psychological and spiritual needs. However, fear of patient safety and for their own liability for potential mishaps also surfaced.

In terms of the characteristics of Organizational Culture, Malloch (2000) in his ‘Healthy Organization Model’, considers organizational culture to be composed of five characteristics: (1) supervisor support, (2) clarity of expectations, (3) involvement of employees, (4) peer cohesion, and (5) innovation. In testing his ‘Healthy Organization Model’, Malloch (2000) identified a strong significant relationship between supervisor support and job satisfaction, followed by clarity of expectations, involvement of employees, peer cohesion, innovation, health conceptions and caring.

In summary, our literature review concludes that organizational culture could have a profound impact on the quality and outcomes of patient care. To recapitulate, the variables derived from the concept of organizational culture are: Communication, Teamwork, Work environment and Autonomy.

The Concept of Nursing Care Processes

Nursing Care Processes is a key factor in the outcomes of hospitalized patients. Nurses are the only professional caregivers in hospitals who are at the bedside of hospitals patients around the clock. What nurses do-or do not do – is directly related to a variety of patient outcomes, including in-hospital deaths (Aiken et al., 1994).

The traditional nursing care processes identifies three major processes of nursing care: assessment, problem identification, and problem management (Leddy and Pepper, 1993; Lee, et al., 1999; Pearson, Chang, Lee, et al., 1998). Assessment of hospitalized patients occurs in three time periods: initial assessment (first period, approximately 48 hours), ongoing assessment, and pre-discharge assessment (last period, approximately 48 hours). Nursing assessment is clinically important. Some assessments appear amenable to performance by less highly trained personnel (e.g., vital signs), some may not be necessary, and some may not be performed adequately. Problem identification involves a decision making process through which issues relevant to nursing are identified, based on data obtained in the assessment, and then classified either informally as clinical problems or formally as nursing diagnosis. Problem identification is related to accuracy, timing, and completeness. Problems or nursing diagnosis can reflect clinical symptoms, such as chest pain, or risk assessment, such as “potential complication: cardiac” (Carpenito, 1995). Problem management involves the development of a care plan that includes goals, planned intervention, and expected outcomes for each problem or nursing diagnosis; the implementation of nursing intervention; and an evaluation of the effects of the interventions through a reassessment of outcome measures. Reviewed studies demonstrated significant process-outcome links between:

- Assessment of readiness to learn and knowledge of medications with increased patient medication knowledge level (Hageman and Ventura 1981);
- Better nursing assessment of functional status, current symptoms and vital signs, with decreased 3—day mortality (Kahn et al. 1992);
- Improved discharge assessment with decreased length of stay (Farren 1991)
- Having nursing diagnosis and improved functional status at discharge; (Harrell, 1989).
- Having at least one nursing diagnosis in the medical record and improved functional status at discharge; (Harrell, 1989). and
- Identification of a mobility-related nursing diagnosis and an increase in the proportion of patients discharged to nursing homes (Harrell, 1989).
- Patient education and increased medication knowledge (Hageman and Ventura 1981);
- The provision of non-physical and physical care by nurses and improved physical condition (Hegyvary and Haussmann 1976);
- Clinical evaluation by nurses of patient knowledge and improved patient health knowledge (Hegyvary and Haussmann 1976); and
- Discharge planning and a decreased length of stay (Farren 1991).

The literature notes that in hospital rationalization, the nursing work redesign has been a prime target, resulting in changes in numbers and skill mix of nursing

staff as well as fundamental reorganizing of clinical care at the inpatient level (Sochalski, et al 1997). Aiken et al., (1997) theorize that nurses affect patient outcomes by their actions and their influence over the actions of others, that is, patient outcomes are in part the result of nurses' direct clinical interventions on behalf of individual patients. They add that nurses influence the actions of other hospital personnel through the unit level organizational policies, norms, and culture they develop and maintain. In turn, nurses' clinical interventions and their success in establishing institutional norms consistent with good patient care are influenced by larger organizational context in which they practice. Organizational context has become an increasingly powerful factor affecting the implementation of clinical interventions, and through them, the outcomes of health care (Aiken et al., 1997).

In terms of the literature around active failures, Ghassin and associates (2001) classified health care quality problems into three categories, underuse, overuse, and misuse. Underuse is the failure to provide a health care service when it would have produced a favorable outcome for a patient. Missing a childhood immunization for measles or polio is an example of underuse. Errors that lead to underuse, such as failing to administer influenza vaccine to an elderly patient during an office visit for hypertension, can be either lapses or mistakes. Overuse occurs when a health care service is provided under circumstances in which its potential for harm exceeds the possible benefit. Prescribing an antibiotic for a viral infection like a cold, for which antibiotics are ineffective,

constitute overuse. Errors that lead to overuse are typically mistakes. Misuse occurs when an appropriate service has been selected but a preventable complication occurs and the patient does not receive the full potential benefit of the service. It occurs when appropriate care is provided without the requisite skills, thereby increasing the risk of complications. Avoidable complications of surgery or medication use are important misuse problems. A patient who suffers a rash after receiving penicillin for strep throat despite having a known allergy to that antibiotic is an example of misuse. Evidence from careful research studies demonstrates a large number of serious problems in each of these categories. A recent quality research published from 1993 to 1997 reached the same conclusion (Schuster, et al., 1997; Brook, 1997).

Leape, et al., (1991) identified types of errors may be directly related to the nursing care processes. Examples of those types of errors are listed below:

- a- Inadequate preparation of patient before procedure
- b- Inadequate monitoring of patient after procedure
- c- Avoidable delay in diagnosis
- d- Avoidable delay in treatment
- e- Failure to take precautions to prevent accidental injury
- f- Failure to use indicated tests
- g- Failure to act on results of tests or findings
- h- Inadequate reporting or communications
- i- Delay in provision or scheduling of service

A study that reports on the preliminary results of an international study on how nurse staffing levels and the nursing practice environment affect the quality of care and patient outcomes in hospitals reveal that one out of every five staff nurses working in acute care hospitals in Pennsylvania reported the quality of care on their unit as fair or poor. Workload played a role in these quality assessments, but it was the consequences of workload, such as tasks undone (i.e. reports of unfinished nursing tasks at the end of the last shift) that played a much more prominent role (Sochalski, 2001).

Our review of literature shows that the nursing care processes relative to structural, cultural and organizational determinants that improve or worsen outcomes have been studied much less often. The variable that is derived from this concept is Tasks Undone. This variable includes the types of active errors listed above that Leape, et al., (1991) identified (i.e. Inadequate preparation of patient before procedure; Inadequate monitoring of patient after procedure, ect.).

Nursing Sensitive Patient Outcomes

Nursing researchers have identified multiple patient outcomes that are more sensitive to the nursing care provided (Maas, Johnson & Kraus 1996). Nurse-sensitive outcomes include avoidance of medication administration errors and the prevention of patient falls. The Institute of Medicine has identified both medication errors and patient falls as key adverse events and the rates of their occurrence are key patient outcomes to monitor within inpatient hospital settings

(Wunderlich & Sloan, 1996). The American Nurses Association has also identified patient falls as an important measure of nursing quality in the acute setting (Pollard, et al., 1995).

Medication errors are often preventable. Medication errors affect approximately two billion patients a year; researchers estimate nearly thirty percent of these mistakes are preventable (Nordhasu-Bike, 1997). Medication errors are of great interest to nursing given that complications related to overall use of drugs are one of the most common types of adverse events in patient care and safe medication practice is one of seven major areas identified by the joint Commission of Accreditation of Healthcare organization for site reviews (Bates, Leape & Petrycki 1993). The Institute of Medicine has identified medication errors as a key adverse event and the rate of their occurrence a key patient outcome to monitor within inpatient hospital settings (Wunderlich & Sloan 1996).

While any medication error has the potential to involve a number of disciplines, this review of literature will only focus on the nursing process of medication administration. Given that nursing provides over ninety percent of the direct care for hospitalized patients and are the key discipline administering medication, they play a critical role in the prevention of medication errors (Pollard, et al., 1995). Getting the right drug at the right dosage to the right patient by the right route and at the right time are all key aspects of the medication administration processes. Leape et al., (1995) attributed most adverse drug events to faulty systems. Poor systems design led to such

problems as a lack of knowledge of the drug and /or of the patient, rules violation, slips and memory lapses of the caregivers, transcription errors, faulty drug identity and /or dosage checking, lack of communication with other disciplines, and parental delivery issues. These problems were considered the proximal causes of the errors and accounted for 76% of all the errors. Systems analysis revealed that 38% of these problems had a faulty system related to nursing administration of medications (e.g. faulty systems related to the order transcription process, the continued practice of nursing unit RNs preparing IV medication).

In a study by Reed, Blegen & Goode (1997), medication error rates were found to be one of two adverse patient occurrences mostly directly attributable to the quality of nursing care at the unit level. In the total sample of forty-two units, medication errors were positively correlated to patient falls and negatively correlated to patient acuity and all other events such as decubiti and nosocomial infection rates. On only medical-surgical units, medication errors, decubiti and patient complaints were intercorrelated. Medication errors continued to have a negative correlation with patient acuity. In an associated study, these researchers also found that the rates of medication errors as well as other adverse events were inversely related to the proportion of hours of care delivered by registered nurses (Belegen, Goode & Reed 1998). Belgen and Vaughn (1998) found similar results in a multisite study, which also examined the relationship between nurse staffing and patient occurrences. Roseman and

Booker (1995) found a strong seasonal influence on medication error rate with more than half of the errors occurring in the first three months of the year. An increasing number of patient days and increasing number of temporary staff nurses (agency personnel) were also significant predictors of medication errors. The error rates decreased when more of the overtime shifts were worked by the permanent professional nursing staff.

Patient falls are often preventable. Preventable falls can happen when patients accidentally roll out of bed, try to get out of bed or walk unaided when they need help. They can result from taking certain medications, lying in bed for long periods, having an anaesthetic, ect. But they can also be due to slippery floors and inadequate staff numbers.

The Institute of Medicine has identified patient falls as an important measure of nursing quality in the acute care setting (Wunderlich & Slaon 1996). Reed and Associates (1997) found that patient falls along with medication error rates were the two adverse occurrences most directly attributable to the quality of nursing at the unit-level. Some case studies have reported decreases in patient falls following the implementation of a nurse-managed falls prevention program; reductions in the rate of patient falls range from twenty-five to eighty one percent (Maciorowski et al 1988).

Nurses play a critical role in the prevention of patient falls. Nurses are accountable for the careful assessment of patients' risk for falls and, then, for minimizing that risk through appropriate nursing interventions (Pollard, et al.,

1995). Despite this strong theoretical link, researchers have not supported a strong link between nursing care and patient falls. In the Belegen and associates study (1997), a statistically significant relationship between patient falls and RN skill mix was not demonstrated. In a different study, a relationship between patient falls and staff nurse absenteeism workload, or resignation also did not reach statistical significance (Taunton et al., 1994).

To recapitulate, the variables derived from the nursing sensitive patient outcomes are: Medication Error and Patient Falls.

Integration of Concepts and Hypothesis

As we mentioned in this chapter before, the purpose of this thesis project is to develop an integrative conceptual model that provides a framework for understanding hospital rationalization, organizational culture and nursing care processes and how their linkage impacts nursing sensitive patient outcomes. Our review shows that the concepts of hospital rationalization, organizational culture, and nursing care processes have been studied disparately in the literature, as they exist independent of one another and each with potential relevance for quality of care and patient safety. Yet, they are not well understood as conceptually or empirically as they exert their combined impact on nursing sensitive patient outcomes (medication errors, patient falls). The segmented examination of each of those concepts in the literature may be due to a lack of the use of a well-developed conceptual model that would have assisted in the generation of competing hypothesis.

Since Reason's model of organizational accidents provide important new insights into the nature of quality of care problems and since Donabedian's framework of structure, process and outcome is still the framework for academic quality of care research, the framework for this thesis project integrates the variables derived from each of the concepts of hospital rationalization, organizational culture, nursing care processes and nursing sensitive patient outcomes into both Reason and Donabedian's models. As illustrated below in Figure 3, the integrative conceptual model unravels the linkages among the concepts of hospital rationalization, organizational culture and nursing care processes and shows how this linkage impacts nursing sensitive patient outcomes. For example, amalgamations may increase time pressure and disrupt teamwork among nurses, which could lead to more tasks undone, which in turn, would lead to higher occurrence of medication errors and patient falls.

The integrative conceptual model illustrated in Figure 3 is considered the conceptual framework of proposed hypotheses. This model will allow us to test the general hypothesis of the present study which is the following: Hospital rationalization to ensure efficiency and control cost escalations has created latent failures in hospitals, and combined with attributes of organizational culture, have created an environment for active failures in the nursing care processes which increase the potential for the occurrence of negative nursing sensitive patient outcomes.

Figure 3: This Framework Incorporates Variables derived from the Concepts of Hospital Rationalization, Organizational Culture, Nursing Care Processes and Nursing Sensitive Patient Outcomes into both Reason's Modeling of the Cause of Organizational Accidents and Donabedian's Model of Structure, Process and Outcome

CHAPTER II

DESCRIPTION OF THE STUDY METHOD

Study Design

Our study is built on an inductive field study multilevel design. We conducted an in-depth qualitative examination of six clinical units in a teaching hospital in Ontario to validate what is identified from the existing literature and to determine whether the identification and descriptions of the main concepts from the literature as they relate to nursing sensitive patient outcomes are congruent with the nurses' perceptions of hospital rationalization, organizational culture and nursing care processes.

The Study Site

One of the largest tertiary academic centers in Ontario was used as the study site for our case study. The Ottawa Hospital is a 3-site academic health science center created on April 1, 1998 under the directions of the Health Services Restructuring Commission (HSRC), and consists of the former Ottawa Civic Hospital, the former Ottawa General Hospital and the former Riverside Hospital. It was the result of both the merger of those three hospitals and the programs transfers due to the closure of the Salvation Army Grace Hospital. The merger brought together institutions that had profoundly different histories, cultures and operating characteristics. Below is a brief account of the institutions involved in the merger:

Ottawa General Hospital: The Ottawa General Hospital was a tertiary academic center, located in the eastern part of the city of Ottawa. This hospital operated as a bilingual hospital and served a significant proportion of the region's francophone population.

Ottawa Civic Hospital: The origins of the Ottawa Civic Hospital date from 1924. At the time of the merger, it was a tertiary academic center located in the Western part of the city within a large Anglophone neighborhood.

Riverside Hospital: The Riverside Hospital was opened in 1967. It operated as a community hospital serving a small catchment area in the City's southeastern region.

Salvation Army Grace Hospital: The origins of the Salvation Army Grace Hospital date from 1922. It operated as a small community hospital serving the city's western region.

Healthcare Restructuring in Ottawa-Carleton: Attempts to reorganize services in the Ottawa Carleton region began before the establishment of the provincially mandated Health Services Restructuring Commission (HSRC). In 1994, the Ottawa-Carleton District Health Council (OCDHC) was given a two-year mandate to develop recommendations with respect to reconfiguring health services within the region. Their report was released in June 1996, and recommended, among other things, a merger of the Ottawa General and Ottawa Civic with a consolidation of tertiary services on one site or the other and a more focused role for the Riverside and Salvation Army Grace Hospitals.

Health Services Restructuring Commission: The creation of the Health Services Restructuring Commission replaced the OCDHC initiative. The HSRC began its work in Ottawa-Carleton in 1996. The HSRC released its final report for acute care hospitals in the region in August 1997. The main HSRC directive related to the Ottawa Hospital was to amalgamate the Ottawa General, Ottawa Civic and Riverside Hospitals under one corporation by December 31, 1998. The Ottawa Hospital formally came into existence on April 1, 1998.

Significant Challenges Faced by the Newly Merged Hospital: The newly merged organization faced significant challenges including:

- The merger of organizations with significantly different cultural and linguistic traditions including Anglophone/francophone, protestant/catholic, community/tertiary academic;
- The integration of community and academic physicians within one medical practice organization;
- Significant turnover in senior executives and the loss of corporate memory at the senior management level;
- Significant staff turnover leading to a major loss of skill and expertise across all areas of the organization; and,
- Short timelines to accomplish hospital closures and major programs transfer;

Since the merger in April 1, 1998, The Ottawa Hospital has worked hard to integrate the staff, programs, services, finances systems and facilities of the predecessor organizations.

We selected to examine The Ottawa Hospital due to following distinctive factors: (1) size, (2) merged sites, and (3) diverse culture.

(1) Size: This acute care center is one of the largest tertiary academic centers in Canada. It functions on three sites.

(2) Merged Sites: The acute care center consists of three merged sites.

(3) Diverse Culture: The merger brought together four institutions that had profoundly different histories, cultures and operating characteristics.

Study Units

Six clinical units that have been influenced by budget cuts, and amalgamations in The Ottawa Hospital were chosen for this study. Three clinical units are medical surgical units and the remaining three are clinical specialty outpatient units.

Target Sample as Full Time Registered Nurses

Patient outcomes are affected by care from many disciplines, the severity and complexity of the patient's condition, other characteristics of the patients and the work environment. That means that attributing specific patient outcomes, medication errors and patient falls, to nurses as distinct from other health

professionals in a health care team would be difficult. Nevertheless, we believe that nurses are key factors in the outcomes of hospitalized patients and have an interest in working to enhance quality of care and provide better patient outcomes. As Aiken et al. (2000) note, "Nursing can be thought of as an organization's surveillance system, in that nurses are present around the clock". After all, nurses are among the largest group of regulated health professionals employed by hospitals in Ontario and their participation in our study will be extremely important and necessary.

Fifty nine staff RN employed on the selected clinical unit/s who (a) are employed full time and (b) have been employed on the hospital a minimum of 3 years were selected to participate in the study. These sample restrictions were identified to facilitate a more accurate assessment of our study variables (e.g. it might be difficult for an RN who has only been employed on the unit 1 month to perceive impacts of hospital rationalization, to assess the organizational culture, the cohesiveness of the work group, work environment, communication, ect.). Part time nurse staff were excluded from this study since according to the Partial Inclusion Theory, part time employees are less involved in the organization's functioning (less contact, less knowledge) and are both less attached or committed to the organization and less critical of work place conditions and changes than are full time employees (Burke, 2000).

Research Methods

In order to elicit an “insider’s” view that can provide an understanding of how hospital rationalization, organizational culture, nursing care processes and nursing sensitive patient outcomes are perceived, we used a multilevel design that combines:

1- On Site Observation: During a three weeks period, several clinical units were observed. We observed nurses in order to perceive closely their work workload, staffing, time pressure, support services, communication, stability of teams, teamwork, work environment, autonomy, and to better understand their language. In addition, we had an observation of the nursing care processes, patients rounds, nursing change of shift reports and related activities (e.g. patient assessment, preparation of patient before procedure, monitoring of patient after procedure, pre-discharge assessment, inter and intra hospital patient transfer, timelines in treatment, reporting, medication ordering and delivery systems, labelling of medications, interdepartmental coordination, procedures conducted across units, human equipment interface, availability and use of protocols and clinical pathways).

2- Questionnaires: We prepared a short questionnaire that was administered to participants prior to the group interview sessions (Appendix A). Many of the questions included in the questionnaire were drawn from a comprehensive questionnaire that was administered in Canada as a part of the International Study of Hospital Organization and Staffing on Patient Outcomes involving

Canada (British Columbia, Alberta, and Ontario), the United States, England, Scotland, and Germany (Aiken, et.al 2001). We got an approval from the author to use some of the questions. The questionnaire was administered both in English and French languages. With the help of clinical managers, 8-13 nurse participants had been selected from each of the six clinical units under study. We prepared summary information and informed consents for both nurse participants and clinical managers (Appendix B). This was done in accordance with the research ethics in order to guarantee confidentiality and, to a certain extent, anonymity for participants. An application was prepared and submitted to the Hospital Research Ethics, and it had been approved along with the questionnaire forms after subsequent revisions. Once we received the ethics clearance, we provided each nurse participant with a questionnaire and asked her/him to fill it in and return it back within 3 days. We distributed 62 questionnaires and we received back 59, with a high response rate of 95.16 %.

3- Post Questionnaire Semi Structured Group Interviews: We conducted 13 group interview sessions with 53 nurses from the six clinical units. The size of each group ranged from 3 to 9 participants. And the duration of each session ranged between 60 to 90 minutes. Six nurses filled in the questionnaire but were not be able to participate in the group interview sessions due to an unexpected work pressure during their work shift. The group interview sessions had allowed us to access the substantive conceptual contents of verbally expressed views, opinions, experiences that informed our study objectives.

4- Open Ended Interviews with Clinical Managers: After completing the 13 group interview sessions, we undertook five open ended one to one interviews with the clinical managers. These one to one interviews were arranged to provide us with contextual data for interpreting nurses' views expressed in each of the group sessions. The questions asked in the one on one interviews were based on: (1) our perceptions from the on-site observation experience in each of the clinical units, (2) information from the questionnaires, and (3) the information provided during the group interview sessions. Questions were made specific to each of the clinical managers to draw out their knowledge. This allowed us for not getting trapped in using set questions for all clinical managers since we perceived many sub-cultural and organizational differences among the clinical units. One clinical manager was excluded from the study as she was new to the unit and not well familiar with the changes the unit has gone through as a result of amalgamation and cutbacks.

Scope of Group and One to One Interviews

Some of the issues that were discussed in the group interviews and interview processes were mixed between essential issues, throw-away issues and related probing questions. Below are some of the issues that were included.

- a- Perceptions of structural, organizational, human and cultural changes resulting from hospital rationalization: inadequate staffing, time pressure, heavy workload, support services, deterioration in working conditions.

- b- Professional practice: relationships among health professionals, working relationships with other hospital departments, integrity of team work between nurses and physicians, communication, work environment and autonomy.
- c- Quality of leadership: administrative support, responsiveness, quality of nurse-managers formal and informal interaction opportunities, supervision, and participative management.
- d- Professional development: orientation, training, and active staff.
- e- Quality problems and the explanatory factors leading to the occurrence of medication administration error, patient falls with injuries and other related adverse clinical outcomes.

Careful attention was given to wording and asking the group interviews questions. To counteract any potential bias in participants' answers, we tried to word and ask questions that focus on participants' specific behaviors rather than attitudes.

As the group interviews were semi structured, the questioning instrument was not fully developed. However, below is a list of the essential questions that were discussed during the session, and depending on the flow of the discussion, some of those questions were turned into more related probing questions.

- 1- In the past 3 years, what are the main organizational changes that have occurred in your unit?
- 2- How well your work group is staffed to cover your regular workload?

- 3- In that past 3 years, has the amount of overtime required of you increased?
- 4- Are there some nursing care tasks left undone because the nurse lacked the time to complete them?
- 5- Do you have constant time pressures due to heavy workload?
- 6- Do you have enough time and opportunity to discuss patient care problems with other nurses, especially at the change of shifts?
- 7- Do you consider your workload reasonable?
- 8- Do you feel that the quality of your work suffers because of having to do the same or more work with fewer resources?
- 9- Does your unit have enough registered nurses to provide quality patient care?
- 10- Do you feel that the quality of your nursing care processes suffers because of the lack of stability in your unit?
- 11- Does the overall atmosphere in the hospital during restructuring have affected your job satisfaction? If yes, in what ways?
- 12- Does this hospital's atmosphere facilitate the delivery of patient care on your unit?
- 13- Do physicians and nurses have good working relationships in your unit?
- 14- Are there a lot of teamwork between nurses and physicians?
- 15- Is there a lot of cooperation between work groups in your unit?
- 16- Since you have worked in this unit, have you received any specific training and / or orientation?
- 17- Do you feel you have much influence on how things are done in your work?

18- In delivering care, do you rely primarily on standards of care, unit procedures, and physicians' and nurses' orders to guide patients?

19- In general, how would you describe the quality of nursing care processes delivered to patients on your unit?

20- In your work units, is there a system in place that can help staff to learn from mistakes?

21- Over the past 3 years, how often would you say each of the following incidents has occurred in your unit: patient received wrong medication or dose, nosocomial infections, complaints from patients, patient falls with injuries?

22- Overall, in the past 3-year, would you say the quality of patient care in your unit has improved, remained the same, or deteriorated?

23- To your experience, what are the contributory factors that may lead to the occurrence of preventable clinical incidents like medication administration errors and patient falls?

24- To what extent do you think that hospital rationalization policies may have created an environment that increases the potential for medication administration errors, patient falls, and other quality problems?

Questionnaire Instrument

We developed a six-page questionnaire (Appendix A) drawn from a comprehensive Ontario Registered Nurse Survey of Hospital Characteristics survey that is one component of an International study of Hospital organization,

and staffing on Patient Outcomes in 711 hospitals in five countries: Canada (British Columbia, Alberta, Ontario), the United States, England, Scotland and Germany in 1998-1999. The international study surveyed nurses to obtain information on organizational climate, nurse staffing, and nurse and patient outcomes. The purpose of this survey is to help identify hospital characteristics, to see how the organization of nursing care affects both nurses' satisfaction with their practice settings and patient outcomes. We got an approval from the authors to use components from the survey.

The questionnaire contained the following components: (a) questions about Job Characteristics, (b) the Revised Nursing Work Index (NWI-R)(Aiken & Patrician, 2000); (c) questions on nurses views about the care on their nursing unit and in hospitals; and (d) a series of questions about the nursing care processes including tasks left undone and questions about the quality of care after restructuring.

Measured Variables

(1) Quality of Care: The survey included two questions assessing the quality of care: (1) the overall quality of care after restructuring and (2) the quality of nursing care delivered to patients in clinical units. The first item was rated on the survey on a 3-point scale (Improved, Remained the same, Deteriorated), but we grouped this item during the statistical analysis into 2 - point scale (Remained the same and deteriorated) due to the small sample size that answered as "improved". The second one was rated on the survey on a 4-point scale, from

excellent to poor; with the higher scores indicating poorer levels of quality. Analysis that compared quality assessments with broader trends of patient care in the hospital after restructuring used the item assessing overall quality of care. Analysis that compared assessments of quality with information on nursing care employed the item assessing the quality of nursing care on their unit. We note here that Carleton University Research Ethics Committee did not approve the question about medication error and patient falls to be asked in the questionnaire due to legal and liability concerns. That is why, we substituted this question by two questions listed above that assess the quality of care.

(2) Tasks Undone: Nurses were asked to indicate which tasks, among a list of seven provided, went undone during their last shift because they lacked the time to complete them. These undone tasks included: (1) patient teaching, (2) preparation of patients before discharge, (3) monitoring the patient after discharge, (4) discharge planning, (5) comforting patients, (6) adequately documenting and reporting nursing care and (7) nursing care plans.

(3) Staffing: Nurses were asked to indicate on a 4-point scale from strongly agree to strongly disagree, whether there are (1) enough staff to get work done, and (2) whether there are enough registered nurses on staff to provide quality patient care. Those two questions were computed into one variable that measures staffing.

(4) Workload: Nurses were asked to indicate on a 4-point scale from strongly agree to strongly disagree, whether workload has increased in their units over that past few year.

(5) Time pressure: Nurses were asked to indicate on a 5-point scale from strongly agree to strongly disagree, whether they have a constant time pressures due to heavy workload.

(6) Support Services: Nurses were asked to indicate on a 4-point scale from strongly agree to strongly disagree, whether there are adequate support services that allow them to spend time with their patients.

(7) Work environment: Nurses were asked to indicate on a 4-point scale from strongly agree to strongly disagree, whether they have a work environment that is pleasant, attractive and comfortable.

(8) Teamwork: Nurses were asked to indicate on a 4-point scale from strongly agree to strongly disagree, whether (1) they have a lot of teamwork with physicians, and (2) whether physicians and nurses have a good working relationships. Those two questions were computed into one variable that measures teamwork.

(9) Autonomy: Nurses were asked to indicate on a 4-point scale from strongly agree to strongly disagree, whether (1) they control their own practice, and (2) whether they have the freedom to make important patient care and work decisions. Those two questions were computed into one variable that measures autonomy.

Data Analysis

Methodological triangulation was utilized through the use of both qualitative and quantitative methods. Both descriptive statistics and thematic analysis were used in this study to derive themes, concepts, beliefs and behaviours and to link them into a conceptual model. The goal of data and methodological triangulation is to converge multiple sources of evidence as a method of corroboration in our case study, thus adding depth, richness and validity to our analysis.

Qualitative Analysis

The audiotaped group interviews were transcribed and the texts were interpreted through thematic analysis. We used two ways to explore and analyze the qualitative findings of this study: (1) Codes – the general categories used to organize our findings and (2) Themes – the most frequently discussed topics in each code.

Quantitative Analysis

Quantitative data from the surveys were entered into the Statistical Package for the Social Sciences (SPSS). Statistical techniques were used to analyze the questionnaire results. Descriptive correlation and One Way Analysis of Variance (ANOVA) are used to analyze the statistical findings. The

Quantitative findings were incorporated within the qualitative findings wherever applicable.

Strengths of Research Methods

A major strength of our in-depth qualitative study lies on its proposed use of a multilevel design that combines:

1- On site observation: The chief strength of 'on site observation' lies in the depth of understanding it permits of the work environment, the milieu and cultural dynamic

2- Questionnaires: In the context of our study, the questionnaire was helpful as it allowed participants to develop a better understanding of the main issues before the group interview session began. And the information from these pre-group questionnaires helped us discard unimportant issues and to focus on the main ones so that it can be covered within 60-90 minutes group interview session period. Based on the information provided in the questionnaires, we had prepared a list of semi-structured questions for each clinical unit to be asked during the group interview sessions. Qualitative findings from interviews are more valid when linked to quantitative findings from the questionnaires.

3- Post Questionnaires Semi Structured Group Interviews: Group interview methodology is one of the most widely used qualitative research tools in the applied social sciences. The strength of group interviews rests in their usefulness to get a sense of attitudes, perceptions and in-depth level of

information. That is, this method generated rich, detailed, valid process data that left the participants' perspectives in tact. It allowed all to speak freely and let the discussion flow naturally.

4- One-on-one interviews: The importance of interviewing is based on its strengths as a qualitative tool to ensure that the information sought after is gathered, as well as opinions. A great strength about interviewing is that questions can be made specific to the individuals to draw out their knowledge. This allowed us for not getting trapped in using 'set' questions for everybody, as in questionnaires and quantitative methods. One-on-one interviews provided us with contextual data for interpreting the nurses' views.

Ethical Considerations

In order to address ethical concerns that our research process and /or results could bring harm to those involved, there were various steps taken to ensure that this does not become a reality. We provided participants with an introductory outreach statement of intent, as well as further information they would like to know about our study. All respondents to questionnaires and participants in-group interviews and one on one interviews had a consent form to be explained and signed before filling in the questionnaires. The consent form acknowledges that personal names will be excluded. A tape recorder was used for group interviews and one on one interviews upon the granting of permission

of the interviewees. Appendix B contains the staff letter, information summary and informed consent.

A closed envelope was provided to each participant that contains two copies of the information summary and informed consent, one short questionnaire and an empty envelope. Participants were asked to fill in the questionnaire and returned it back in a sealed envelope. Appendix A contains copies of the English and French questionnaires. The investigator signed the two copies of the informed consent. Each participant was asked to sign one copy and return it back with the sealed envelope. And one copy of the signed informed consent was kept with each participant.

Two-research ethics applications were submitted for this study. Approval of this research was obtained from Carleton University Research Ethics Committee and Ottawa Hospital Research Ethics Board. Both applications were approved after subsequent revisions and constant follow up. Appendix C contains documentation of both approvals.

Study Findings

The general hypothesis for this present thesis is the following:

Hospital rationalization to ensure efficiency and control cost escalations has created latent failures in hospitals, and combined with attributes of organizational culture, have created an environment for active failures in the nursing care

processes which increase the potential for the occurrence of nursing sensitive patient outcomes.

Both descriptive statistics and thematic analysis were used in this study to derive themes, concepts, beliefs and behaviours. In this study, we connected both quantitative and qualitative findings. The main instrument was qualitative, but the quantitative instrument (questionnaire) used in this study provided depth to our qualitative findings. Attention to the relationship between structured questionnaire questions and the qualitative themes was emphasized to ensure that the quantitative findings could be used to enrich qualitative results.

At the macro level analysis, we identified three main codes that provide a general impression of our qualitative data:

- 1- Latent Failures
- 2- Organizational Culture
- 3- Impact of Hospital Rationalization

In addition to the macro-level view, we identified a group of specific themes that stand out as significant within the four main codes. Below is a summary of codes and themes:

1- Latent Failures

1.1 Time Pressure

“There is no time for proper patient assessment. Sometimes, many tasks are left undone due to lack of time. We are pushed to be efficient, without much attention to how this may influence patient outcome.”

Time pressure emerges as a key theme under the factors that lead to latent failures in a hospital setting. It is by far the largest of all themes discussed by participants. Decrease in time for patient care over the past few years emerges as a key issue of concern as cutbacks and amalgamations have led to decrease in nurse-patient ratios, increase in workload, reduction in staffing, increase in absenteeism, increase reliance on part timers and agency nurses, decrease in support services, and increase in patient acuity as a result of an aging patient population. All participants agreed that they do not have adequate time to complete the nursing tasks associated with nursing care processes. Time is considered as a barrier in delivering a quality care, as a result of staffing and workload and support services issues. Those findings were supported by our quantitative results. A one-way analysis of variance (ANOVA) yielded significant differences in time pressures as a function of tasks undone such as: development or update of nursing care plan $F(1,57) = 8.198, p < 0.01$; adequately documenting and reporting nursing care $F(1,57) = 4.911, p < 0.05$; preparation of patient and family for discharge $F(1,57) = 5.437, p < 0.05$; and teaching for patient and families $F(1,57) = 17.846, p < 0.01$ respectively. This suggests that nurses who perceived leaving undone tasks such as development or update of nursing care plan, adequately documenting and reporting nursing care, preparation of patient and family for discharge, and teaching for patient, emphasized having constant time pressures due to heavy workload.

1.2 Staffing

“Adequacy of staffing directly impacts patient safety.”

“There is not enough money to recruit more nurses. Sometimes, we are forced to deliver patient care with minimum levels of staff. At the end of the day, we don't have energy to provide a very good quality patient care”.

“Patient load is not directly related to the number of patients we have in the unit, but to the acuity and complexity of their care. When more acute ill patients are assigned to us in period of inadequate staffing, more preventable incidents occur at our unit.”

Participants also identified inadequate nurse staffing as an unsafe work condition. They hypothesized that the latent failures in organizational decisions transmit to care units and shape work conditions. For them, understaffing results in high workloads and time pressures. And hence, insufficient time for patient care may not allow nurses to detect errors before they occur. For most participants, while understaffed, they are at higher risk of committing errors and violations while providing nursing care. As for the quantitative results, a one-way analysis of variance (ANOVA) yielded significant differences in staffing as a function of tasks undone such as: monitoring the patient after procedure $F(1,57) = 5.921$, $p < 0.05$; and documenting and reporting nursing care $F(1,57) = 4.472$, $p < 0.05$ respectively. That is, nurses who perceived leaving undone tasks such as monitoring the patient after procedure, and documenting and reporting nursing care reported shortages in staffing.

1.3 Workload

“Our workload increases when we work with inexperienced nurses, new nurses, and agency nurses because we are responsible for their work. We are carrying the burden of caring for their own patients because they cannot perform tasks, document or have the skill to assess critical changes, prevent complication, and rescue patients.”

"We always fear patient errors because of heavier workloads."

Almost all the participants in the interviews discussed that patient acuity, time pressure, inadequate staffing, and decrease in support services combine to influence the workload in their clinical units. Some added that working with inexperienced nurses has created heavy workload, which influences patient safety. Also, added responsibilities (i.e. non-nursing duties) due to a decrease in support services have increased their workload. A one-way analysis of variance (ANOVA) yielded significant differences workload as a function of tasks undone such as: monitoring the patient after procedure $F(1,57) = 4.154, p < 0.05$; development or update of nursing care plan, $F(1,57) = 6.985, p < 0.05$; and teaching for patient and families $F(1,57) = 16.313, p < 0.01$ respectively. That is, nurses who perceived leaving undone tasks such as monitoring the patient after procedure, development or update of nursing care plan, and teaching for patient and families reported increase in workload in their units over the past few years. No significant differences were found in workload as a function of the remaining tasks undone.

1.4 Support Services

"Porters are not anymore dedicated to the clinical units as they were before cutbacks. And the increase in the number of patients was not followed by an increase in the number of porters. Hence, this has a safety implication to patients. To illustrate more, porter affects the time of patients' medication. Due to shortages of porters and support staff, most of the time patients spend more than 2 hours in the x-ray or labs waiting for the porter to bring them back to their clinical unit. Due to this long wait, some of our patients will miss their medication. And in some cases, we at the unit are obliged to give the medication before the regular time frame to patients who will be going to have some diagnostic tests,

because we know that they will spend more than two hours waiting there. And if we don't give them their medication prior to that, we may sometimes forget to give them back the medication once they arrive back. So, as you see, errors, incidents and harm can occur because of this delay".

"A patient goes down for a 15 minutes test, they stay 3 hours, we wait for porters to come back. The patient misses the medication. We are taking the slack from the porters."

"Even housekeeping and orderlies affect patient safety".

Participants discussed that cutbacks have affected all support systems from housekeeping, orderlies, porters, unit clerks to pharmacy and x-rays. And in the contrary to what most decision makers and management think, participants argued that this reduction in support and auxiliary services has an influence in patient safety and in some cases has created an environment for more preventable clinical incidents that could harm patients. We support this argument by this quantitative finding. A one-way analysis of variance (ANOVA) yielded significant differences in adequate support services as a function of tasks undone such as monitoring the patient after procedure, $F(1,57) = 4.141, p < 0.05$. Nurses who perceived leaving undone tasks such as monitoring the patient after procedure reported that inadequate support services that do not allow them to spend time with their patients. No significant differences were found adequate in support services as a function of the remaining tasks undone.

Overall, time pressure, staffing ratios, workload, and support services stand as the most prominent themes under code 1 (Latent Failures). The analysis suggests time pressure, staffing workload, and reduction in support services combine to produce a set of outcomes that include decreased quality of

care, and an environment for active failures (tasks left undone) in the nursing care processes in the hospital setting. This provides partial support to the general hypothesis of this thesis project.

2- Organizational Culture

Teamwork, communication, work environment, autonomy, supportive administration and training stand as the most prominent themes under code 2. Our analysis suggests that those themes act as important characteristics of the culture in health care organization.

During our observation experience in the six clinical unit and our informal discussions with some units' staff, we found it hard to identify the common shared beliefs and values that guide the thinking and performance of units' staff, hence, it was difficult to identify the culture of the whole organization that is composed of three campuses. The general view of all participants in the group interviews is that each unit has different work environment and culture than others. In each unit, we realized that certain characteristics and features identify the unit as a distinct entity within the organization. Many argued that there are also profession –specific subcultures that exist within the hospital's culture.

2.1 Teamwork

Participants expressed their frustrations associated with the absence or loss of teamwork and support in their unit. They discussed that the reason for the fragmentation of their teams is associated with the amalgamation of two or

more units that resulted in an “us” versus “them” attitude among them. Many participants discussed that a good teamwork between nurses and physicians facilitates an effective communication, which reflects on delivering better quality of care to patient.

Under this theme, participants also discussed their experience with the cultural shock that resulted from amalgamation. They said that the de-stabilization of their teams as a result of unit amalgamation affected communication and teamwork. Some describe a situation in which one team of nurses was required to move to a new hospital site because their own hospital was closed. Interestingly in this case, they think, the team was not de-stabilized and they were more culturally cohesive. They still have good working relationships among themselves and they think that this is reflected on the delivery of care to their patients. A one-way analysis of variance (ANOVA) yielded no significant differences in teamwork as a function of all tasks undone. However, a one-way analysis of variance (ANOVA) revealed significant differences in teamwork as a function of quality of patient care in the hospital, $F(1, 57) = 11.35$, $p = <0.01$. That is, nurses who perceived that quality of patient care in their units had deteriorated reported less teamwork.

2.2 Communication

“Everything gets bigger affect the communication; our questions are not answered the same way as it was answered when we used to work in a smaller hospital.”

"In a small hospital, everybody knows everybody. We are like a family. But in a bigger organization like ours, we have no power to control over things or to have things done in a timely fashion".

"In a small community hospital, you know how things are done, you know how to get things done, but in a bigger hospital like ours, you struggle for these issues and this takes time away from your patients."

"When the organization gets bigger and you can't get the answer too fast, so you may lose interests".

"There is a communication problem in our unit; things gets more distorted. Our clinical unit has gotten bigger so fast. And this affect workload and quality care".

"The large organization has more vulnerability to medical mistakes"

"Big organizations are complex. A Lack of communication in a big organization affects how things get done."

Participants discussed communication as complex in larger organizations when compared to smaller ones. This is explained in the sense that communication and interaction with other departments and programs in smaller organizations is better than larger ones. Nurses make repeated reference to 'then and now' as they evaluate their interaction with other departments. In smaller hospital, they think that nurses have more respect from physicians and management. For them, many issues are less complex in a smaller organization. Some nurses sense a feeling of powerlessness and less control in a bigger organization. Other believe that management in smaller organizations listen to employees' concerns and seek their input into their decision making process. For them, participative management is generally expected to improve employee satisfaction and attachment to an organization and this would positively influence their performance.

2.3 Supportive Administration

Participants discussed that their administration does not listen to their concerns. The general view of participants about management is that it is becoming more political and that senior management does not know the reality of what goes on at the bedside. Mostly, they care about enhancing efficiency and they are not much aware of how cost cutting may influence delivering patient care at the bedside. Some believe that management in smaller organization listen to employees' concerns and seek their input into their decision making process. In addition, they discussed that management should provide opportunities for staff input and suggestions regarding patient care problem solving and resolution. Several quotes from nurses' beliefs are presented below to illustrate the point:

"They don't listen and don't give us an active role in decision making."

"How many of those senior managers know what is going on at the bedside."

"If they want to implement a successful change to delivering patient care, they have first to consult with us in a bottom – up decision making process. Otherwise, failure will be a high possibility."

"Management in bigger organizations like ours don't listen to nurses; in smaller organization where we used to work before mergers, management listened better."

"Management in bigger organization look only at numbers and they look at nurses as a number."

Nurses report their frustration with administrators who repeatedly implement changes with little – or no- input from nurses, who are expected to integrate the changes into their day-to-day work. Participants argued that having

a non-supportive administration that does not listen to employees' concerns about staffing, workload, support services, time pressure could help create an environment for active failures and poor quality of care.

2.4 Autonomy

"In our previous small hospital, we were part of the decision-making process; we were controlling our practice, we were making important decisions about patient care, we were controlling better our schedules and environment".

As for autonomy, participants feel very powerless in their units. They have no active role in decision-making. They feel they have little power to correct changes that have compromised working conditions and quality of care. They have little control over the changes taking place on their units. Some experience a sense of powerlessness over decision about patient care. Nurses emphasized that more autonomy is associated with better job satisfaction, hence better quality and patient outcomes. This is consistent with literature, which shows that autonomy is positively correlated with job satisfaction (Roedal & Nystrom, 1988). However, nurses did not explain further how more autonomy (as a single variable) in making important patient care decisions could have a positive impact on patient outcomes. In our quantitative analysis, we found a significant relationship between patient care assignments and autonomy, $r = .415$, $n = 55$, $p < 0.01$. Patient care assignments that foster continuity of patient care is associated with nurses having control on their practice and having the freedom to make important patient care and work decisions.

2.5 Work Environment

As for the overall work environment, a one-way analysis of variance (ANOVA) yielded significant differences in work environment as a function of tasks undone such as: development or update of nursing care plans, $F(1,57) = 6.912, p < 0.05$. Nurses who perceived leaving undone tasks such as development or update of nursing care plans reported unpleasant work environment. No significant differences were found in work environment as a function of the remaining tasks undone.

2.6 Training

Many nurses pointed their dissatisfaction with the orientation programs for new and agency nurses. In-service education and training were identified as major issues in the workplace that could reduce the quality of patient care and impact patient safety. Many nurses agreed that orientation programs for newly graduated RNs are inadequate in preparing them to practice care effectively. Newly hired nurses get a minimal number of shifts partnered with an RN on their unit. As a result, nurses think that this may create the potential for more preventable clinical incidents. They added that newly hired RNs have limited ability to recognize signs of complications and this may lead to failure to rescue acutely ill patients. Some participants realize more preventable clinical incidents (medication errors) occurring when there are more new nurses working in their units. Nurses agreed that experienced and well-trained nurses are better in early detection of complication and timely interventions that are critical in rescuing patients.

"The numbers of new hired nurses are frightening to patient safety since they are not experienced. There should be better orientation program for new nurses. They have only 10 shifts orientation period and then they are expected to work in their own way and work as professional."

"Experienced nurses have that feeling and perception that something may go wrong to the patient and can avoid any failure to rescue".

"Short orientation period is not good for patient outcomes. Before it was not allowed to have new nurses work first in the unit. They have to do basic nursing first. But now because of nursing shortages, they changed this policy."

"In our unit, there is an orientation program for five weeks only. It is fine to take the theory but it takes one to two years to make the nurse comfortable. In five weeks they can do job, but if something happened, they don't know what to do and as a result, they may fail to rescue the patient."

"Patients are put at risk with non-experienced nurses".

"Some mistakes you can see when you have experience. Experienced nurses can realize complications and can rescue patients, while new nurses sometimes may fail to rescue patients."

"We used to have agency nurses but now we stopped due to quality and patient safety concerns."

"Agency nurses contribute to more errors."

"They don't have enough orientation; they are not familiar with the unit policies and procedures; they do not perform charting well; then no wonder, it would be a good reason to have more mistakes and errors in our unit".

"Agency nurses are brutal."

"There is a link between patient safety and agency nurses. Patient care is safer without agency nurses."

"No adequate training being delivered to the staff especially in terms of new technologies."

Cross-training that resulted from amalgamation is an issue for many nurses. For them, nurses need proper time to get comfortable in a new unit in

order to get close to a level of expertise. Nurses argued that cross-training issues might lead to diminishing working conditions and diminished quality of care. Participants went further to discuss that cross training issues might compromise patient safety. In this regard, some nurses discussed their transfer experience. They explained that when transferred to another units, they were not familiar with the policies and procedures of those particular units. Sometimes, they had difficulty giving adequate basic care, medications and treatments since they were unfamiliar with most of them. For them, this might have compromised patient safety. Some nurses criticized the management for failing to provide the adequate time and training required to help RNs adjust to the changes brought on by the amalgamation of nursing units.

3- Impact of Hospital Rationalization

Despite the considerable situational differences, all nurses from the six study units experienced hospital rationalization and restructuring in remarkably similar ways. Both perceived the extent of rationalization and restructuring similarly, and all described the impact of these efforts on hospital functioning and patient care in similarly negative ways as well. Nurses, however, discussed the challenges experienced as a result of cutbacks as distinct from the challenges experienced as a result of amalgamations.

3.1 Cutbacks

Under the cutbacks theme, participants discussed the impact of cutbacks and cost saving strategies and how this may influence patient outcomes. Nurses think that cutbacks to support services (e.g. orderlies, porters, housekeeping, and other clerical services), high patient - nurse ratios, increased patient acuity, the introduction of aggressive discharge policies that favor shorter length of stay (i.e. too little time to provide care and teaching required to discharge patient safely to community care), and hospital wide cost cutting measures are some of the many factors that have led to a sharp drop in the quality of patient care and have created an environment for preventable clinical incidents in the hospital setting.

The general view about cutbacks is that management developed a strategy to enhance efficiency and minimize operating costs. However, nurses think that considerable attention was not given to those people who may be on the receiving end of adverse incidents or reduced quality of care and are in phase of illness and vulnerability.

“Support services were shrunk; the nurses get more workload; this may affect patient outcome.”

“Since cutback started in 1991, patient care has deteriorated.”

Comments directed at the provincial government for implementing an agenda for the entire health care system that focused exclusively on fiscal goals rather than attempting to preserve a balance between human and financial needed. Nurses criticized hospital administrators and /or the provincial governments for their failure to ensure that political and /or monetary

consideration did not compromise working conditions and nurses ability to continue to providing quality care in the face of large scale change.

Overall, participants discussed that the challenges brought by cutbacks were: reduced job satisfaction by having adverse effects on staff, reduced quality of care, poorly implemented process as administration did not seek employees' input and listen to their concerns (no input or control over process) and uncertainty due to an environment of constant change.

3.2 Amalgamation

The theme of amalgamation points that the merger of the hospital has a direct impact on quality of patient care that a nurse can deliver. Nurses described the instability related to the difficult process of merging two sets of staff in one unit as a result of amalgamations. The "new transferred staff" has to adjust to the procedures and culture of the existing units. After four years since amalgamations, many participants are still struggling to overcome the "us versus them" mentality in the their workplace. They described the increased workload, instability of teams, and the challenge to adjust to work with new staff and procedures. They described also the difficulty of leaving the culture and environment of one hospital behind and working through the difficult process of adjusting to a merger with new staff and procedures. They argued that they lost the essence of teamwork, familiarity with procedures, and a work culture that many had been a part of.

"We had to leave behind a workplace that we were proud of and to adjust to a new unit and new hospital that did not match the standards we have been used to, since we were used to do things differently".

"Because of restructuring, our ability to provide quality care had dropped significantly".

Some nurses criticize administration for failing to provide the training required to help nurses adjust to the changes brought on by the amalgamation of their nursing units. Since they did not have a proper training, they had uncomfortable experience in learning on the job.

Participants discussed that the challenges brought by amalgamations were: reduced job satisfaction by having adverse effects on staff, reduced quality of care, poorly implemented process as administration did not seek employees' input and listen to their concerns and the difficult transition as every aspect of patient care and staff was in the state of change.

Some nurses discussed that there is a better patient outcomes in smaller non-merged hospitals since there are not many people involved in delivering care. In addition, some think that the work environment is better in small hospitals and this may affect patient outcomes. Many nurses criticized provincial government as being responsible for the instability and frustration caused by amalgamation.

In general, participants make repeated reference to 'then and now' as they evaluate quality of care, working conditions and work environments after amalgamation. Some point out that the combined effects of amalgamation (e.g. increased workload and the challenge of adjusting to work with new staff and

procedures) and cutbacks have created instability and uncertainty and resulted in a sharp drop in the quality of patient care. Many nurses mentioned that they realized a significant increase in the occurrence of preventable clinical incidents during the first year of amalgamations.

Overall, our quantitative results (ANOVA) revealed significant differences in staffing ($F(1, 57) = 12.8, p = <0.01$), adequate support services ($F(1, 57) = 12.46, p < 0.01$), workload ($F(1, 57) = 7.713, p < 0.01$), teamwork ($F(1, 57) = 11.35, p = <0.01$), and work environment ($F(1, 57) = 13.040, p < 0.01$) as a function of quality of patient care in the hospital.

CHAPTER III

DISCUSSION OF FINDINGS I

The present thesis examines the question around the combined impact of hospital rationalization, organizational culture, and nursing care processes on nursing sensitive patient outcomes. The purpose is to develop a framework (as proposed on Chapter 1, figure 3, page 42) for understanding how hospital rationalization, organizational culture and nursing care processes are linked and how this linkage impacts nursing sensitive patient outcomes.

As discussed in Chapter 1, the general hypothesis for the present thesis is the following: Hospital rationalization to ensure efficiency and control cost escalations has created latent failures in hospitals, and combined with attributes of organizational culture, have created an environment for active failures in the nursing care processes which increase the potential for the occurrence of nursing sensitive patient outcomes.

In order to test the above hypothesis, we investigated nurses' perceptions of certain variables that pertain to each of the concepts of hospital rationalization, organizational culture, nursing care processes and nursing sensitive patient outcomes. Methodological triangulation through the merger of both qualitative and quantitative methods was used. The framework we developed in Chapter 1 (figure 3, page 42) which incorporates variables derived from the concepts of hospital rationalization, organizational culture, nursing care processes and nursing sensitive patient outcomes into both Reason's Modeling of the Cause of

Organizational Accidents and Donabedian's Model of Structure, Process and Outcome, guided our analysis of study findings.

The findings of this study provide partial support to the framework and the general hypothesis that is based upon it. For instance, we found that amalgamation and cutbacks have decreased support services available for nurses, created unpleasant work environment, which in turn increased tasks undone left by nurses and reduced quality of patient care in the hospital. In addition, demands on nurses have increased due to an increase of patient acuity. Due to concerns from Carleton University Ethics Board about legal and liability issues, we were not able to include in the questionnaire the variable related to nursing sensitive patient outcomes (medication errors and patient falls). Presumably, we could have attained full support for the framework and the general hypothesis, had we not excluded them. As we discussed before, we substituted this variable by another variable that measures quality of care. Adverse events like medication errors and patient falls are considered in the literature as a component of quality of care.

The qualitative and quantitative data analysis of this study reveal that time pressure, staffing shortages, higher patient workload, and reduction in support services have placed increasing pressure on nursing efforts to deliver high quality and safe patient care. This leads to heightened concerns about the potential for preventable clinical incidents like medication errors and patient falls. Our study findings suggest that those concerns are well placed nowadays in the

hospital industry. Our findings also suggest that substantial group of nurses perceived poor quality of care and more tasks undone at the end of the last shift and a higher frequency of preventable clinical incidents among patients. Time pressure, staffing, workload, support services, teamwork, communication, autonomy, work environment, supportive administration and training played a role in this quality assessment, but it was through the consequences of those organizational attributes - care left undone and preventable clinical incidents, that the effects of those factors were decidedly felt. Findings suggest that hospital rationalization created latent failures in the hospital (time pressure, staffing, workload, support services) and influenced the organizational culture (teamwork, communication, autonomy, work environment, supportive administration and training) and those, in turn, impacted nursing care processes, and therefore, the care that nurses provide to patients.

Many of the present study findings are supported by the existing literature. Based on the previous research, Markham and Lomas (1995) listed several disadvantages of hospital rationalization such as insecurity of human resources (e.g. loss of autonomy, feelings of alienation), loss of managerial and organizational culture, and disruption of routines at the clinical and organizational level. They acknowledged that significant potential exists for negative outcomes due to rationalization (Markham and Lomas, 1995). For instance, Ho and Hamilton (2000) found that organizational restructuring is associated with increased readmission rates for heart attack patients, and increased likelihood of

early discharge newborns. Others consider systems redesign and organizational restructuring as critical factors that have created an environment that increases clinical errors through the disruptions of the integrity of many healthcare teams (from staff and physicians and front-line workers to senior management) in hospitals and other health care organizations (Nicklin, 2001). Similarly, another study that examined innovative downsizing strategies used by 20 acute care hospitals in Ontario showed that organisational restructuring and systems redesign in the health care sector can have potentially more life threatening and immediate implications than they do in most other industries (Bauman et al., 1996). A study by Bluthe (2001) shows how nurses working in three hospitals in Ontario, Canada, experienced organizational restructuring. This study shows that the work pressure precipitated by restructuring caused them to provide “only the basics of care” and to neglect patients’ psychological and spiritual needs. However, fear of patient safety and for their own liability for potential mishaps also surfaced.

Our finding about the reduction of support services as a result of rationalization is supported by Birch et al., (2003) who found that the number of Registered Practical Nurses, a less-skilled class of nurses, in acute care hospitals in Ontario fell from 10,011 to 8,414 (a reduction of 16%) between 1994 and 1999. Hence, this suggests that not only did Registered Nurses face an increased workload because of organizational changes and increased patient acuity, but the support system became inadequate as the number of Registered

Practical Nurses available to help deal with this workload was substantially reduced.

In our case study, it was found that the consequences of negative shifts in staffing, workload, time pressure, support services, teamwork, communication, work environment, autonomy, administration and training are detrimental to quality of care and patient safety. This finding is supported by the organizational literature that shows that common organizational factors such as team factors (stability), interpersonal and communications issues (poor communication), lack of supervision, lack of experience, interdepartmental coordination, written procedures, training, active staff development, staffing, staff shortages, shift patterns, workload, skill mix, salary, job security, stressful environment, allocation of resources, inadequate equipment, even the wider economic and political environment are responsible for many inefficiencies, errors and frustrations in an organizationally complex environment like a hospital (Vincent, 2000; Carthey, et al., 2001; Reason, 1995; Baker & Norton, 2001; West, 2000). Poor staffing, for instance, leads to overworked staff, fatigue, and possible error. Kovner and Gergen (1998) examined the relationship between nurse staffing levels for surgical patients and a set of adverse events in more than 500 U.S. hospitals in 10 states. A significant inverse relationship was found between the number of registered nurses per patient day and urinary tract infections, pneumonia, thrombosis, and pulmonary compromise. The researchers estimated that one additional RN hour per surgical patient per patient day was associated with 8%

decrease in urinary tract infections and more than an 8% decrease in pneumonia. Murphy (1993) evaluated the impact of downsizing in a study of 281 hospitals. Those hospitals that made across the board staffing reductions of 7.5 % or greater or brought their average below 3.35 FTEs per hospital bed were more likely to have higher mortality and morbidity rates than other hospitals in the sample.

In our study, nurses' perception about an increase in patient acuity over the last few years is supported by Birch et al (2003) who concludes in a research study that the demands on nurses in acute care hospitals have increased as increasing number of severity-adjusted episodes are served using fewer beds by a reduced number of nurses. Thus, an increase in patient acuity resulted with increased workload and time pressures for nurses.

A body of expert opinion and research stresses the point that collaborative team effort, good communication and job satisfaction leads to high quality of care (Donabedian, 1985). Other research stresses that organizational factors such as staffing, workload, teamwork, communication, support services and so on are considered important contributory factors that could be implicated in some medical accidents (Vincent, 1989).

Findings from this study also suggest that quality of care and patient outcomes are attributable to the quality of nursing care processes. Specifically, it was found that a substantial number of nurses who said that the quality of care has deteriorated after restructuring stated that some tasks are left undone

because of a lack of time to complete it. This finding is supported by Reed, Blegen & Goode (1997), who demonstrated that medication error rates were found to be one of two adverse patient occurrences mostly directly attributable to the quality of nursing care at the unit level.

Two main outstanding observations from our case study are worth noting. First, that budget cuts and amalgamations have resulted in a marked decrease in quality of patient care. However, given the obvious relationship between those two themes, it was difficult for us to isolate or highlight the impacts that are unique to each of cutbacks and amalgamations. What we know about unique impact of both budget cuts and hospital amalgamations on quality of care and patient outcomes pales by comparison to what we do not know. However, this is itself an important finding. It is of great concern that hospitals could be subjecting hundreds of thousands of very sick patients to the unknown consequences of hospital rationalization that have not been sufficiently evaluated before their widespread adoption. Indeed findings from our study suggest that hospital rationalization tends to have potentially harmful effects on quality of care and patient safety. Perhaps we should start to ask more frequently than we do whether patients are better off than before hospital rationalization was launched.

The second outstanding observation is the finding around the organizational culture and organizational size. As for the former, we conducted our study in a teaching hospital that was the result of the merger of four organisations with different and relatively incompatible culture. Hospital

employees, as a result, have simply been expected to adapt to each other. However, in light of our findings about the role of culture in organizations and the investment that most employees have in it, we found that coming in contact with another culture and being forced to change one's own culture constitutes a very difficult task in health care organisations. Our findings suggest that culture and organizational structure are inseparable, and structure is one of the major manifestations of culture. That is, the culture of an organization is one of the factors that determine the work environment, relationships, communication, and teamwork. And the culture of an organization is also the result of organizational structure. Our findings suggest that the level of complication changed as a result of amalgamations. Many of the acquired units in our study organisation received a set of new directives, which were issued without regard for the adverse effect that may have on unit's employees, quality of care and patient safety. Our findings suggest that the teaching hospital under study went through amalgamations without being much aware of the importance of organizational culture for both health professionals, quality of care and patient safety.

As for organizational size, our findings suggest that one of the factors that may affect the strength of an organization's culture is organisational size. Our qualitative analysis suggest that a smaller organization might likely have a stronger culture, given it is likely to be more homogeneous and therefore its members are more likely to share many assumptions and values. This finding is supported by the work of Nahavandi & Malekzadeh (1993) who argue that the

larger the organization, the more likely it is complex, less responsive to its employee's needs and concerns and has a weak organizational culture.

Literature shows that an increase in organizational size as a result of amalgamations is expected to enhance organizations by maintaining orderly managerial succession; reducing labor costs, and enhancing economies of scale. For instance, many literature findings suggest that large sized hospitals provide better management of their patients and better quality of care (Palmer, 1979). However, our findings suggest that this increase in size is also expected to be inversely related to employee attachment to an organization, and hence potentially impacting quality of care. Put this clearly, literature shows that hospital structural characteristics such as bed size, teaching status, and service volume may affect quality of care. Our findings, however, suggest that organizational factors in hospitals (staffing, workload, support services, teamwork, time pressure, work environment, communication) can be expected to have a similar or larger influence on the quality of care.

Our findings are partly supported by the work of Palmer (1979) who related the size of work groups within an organization to the size of the entire organization. Literature shows that larger work groups have generally been found to be positively associated with lower job satisfaction, lower attendance and retention rates, and more labor disputes and inversely related to the ability of group members to become better acquainted, develop closer friendship, and build stronger group cohesion. The improved organizational attachments of

smaller work groups can be expected to lead to improvements in the effectiveness of the member's performance in organizations.

In general, although literature assumes that large sized hospitals have an advantage over small sized ones in being able to support the services, volumes, facilities, and skills necessary for treating specific conditions and diseases, we find it reasonable, however, to argue that small sized hospitals might have an advantage over large sized ones in having less latent failures, strong organizational culture, healthy work environment, stronger teamwork, and better communication. The findings suggest the need to examine the direct and unique effect of each of organizational size and certain factors like staffing, support services, teamwork, work environment, ect. on quality of care and patient outcomes. Our findings suggest that health care organizations need to be modeled by integrating the advantages of both organizational size and certain organizational and cultural factors to better enhance the quality of care and patient safety.

Conclusion

Quality of care is characterized as being integrative. It reflects the contributions of all those who provide care, including the contributions of patients to their own care. The integrative ability of quality of care is necessarily accompanied by an inability to isolate with certainty the specific factors that have contributed to bad or good patient outcomes. Thus, researchers must first begin

to understand the complex interaction of structure and process features and their associated impacts on patient outcomes.

Based on the study finding, two additional variables that pertain to the concept of organizational culture (Supportive Administration and Training) are now integrated into the framework (Chapter 1, Figure 3).

The findings of the study validated many of literature findings and assisted in developing the framework below (Figure 4). However, as many other research studies, our study provided more questions than answers and those questions were left unanswered due to the small sample size included in the study. For example, what are the predictors of tasks undone and do they differ among organizational types (teaching/community hospitals) and forms (merged/non-merged)? Also, the study generated hypotheses that need to be tested first before formulating final conclusions, theoretical applications and policy implications. For example, the framework proposes that the better the staffing, support services, work environment, teamwork, supportive administration and autonomy in work, the less undone tasks and the less tasks are left undone, the lower occurrence of medication errors and patient falls. Does this reflect in real practice?

In order to try to answer this question, and in taking into consideration the limitations of the present study (that will be discussed after), a second study capable of establishing the linkages among concepts in our proposed framework (Figure 4 Below) is needed. Such study should be able to provide better

information to inform public policy making and organizational decisions respectively.

Figure 4: This Framework Incorporates Variables derived from the Concepts of Hospital Rationalization, Organizational Culture, Nursing Care Processes and Nursing Sensitive Patient Outcomes into both Reason's Modeling of the Cause of Organizational Accidents and Donabedian's Model of Structure, Process and Outcome

Limitations

As with any piece of research, there are limitations with our study. The first of these relates to sample size, which may limit the generalizability of the study's findings. However, the results of the study are congruent with recent literature.

The second limitation concerns that the information from group interviews and one on one interviews are inevitably subject to a "social desirability bias". That is, consciously, or unconsciously, participants may discuss issues or answer questions in a way that makes their hospital look good. To counteract this bias, we tried to word questions that focused on specific behaviours rather than attitudes.

The final limitation relates to the exclusion of questions, which correspond to the frequency of medication error, and patient falls from our study. Due to concerns from Carleton Ethics Board Committee, we were not able to measure nurses' perception about the occurrence and frequency of medication errors and patient falls in their units over the last few years. Thus, we were not able to examine the combined impact of hospital rationalization, organizational culture, and nursing care processes on nursing sensitive patient outcomes (measured by the frequency of medication error and patient falls).

To counteract the above limitation, this study should be followed by analyzing secondary data in other settings with other types / forms of hospitals before conclusions are made. Although mounting evidence results from this

single case study, large multisite data with sufficient number of hospitals that include more variation in organizational forms and types should be undertaken to examine the combined impact of hospital rationalization, organizational culture, and nursing care processes on nursing sensitive patient outcomes (measured by the frequency of medication error and patient falls).

By taking into account the limitations of the present study, and the fact that the study findings did not inform us about the causal links among the concepts included in our framework nor the impact of organizational forms and types, we undertook secondary data analysis. This analysis will assist in testing hypotheses generated from our study. Our study will provide the foundation and the framework that inform our secondary data analysis.

Generated Hypotheses

On the basis of the study findings discussed in this chapter, the developed framework illustrated in Figure 4 assisted in the generation of the following hypotheses:

Hypothesis 1

A) Structure / Process Hypothesis

Nurses perceptions about tasks left undone in their units are predicted by organizational and cultural factors like staffing, workload, time pressure, support services, work environment, teamwork, communication, supportive administration, autonomy and training. Precisely, the better the staffing,

workload, time pressure, support services, work environment, teamwork, communication, supportive administration, autonomy and training, the less undone tasks.

B) Process / Outcome hypothesis

The occurrence /frequency of Nursing sensitive patient outcomes (medication errors and patient falls) could be well predicted by the nursing care processes referring to tasks undone. Precisely, the more tasks are left undone, the higher the occurrence of Nursing sensitive patient outcomes.

Hypothesis 2

Structure / Process / Outcome Hypothesis by Organizational Types and Forms of Hospitals:

Hospital organizational types (community/teaching) and forms (merged /non-merged) influence differently nurses perceptions of organizational and cultural factors like staffing, workload, time pressure, support services, work environment, teamwork, communication, supportive administration, autonomy and training. That is, the above factors act more as predictors of undone tasks in large-scale hospitals (Teaching and or merged hospitals) than in smaller scale ones (Community and or non-merged hospitals). In the same way, different hospital organizational types and forms will influence differently the predictive link between the tasks undone and occurrence /frequency of Nursing sensitive patient outcomes (medication errors and patient falls).

The above hypotheses will be tested by undertaking a secondary data analysis that relates to our study objectives and which measure some variables included in our framework.

CHAPTER IV

TESTING HYPOTHESES: METHODOLOGY AND RESULTS

Sample and Participants

In order to test the hypotheses generated by our study, we conduct a secondary data analysis of Ontario Registered Nurse Survey of Hospital Characteristics that is one component of an International study of Hospital organization, and staffing on Patient Outcomes in 711 hospitals in five countries: Canada (British Columbia, Alberta, Ontario), the United States, England, Scotland and Germany in 1998-1999 (Appendix D). The study surveyed nurses to obtain information on organizational climate, nurse staffing, and nurse and patient outcomes. The purpose of this survey is to help identify hospital characteristics, to see how the organization of nursing care affects both nurses' satisfaction with their practice settings and patient outcomes.

In Canada, representative samples of nurses were drawn from hospitals in Ontario, Alberta and British Columbia. 17,403 nurses were surveyed in those three provinces. In Ontario, 8,229 nurses were surveyed in 136 acute care hospitals. We classified Ontario data by hospital type (Community, Small and teaching) and hospital forms (merged / Non Merged).

For the purpose of our secondary data analysis, we selected the survey data that correspond to 80 acute care hospitals in Ontario (71 Community hospitals and 9 teaching hospitals). Because of hospital amalgamations, those

80 hospitals exist on 134 sites (See Appendix E). According to the Public Hospitals Act (Regulation 964 – Amended to O.Reg.321/01), Teaching hospitals are classified as Group A hospitals and Community hospitals are classified as Group B hospitals.

According to the Public Hospitals Act:

Group A hospitals, being general hospitals providing facilities for giving instruction to medical students of any university, as evidenced by a written agreement between the hospitals and the university with which it is affiliated, and hospitals approved in writing by the Royal College of Physicians and Surgeons for providing post-graduate education leading to certification or a fellowship in one or more of the specialties recognized by the Royal College of Physicians and Surgeons;

Group B hospitals, being general hospitals having not fewer than 100 beds.

Demographic Characteristics

In terms of the demographic characteristics of the survey respondents, 97.8% of respondents were female and the male respondents constituted 2.2 %. The mean age for respondents is 43 years old. 46.1% are full time and 53.9 % is part time.

Questionnaire Instruments

The study measures for this analysis were drawn from sections A, B, C, D& E. Those sections are represented by the following components: (a)

Employment Characteristics, (b) the Revised Nursing Work Index (NWI-R) (Aiken & Patrician, 2000); (c) Job Characteristics that includes questions on nurses views about the care on their nursing unit, in hospitals and the nursing care processes including tasks left undone and (d) Last Shift which asks about nursing activities during the last shift and (e) Demographic Characteristics.

Measured Variables

Due to our inability to control the variables included in Ontario Registered Nurse Survey of Hospital Characteristics survey, we were not able to measure all the variables that are included in our framework (Chapter III, Figure 4). Out of thirteen variables that are included in this framework, we were able to measure only nine variables. These are: Staffing; Support Services; Teamwork; Work Environment; Autonomy; Tasks Undone; Medication Errors; and Patient Falls. However, in our final analysis, we will not disregard completely the findings about all the variables derived from our case study.

Hypotheses to be Tested

Below are the hypotheses that will be tested by using secondary data analysis:

Hypothesis 1

A) Structure / Process Hypothesis

Nurses perceptions about tasks left undone in their units are predicted by organizational and cultural factors like staffing, support services, work environment, teamwork, supportive administration, and autonomy. Precisely, the better the staffing, support services, work environment, teamwork, supportive administration, and autonomy, the less undone tasks.

B) Process / Outcome hypothesis

The occurrence /frequency of Nursing sensitive patient outcomes (medication errors and patient falls) could be well predicted by the nursing care processes referring to tasks undone. Precisely, the more tasks are left undone, the higher the occurrence of adverse events.

Hypothesis 2

Structure / Process / Outcome Hypothesis by Organizational Types and Forms of Hospitals:

Hospital organizational types (community/teaching) and forms (merged /non-merged) influence differently nurses perceptions of organizational and cultural factors like staffing, support services, work environment, teamwork, supportive administration, and autonomy. That is, the above factors act more as predictors of undone tasks in large-scale hospitals (Teaching and or merged hospitals) than in smaller scale ones (Community and or non-merged hospitals). In the same way, different hospital organizational types and forms will influence differently the predictive link between the tasks undone and occurrence /frequency of adverse events.

In our secondary data analysis, the terms adverse events and nursing sensitive patient outcomes will be used interchangeably with the same meaning.

Analytical Tools

For each of the two hypotheses tested, data were analyzed in three steps: preliminary descriptive statistics tested the normality of the distribution; linear regression analyses were then undertaken to evaluate each predictive link included in the hypothesis; finally, regressions were modeled into structural equations integrating all significant predictive links into one sequence.

Testing Hypotheses

Hypothesis 1

A) Structure / Process Hypothesis

Nurses perceptions about tasks left undone in their units are predicted by organizational and cultural factors like staffing, support services, work environment, teamwork, supportive administration, and autonomy. Precisely, the better the staffing, support services, work environment, teamwork, supportive administration, and autonomy, the less undone tasks.

Sample Size: 7108 cases

Variables and Measures

Dependent Variables:

One dependent variable (DV) was chosen to test this hypothesis. This variable is:

1. Tasks Undone

Measure:

Tasks Undone: Nurses were asked in section (D) of the survey to indicate which tasks, among the list of six provided, went undone during their last shift because they lacked the time to complete them. These tasks included such things as patient teaching, discharge planning, comforting patients, adequately documenting and reporting nursing care, back rubs and skin care and nursing care plans.

D1. Which of the following tasks were necessary but left undone because you lacked the time to complete them?

code as:

- 1 yes (circled)
- 2 no/no response

D 1.1 Routine teaching for patients and family

D 1.2 Prepare patients and families for discharge

D 1.3 Comforting/talking with patients

D 1.4 Adequately document nursing care

D 1.5 Back rubs and skin care

D 1.6 Developing or updating nursing care plans

This measure was a sum of all tasks undone checked off.

Independent Variables

Six Independent variables (IV) were chosen to test this hypothesis. These variables are:

1. Staffing
2. Teamwork
3. Support Services
4. Work Environment
5. Supportive Administration
6. Autonomy

Measures

1. Staffing: Nurses were asked in section (B) of the survey to indicate on a 4-point scale from strongly agree to strongly disagree, whether there are (1) enough staff to get work done, and (2) whether there are enough registered nurses on staff to provide quality patient care. Those two questions were computed into one variable that measures staffing (CompStaf).

2. Teamwork: Nurses were asked in section (B) of the survey to indicate on a 4-point scale from strongly agree to strongly disagree, whether (1) they have a lot of teamwork with physicians, and (2) whether collaboration exist between nurses and physicians. Those two questions were computed into one variable that measures teamwork (ComTeam).

3. Support Services: Nurses were asked in section (B) of the survey to indicate on a 4-point scale from strongly agree to strongly disagree, whether there are adequate support services that allow them to spend time with their patients.
4. Work environment: Nurses were asked in section (B) of the survey to indicate on a 4-point scale from strongly agree to strongly disagree, whether they have a work environment that is pleasant, attractive and comfortable.
5. Supportive Administration: Nurses were asked in section (B) of the survey to indicate on a 4-point scale from strongly agree to strongly disagree, whether their administration listen and responds to employee concerns.
6. Autonomy: Nurses were asked in section (B) of the survey to indicate on a 4-point scale from strongly agree to strongly disagree, whether (1) they control their own practice, and (2) whether they have the freedom to make important patient care and work decisions. Those two questions were computed into one variable that measures autonomy (ComAuto).

Preliminary analysis

Preliminary analysis reveals a normal distribution, with kurtosis and skewness values within the range of ± 1 .

	Mean	Standard deviation	Skewness	Kurtosis
Staffing	2.94	.839	-.326	-.810
Teamwork	2.30	.698	-.321	-.050
Support Services	2.83	.864	-.072	-.962
Work Environment	2.60	.935	.049	-.932
Supportive Administration	2.90	.835	-.189	-.810
Autonomy	2.52	.672	.249	-.241
Tasks Undone	1.90	1.74	.556	-.705

Regression analysis

A first linear regression reveals that the combination of the hypothesized independent variables (staffing ($\beta = +0.236$, $p < 0.01$); support services ($\beta = +0.235$, $p < 0.01$); work environment ($\beta = +0.059$, $p < 0.01$); teamwork ($\beta = +0.039$, $p < 0.01$); supportive administration ($\beta = +0.023$, $p > 0.05$); and autonomy ($\beta = +0.041$, $p < 0.01$) act as significant predictors of the dependant variable: task undone. The former explain 25% (Adjusted R Square) of the variance of the latter.

Note: Given that the subscales for the above variables were reversed, the signs of the coefficient are positive). For example, nurses who reported that support services are inadequate to allow them to spend time with their patients reported more tasks left undone because they lacked the time to complete them.

B- Process / Outcome Hypothesis

The occurrence /frequency of Nursing sensitive patient outcomes (medication errors and patient falls) could be well predicted by the nursing care

processes referring to tasks undone. Precisely, the more tasks are left undone, the higher the occurrence of adverse events.

Variables and Measures

Dependent Variables

One dependent variable (DV) was chosen to test this hypothesis. This variable is:

1. Adverse Events

Measure

Adverse Events: Section (D) of the survey included question that asked about the occurrence of three different adverse events for patients: medication errors, nosocomial infections and patient falls with injuries. These events were selected from among those appearing in the American Nurses Association's (ANA) Nursing Quality Indicators (ANA, 1996, 2000). Nurses were asked to indicate on a 4-point scale, from never to frequently, how often these events occurred among patients under their care over the past year. Higher scores on this measure indicated greater frequency of occurrence of these events among patients under their direct care. The question was as following: *"Over the past year, how often would you say each of the following incidents has occurred involving you or your patients: 1. Patient received wrong medication or dose; 2. Nosocomial infections; 3) Patient falls with injuries.*

For statistical purposes, each adverse event was added to form a computed score.

Independent Variables

One Independent variable (IV) was chosen to test this hypothesis. This variable is:

1. Tasks Undone

Preliminary analysis

Preliminary analysis reveals a normal distribution, with kurtosis and skewness values within the range of ± 1 .

	Mean	Standard deviation	Skewness	Kurtosis
Tasks Undone	1.89	1.746	.560	-.707
Adverse Events	1.92	.674	.456	-.437

Regression analysis

A second linear regression testing the predictive power of task undone on adverse events ($\beta = +0.285$, $p < 0.01$) also revealed a significant link between those two variables. Tasks left undone explains approximately 10% of the adverse events variance.

Note: Given that the subscales for the above two variables were reversed, the sign of the coefficient is positive). For example, nurses who reported more tasks left undone because they lacked the time to complete them, reported higher frequency of adverse events.

Structural Equation Modeling

In order to determine the strongest predictive variables and to structure the links between those variables, the final statistical analysis undertaken was a structural equation modeling. This analysis was done using the EQS software. The following goodness-of-fit statistics were kept in order to assess the validity of the final model: 1) chi-square, representing the fit between the hypothesized model and the perfect fit. 2) the Comparative Fit Index (CFI) can include values ranging between 0 and 1. Values higher than 0,90 reveal a plausible model. The Comparative Fit Index is derived from the comparison on an hypothesized model and the independence model 3) the Root Mean Square Error of Approximation (RMSEA) takes into account the error of approximation in the population. RMSEA values less than 0.09 are considered acceptable (Bentler, 1992).

The final model testing the structure process outcome hypothesis reveals that the more the nurses perceptions of inadequate support services, non-supportive administration, unpleasant work environment, inadequate staffing and poor teamwork, the more tasks will be left undone. The model also reveals that the more tasks are left undone, the higher the perceived occurrence of medication errors, patient falls and nosocomial infections. As Figure 5 illustrates below, support services and staffing are the most highly predictive variables of tasks undone, which predicts adverse events.

The goodness-of-fit statistics for the final model are the following: $\chi^2 = 296.75$; CFI = 0,96; RMSEA = 0,08

Structure Process Outcome Model

Figure 5: Structure Process Outcome - General Model (Each link is statistically significant)

Hypothesis 2

Structure / Process / Outcome Hypothesis by Organizational Types and Forms of Hospitals

Hospital organizational types (community/teaching) and forms (merged /non-merged) influence differently nurses perceptions of organizational and cultural factors like staffing, support services, work environment, teamwork, supportive administration, and autonomy. That is, the above factors act more as predictors of undone tasks in large-scale hospitals (Teaching and or merged hospitals) than in smaller scale ones (Community and or non-merged hospitals). In the same way, different hospital organizational types and forms will influence differently the predictive link between the tasks undone and occurrence /frequency of adverse events.

Same methodology that was used to test the general model will be applied for testing this hypothesis.

Model 1: Community / Non Merged Hospitals

Structure / Process Hypothesis

Variables and Measures

Dependent Variables:

One dependent variable (DV) was chosen to test this hypothesis. This variable is:

1. Tasks Undone

Independent Variables

Six Independent variables (IV) were chosen to test this hypothesis. These variables are:

1. Staffing
2. Teamwork
3. Support Services
4. Work Environment
5. Supportive Administration
6. Autonomy

Sample Size: 3102 cases

Preliminary analysis

Preliminary analysis reveals a normal distribution, with kurtosis and skewness values within the range of ± 1 .

	Mean	Standard deviation	Skewness	Kurtosis
Staffing	2.96	.837	-.384	-.732
Teamwork	2.28	.689	-.339	-.019
Support Services	2.83	.853	-.088	-.899
Work Environment	2.56	.936	.082	-.914
Supportive Administration	2.88	.850	-.870	-.089
Autonomy	2.52	.671	.272	-.165
Tasks Undone	1.88	1.76	.587	-.677

Regression analysis

A first linear regression reveals that the combination of the hypothesized independent variables (support services ($\beta=+0.234$, $p<0.0$); staffing ($\beta= +0.228$, $p<0.01$); teamwork ($\beta= +0.031$, $p>0.05$, autonomy ($\beta= +0.045$, $p<0.05$);

supportive administration ($\beta=0.022$, $p>0.05$); and work environment ($\beta= +0.095$, $p<0.01$) act as significant predictors of the dependant variable: task undone. The formers explain 26% (Adjusted R Square) of the variance of the latter.

Process / Outcome Hypothesis

Variables and Measures

Dependent Variables

One dependent variable (DV) was chosen to test this hypothesis. This variable is:

1. Patient Adverse Events

Independent Variables

One Independent variable (IV) was chosen to test this hypothesis. This variable is:

1. Tasks Undone

Preliminary Analysis

Preliminary analysis reveals a normal distribution, with kurtosis and skewness values within the range of ± 1 .

	Mean	Standard deviation	Skewness	Kurtosis
Tasks Undone	1.88	1.761	.587	-.677
Adverse Events	1.87	.656	.528	-.288

Regression analysis

A second linear regression testing the predictive power of task undone on adverse events ($\beta = +0.267$, $p < 0.01$) also revealed a small but significant link between those two variables. Tasks left undone explain approximately 8 % of the adverse events variance.

Structural Equation Modeling

The final model testing the structure process hypothesis reveals that the more the nurses perceptions of inadequate support services, inadequate staffing and unpleasant work environment, the more their tasks undone. The model also reveals that the more tasks are left undone, the higher the occurrence of adverse events. As model 2 shows in Figure 6 below, support services and staffing are the most highly predictive variables of tasks undone, which in turn predicts adverse events.

The goodness-of-fit statistics for the final model are the following: $\chi^2 = 296.75$; CFI = 0,98; RMSEA = 0,08

Each link is statistically significant

Figure 6: Structure Process Outcome (Community/Non Merged Hospitals)

Model 2: Community / Merged Hospitals

Structure / Process Hypothesis

Variables and Measures

Dependent Variables

One dependent variable (DV) was chosen to test this hypothesis. This variable is:

1. Tasks Undone

Independent Variables

Six Independent variables (IV) were chosen to test this hypothesis. These variables are:

1. Staffing
1. Teamwork
2. Support Services
3. Work Environment
4. Supportive Administration
5. Autonomy

Sample Size: 2589 cases

Preliminary Analysis

Preliminary analysis reveals a normal distribution, with kurtosis and skewness values within the range of ± 1 .

	Mean	Standard deviation	Skewness	Kurtosis
Staffing	2.93	.824	-.267	-.839
Teamwork	2.35	.707	-.290	-.103
Support Services	2.86	.859	-.060	-1.029
Work Environment	2.62	.940	.011	-.951
Supportive Administration	2.92	.820	-.191	-.794
Autonomy	2.53	.662	.224	-.267
Tasks Undone	1.88	1.74	.556	-.731

Regression Analysis

A first linear regression reveals that the combination of the hypothesized independent variables (support services ($\beta = +0.248$, $p < 0.01$); staffing ($\beta = +0.242$, $p < 0.01$); teamwork ($\beta = +0.050$, $p < 0.05$); work environment ($\beta = +0.015$, $p > 0.05$); supportive administration ($\beta = +0.012$, $p > 0.05$); and autonomy ($\beta = +0.029$, $p > 0.05$)) act as significant predictors of the dependant variable: task undone. The formers explain 24% (Adjusted R Square) of the variance of the latter.

Process / Outcome Hypothesis

Variables and Measures

Dependent Variables

One dependent variable (DV) was chosen to test this hypothesis. This variable is:

1. Patient Adverse Events

Independent Variables

One Independent variable (IV) was chosen to test this hypothesis. This variable is:

1. Tasks Undone

Preliminary Analysis

Preliminary analysis reveals a normal distribution, with kurtosis and skewness values within the range of ± 1 .

	Mean	Standard deviation	Skewness	Kurtosis
Tasks Undone	1.88	1.748	.556	-.731
Adverse Events	1.92	.688	.473	-.441

Regression Analysis

A second linear regression testing the predictive power of task undone on adverse events ($\beta = +0.272$, $p < 0.01$) also revealed a small but significant link between those two variables. Tasks left undone explain approximately 8 % of the adverse events variance.

Structural Equation Modeling

The final model testing the structure process hypothesis for Community / Merged Hospitals reveals that the more the nurses perceptions of inadequate support services, inadequate staffing and poor teamwork, the more their perceptions of more tasks undone. The model also reveals that the more tasks are left undone, the higher the occurrence of adverse events. As model 3 shows

in Figure 7 below, support services and staffing are the most highly predictive variables of tasks undone, which in turn predicts adverse events.

The goodness-of-fit statistics for the final model are the following: $\chi^2 = 64.99$; CFI = 0.97; RMSEA = 0.09

Each link is statistically significant

Figure 7: Structure Process Outcome (Community/ Merged Hospitals)

Model 3: Teaching / Non - Merged Hospitals

Structure / Process Hypothesis

Variables and Measures

Dependent Variables

One dependent variable (DV) was chosen to test this hypothesis. This variable is:

1. Tasks Undone

Independent Variables

Six Independent variables (IV) were chosen to test this hypothesis. These variables are:

1. Staffing
2. Teamwork
3. Support Services
4. Work Environment
5. Supportive Administration
6. Autonomy

Sample Size: 497 cases

Preliminary Analysis

Preliminary analysis reveals a normal distribution, with kurtosis and skewness values within the range of ± 1 .

	Mean	Standard deviation	Skewness	Kurtosis
Staffing	2.96	.871	-.391	-.883
Teamwork	2.27	.712	-.446	-.050
Support Services	2.85	.898	-.157	-.980
Work Environment	2.63	.943	.015	-.951
Administration	2.87	.833	-.200	-.710
Autonomy	2.53	.700	.288	-.419
Tasks Undone	2.15	1.74	.405	-.724

Regression Analysis

A first linear regression reveals that the combination of the hypothesized independent variables (support services ($\beta = +0.237$, $p < 0.01$); staffing ($\beta = +0.193$, $p < 0.01$); teamwork ($\beta = +0.081$, $p > 0.05$); work environment ($\beta = +0.034$, $p > 0.05$); supportive administration ($\beta = +0.056$, $p > 0.05$); and autonomy ($\beta = +0.024$, $p > 0.05$)) act as significant predictors of the dependant variable: task undone. The formers explain 22% (Adjusted R Square) of the variance of the latter.

Process / Outcome Hypothesis

Variables and Measures

Dependent Variables

One dependent variable (DV) was chosen to test this hypothesis. This variable is:

1. Patient Adverse Events

Independent Variables

One Independent variable (IV) was chosen to test this hypothesis. This variable is:

1. Tasks Undone

Preliminary Analysis

Preliminary analysis reveals a normal distribution, with kurtosis and skewness values within the range of ± 1 .

	Mean	Standard deviation	Skewness	Kurtosis
Tasks Undone	1.159	1.748	.405	-.724
Adverse Events	2.11	.736	.285	-.725

Regression Analysis

A second linear regression testing the predictive power of task undone on adverse events ($\beta = +0.308$, $p < 0.01$); also revealed a significant link between those two variables. Tasks left undone explain approximately 10% of the adverse events variance.

Structural Equation Modeling

The final model testing the structure process hypothesis reveals that the more the nurses perceptions of inadequate staffing, the more their perceptions of more tasks undone. The model also reveals that the more tasks are left undone, the higher the occurrence of adverse events. As model 4 shows in Figure 8 below, staffing is the only highly predictive variable of tasks undone, which predicts adverse events.

The goodness-of-fit statistics for the final model are the following: $\chi^2 = 5.21$; CFI = 0.97; RMSEA = 0.09

The link is statistically significant

Figure 8: Structure Process Outcome (Teaching/ Non-Merged Hospitals)

Model 4: Teaching / Merged Hospitals

Structure / Process Hypothesis

Variables and Measures

Dependent Variables

One dependent variable (DV) was chosen to test this hypothesis. This variable is:

1. Tasks Undone

Independent Variables

Six Independent variables (IV) were chosen to test this hypothesis. These variables are:

1. Staffing
2. Teamwork
3. Support Services
4. Work Environment
5. Supportive Administration
6. Autonomy

Sample Size: 920 Cases

Preliminary Analysis

Preliminary analysis reveals a normal distribution, with kurtosis and skewness values within the range of ± 1 .

	Mean	Standard deviation	Skewness	Kurtosis
Staffing	2.88	.867	-.250	-.918
Teamwork	2.23	.690	-.264	-.108
Support Services	2.74	.892	-.013	-.979
Work Environment	2.64	.907	.093	-.922
Administration	2.91	.830	-.246	-.698
Autonomy	2.51	.685	.220	-.310
Tasks Undone	1.877	1.689	.687	-.161

Regression Analysis

A first linear regression reveals that the combination of the hypothesized independent variables (support services ($\beta = +0.200$, $p < 0.01$); staffing ($\beta = +0.270$, $p < 0.01$); teamwork ($\beta = +0.042$, $p > 0.05$); work environment ($\beta = +0.060$, $p > 0.05$); supportive administration ($\beta = +0.051$, $p > 0.05$); and autonomy ($\beta = +0.069$, $p > 0.05$)) act as significant predictors of the dependant variable: task undone. The former explain 30% (Adjusted R Square) of the variance of the latter.

Process / Outcome Hypothesis

Variables and Measures

Dependent Variables

One dependent variable (DV) was chosen to test this hypothesis. This variable is:

1. Patient Adverse Events

Independent Variables

One Independent variable (IV) was chosen to test this hypothesis. This variable is:

1. Tasks Undone

Preliminary Analysis

Preliminary analysis reveals a normal distribution, with kurtosis and skewness values within the range of ± 1 .

	Mean	Standard deviation	Skewness	Kurtosis
Tasks Undone	1.877	1.689	.534	-.687
Adverse Events	1.984	.703	.391	-.644

Regression Analysis

A second linear regression testing the predictive power of task undone on adverse events ($\beta = +0.354$, $p < 0.01$); also revealed a significant link between those two variables. Tasks left undone explain approximately 13% of the adverse events variance.

Structural Equation Modeling

The final model testing the structure process hypothesis reveals that the more the nurses perceptions of inadequate support services, unpleasant work environment, inadequate staffing and poor teamwork, the more their perceptions of more tasks undone. The model also reveals that the more tasks are left undone, the higher the occurrence of adverse events. As Figure 9 shows below, staffing and support services are the most highly predictive variable of tasks undone, which predicts adverse events.

The goodness-of-fit statistics for the final model are the following: $\chi^2 = 18.010$; CFI = 0.98; RMSEA = 0.065

Each link is statistically significant

Figure 9: Structure Process Outcome (Teaching/ Merged Hospitals)

CHAPTER V

DISCUSSION OF FINDINGS II

The present thesis examines the question around the combined impact of hospital rationalization, organizational culture, and nursing care processes on nursing sensitive patient outcomes. We hypothesize that the better nurses' perceptions about staffing, support services, work environment, teamwork, supportive administration, and autonomy, the less undone tasks, which in turn lower the perceived occurrence of adverse events. Through testing this hypothesis, the purpose is to develop an integrative conceptual model that provides a framework for understanding how the above concepts are linked and how this linkage impacts nursing sensitive patient outcomes.

Our case study findings suggest that hospital rationalization affects the structural and cultural features of hospitals. The findings underscore also that organizational factors (staffing, workload, support services, time pressure) and organizational culture factors (teamwork, communication, work environment, autonomy, supportive administration and training and development) can be expected to have an influence on quality of care and patient safety. However, taking into account the limitations of this study we discussed before (in terms of sample size - a single institution was observed and analyzed in detail), the study findings did not inform us about the causal links among the concepts included in our framework nor the impact of organizational forms and types. To allow for

empirical testing of the hypotheses generated from the study, we analyzed secondary data from multiple institutions in Ontario. In this sense, our case study provided the foundation and the framework that inform our secondary data analysis.

In discussing phase II findings, it is important to recognize the constraints, which result from the types of data that were collected. We used preexisting data sources and we had no control over the type and quality of data. However, because the data related to some specific concepts and variable included in our framework (see Figure 4), they are still accurate and useful.

The secondary data analysis focused on results derived from multiple regression and structural modeling procedures. As explained before, we tested three hypotheses (see pages 92-94) in which we provide below a discussion summary for each.

The framework that we developed in our study guided our secondary data analysis and description. As discussed before, this framework is based on both Donadedian's framework of Structure, Process, and Outcomes and Reason's modeling of the cause of organizational accidents.

Our secondary data results for the first two hypotheses are summarized in the table below. Five models were generated from the two hypotheses.

All the variables listed in this table act as significant predictors of perceived tasks left undone which in turn impact the perceived occurrence /frequency of adverse events. For example, the better nurses perceived support

services in a teaching merged hospitals, the less tasks undone which in turn lower the frequency/occurrence of adverse events.

() means a strong predictive link*

General Model	Community/ Non Merged	Community/ Merged	Teaching/ Non Merged	Teaching/ Merged
Support Services**	Support Services**	Support Services**		Support Services**
Administration				
Work Environment	Work Environment			Work Environment
Staffing **	Staffing **	Staffing **	Staffing ***	Staffing **
Teamwork		Teamwork		Teamwork

Hypothesis 1/Part 1

We hypothesized that nurses perceptions about tasks left undone in their units were predicted by hospital's structural and cultural attributes like staffing, support services, work environment, teamwork, administration, and autonomy. Precisely, when nurses perceive better staffing, support services, work environment, teamwork, supportive administration and autonomy in work, the less undone tasks. Furthermore, the hypothesis assumes that the occurrence /frequency of Nursing sensitive patient outcomes/adverse events (medication

errors and patient falls) could be predicted by the nursing care processes referring to tasks undone. Precisely, the more tasks are left undone, the higher the occurrence of adverse events.

Except for autonomy, our results of our secondary data analysis support the above prediction and provide support to our framework. According to the framework, the perception of structural and cultural characteristics of the settings in which care takes place have a propensity to influence the process of care. Precisely, in the general model, results show that tasks left undone which represent the care process (what nurses do) is predicted by staffing, support services, work environment, teamwork, and supportive administration. Results suggest that organizational structure and culture function to produce care or are a feature of the environment of care and that influence the kind of care that is provided. The framework also conceptualizes that the process of care can influence the outcomes obtained. According to the framework, individuals commit errors and violations while performing particular tasks under perceived latent conditions (staffing, support services, work environment, ect.). As a result, an active failure occurs in the nursing care processes, which can produce adverse events. Results show that tasks undone acts as a significant predictor of adverse events.

In the general model, results show that staffing ($p=0.25$) and support services ($p=0.24$) (with * signs that mean a strong predictive link) are the most highly predictive variables of tasks undone, which predicts adverse events.

In the general model, it was expected to find that the independent variables (support services, supportive administration, work environment, staffing and teamwork) are correlated with each other. After all, they are all characteristics of the work environment. For example, in a hospital context, it is reasonable to say that support services and staffing are related to each other. Inadequate support services may require nurses to perform non - nursing tasks, which in turn takes out time that is needed to provide appropriate care for patients, and hence, staffing shortage is perceived. As such, those two variables are linked ($p=0.6$), but they are not the same. As realized, all the correlations among the variables are less than 0.70, which justifies that we are measuring different variables.

Below we discuss and interpret in detail the findings pertaining to the general model.

Staffing

In our findings, nurses' perception about staffing was found to be the most highly predictive variable ($p=0.25$) of tasks undone, which predicts adverse events. The finding about staffing as a significant predictor of tasks left undone is not surprising and was expected as nurse staffing is one of the characteristics of hospitals most often targeted during systems redesign and organizational restructuring (Aiken et al., 2000). Widespread reports of declining levels of quality of care and patient safety in hospitals have focused attention on safe nurse staffing in hospitals. The much publicized recent report of the Institute of Medicine (1999), *To Err Is Human: Building a Safer Health System*, estimating

that medical errors kill 44,000 to 98,000 people a year in the United States has further heightened public and professional commentary on the adequacy of hospital nurse staffing.

Inadequate nurse staffing is considered in the literature to be one of the work conditions that precipitate errors and violations. Understaffing results in high workloads and time pressures. And increased fatigue and stress caused by high workloads and excessive overtime because of inadequate staffing, may predispose errors and prevent nurses from adhering to standards of care. (Dugan, 1996; Arnow, 1982) . Insufficient time for patient care may not allow nurses to detect errors before they occur. Inadequate nurses staffing may also cause miscommunication between nursing staff and other health care providers and force new nursing personnel to conduct unfamiliar tasks without sufficient knowledge and experience (Sung Hyun Cho , 2001).

Our finding about the impact of staffing is supported by a survey, which reported (Dialogue on Health Reform, 1996) that 85% of 20,000 staff registered nurses, members of the Ontario Nurses Association, believe that understaffing due to budget cuts and downsizing has reached the point that unsafe conditions exist for patients. In a recent Canadian study, a survey was conducted in which half of the respondents (17,450 nurses) noted that the quality of patient care in their institutions had deteriorated in the post-restructuring period due to staffing issues (Aiken et al 2001). Aiken, Smith, and Lake (1994); Hartz et al. (1989); and Scott, Forrest, and Brown (1976) found a negative and statistically significant

relationship between nursing care intensity and patient mortality rates. That is, the higher the nurse staffing, the lower the mortality rate. Murphy (1993) evaluated the impact of downsizing in a study of 281 hospitals. Those hospitals that made across the board staffing reductions of 7.5 % or greater or brought their average below 3.35 FTEs per hospital bed were more likely to have higher mortality and morbidity rates than other hospitals in the sample. Flood and Diers (1988) studied the impact of the total number of nursing staff assigned to care for hospitalized patients on any given shift in terms of quality and cost outcomes. These researchers reported an increase in both length of stay and complications for patients cared for on a general medical nursing unit, which was consistently understaffed (e.g. reduced direct hours of nursing care) during a three- month period. Generalized infections and urinary tract infections were the most common complication. Further, Needleman, et.al., (2001) found strong evidence of an association between patient outcomes and RN share of total staffing. Results showed that higher RN staffing was associated with a 3 to 12 percent reduction in the rates of patient outcomes potentially sensitive to nursing.

In sum, our finding that is supported by majority findings in existing literature underscores the importance of adequate staffing in health care organizations to provide a quality and safe care to patients. This finding is important to consider in the context of hospital rationalization (restructuring, amalgamations) that have dominated Ontario health care system in the 1990s and the nursing shortages that have developed since then. In efforts to provide

quality and safe patient care, it would seem important to retain and recruit nurses by providing good working conditions and healthy work environment.

Support Services

In our general model, support services was found to be the second highly predictive variable ($p=0.24$) of tasks undone, which predicts adverse events. This finding is supported in the organizational literature which shows that inadequate support services (insufficient resources, inadequate support staff, inadequate equipment) is one of the factors responsible for many inefficiencies, errors and frustrations in organizationally complex environment like hospitals (Vincent, 2000; Carthey et al 2001; Reason 1995; Baker & Norton, 2001; West 2000). In a study conducted in 1986, it was found that nearly all nurses in 12 hospitals thought that adequate support services allowed them to spend time with their patients and provide quality care (Aiken, 2000).

Our findings underscore that adequate support services are needed in a hospital in order to provide a quality and safe care to patients. This finding is important to consider again in the context of hospital rationalization (restructuring, amalgamations) that have dominated Ontario health care system in the 1990s and the inadequate support services system that have developed since then. If we refer back to our qualitative case study findings, we find that nurses explained that cutbacks have affected all support systems from housekeeping, orderlies, porters, unit clerks to pharmacy and x-rays. They

argued that this reduction in support and auxiliary services has an influence in patient safety and in some case has created an environment for more preventable clinical incidents that could harm patients. For instance, nurses discussed that they spend most of the time doing clerical work (paperwork), answering telephone calls, getting supplies, meal delivery, and looking for equipment instead of being with their patients. Nurses argued that those non-nursing duties due to reduction in support services could contribute to an overall decrease in quality of patient care. In addition, nurses discussed that with inadequate support services and staff, they find themselves with nobody to share with them pushing, heavy lifting, turning, bending or shoving. This has added non-nursing duties to them, increased workload, and decreased the time that they are supposed to spend with their patients to deliver quality patient care. In most cases, they think that having support staff to perform non-nursing tasks may prevent the occurrence of preventable patient outcomes like patient falls. Also, our case study quantitative findings reveal significant differences in adequate support services as a function of tasks undone.

In efforts to provide quality and safe patient care, it would seem important to provide health professional with adequate support services system that could help them perform their tasks effectively.

Work Environment

In our general model, work environment was also found to be a significant predictor ($p=0,06$) of tasks undone, which predicts adverse events. This finding

provides a major insight in how nurses' perceptions about a healthy work environment can contribute to the quality of care and safety of patients. This because organizational and patient care outcomes of poor quality work environment are less well documented in research.

The work environment has physical and psycho-social dimensions. The most relevant issues for health care identified in work environments research include: workload, and other pressures, work schedules, job control, role stressors, and job insecurity (Canadian Policy Research Network 2001). .

In literature, there is not much research that connects work environment with quality of care and patient safety. More specifically, research on restructuring, downsizing, and mergers in the past decade do not examine the impacts of this change on the work environment, and in turn, how the work environment affects quality of care and patient safety.

Literature argues that employees' perception of the work environment drive their behaviours and influence the organizational culture, which in turn, influences clinical effectiveness. The U.S. President's Advisory Commission on Consumer Protection and Quality in the Health Care Industry argued that organizational culture affects the capacity of any organization to function well (Eisenberg, et al., 2001). Redman & Ketefian, (1995) argued that as organizational structures and processes are redesigned, the quality of the work environment and employees perceptions of this work environment can be greatly affected. For instance, poor work environment features such as heavy

workloads, stress, and fatigue among health care workers can be linked to patient safety and the overall quality of care (Aiken et al., 2001; Bauman et al 2001). Copper, et al., 1994) argued that unhealthy work environment can create enormous human and financial costs.

Our findings underscore that healthy work environments in hospitals are needed in order to provide a quality and safe care to patients. This finding is also important to consider in the context of hospital rationalization (restructuring, amalgamations) that have dominated Ontario health care system in the 1990s and the work environments that have deteriorated in many hospitals since then. The work environment in which nurses work influences their practice, which in turn, impact patient outcome achievements. Hospital rationalization (restructuring, amalgamations) had a short term, bottom line financial focus that did not consider the longer-term consequences for the work environment in which health professionals practice. In this context, it would seem reasonable to invest in creating and promoting healthy work environments.

Teamwork

As predicted, our findings show that teamwork acts as a predictive variable ($p=0.05$) of tasks undone, which predicts adverse events. This finding is supported by the existing literature.

Good team relations affect patients, even reducing mortality, and there is evidence that better patient outcomes occur when there is good collaboration among health professionals (Aiken, et al., 1998; Healy, C., et al., 1999;

Laschinger, H.K.S., et al., 2000; Bags & Schmitt, 1988). Teamwork in health care, it is suggested, is the way forward, and by implication, the way to achieve high quality care for patients (Pearson, Pauline and Jones, Kevin, 1994).

Teamwork is the ability to work together toward a common vision, the ability to direct individual accomplishments toward organizational objectives. It is the fuel that allows common people to attain uncommon results (Walter, et al., 1983). Health care teams work within the context of other groups and systems. That is, a team affects and is affected by the context, the work environment, and the system within which it works. And the relationship among the team, the task, and other systems is more likely to be critical to the team's functioning (Harper, et al., 1995). Also, the team functions within the framework of a support system containing laboratories, orderlies and other support staff (Helmerich, et al., 1994).

Helmerich, et al., 1994 consider that the most significant outcome factors of teamwork are patient safety and quality of treatment. According to then, if team members practice effective coordination and communication, decision-making, vigilance, and monitoring along with technical task performance, the resultant processes should be greater than the sum of individual capabilities and should enhance the probability of successful patient outcomes.

Our finding about teamwork as a predictive variable of tasks undone is important to be considered in the context of hospital rationalization (restructuring, cutbacks, amalgamations). For instance, Nicklin (2001) considers organizational restructuring as critical factor that has created an environment that increases

clinical errors through the disruptions of the integrity of many healthcare teams (from staff and physicians and front-line workers to senior management) in hospitals and other health care organizations. Literature suggests that systems redesign and organizational restructuring have the potential to disrupt the formal structure of the medical staff and the interpersonal interaction (Johnson, et al., 1991; Nicklin 2001). A study by Bluthé (2001) shows how nurses working in three hospitals in Ontario experienced organizational restructuring, particularly how restructuring compromised their ability to provide effective care by negatively affecting their roles as individuals, members of nursing teams, and hospital employees. This study shows that the nursing teams became less integrated and members became more individualistic. The work pressure precipitated by restructuring caused them to provide “only the basics of care” and to neglect patients’ psychological and spiritual needs.

In the context of amalgamations, our finding about teamwork suggest that a common problem and cause of active failures in the care process seems to be the way in which the structure of a team dissolves into an informal group under certain circumstances, undermining the formal patterns of authority and responsibility and losing the cohesion and mutual support that are characteristics of a well integrated team. According to our qualitative case study findings, there were sometimes situations in the hospital where individuals were thrown together unexpectedly to operate as a team. In such cases, the advantages of a coherent team were not likely to be found, and indeed, as our findings show, the constraint

of a team setting may itself give rise to errors if those involved are unused to working together.

Supportive Administration

In our general model, our findings show that supportive administration acts as a predictive variable ($p = 0.03$) of tasks undone, which predicts adverse events. In the literature, there is not much research that connects the existence of supportive administration with quality of care and patient safety. More specifically, research on restructuring, downsizing, and mergers in the past decade do not examine the impacts on the administration and management inside hospitals, and in turn, how the presence of supportive administration affects quality of care and patient safety.

Literature argues that if administration makes changes in the formal structure of the organization without thought for their direct effect on the informal organization – when, for example, new methods of work are introduced or people are transferred – staff may feel that they are being ‘pushed around’. Because most people identify first with their working group and only secondarily with the organization as a whole, change cannot be imposed willy -nilly simply because administration views it in the interests of the organization (Spencer, 1967).

The informal organization is a fact of life, which the administration cannot afford to ignore. The character of groups and of the relationships between them is what determines the morale, efficiency and effectiveness of each department and of the hospital as a whole. If the goals of each group are in conflict with

those of the organization or if there is inter-group hostility, cohesion goes, morale suffers and the hospital itself becomes, in Revan's term, a "sick organism".

Moray (1994) argued that the effects of managerial and administrative behaviour affect the probability of error in hospitals in yet more global ways. She argued that it is at these higher levels that policy decisions are made that indirectly but powerfully act downward to constrain the work of health care professionals. A good example of a managerial behaviour that can have a major effect on the probability of error at the level of individual is that of setting policy for shift work and hours of work. There is evidence for the effect of shift work patterns, shift length on error. It is now known in hospitals that errors greatly increase in the small hours of the morning, and often in the late hours of the afternoon. Errors in human information processing begin to increase significantly for shifts longer than 12 hours, and in physically demanding jobs, the errors often begin to increase at shorter intervals.

Our finding about supportive administration is important to be considered in the context of hospital rationalization. To recall our case study, our qualitative findings suggested that administration did not deal well with the human side of hospital amalgamation. Nurses discussed that their administration did not listen to their concerns. The general view of nurses about management is that it is becoming more political and that senior management does not know the reality of what goes on at the bedside. Mostly, they care about enhancing efficiency and they are not much aware of how cost cutting may influence delivering patient

care at the bedside. They believe that the administration neither sought their input into their decision making process around amalgamations and cost cutting strategies nor provided them with opportunities input and suggestions regarding patient care problem solving and resolution.

Our finding suggests that hospital administration should support nurses involvement and participation in any change management strategy. Also, our results suggest that organizational change requires administration that is able to remove obstacles, listen to staff, manage dwindling resources, and provide vision while empowering staff. As our results show, having such supportive administration can influence health professionals to provide quality and safe patient care.

Autonomy

When we determined the strongest predictive variables through the Structural Equation Modeling, autonomy was not found to be a significant predictor of tasks undone, which predicts adverse events. In trying to explain this surprising finding, we turn to previous research studies on autonomy.

Autonomy is defined as perceived independence or control over work activities (Alexander, Weisman, & Chase 1982). It is conceptualised as the freedom to make decisions within the boundaries of defined practice together with the freedom to act on those decisions (Johns, 1990) and is considered an essential element of professional status (Schutzenhofer & Musser 1994). Nursing leaders espouse the belief that nurses must be in control of their

individual practice and also be active participants in the design and management of patient care services (Aiken, 1995; Sovie 1989).

Very little research examined the impact of autonomy on patient outcomes. For instance, autonomy was shown in the literature to be positively correlated with job satisfaction (Roedal & Nystrom, 1988). Laschinger & Havens (1996) reported that work empowerment and control over practice in combination were significant predictors of both staff nurse job satisfaction and overall work effectiveness. In a study by Aiken, Smith and Lake (1994), researches concluded that the reduced mortality rate at magnet hospitals was derived from the greater status, autonomy, and control over practice afforded to nurses in these hospitals, and the subsequent impact of these variables on the actions of the nurses on behalf of their patients. Given that many research studies examined the combined impact of autonomy and other related variables on patient outcomes, our findings, then, can suggest that autonomy may impact patient outcomes only when combined with other variables like job satisfaction, job status, ect, which we did not measure in our research study. This would explain our surprising finding.

Another explanation would be that autonomy was not well defined and measured in the sub-scale we used for autonomy. In our study, we identified two items that measure autonomy. In the survey, nurses were asked to indicate on a 4-point scale from strongly agree to strongly disagree, whether (1) they control their own practice, and (2) whether they have the freedom to make important

patient care and work decisions. We computed those two questions into one variable that measures autonomy. In the literature, autonomy is believed to be jointly determined by the characteristics of the individual and by the characteristics of the job and the work organization. Wiesman (1982) identified internal locus of control, perceived head nurse leadership, and the amount of time for professional activities as predictors of perceived autonomy. Given that we measured autonomy in our study by two items only, it would be reasonable to argue that this subscale was not inclusive of all characteristics of perceived autonomy. A more comprehensive sub-scale to measure autonomy may provide better findings.

In any case, we should not be surprised by this finding if we refer back to our case study findings. Nurses reported that they have no active role in decision-making. They felt they have little power to correct changes that have compromised working conditions and quality of care. They have little control over the changes taking place on their units. Some experienced a sense of powerlessness over decision about patient care. Nurses emphasised that more autonomy is associated with better job satisfaction, hence better quality and patient outcomes. This is consistent with literature, which shows that autonomy is positively correlated with job satisfaction (Roedal & Nystrom, 1988). However, nurses did not explain further how more autonomy (as a single variable) in making important patient care decisions could have a positive impact on patient outcomes.

Our finding about autonomy suggests that further research in this area is needed to examine how autonomy can best be examined in relations to quality of care and patient outcomes.

Hypothesis 1 / Part 2

To continue our discussion about hypothesis 1, the second part of the hypothesis assumes that the occurrence /frequency of Nursing sensitive patient outcomes/adverse events (medication errors and patient falls) could be predicted by the nursing care processes referring to tasks undone. Precisely, the more tasks are left undone, the higher the occurrence of adverse events. Our results support this prediction and it was found that nurses' perceptions about tasks undone act as a significant predictor ($p=0.28^*$) of adverse events.

This finding provides a major insight into the study of how tasks undone left by nurses can influence the occurrence/frequency of adverse events, taking into consideration that this is not very well documented in the literature.

Very few research studies demonstrated a large number of serious problems in what is called as underuse (failure to provide a health care service when it would have produced a favorable outcome for a patient). A recent quality research published from 1993 to 1997 reached the same conclusion (Schuster, et al., 1997; Brook, 1997).

Leape, et al., (1991) argued that certain types of errors may be directly related to the nursing care processes and which, would in turn, increase the

occurrence of adverse events. Examples of those types of errors are listed below:

- j- Inadequate preparation of patient before procedure
- k- Inadequate monitoring of patient after procedure
- l- Avoidable delay in diagnosis
- m- Avoidable delay in treatment
- n- Failure to take precautions to prevent accidental injury
- o- Failure to use indicated tests
- p- Failure to act on results of tests or findings
- q- Inadequate reporting or communications
- r- Delay in provision or scheduling of service

A preliminary results of an international study on nursing practice environment, the quality of care and patient outcomes in hospitals revealed that workload played a role in these quality assessments, but it was the consequences of workload, such as tasks undone (i.e. reports of unfinished nursing tasks at the end of the last shift) that played a much more prominent role (Sochalski, 2001). Other studies showed an inverse relationship between nurse staffing consequences and adverse events among patients (Lee, Chang, Pearson, Kahn, & Rubenstein, 1999; Van Servellen & Schultz, 1999). Kovner and Gergen (1998) examined the relationship between nurse staffing levels for surgical patients and a set of adverse events in more than 500 U.S. hospitals in 10 states. A significant inverse relationship was found between the number of

registered nurses per patient day and urinary tract infections, pneumonia, thrombosis, and pulmonary compromise. The researchers estimated that one additional RN hour per surgical patient per patient day was associated with 8% decrease in urinary tract infections and more than an 8% decrease in pneumonia. The above findings are interpreted in such a way that the consequences of staffing, such as tasks undone (i.e. reports of unfinished nursing tasks at the end of the last shift) that play a prominent role in increasing the frequency of adverse events.

Overall, our results provide support for our first hypothesis, which is based on our proposed framework (Page 89). The findings provide full support to the framework that is based on both Donabedian framework of structure, process and outcome and Reason's modeling of the cause of organizational accidents. In the light of our results, we conclude that poor structural and cultural features in hospitals (staffing shortages, inadequate support services, poor work environment, non supportive administration, and poor teamwork) decrease the likelihood of good care process (more tasks undone) and this poor care process decreases the likelihood of good patient outcomes (more adverse events).

Hypothesis 2

In the second hypothesis, we assumed that macro-organizational attributes such as status (community/teaching) and forms (merged /non-merged) influence differently nurses perceptions of organizational factors like staffing,

support services, work environment, teamwork, supportive administration, and autonomy. Specifically, the above factors act more as predictors of undone tasks in large-scale hospitals (merged hospitals – teaching and community) than in smaller scale ones (non-merged hospitals – teaching and community). Precisely, these are assumed to be strong predictors in the case of both teaching and community-merged hospitals. In the same way, we hypothesized that different hospital organizational types and forms influence differently the predictive link between the tasks undone and the frequency of adverse events. Precisely, perceived tasks undone was assumed to be a stronger predictor of adverse events in both teaching and community-merged hospitals than in non-merged ones.

Our results provide partial support to the prediction that macro-organizational attributes influence differently nurses' perceptions of staffing, support services, supportive administration, work environment and teamwork. For instance, our results show that nurses' perceptions about staffing was found to be the most highly predictive variable of tasks undone in the four models (community merged $p=0.26^*$; community non-merged $p=0.26^*$; teaching merged $p=0.30^*$; and teaching non-merged $p=0.44^*$). Our results suggest hospital types and forms do not make a difference in the perceived impact of staffing on tasks undone. In other words, staffing predicts tasks undone in all types and forms of acute care hospitals.

The results about staffing were expected as nurse staffing is one of the characteristics of all acute care hospitals most often targeted during systems redesign and organizational restructuring (Aiken et al., 2000). As discussed before, inadequate nurse staffing is considered in the literature to be one of the work conditions that precipitate errors and violations. Understaffing results in high workloads and time pressures. And increased fatigue and stress caused by high workloads and excessive overtime because of inadequate staffing may predispose errors and prevent nurses from adhering to standards of care. (Dugan, 1996; Arnow, 1982) . Refer to our discussion about staffing on pages 132-134).

Our results also show that staffing act as a stronger predictor of tasks undone in teaching hospitals (teaching non-merged $p=0.44^*$ and teaching merged $p=0.30^*$). than community hospitals (community merged $p=0.26^*$; community non-merged $p=0.26^*$). This finding is not surprising and could be explained by the fact that teaching hospitals care for more severely acute patients than community hospitals. In explaining nurses' perceptions of staffing adequacy, Mark (2002) found that nurses in hospitals with sicker patient thought staffing was less adequate. This explains our finding and suggests that the high levels of patient acuity found in teaching hospitals lead to perceptions of poor staffing.

Support Services was found to be mostly highly predictive variable of tasks undone in three models (teaching merged $p=0.22^*$; community merged $p=$

0.26* and community non-merged hospitals $p=0.25^*$). This is not surprising as organizational literature shows that inadequate support services (allocation of resources, inadequate equipment) is one of the factors responsible for many inefficiencies, errors and frustrations in organizationally complex environment like a hospital (Vincent, 2000; Carthey et al 2001; Reason 1995; Baker & Norton, 2001; West 2000). In addition, support services were also targeted during systems redesign and organizational restructuring (refer to our discussion about support services on pages 134-136). Contrary to our expectation, however, support services was not found to be a predictive variable of tasks undone in teaching non-merged hospitals. One explanation to this finding would be that a very few teaching hospitals in the province were actually not directed to merge by the Health Services Restructuring Commission. As a result, one would argue that those non-merged ones did not undergo extensive organisational restructuring as the other ones did. Another explanation, which relates to the first one, is sample size. Teaching non-merged hospitals constitute the smallest number of cases in our data (920 cases).

As for teamwork, our findings show that nurses' perceptions about teamwork predict tasks undone in merged hospitals only (both community $p=0.06^*$ and teaching $p=0.07^*$). Although the link is not very high, it is still statistically significant. This finding is quite substantial as it suggests that hospital merger disrupted the integrity of health care teams. This is consistent with Nicklin's (2001) argument which considers organizational restructuring and

mergers as critical factors that have created an environment that increases clinical errors through the disruptions of the integrity of many healthcare teams (from staff and physicians and front-line workers to senior management) in hospitals and other health care organizations. Literature also suggests that organizational restructuring have the potential to disrupt the formal structure of the medical staff and the interpersonal interaction (Johnson, et al., 1991; Nicklin 2001). A study by Bluthe (2001) shows how nurses working in three hospitals in Ontario, Canada, experienced organizational restructuring, particularly how restructuring compromised their ability to provide effective care by negatively affecting their roles as individuals, members of nursing teams, and hospital employees. Bluthe's study showed that the nursing teams became less integrated and members became more individualistic. The work pressure precipitated by restructuring caused them to provide "only the basics of care" and to neglect patients' psychological and spiritual needs.

Moray (1994) also argues that a common problem and cause of error in a hospital seems to be the way in which the structure of a team dissolves into an informal group under certain circumstances, undermining the formal patterns of authority and responsibility and losing the cohesion and mutual support that are characteristics of a well integrated team. For instance, situations sometimes arise from amalgamations where individuals are thrown together unexpectedly and in a very short time period to operate as a team. In such cases, she argues that the advantages of a coherent team are not likely to be found, and indeed,

the constraint of a team setting may itself give rise to errors if those involved are unused to working together.

Research shows that good teamwork reduces mortality and provides better patient outcomes (Healy et al., 1999; Laschinger et al., 2000; Aiken et al., 1989). Our findings suggest that hospital mergers occurred without much thought for the direct impact on teamwork. By referring to our finding about teamwork, which is supported by the literature (Moray 1994; Nicklin 2001), teamwork was partly disrupted as a result of amalgamation and this has affected nurses care processes such as tasks undone.

Finally, our results show that nurses perceived work environment as a predictor of tasks undone in both teaching/merged $p=0.08^*$ and community non-merged hospitals $p=0.11^*$). As discussed before, this finding provides a major insight in how nurses' perceptions about a healthy work environment can contribute to the quality of care and safety of patients, as very few research studies have focused on this link.

Our results were relatively surprising in that nurses' perception of work environment was not found as a significant predictor in teaching non-merged and community merged hospitals. Given that there is not much research that connects work environment with quality of care and patient safety, given also that the research on restructuring, downsizing and mergers does not examine the impact of this change on the work environment, it is difficult to explain this paradoxical finding. One explanation would be that the concept of work

environment is too vague and not well grasped by nurses since it has many characteristics that are not well-defined and articulated to practice settings. Another possibility would be the single item sub-scale that we used for work environment in our data analysis. Specifically, this sub-scale may be very limited and does not capture all the characteristics of work environment.

Regardless of possible explanations for this paradoxical finding that relates only to two types of hospitals in our sample, our results about work environment in the general model and in both teaching merged and community non-merged hospitals constitute a substantial finding which should be strengthened by further research that examine the impacts of organizational changes as a result of restructuring on the work environment, and in turn, how the work environment affects quality of care and patient safety.

To complete our discussion of hypothesis 2, the second part of this hypothesis predicts that different organizational types and forms of hospitals influence differently the predictive link between the tasks undone and the frequency of adverse events. Contrary to this prediction, our results show that tasks undone act as a significant predictor of adverse events in all hospital types and forms. For instance, the more tasks perceived as undone by nurses, the higher the frequency/occurrence of adverse events perceived in teaching merged $p=0.36^*$; teaching non-merged $p=0.31^*$; community merged $p=0.28^*$; and community non-merged hospitals $p=0.27^*$). Although those results do not provide support to part 2 of our hypothesis, they do provide a major insight in the

sense that irrespective of hospital types and forms, tasks undone left by nurses can influence the occurrence/frequency of adverse events in acute care hospitals. Given that the link between tasks undone and adverse events is less documented in the literature, our finding provides direction to future research studies.

CHAPTER VI

CONCLUSIONS AND IMPLICATIONS

Conclusion

The purpose of the present thesis was to develop an integrative conceptual model that provides a framework for understanding how hospital rationalization, organizational culture and nursing care processes are linked and how this linkage impacts nursing sensitive patient outcomes. By examining the question around the “*combined*” impact of those concepts on nursing sensitive patient outcomes, this thesis shows that government policy directions due to fiscal pressures and hospital management strategic responses to changing policy, manifested as rationalization, had major implications for perceived quality of care and patient safety. Our findings suggest that rationalization had a short term, bottom line focus that did not consider the longer-term consequences for quality of care and patient safety. Based on our case study findings, it may be that hospital rationalization in Ontario led to a misallocation of resources. Inadequate numbers of nurses were employed in acute care hospitals to provide the increased intensity of care in order to support the policy direction while striving to continue to provide quality care to patients. In this context, our analysis of secondary data suggests that inadequate staffing was found to be a strong predictor of nurses’ tasks undone which, in turn, predicts the occurrence of adverse events in all types and forms of acute care hospitals. Our findings from both, the case study and the secondary data analysis, underscore that

structural factors (staffing, support services) and cultural factors (teamwork, work environment, supportive administration) that are affected by hospital rationalization can be expected to have an influence on quality of care and patient safety. In other words, findings suggest that the policy directions in the province of Ontario in the 1990s to encourage cost reduction and greater integration amongst separately governed hospitals steered these organizations in very unfamiliar directions that impacted quality of care and patient safety.

Acute care hospitals are extremely vulnerable to wider political and fiscal pressures that can divert their attention to goals that are not directly related to patient care. In this thesis, we express serious concerns in terms of how cost reduction emphasis through hospital rationalization can threaten patient care. After all, hospital rationalization is still considered as a “natural experiment” that needs comprehensive evaluations. However, it is of great concern that acute care hospitals could be subjecting patients to the unknown consequences of rationalization that has not been sufficiently evaluated in a comprehensive way in terms of its impact on the structural and cultural factors of organizations that our present study shows how those factors impact nursing care processes (i.e. tasks undone) and hence, patient outcomes (i.e. adverse events). Needless to say that our qualitative findings support the conclusion that nurses are engaged in heroic measures to preserve the quality of patient care because of their professionalism and commitment to their patients.

Results from the present study shed light on certain theoretical issues. In the next section, we will discuss the theoretical implications of our findings.

Theoretical Implications

This present thesis offers significant contribution to health policy, health services and nursing areas. There are few studies that combine the macro and micro systems levels to examine the impact of policy decisions and their significance to patient care. Our use and combination of conceptual frameworks of Donabedian's Model of Structure, Process and Outcome with Reason's Modeling of the Cause of Organizational Accidents proved to be very helpful in building a new perspective in examining latent failures and their root causes. Our data analysis showed evidence of the effective utilization of both frameworks.

Our results show that the system components (structures, process and outcomes) are important kinds of information from which inferences can be made about quality of care and patient safety. For example, our results show that staffing shortage that is one characteristic of a structure causes more tasks undone (process) and increased the perceived occurrence of adverse events (outcome). Such finding supports other researchers' view like Hodges, Icenhour & Tate (1994) who believe that Donabedian's framework is still the framework for academic quality of care research. By integrating the structure, process and outcome into our proposed framework, we conclude that outcomes have the

characteristics of being integrative. For instance, patient outcomes reflect the contributions of all those who provide care in a given setting, including the contributions of patients to their own care. This integrative characteristic of outcomes creates a difficulty in isolating with certainty the specific factors that contribute to bad or good patient outcomes. That is why, researchers need to understand the complex interaction of structure and process features and how they impact on patient outcomes. For instance, many might believe that researching and publishing poor and good outcomes of care for individual hospitals can bring government and organizational attention to improve care. However, this approach might be misleading if not complemented with thorough process and structure analysis for individual hospitals. Although information about outcomes is essential if hospitals are to review and correct their own practices, a thorough analysis of process and structure of individual hospitals would help identify the deficiencies that hospital are unable to correct without government support. That is, government and public should know about hospitals that, after process and structure analysis, have been shown to have deficiencies that they are unable to correct. This is in accordance with Donabedian's view that we can only get the most complete, credible and useful information by studying structure, process and outcome in conjunction.

In addition to Donabedian's model, our proposed framework is based also on Reason's modeling of the cause of organizational accidents. Although Reason's model was originally developed for use in industrial systems, our

findings support the utilization of this model in health systems. By referring to our proposed framework (page 89), our results show that nurses who are at the sharp end of the system and closer to patients interact with the hazardous process (i.e. staffing shortages, inadequate support services, poor work environment, poor teamwork, non-supportive administration) in performing their tasks. And those at the blunt end of the system are the less obvious factors (policy makers, hospital administrators) whose decisions, if fallible, can create latent failures that might affect quality of care and patient safety through their effect on the constraints and resources acting on the nurses at the sharp end. Our results show that in order to understand the sources and causes of errors at the sharp end that lead to adverse events, we must examine the larger system to see how resources and constraints (staffing, support services) at the blunt end shape the behavior of sharp-end nurses. Our findings suggest that the nurse making the error may not be the sole or ultimate cause. Active failures in nursing care processes could manifest a wider systemic problem that requires an in-depth analysis. Our findings provide support to human factors researchers, especially Reason (1990) who argue that latent failures which are shaped by economic, political, and operational constraints can be transmitted to specific workplaces to create local conditions that promote the commission of errors, and hence, accidents.

The concepts of hospital rationalization, organizational culture, nursing care processes and nursing sensitive patient outcomes were seldom used

together in the literature. By integrating those concepts into our proposed framework, our findings provide an in-depth understanding of how those concepts, when linked in an integrative framework, have potential relevance for quality of care and patient safety. Our proposed framework shows how those concepts constitute a complex set of forces, which greatly impact the way patient care is practiced in the current hospital environment.

Work is underway to expand what we know about patient safety and health system error in Canada. For example, the largest study of adverse events in Canadian hospitals was launched in 2002. It is cosponsored by CIHI and the Canadian Institutes of Health Research. Our findings will contribute to this study by providing an in-depth understanding of the system factors (staffing, support services, teamwork, work environment, administration, training, time pressures, workload ect.) that lead to health system error.

Research on hospital rationalization, organizational culture, nursing care processes, quality of care and patient safety remains incomplete. Given the continuous movement by government and hospital administrators to rationalize the provision of care, and as the seriousness of patient safety in our healthcare organizations has been recognized (Romanow Commission Report (2002); National Steering Committee on patient safety (2002)), our findings provide opportunities for researchers to examine it and to quantify the patient care impact of structural (i.e. staffing, support services) and cultural (teamwork, work environment, supportive administration) changes and to make comparisons

among acute care hospitals with differing types (teaching, community) and forms (merged, non-merged). In doing so, researchers must push far beyond their disciplinary boundaries and undertake interdisciplinary approach that link economic and political environment with organizational structure, work environment and patient outcomes. Such interdisciplinary approach can help address the twin goals of cost reduction and healthy organization (healthy workplace, good work conditions and a good quality and safe care).

Although results from the present study have shed light on certain theoretical issues and offered some direction for future research, these findings also contain policy and practical values. In Ontario, the provincial government makes policy decisions regarding how much money will be transferred to hospitals. At the institutional level, hospitals, as a result of ministry's policy decisions, make rationalization decisions regarding staffing levels, support services, closure of services, integration and amalgamations of services. Health professionals as a result of these decisions made by others, must work in an environment that may affect the care they provide to their patients. Our findings revealed that nurses perceived poor quality of care and more frequency of adverse events as a result of rationalization decisions especially in regard to staffing levels, support services, and amalgamation of services.

In the present study, we do not conceptualize hospital rationalization as a bad concept. After all, health care resources are finite. However, as resources are finite, and the possibilities for treatment are infinite, resource allocation and

rationalization decisions will always be made the government and hospitals. In this context, the present thesis provides an in-depth understanding of why rationalization in hospitals should not be undertaken in situations where there is limited or no knowledge of its consequences. To achieve a better objective of cost reduction and better quality and safe care, this thesis suggests that rationalization in hospitals should be implemented in careful and special ways that would help mitigate its potential impact on structural and cultural features that impact the care process, and hence, quality of care and patient safety. That is why, the implications of our findings in the present thesis are substantial given the current budgetary pressures for Ontario hospitals. In the following, we will discuss the policy and practical implications of our findings.

Policy Implications

Very often, the governors and managers of Canada's health care system do not have sufficient information to know what is going on to make informed decisions (Sinclair, 2001). They cannot predict confidently what might happen as a result of making changes and new policy directions. The policy decisions to cut healthcare budgets and to restructure hospitals are still reverberating through the health care system in Ontario. Our findings provide lessons that will inform policy makers in Ontario, who are under pressure to ensure healthcare efficiency and cost reductions, of the potential impact of hospital strategic responses (rationalization) on quality problems and patient safety as the result of the 1990s'

policy directions. In our case study, nurses perceived that the quality of care had deteriorated in their hospital in years following restructuring. In addition, our data analysis showed how structural and cultural changes that were associated with restructuring impacted the nursing care processes (i.e. tasks left undone) and the perceived occurrence of adverse events. Notwithstanding that our analysis was based on nurses perceptions, the analysis illustrates how policy makers who develop new policy directions and decide how much money will flow to individual hospitals in any given year impact indirectly the quality and safety of care provided to patients. Based on our findings, it is possible to argue that policy makers should not treat economic issues, quality of care and patient safety as separate policy spheres.

Over the last 20 years, Ontario has been facing many challenges in maintaining a fiscally responsible health care system. In response to these challenges, the 1990s reforms in Ontario's hospital system have transformed what was once a stable and predictable environment into a more uncertain and resource constricted one (Hanlon, 2001). Presently, the Ministry of Health and Long-Term Care is in a transitional stage, moving into implementation of Hospital Multi-year Base Funding which is assumed to provide hospitals with a predictable revenue stream. Based on our findings, it is reasonable to suggest that it is time to recognize that stable and predictable environment for hospitals has the potential to promote a better quality of care. As such, keeping quality and patient safety on the policy agenda is essential for any future reform initiative in Ontario.

Although our analysis was focused on the province of Ontario, the implications may apply elsewhere in Canada since restructuring in health care systems is common to many jurisdictions. For instance, findings from a 1999 survey of Canadian nurses show also that nearly half of respondents believed that the quality of patient care had deteriorated in hospitals after restructuring. Also, nurses reported that nursing sensitive patient outcomes such as medication errors and patient falls occurred with regularity in their institutions (Aiken et al., 2001). The cost implications of nursing sensitive patient outcomes need to be examined in order provide policy relevant information to policy makers and organizational leaders respectively.

The findings of this study suggest that rationalization (budget cuts, downsizing, restructuring, etc.) is the driving factor to inadequate staffing and support services which lead to undone tasks by nurses and hence to adverse outcomes to patients. In light of the study findings, it is essential to highlight the perspective that although major restructuring is completed, rationalization manifested as budget cuts and downsizing appear to be an ongoing event. Given the fact that rationalization is still ongoing, and given the cross-sectional nature of our study, a longitudinal study is needed in order to assess the impact of this ongoing event on worker's health and well-being, organizational productivity and patient outcomes.

Practical Implications

At the institutional level, hospitals, as a result of ministry's policy direction and resource allocation decisions, make rationalization decisions regarding staffing levels, support services, closure of services, integration and amalgamations of services. In a study by McGillis Hall, et.al., (2001), researchers found that in light of funding pressures and Health Services Restructuring Commission directions, Ontario hospitals generally did not have the time, resources or management attentions to properly implement, monitor and refine their response strategies. Hospitals did not conduct formal, comprehensive assessment of strategy impacts beyond the contribution to financial targets (McGillis Hall, et.al., 2001). Decisions to rationalize services are often made by senior operational managers who are far more focused on cost reductions and efficiencies than on patient outcomes (Canadian Policy Research Network CPRN 2001). Data from a study conducted by Hanlon (2001) suggest that the 1990s health policy directions in the province of Ontario encouraged hospital executives to steer their organizations in very unfamiliar directions. Our findings revealed that those unfamiliar directions were manifested by understaffing, inadequate support services, poor work environment, poor teamwork, less support from administration, poor communication, less training, more workload and time pressures. And our data analysis showed that nurses perceived understaffing, inadequate support services, poor work environment,

poor teamwork, and less support from administration as structural and cultural barriers that influence their roles and impact the completion of their nursing tasks which in turn leads to perceived occurrence of adverse events. Based on our findings, it possible to argue that hospital administrators have responded to budgetary pressures in the 1990s in ways that have intended and unintended consequences for the overall work environment and quality of care.

The present thesis explored quality problems related to patient care in acute care hospitals from the largest health care professional group. Our findings are pertinent to both the quality and the economic goals of acute care hospitals, and provide lessons to minimize quality problems by design. After all, “we can’t change human conditions, but we can change the conditions under which humans work” (Reason, 1991).

The support for the proposed framework in the present study (page 90) provides encouraging guidance for hospital administrators interested in refining their rationalization decisions in their respective hospitals. For instance, in order for hospitals to improve care, information about outcomes associated with a thorough analysis of process and structure of individual hospitals would help identify and correct the structural and cultural deficiencies that might act as barriers to providing a quality and safe patient care. Our data analysis revealed that perceived understaffing, inadequate support services, poor work environment, poor teamwork and non-supportive administration impacts the level of tasks undone by nurses, which in turn, influence the occurrence and frequency

of adverse events. To address such structural and cultural deficiencies in hospitals, an effective and comprehensive strategy would include means to provide adequate staffing and support services, promote team based work system, create a workplace culture that enhance nurses involvement and participation in any change management strategy. In the light of our findings, hospital leaders, in responding to external pressures, should develop comprehensive strategies in their organizations that could achieve both economic and workplace benefits.

In sum, the present study investigated the combined impact of hospital rationalization, organizational culture, and nursing care processes on nursing sensitive patient outcomes. The study proposed an integrative conceptual model that provides a framework for understanding how hospital rationalization, organizational culture and nursing care processes are linked and how this linkage impacts nursing sensitive patient outcomes. Findings shed some light on theoretical, policy and practical implications and provided directions to future research studies. For instance, and according to the Canadian Institute for Health Information (CIHI), we still do not know the scope of adverse events in health care institutions in Canada; the number of Canadians that die or are disabled due to health system error each year; the number of near misses and errors that occur in hospitals and how best to prevent them. Therefore, the next step involves examination to quantify the patient care impact of structural (i.e. staffing, support services) and cultural (teamwork, work environment, supportive

administration) changes and to make comparisons among acute care hospitals with differing types and forms. This next step is also crucial in the light of our case study analysis, which uncovered a noteworthy finding about the advantages and disadvantages of organizational size in relation to work environment and quality of care. Although literature assumes that large sized hospitals have an advantage over small sized ones in being able to support the services, volumes, facilities, and skills necessary for treating specific conditions and diseases, we find it reasonable according to our case study findings, however, to argue that small sized hospitals might have an advantage over large sized ones in having less latent failures, strong organizational culture, healthy work environment, stronger teamwork, and better communication. To better enhance the quality of care and patient safety, our findings suggest that hospitals, as an evolving concept, need to be modeled by integrating the benefits of both large sized hospitals and the cohesiveness and the healthier work environment that would exist in smaller sized ones. The 'how to' achieve the combined benefits of both large sized and small sized hospitals needs further investigation and analysis. In such context, our finding provides directions to future research studies in this area.

A final word. There are certain types of preventable adverse events that are perceived to be occurring more and more in hospitals. Hospital rationalization has economic, structural, cultural and patient outcome impacts.

The health care systems in Ontario, and Canada, are under tremendous pressures to meet rising public demand for services. With the growth in Canada's overall population and the rising proportion of seniors, the demand for health care services is generally rising faster than the available resources to meet this demand (currently seniors aged 65+ comprise about 12.5% of Canada's population and consume 45 % of health spending; by 2026/27, seniors will comprise about 21% of the population). Thus, the effects of this pressure on hospitals will be severe. This raises major concerns for quality of care and patient safety if policy directions and strategic decisions will continue to be implemented within a constrained health care resources environment without taking into consideration other than the economic aspects.

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APPENDIX A

A1 (English Version)

The purpose of this questionnaire is to help us identify the main themes and issues related to your perceptions of the work environment, rationalization, nursing care processes and quality problems, so that we can better focus and cover them within 45 minutes period of our group interview session.

It should take approximately 10 minutes to complete.

A) Job Characteristics: This section asks for general information about your employment as an RN. Please circle the number of the appropriate response to each question or, where indicated, fill in the blanks.

1.	Are you currently employed full-time or part-time at this hospital?	1. Full time 2. Part time
2.	Is your employment	1. Permanent
2. Temporary
3. Casual
3.	What is your job title?	1. Staff nurse
2. Other (Specify) _____
4.	What is the length of the usual shift in your schedule?	1. 8 hours
2. 12 hours
3. either 8 and/or 12 hours
4. Other (Specify): _____ hr
5.	In the past year, has the amount of overtime required of you:	1. Increased
2. Remained the same
3. Decreased
4. Not applicable

B) Restructuring: This section includes a few questions on restructuring.

1.	In the Past 5 years	
	a) How many times have you been laid off?	_____ # times
	b) How many times have you been asked to change nursing units?	_____ # times
2.	In the past 3 months.	
	a) On how many occasions have you missed work due to illness ?	_____ # occasions
	b) How many shifts have been missed?	_____ # shifts

3. On the last shift that you missed work, what was the reason?

1. physical illness
2. mental health
3. injury (work related)
4. sick child/other family illness/crisis
5. unable to get needed day off
6. other

4. How well restructuring decisions made at higher levels take into consideration your needs?

1. Poor
2. Fair
3. Good
4. Very Good
5. Excellent

C) For *each* item in this section, please indicate the extent to which you agree that the following items ARE PRESENT IN YOUR CURRENT JOB. Indicate your degree of agreement by circling the appropriate number.

	The following are present in your current job	Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree
1	Adequate support services allow me to spend time with my patients.	1	2	3	4
2.	Physicians and nurses have good working relationships.	1	2	3	4
3.	A good orientation program for newly employed nurses.	1	2	3	4
4.	A supervisory staff that is supportive of the nurses.	1	2	3	4
5.	A satisfactory salary.	1	2	3	4
6.	Nursing controls its own practice.	1	2	3	4
7.	Active staff development or continuing education programs for nurses.	1	2	3	4
8.	Career development/clinical ladder opportunity.	1	2	3	4
9.	Opportunity for staff nurses to participate in policy decisions.	1	2	3	4
10.	Enough time and opportunity to discuss patient care problems with other nurses during shift change.	1	2	3	4
11.	Enough registered nurses on staff to provide quality patient care.	1	2	3	4
12.	A nurse manager or immediate supervisor who is a good manager and leader.	1	2	3	4
13.	Flexible or modified work schedules are available.	1	2	3	4

14.	Enough staff to get work done.	1	2	3	4
15.	Workload in your unit has increased over the past few years.	1	2	3	4
16.	Freedom to make important patient care and work decisions.	1	2	3	4
17.	Praise and recognition for a job well done.	1	2	3	4
18.	The opportunity for staff nurses to consult with clinical nurse specialists or expert nurse clinicians/educators.	1	2	3	4
19.	Good working relationships with other hospital departments or programmes.	1	2	3	4
20.	A lot of team work between nurses and physicians.	1	2	3	4
21.	Working with nurses who are clinically competent.	1	2	3	4
22.	Administration that listens and responds to employee concerns.	1	2	3	4
23.	An active quality assurance program.	1	2	3	4
24.	A work environment that is pleasant, attractive and comfortable.	1	2	3	4
25.	Written up-to-date nursing care plans for all patients.	1	2	3	4
26.	Patient care assignments that foster continuity of care.	1	2	3	4
27.	Staff nurses do not have to float from their designated unit.	1	2	3	4
28.	Staff nurse actively participate in developing their own working schedule.	1	2	3	4
29.	Each patient care unit determines its own policies and procedures.	1	2	3	4
30.	RNs and RPNs have a good working relationship. ✓ _____ if not applicable	1	2	3	4
31.	RNs and unregulated workers (e.g. aides, non-registered assistants.) have a good working relationship. ✓ _____ if not applicable	1	2	3	4

D. Job Characteristics: This section asks about your job as an RN and asks for your views about the care on your nursing unit and in your hospital. Please circle the number of the appropriate response to each question or, where indicated, fill in the blanks.

1. On the whole, how satisfied are you with your present job?

1. Very dissatisfied
2. A little dissatisfied
3. Moderately satisfied
4. Very satisfied

2. Thinking about the next 12 months, how likely is it that you will lose your job?

1. Very Likely
2. Fairly Likely
3. Not too likely
4. Not at all likely

3. The following descriptions are intended to represent levels of skill and ability in nursing roles and functions. Which one of the following would you say *best* describes the way in which you practice on your unit?

I am a nurse who...(circle only one response)

1 ...relies primarily on standards of care, unit procedures, and physicians' and nurses' orders to guide patient care.

2. ...has increased clinical understanding, technical and organizational skills, and is able to anticipate the likely course of events.

3. ...perceives the patient situation as a whole and responds appropriately as conditions change.

4....is good at recognizing unexpected clinical responses and often provides an early warning of patient changes.

4. In general, how would you describe the equipment and instruments on your unit?

1. Excellent
2. Good
3. Fair
4. Poor

5. In general, how would you describe the quality of nursing care delivered to patients on your unit?

1. Excellent
2. Good
3. Fair
4. Poor

6. Overall, after restructuring, would you say the quality of patient care in your unit has

1. Improved
2. Remained the same
3. Deteriorated

7. Have any of the following changes occurred in your hospital in the past year? Circle all that apply.

- 1) Increase in number of positions for advanced practice nurses (Clinical Nurse Specialists/ Nurse Practitioners)
- 2) Increase in number of patients assigned to RNs
- 3) Substitution of part-time, per diem, or temporary RNs for full-time positions
- 4) Reduction in number of nurse managers
- 5) Increase in cross training of staff
- 8) Hiring of unregulated workers to provide direct patient care

1. Yes	2. No
1. Yes	2. No
1. Yes	2. No
1. Yes	2. No
1. Yes	2. No
1. Yes	2. No

8. How has the hiring of unregulated workers affected the quality of care in your hospital?

The quality has...

1. Improved
2. Remained the same
3. Deteriorated
4. Not applicable or no change in hiring unregulated workers

9. How confident are you that management will act to resolve the patient care problems that you report?

1. Very confident
2. Confident
3. Somewhat confident
4. Not at all confident

10. Which of the following tasks may be influenced in a unit because of a lack of time to complete them?

Circle all that apply.

1. Routine teaching for patients and families
2. Preparation of patients before procedure
3. Monitoring the patient after procedure
2. Preparation of patient and family for discharge
3. Comforting/talking with patients
4. Adequately documenting and reporting nursing care
7. Development or update of nursing care

E) This section asks questions related to the balance between your effort and your rewards. Indicate below your

a) level of agreement with the statement

AND

b) how distressing this statement is to you.

		<u>Agreement</u>				
		Strongly Disagree		Strongly Agree		
		1	2	3	4	5
1.	I have constant time pressures due to heavy workload.					
2.	I have many interruptions and disturbances in my job.					
3.	I have a lot of responsibility in my job.					
4.	I am often pressured to work overtime.					
5.	My job is physically demanding.					
6.	Over the past few years, my job has become more and more demanding.					
7.	I receive the respect I deserve from my superiors.					
8.	I receive the respect I deserve from my colleagues.					
9.	I receive adequate support in difficult situations.					
10.	I am treated unfairly at work.					

11.	I have experienced or expect to experience an undesirable change in my work situation.	1	2	3	4	5
12.	My job promotion prospects are poor.	1	2	3	4	5
13.	My job security is poor.	1	2	3	4	5
14.	My current occupational position adequately reflects my education and training.	1	2	3	4	5

THANK YOU FOR TAKING THE TIME TO COMPLETE AND RETURN THIS PRE-GROUP INTERVIEW QUESTIONNAIRE. I LOOK FORWARD TO MEETING YOU IN THE GROUP INTERVIEW SESSION.

A1 (French)

Le but de ce questionnaire est de nous aider à déterminer les principaux thèmes et éléments liés à vos perceptions sur le milieu de travail, la restructuration et la qualité des soins infirmiers, afin que nous puissions nous y concentrer et en discuter suffisamment lors de la séance de 45 minutes de notre groupe de discussion.

Ce questionnaire prend environ 10 minutes à remplir.

A) Caractéristiques de l'emploi : Cette section porte sur des renseignements généraux concernant votre emploi à titre d'infirmier(ère) autorisé(e). Pour chaque question, veuillez encercler le numéro de la réponse appropriée ou, lorsqu'il y a lieu, remplissez les espaces laissés en blanc.

1. Actuellement, êtes-vous un ou une employé(e) à temps plein ou à temps partiel de hôpital?	1. Temps plein
2. Temps partiel
2. Votre emploi est-il	1. Permanent
2. Temporaire
3. Occasionnel
3. Quel est votre titre?	1. Infirmier(ère) de chevet
2. Autre (préciser) _____
4. Combien de temps dure votre période de travail habituelle?	1. 8 heures
2. 12 heures
3. parfois 8 heures, parfois 12 heures
4. Autre (préciser): _____ h
5. L'année dernière, le temps supplémentaire que l'on vous a demandé de faire a-t-il :	1. Augmenté
2. Resté le même
3. Diminué
4. Sans objet

B) Restructuration : Dans cette section on vous pose quelques questions sur la restructuration.

1. Dans les 5 dernières années
- a) Combien de fois avez-vous été mis(e) à pied? _____ fois
- b) Combien de fois vous a-t-on demandé de changer d'unité de soins? _____ fois

2. Dans les 3 derniers mois.

a) Combien de fois vous êtes vous absenté(e) du travail pour cause de maladie?

_____ fois

b) Combien de quarts de travail avez-vous manquées?

_____ quarts de travail

3. Pour quelle raison vous êtes vous absenté(e) la dernière fois que vous avez manqué un quart de travail?

1. maladie physique
2. santé mentale
3. blessure (liée au travail)
4. enfant malade/autre membre de la famille malade/crise
5. incapable d'avoir un jour de congé nécessaire
6. autre

4. À quel point les décisions en matière de restructuration prises par la haute direction prendront-elles en considération vos besoins?

1. Faible
2. Moyen
3. Bien
4. Très bien
5. Excellent

C) Pour *chacun* des énoncés de cette section, veuillez indiquer dans quelle mesure la situation qu'ils décrivent CORRESPOND À VOTRE EMPLOI ACTUEL. Indiquez votre degré d'acceptation en encerclant le numéro approprié.

	Les situations suivantes s'appliquent à votre emploi actuel.	Absolument d'accord	Un peu d'accord	Un peu en désaccord	Absolument en désaccord
1.	Des services de soutien adéquats me permettent de passer du temps avec mes patients.	1	2	3	4
2.	Les médecins et les infirmières ont de bonnes relations de travail.	1	2	3	4
3.	Il y a un bon programme d'orientation pour les infirmiers(ères) nouvellement embauchées.	1	2	3	4
4.	Le personnel de supervision soutient les infirmières.	1	2	3	4
5.	Le salaire est satisfaisant.	1	2	3	4
6.	Les soins infirmiers contrôlent leur propre pratique.	1	2	3	4
7.	Il y a des programmes actifs de perfectionnement du personnel ou de formation continue pour le personnel infirmier.	1	2	3	4
8.	Il est possible de perfectionner sa carrière/monter des échelons cliniques.	1	2	3	4

9.	Le personnel infirmier de chevet ont la possibilité de prendre part aux décisions en matière de politiques.	1	2	3	4
10.	Il y a suffisamment de temps pour discuter des problèmes de soins aux patients avec les autres infirmiers(ères) au moment du changement de quart.	1	2	3	4
11.	Le nombre d'infirmiers(ères) autorisé(e)s est suffisant pour fournir des soins de qualité aux patients.	1	2	3	4
12.	L'infirmière gestionnaire ou le superviseur immédiat est un bon gestionnaire et leader.	1	2	3	4
13.	Des horaires de travail flexibles ou modifiés sont disponibles.	1	2	3	4
14.	Il y a assez de personnel pour accomplir le travail.	1	2	3	4
15.	La charge de travail de votre unité a augmenté au cours des dernières années.	1	2	3	4
16.	Vous êtes libre de prendre des décisions importantes en matière de soins aux patients et de travail.	1	2	3	4
17.	Vous êtes loué(e) et reconnu(e) lorsque vous faites de l'excellent travail.	1	2	3	4
18.	Les infirmiers(ères) de chevet peuvent consulter les infirmières cliniciennes spécialisées ou les infirmières praticiennes/éducatrices cliniciennes spécialisées.	1	2	3	4
19.	Les relations de travail avec le personnel et les autres services ou programmes de l'hôpital sont bonnes.	1	2	3	4
20.	Le personnel infirmier et les médecins travaillent beaucoup en équipe.	1	2	3	4
21.	Vous travaillez avec du personnel infirmier compétent sur le plan clinique.	1	2	3	4
22.	L'Administration écoute et répond aux préoccupations du personnel.	1	2	3	4
23.	Il y a un programme actif d'assurance de la qualité.	1	2	3	4
24.	Le milieu de travail est plaisant, attrayant et confortable.	1	2	3	4
25.	Des plans de soins infirmiers à jour sont préparés pour tous les patients.	1	2	3	4

26.	La répartition de soins aux patients favorise la continuité des soins.	1	2	3	4
27.	Les infirmiers(ères) de chevet n'ont pas à quitter leur unité désignée.	1	2	3	4
28.	Les infirmiers(ères) de chevet participent activement à l'élaboration de leur propre horaire de travail.	1	2	3	4
29.	Chaque unité de soins aux patients détermine ses propres politiques et procédures.	1	2	3	4
30.	Les infirmiers(ères) autorisé(e)s et les infirmiers(ères) auxiliaires autorisé(e)s ont une bonne relation de travail. ✓ _____ si cela ne s'applique pas	1	2	3	4
31.	Les inf. aut. et les travailleurs non réglementés (p. ex. les auxiliaires, les aides non autorisés) ont une bonne relation de travail. ✓ _____ si cela ne s'applique pas	1	2	3	4

D. Caractéristiques de l'emploi : Dans cette section on vous pose des questions sur votre travail à titre d'inf. aut. afin de connaître votre opinion sur les soins prodigués dans votre unité de soins infirmiers et dans votre hôpital. Pour chaque question, veuillez encercler le numéro de la réponse appropriée ou, lorsqu'il y a lieu, remplissez les espaces en blanc.

1. Dans l'ensemble, êtes vous satisfait(e) de votre emploi actuel?
 1. Très insatisfait(e)
 2. Un peu insatisfait(e)
 3. Modérément satisfait(e)
 4. Très satisfait(e)

2. Lorsque vous pensez aux prochains 12 mois, est-il possible que vous perdiez votre emploi?
 1. Très possible
 2. Passablement possible
 3. Peu possible
 4. Pas possible du tout

3. Les descriptions suivantes visent à représenter les niveaux d'aptitudes et d'habiletés requises pour exercer les rôles et les fonctions existants dans les soins infirmiers. Laquelle des descriptions suivantes décrit le *mieux* votre façon de procéder dans votre unité?

Je suis un(e) infirmier(ère) qui...
(encerclez seulement une réponse)

1 ...se fie principalement aux normes en matière de soins, aux procédures de l'unité, et aux ordonnances des médecins et du personnel infirmier pour contrôler les soins aux patients.

2. ...a amélioré sa compréhension des faits cliniques, ses aptitudes techniques et organisationnelles, et qui peut anticiper la suite possible des événements.

3. ...perçoit la situation du patient comme un tout et répond de façon appropriée, en fonction des conditions du patient.

4....est capable de reconnaître les réactions cliniques inattendues et fournit souvent un préavis sur les changements subis par le patient.

4. En général, comment décririez-vous l'équipement et les instruments utilisés dans votre unité?

1. Excellents
2. Bons
3. Moyens
4. Médiocres

5. En général, comment décririez-vous la qualité de soins infirmiers prodigués aux patients dans votre unité?

1. Excellente
2. Bonne
3. Moyenne
4. Médiocre

6. Dans l'ensemble, après la restructuration, diriez-vous que la qualité des soins aux patients dans votre unité s'est.....

1. Améliorée
2. Restée la même
3. Détériorée

7. Est-ce que l'un des changements suivants s'est produit dans votre hôpital au cours de la dernière année? Encerchez tous les énoncés qui s'appliquent.

1) Augmentation du nombre de postes pour le personnel infirmier exerçant à un niveau avancé (infirmi(e)ère clinicien(ne) spécialisé(e)/infirmier(ère) praticien(ne).	1. Oui	2. Non
2) Augmentation du nombre de patients assignés aux inf. aut.	1. Oui	2. Non
3) Postes à plein temps substitués par des postes à temps partiel, taux journalier, ou des postes d'inf. aux. aut. temporaires substitués par des postes à temps plein.	1. Oui	2. Non
4) Réduction du nombre d'infirmières gestionnaires.	1. Oui	2. Non
5) Augmentation de la formation polyvalente du personnel.	1. Oui	2. Non
8) Embauche d'employés non réglementés pour fournir des soins directs aux patients.	1. Oui	2. Non

8. Est-ce que l'embauche d'employés non réglementés a affecté les soins de santé dans votre hôpital?

La qualité...

1. s'est améliorée
2. est restée la même
3. s'est détériorée
4. sans objet ou aucun changement dans l'embauche d'employés non réglementés

9. Êtes-vous confiant(e) que la direction prendra les mesures nécessaires pour résoudre les problèmes en matière de soins aux patients que vous rapportez?

1. Très confiant(e)
2. Confiant(e)
3. Quelque peu confiant(e)
4. Pas du tout confiant(e)

10. Lesquelles des tâches suivantes peuvent être délaissées dans une unité en raison du manque de temps pour les compléter?

Encerchez toutes celles qui s'appliquent.

1. L'enseignement de routine à l'intention des patients et des familles
2. La préparation des patients avant une intervention
3. Le suivi du patient après une intervention
4. La préparation du patient et de la famille au congé
5. Réconforter/parler avec les patients
6. Documenter et rapporter les soins infirmiers de façons adéquate
7. Mettre au point ou à jour les soins infirmiers

E) Dans cette section, on vous pose des questions sur l'équilibre entre vos efforts et vos récompenses. Indiquez ci-dessous votre :

a) degré d'accord avec l'énoncé

ET

b) à quel point l'énoncé vous angoisse.

		<u>Accord</u>				
		Vivement en désaccord			Vivement d'accord	
1.	J'ai des contraintes de temps constantes en raison de la lourde charge de travail.	1	2	3	4	5
2.	Je suis souvent interrompu(e) et dérangé(e) pendant mon travail.	1	2	3	4	5
3.	J'ai beaucoup de responsabilités dans mon emploi.	1	2	3	4	5
4.	On insiste souvent pour que je fasse des heures supplémentaires.	1	2	3	4	5
5.	Mon emploi est exigeant sur le plan physique.	1	2	3	4	5
6.	Au cours des dernières années, mon emploi est devenu de plus en plus exigeant.	1	2	3	4	5
7.	Je reçois le respect qui m'est dû de la part de mes supérieurs.	1	2	3	4	5
8.	Je reçois le respect qui m'est dû de la part de mes collègues.	1	2	3	4	5
9.	Je reçois un soutien adéquat lors des situations difficiles.	1	2	3	4	5
10.	Je suis traité injustement au travail.	1	2	3	4	5
11.	J'ai vécu ou je m'attends à vivre un changement non souhaité dans ma situation de travail.	1	2	3	4	5
12.	Mes perspectives de promotion sont faibles.	1	2	3	4	5
13.	Ma sécurité d'emploi est faible.	1	2	3	4	5
14.	Mon poste de travail actuel reflète adéquatement mes études et ma formation.	1	2	3	4	5

MERCI DE PRENDRE LE TEMPS DE REMPLIR ET DE RETOURNER CE QUESTIONNAIRE AVANT LE DÉBUT DES SÉANCES DE GROUPE. J'ESPÈRE VOUS RENCONTRER À LA SÉANCE DU GROUPE DE DISCUSSION.

APPENDIX B

B-1 (English Version)

Dear Nursing Staff:

Thank you for your willingness to participate in my study. Please find enclosed two copies of the information summary and informed consent, one short questionnaire and an empty envelope. Please fill in the questionnaire and return it back in a sealed envelope. The two copies of the informed consent are signed by me. Please sign one copy and return it back with the sealed envelope that should contain only the filled questionnaire. Please keep one copy of the signed informed consent with you. To ensure confidentiality, the information you will share will not be shown to anybody.

To ensure anonymity, the questionnaire contains no identifying information. Please do not put the signed informed consent and the questionnaire in same envelope. Please return the questionnaire in a sealed envelope within 3 days from the date you receive it. Please, don't write your name on the questionnaire and make sure to have the envelope sealed. I will pass by the unit to pick up the sealed envelopes and the signed informed consents that will be put together in a separate envelope.

Only nurses can tell us this information. With your help, we can learn how to enhance quality of care and patient safety in hospitals.

B-2

I would like to thank you for your valuable participation in my study. If you have questions or concerns, please don't hesitate to call me: Fadi El-Jardali, Student Investigator at 561-4933.

Thank you for your valuable time. I look forward to meeting you in the group interviews.

Best Regards,

Fadi El-Jardali

INFORMATION SUMMARY

Title: The Impact of Hospital Rationalization and the Interrelationships among Organizational Culture, Human Factors, and Nursing Care Processes on Health Related Patient Outcomes

This research is being undertaken in partial fulfillment of the requirements for the Doctoral degree in Public Policy in the school of Public Policy and Administration at Carleton University.

Student Investigator: Fadi El-Jardali [Tel #

Thesis Supervisor: Dr. Allan Maslove

Your clinical unit at the Ottawa Hospital has undergone major changes and systems redesign due to hospital restructuring. For the purpose of exploring how hospital restructuring impacts both what nurses do and patient outcomes, you are being asked to participate in a research study in order to look at your perceptions of the work environment that has resulted from systems redesign and organizational restructuring in your unit and whether such changes relate to patient outcomes.

If you agree to participate in a focus group, the student investigator will schedule a 45 minutes group interview to discuss your perceptions about autonomy, social integration, job satisfaction, staffing, workload, skill mix and health related patient outcomes like preventable clinical incidents. Also, in order to facilitate focus group dynamics, you will fill in a short questionnaire prior to the group session. It will take around 10 minutes to complete. The questionnaire generally includes materials that are supposed to be discussed during the focus group sessions. Information from this questionnaire will assist you and the student investigator. The questionnaire allows you to develop a better understanding of the main issues and themes before the group discussion begins. And the information from the questionnaire will help the student investigator draw out unimportant issues and to focus on the main issues and themes so that it can be covered within a 45-minute period. The group interviews will be taped with your permission, and transcribed by the student investigator. The student investigator will make every effort possible to ensure confidentiality. To ensure confidentiality, the student investigator will code the tapes and will maintain the master key code. No one else will have access to this code key. After the tapes have been transcribed, the master code key and the tapes will be destroyed. The information you will share will be kept by the home office of the student investigator in a locked file and will not be shown to anybody. Also, in order to ensure confidentiality, no name will be written on the questionnaire. No one else except the principle investigator will have access to the pre-group questionnaires. Those

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questionnaires will be kept by his home office in a locked file and will not be shown to anybody. After summarizing the main themes and issues from those questionnaires, they will be destroyed within 15 days from receipt (shredded). No information will be shared with the employer. No information bearing your name will leave the institution.

Participation is entirely voluntary. You may discontinue participation at any time without penalty or loss of benefits and you may or may not give the student investigator the permission to use the data that you have provided up to that point. In addition, you have the right to refuse to answer any question. The information you will share will not be presented to your employer.

INFORMED CONSENT

I, -----, hereby certify that I have been told by the student investigator about the research project and its purposes. I have been told about the procedures to be followed, and how much time is involved. I have also been told the extent to which any records which may identify me will be kept confidential.

A written summary of what I have been told is attached. I have been given adequate opportunity to read it and have been given a copy of my own.

I understand that I have the right to ask questions at any time and that I should contact Fadi El-Jardali, e-mail: fjardaly@chat.carleton.ca. Also I can contact the Thesis Supervisor Dr. Allan Maslove at his office phone number: _____ for answers about further research issues, if any.

If I have any questions or complaints about the research process, I can contact the chair of the Ethics Committee at Carleton University Professor Klaus Pohle at this number: (613) 520-7434, e-mail: Klaus_Pohle@carleton.ca, or the Chair of The Ottawa Hospital Research Ethics Board at this number: _____

I hereby freely consent to take part in this research project.

B7

Name of the Nurse

Signature of the Nurse

Date

Name of the Student Investigator

Signature of the Student Investigator

Date

B-8 (French Version)

SOMMAIRE D'INFORMATION

Titre : Incidence de la rationalisation dans les hôpitaux et interrelations entre la culture organisationnelle, les facteurs humains, les soins infirmiers et les résultats sur la santé des patients

Cette recherche est entreprise afin de satisfaire partiellement aux exigences du doctorat en politique publique de l'école de politique publique et administration de la administration de l'Université de Carleton.

Étudiant enquêteur : Fadi El-Jardali [tél.

Directeur de thèse : Dr Allan Maslove

Votre unité clinique de L'Hôpital d'Ottawa a subi d'importants changements et une reconception de ses systèmes en raison de la restructuration de l'hôpital. Afin de déterminer les effets de la restructuration sur le travail des infirmières et les résultats pour les patients, on vous invite à participer à une étude visant à prendre connaissance de votre perception du milieu de travail résultant de la reconception des systèmes et de la restructuration organisationnelle de votre unité, et pour savoir si ces changements ont des répercussions sur les patients.

Si vous acceptez de participer à un groupe de discussion, l'étudiant enquêteur planifiera une entrevue de groupe d'une durée de 45 minutes en vue de discuter de vos perceptions sur l'autonomie, l'intégration sociale, la satisfaction professionnelle, la dotation, la charge de travail, la compétence collective et les résultats sur la santé des patients, par exemple les incidents cliniques qui auraient pu être évités. Aussi, de façon à faciliter la dynamique du groupe de discussion, on vous demandera de répondre à un court questionnaire avant la séance. Il vous faudra environ dix minutes pour y répondre. Le questionnaire comprend généralement des éléments qui seront abordés au cours des séances. L'information contenue dans ce questionnaire aidera les participants et l'étudiant chercheur à approfondir, avant la séance, la compréhension des principaux éléments et thèmes qui seront abordés dans le cadre du groupe de discussion. En outre, elle permettra à l'étudiant enquêteur d'éliminer les éléments sans importance et de se concentrer sur les éléments et les thèmes principaux afin que le groupe ait le temps d'en discuter suffisamment en 45 minutes. L'entrevue de groupe sera enregistrée, avec votre permission, et transcrite par l'étudiant enquêteur, qui fera tout en son pouvoir pour en assurer la confidentialité. Pour ce faire, il attribuera un code aux enregistrements et conservera le code passe-partout. Lui seul connaîtra ce code. Après avoir été transcrit, l'enregistrement sera détruit, de même que le code passe-partout. L'information que vous aurez partagée sera gardée sous clé dans un dossier au bureau principal de l'étudiant enquêteur et personne de l'extérieur n'y aura accès. De plus, toujours par souci

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de confidentialité, aucun nom ne sera inscrit sur les questionnaires remplis avant la tenue des séances; seul l'étudiant enquêteur principal y aura accès. Les questionnaires seront gardés sous clé dans un dossier au bureau principal de l'étudiant enquêteur. Après que l'étudiant enquêteur aura résumé les principaux thèmes et éléments mentionnés dans les questionnaires, ceux-ci seront détruits (déchiquetés) dans un délai de 15 jours après leur réception. Aucune information ne sera communiquée à l'employeur. Aucun document portant votre nom ne quittera l'établissement.

La participation à ce groupe est totalement volontaire. Vous pouvez mettre fin à votre participation à tout moment sans perte d'avantage, et vous avez le droit de refuser que l'étudiant enquêteur utilise l'information que vous avez donnée jusqu'alors. De même, vous avez le droit de refuser de répondre à n'importe quelle question. L'information que vous aurez partagée ne sera pas transmise à votre employeur.

CONSENTEMENT ÉCLAIRÉ

Je, soussigné(e), _____, atteste par la présente que l'étudiant enquêteur m'a expliqué le projet de recherche et ses objectifs. Il m'a fait part de la procédure à suivre et du temps qui sera nécessaire. Il m'a aussi assuré que tout matériel susceptible de révéler mon identité demeurera confidentiel.

Un résumé écrit de ce qui m'a été dit est joint à la présente. J'ai eu l'occasion de le lire et on m'en a donné une copie.

Je sais que j'ai le droit de poser des questions à tout moment et que je peux communiquer par courriel avec Fadi El-Jardali à l'adresse

Je peux également communiquer avec le D^r Allan Maslove, directeur de thèse, à son bureau, au _____ our qu'il réponde à toute question que je pourrais avoir sur la recherche en question.

Si j'ai des questions ou des commentaires à faire sur le processus de recherche, je peux communiquer avec le professeur Klaus Pohle, Président du Comité d'éthique de l'Université de Carleton, au _____ u à l'adresse de courriel _____
peux aussi communiquer avec le

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Président du Conseil d'éthique en recherches de l'Hôpital d'Ottawa au (613) 761-4902.

Par la présente, j'accepte librement de participer à ce projet de recherche.

Nom de l'infirmière ou de l'infirmier

Signature de l'infirmière ou de l'infirmier

Date

Nom de l'étudiant enquêteur

Signature de l'étudiant enquêteur

Date

Letter of Appreciation

Dear ,

I would like to thank you for participating in my research study. I really appreciate your time. I was flattered by your support to research. Also, I would like to take this opportunity to pleasantly inform you that your participation brought added value and valuable insights to issues that are important to the quality of care. You provided us with valuable lessons as of how to improve quality of care and patient safety by better system design. It is crystal clear that the valuable information you provided to this research study reflects your sincere commitments to provide the best quality of care. Your hospital is fortunate for having a quality nurse like you.

Throughout my dissertation, I will make every effort possible to utilize properly the valuable information you provided to the research study and hopefully make them influential at the policy level.

Once again, thank you for everything. It was a pleasure meeting you.

Warmly,

Fadi El-Jardali

APPENDIX C

The Ottawa
HospitalL'Hôpital
d'Ottawa*Research Ethics Board
Conseil d'éthique en recherches*

Wednesday, March 13, 2002

Ms. W. Nicklin
Administration
A-Main Executive Offices
Ottawa Hospital - Civic Campus

Dear Ms. Nicklin:

**Re: Protocol # 2002132-01H The Impact of Hospital Rationalization and the Interrelationships
Among Organizational Culture, Human Factors, and Nursing Care
Processes on Health Related Patient Outcomes**

Protocol approval valid until - Wednesday, March 12, 2003

Thank you for the letter from Fadi El-Jardali dated March 12, 2002. I am pleased to inform you that your study (listed above), the English Questionnaire, and the English Information Summary and Informed Consent were given expedited review by the Ottawa Hospital Research Ethics Board (OHREB) and are approved for recruitment at the Civic Campus only. No changes, amendments or addenda may be made in the protocol without the OHREB review and approval.

The validation dated should be indicated on the bottom of all consent forms and information sheets (see copy attached). Approximately two months prior to the expiration date listed above, a single renewal form should be sent to the OHREB office.

The Tri-Council Policy Statement requires a greater involvement of the OHREB in studies over the course of their execution. You must inform the Board of adverse events encountered during the study, here or elsewhere, or of significant new information which becomes available after the Board review, either of which may impinge on the ethics of continuing the study. The OHREB will review the new information to determine if the protocol should be modified, discontinued, or should continue as originally approved.

Yours sincerely,

Raphael Saginur, M.D.
Chairman
Ottawa Hospital Research Ethics Board

Encl.

The Ottawa
Hospital

L'Hôpital
d'Ottawa

*Research Ethics Board
Conseil d'éthique en recherches*

Wednesday, March 27, 2002

Ms. W. Nicklin
Administration
A-Main Executive Offices
Ottawa Hospital - Civic Campus

Dear Ms. Nicklin:

**Re: Protocol # 2002132-01H The Impact of Hospital Rationalization and the
Interrelationships Among Organizational Culture, Human
Factors, and Nursing Care Processes on Health Related Patient
Outcomes**

Thank you for your letter dated March 21, 2002 requesting an extension of the above listed study to the General and Riverside Campuses of the Ottawa Hospital, and the revised French Questionnaire and Patient Information Sheet and Consent Forms submitted March 26, 2002.

The Amendment dated March 21, 2002, the French Questionnaire and the French consent documents are acceptable and the amendment is now approved.

Ethical approval remains in effect until March 12, 2003.

Yours sincerely,

Raphael Saginur, M.D.
Chairman
Ottawa Hospital Research Ethics Board

Encl.

From: Fadi El Jardaly <fjardaly@chat.carleton.ca>
To: Darlene_Gilson <DarleneGilson@pigeon.carleton.ca>
Date: Wednesday, March 20, 2002 9:26 AM
Subject: Re: F. El Jardali - Ethics Clearance

Thank you Darlene for the kind approval and thank you for your efforts and advise.

Best Regards,
Fadi

Darlene_Gilson wrote:

>
> Dear Mr. El Jardali,
>
> Thank you for providing the Carleton University Ethics Committee with a copy
> of the letter from the Ottawa Hospital Research Ethics Board. The Board is
> quite clear about what they have approved, where the research is to be
> conducted and that they are to be informed of any amendments to the
> protocol, significant new information or adverse effects. These same
> provisions apply to the Carleton University Research Ethics process, as is
> stated in our policy document. You have satisfied our Committee insofar as
> we now know that the hospital ethics board is aware of your project and has
> given its permission for it to proceed.
>
> The Carleton University Research Ethics Committee is taking this opportunity
> again to caution you that you may come into the possession of information
> that is legally tenuous for participants, the hospital, yourself as
> researcher and for this University, particularly around the topics of
> negligence, injury and death. We advise you to seek guidance from the two
> Ethics bodies should that occur.
>
> Your project is now approved.
>
> Regards,
>
> Darlene Gilson
> Darlene Gilson
> Director of Research Services
> Carleton University

APPENDIX D

D1

Ontario Registered Nurse Survey
of
Hospital Characteristics

This survey is one component of an *International Study of Hospital Organization and Staffing on Patient Outcomes* involving Canada (British Columbia, Alberta, and Ontario), the United States, England, Scotland, and Germany. The purpose of this survey is to help us identify hospital characteristics, to see how the organization of nursing care affects both nurses' satisfaction with their practice settings and patient outcomes.

Indicate the Hospital Name _____
if different than your 1998 College Of Nurses registration

A) Job Characteristics: This section asks for general information about your employment as an RN. Please circle the number of the appropriate response to each question or, where indicated, fill in the blanks.

1. Are you currently employed full-time or part-time at this hospital?
1. Full time 2. Part time
2. Is your employment
1. Permanent
2. Temporary
3. Casual
3. (a) What unit do you work on?
(Select the ONE unit where you usually work the MOST hours)
1. Medical
2. Surgical
3. Med/Surg
4. Intensive Care
5. Obstetrics
6. OR/Recovery Room
7. Pediatrics
8. Psychiatry
9. Emergency
10. Surgical Day Care
11. Other Amb Care
(Specify): _____
4. What is your job title?
1. Staff nurse
2. Other (Specify) _____
5. How many years have you worked..(a) as an RN _____ years
(b) as an RN at your present hospital _____ years
(c) as an RN on your current unit _____ years
6. Is your immediate supervisor a nurse?
If No, please specify the profession of your supervisor.
1. Yes 2. No

7. In the past year, how many hours per week did you work, on average?
_____ hours per week
8. In the past year, how many hours per week, on average, did you work on units other than those to which you are usually assigned? (that is, the one where you work the most hours).
_____ hours per week
9. What is the length of the usual shift in your schedule?
1. 8 hours
2. 12 hours
3. either 8 and/or 12 hours
4. Other (Specify): _____ hr
10. In the past year, how many hours a week, on average, did you work the following types of overtime?
Paid _____ hrs per week
Unpaid _____ hrs per week
11. In the past year, has the amount of overtime required of you:
1. Increased
2. Remained the same
3. Decreased
4. Not applicable

12. In the past 2 weeks, how often did you change shifts? (e.g. from days to evenings, evenings to nights, nights to days etc.)

1. None

2. Once

3. Twice

Other (Specify): _____

B) Nursing Work Index: For *each* item in this section, please indicate the extent to which you agree that the following items ARE PRESENT IN YOUR CURRENT JOB. Indicate your degree of agreement by circling the appropriate number.

The following are present in your current job . . .		Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree
1.	Adequate support services allow me to spend time with my patients.	1	2	3	4
2.	Physicians and nurses have good working relationships.	1	2	3	4
3.	A good orientation program for newly employed nurses.	1	2	3	4
4.	A supervisory staff that is supportive of the nurses.	1	2	3	4
5.	A satisfactory salary.	1	2	3	4
6.	Nursing controls its own practice	1	2	3	4
7.	Active staff development or continuing education programs for nurses.	1	2	3	4
8.	Career development/clinical ladder opportunity.	1	2	3	4
9.	Opportunity for staff nurses to participate in policy decisions.	1	2	3	4
10.	Support for new and innovative ideas about patient care.	1	2	3	4
11.	Enough time and opportunity to discuss patient care problems with other nurses.	1	2	3	4
12.	Enough registered nurses on staff to provide quality patient care.	1	2	3	4
13.	A nurse manager or immediate supervisor who is a good manager and leader.	1	2	3	4
14.	A senior nursing administrator who is highly visible and accessible to staff.	1	2	3	4
15.	Flexible or modified work schedules are available.	1	2	3	4
16.	Enough staff to get work done.	1	2	3	4
17.	Freedom to make important patient care and work decisions.	1	2	3	4
18.	Praise and recognition for a job well done.	1	2	3	4

Please indicate the extent to which you agree that the following items ARE PRESENT IN YOUR CURRENT JOB.
Indicate your degree of agreement by circling the appropriate number.

The following are present in your current job . . .		Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree
19.	The opportunity for staff nurses to consult with clinical nurse specialists or expert nurse clinicians/educators.	1	2	3	4
20.	Good working relationships with other hospital departments or programmes.	1	2	3	4
21.	Not being placed in a position of having to do things that are against my nursing judgement.	1	2	3	4
22.	High standards of nursing care are expected by the administration.	1	2	3	4
23.	A senior nursing administrator equal in power and authority to other top level hospital executives	1	2	3	4
24.	A lot of team work between nurses and physicians.	1	2	3	4
25.	Physicians give high quality medical care.	1	2	3	4
26.	Opportunities for advancement.	1	2	3	4
27.	Nursing staff are supported in pursuing degrees in nursing.	1	2	3	4
28.	A clear philosophy of nursing that pervades the patient care environment.	1	2	3	4
29.	Nurses actively participate in efforts to control costs.	1	2	3	4
30.	Working with nurses who are clinically competent.	1	2	3	4
31.	The nursing staff participates in selecting new equipment.	1	2	3	4
32.	A nurse manager or supervisor who backs up the nursing staff in decision making, even if the conflict is with a physician.	1	2	3	4
33.	Administration that listens and responds to employee concerns.	1	2	3	4
34.	An active quality assurance program.	1	2	3	4
35.	Staff nurses are involved in the internal governance of the hospital (e.g., practice and policy committees).	1	2	3	4
36.	Collaboration between nurses and physicians.	1	2	3	4

For each item in this section, please indicate the extent to which you agree that the following items ARE PRESENT IN YOUR CURRENT JOB. Indicate your degree of agreement by circling the appropriate number.

The following are present in your current job . . .		Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree
37.	A preceptor program for newly hired RNs.	1	2	3	4
38.	Nursing care is based on a nursing rather than a medical model.	1	2	3	4
39.	Staff nurses have the opportunity to serve on hospital and nursing committees.	1	2	3	4
40.	The contributions that nurses make to patient care are publicly acknowledged.	1	2	3	4
41.	Nurse managers consult with staff on daily problems and procedures	1	2	3	4
42.	A work environment that is pleasant, attractive and comfortable	1	2	3	4
43.	Opportunity to work on a highly specialized patient care unit.	1	2	3	4
44.	Written up-to-date nursing care plans for all patients.	1	2	3	4
45.	Patient care assignments that foster continuity of care.(i.e. the same nurse cares for the patient from one day to the next)	1	2	3	4
46.	Staff nurses do not have to float from their designated unit.	1	2	3	4
47.	Staff nurse actively participate in developing their own working schedule.	1	2	3	4
48.	Each patient care unit determines their its own policies and procedures.	1	2	3	4
49.	Working with experienced nurses who "know" the hospital nurses.	1	2	3	4
50.	RNs and RPNs have a good working relation ship ✓✓ _____ if not applicable	1	2	3	4
51.	RNs and unregulated workers (e.g. aides, non registered assistants.) have a good working relationship) ✓✓ _____ if not applicable	1	2	3	4

D. Job Characteristics: This section asks about your job as an RN and asks for your views about the care on your nursing unit and in your hospital. Please circle the number of the appropriate response to each question or, where indicated, fill in the blanks.

1. On the whole, how satisfied are you with your present job?
 1. Very dissatisfied
 2. A little dissatisfied
 3. Moderately satisfied
 4. Very satisfied

2. Independent of your present job, how satisfied are you with being a nurse?
 1. Very dissatisfied
 2. A little dissatisfied
 3. Moderately satisfied
 4. Very satisfied

3. Thinking about the next 12 months, how likely is it that you will lose your job?
 1. Very Likely
 2. Fairly Likely
 3. Not too likely
 4. Not at all likely

4. Do you plan to leave your present nursing position?
 1. Yes, within the next 6 months
 2. Yes, within the next 12 months
 3. No plans within the year

5. If you were looking for another job, how easy or difficult do you think it would be for you to find an acceptable job in nursing
 1. Very easy
 2. Fairly easy
 3. Fairly difficult
 4. Very difficult

6. The following descriptions are intended to represent levels of skill and ability in nursing roles and functions. Which one of the following would you say *best* describes the way in which you practice on your unit?

I am a nurse who...(circle only one response)

 - 1 ...relies primarily on standards of care, unit procedures, and physicians' and nurses' orders to guide patient care.
 2. ...has increased clinical understanding, technical and organizational skills, and is able to anticipate the likely course of events.
 3. ...perceives the patient situation as a whole and responds appropriately as conditions change.
 - 4....is good at recognizing unexpected clinical responses and often provides an early warning of patient changes.

7. In general, how would you describe the quality of nursing care delivered to patient on your unit?

1. Excellent
2. Good
3. Fair
4. Poor

8. Over the past year, how often would you say each of the following incidents has occurred involving you or your patients: (circle the appropriate response for each item)

Never Rarely Occasionally Frequently

1. Patient received wrong medication or dose.
2. Nosocomial infections.
3. Complaints from patients or their families.
4. Patient falls with injuries.
5. Work-related injuries to employees.
6. Incidents of verbal abuse directed toward RN.

1	2	3	4
1	2	3	4
1	2	3	4
1	2	3	4
1	2	3	4
1	2	3	4

9. Overall, in the past year, would you say the quality of patient care in your hospital has

1. Improved
2. Remained the same
3. Deteriorated

10. Have any of the following changes occurred in your hospital in the past year? Circle all that apply.

- 1) Increase in number of positions for advanced practice nurses (Clinical Nurse Specialists/ Nurse Practitioners)
- 2) Increase in number of patients assigned to RNs
- 3) Substitution of part-time, per diem, or temporary RNs for full-time positions
- 4) Reduction in number of nurse managers
- 5) Increase in cross training of staff
- 6) Loss of Chief Nurse Executive without replacement
- 7) Loss of Chief Nurse Executive with replacement
- 8) Hiring of unregulated workers to provide direct patient care

1. Yes	2. No
1. Yes	2. No
1. Yes	2. No
1. Yes	2. No
1. Yes	2. No
1. Yes	2. No
1. Yes	2. No
1. Yes	2. No

11. How has the hiring of unregulated workers affected the quality of care in your hospital?

The quality has...

1. Improved
2. Remained the same
3. Deteriorated
4. Not applicable or no change in hiring unregulated workers

12. How confident are you that your patients are able to manage their care when discharged from hospital?
1. Very confident
 2. Confident
 3. Somewhat confident
 4. Not at all confident
13. How confident are you that management will act to resolve the patient care problems that you report?
1. Very confident
 2. Confident
 3. Somewhat confident
 4. Not at all confident
14. If a member of your family needed health care, would you recommend that it be provided in your hospital?
1. Yes
 2. No
15. Have you ever been stuck with a needle or sharp that has been used on a patient?
1. Yes
 2. No

If YES:

- a) How many times has this occurred *in your nursing career*?
- b) How many of these incidents have occurred *in the past year*?
- c) How many of these incidents have occurred *in the past month*?

_____ # of times
 _____ # of incidents
 _____ # of incidents

16. Which of the following protective devices are routinely used in your work setting?

Circle all that apply.

1. Self capping/retractable needles
2. Needleless IV tubing
3. Needleless heparin locks
4. Safety lock syringes
5. Blunt needles/Cannula
6. Blunt needle IV tubing system
7. None of the above

E. Last Shift: This section asks questions about your nursing activities during the LAST SHIFT that you worked. Please circle the number of the appropriate response or, where indicated, fill in the blanks.

1. What was the last shift you worked?

1. Days
2. Evenings
3. Nights

2. On what type of unit did you work on your last shift?

1. Medical
2. Surgical
3. Med/Surg
4. Intensive Care
5. Obstetrics
5. OR/Recovery Room
7. Pediatrics
8. Psychiatry
12. Emergency
13. Surgical Day Care
14. Other Amb Care Specify: _____

3. How many beds (staffed and in service) are on that unit?

_____ # of beds

4. How many patients were on your unit during the last shift?

_____ # of patients on the unit

5. How many of these patients were assigned to you?

_____ # of patients assigned

6. Sort these patients into the following categories according to their care needs. (the number on lines 1-4 should equal the number in question 5 above).

ADL refers to Activities of Daily Living

Needs assistance with

1. _____ All ADLs
2. _____ Most ADLs
3. _____ Some ADLs
4. _____ None (mostly self care)

7. How many of each of the following worked on your unit during your last shift?

1. _____ # of RNs
2. _____ # of RPNs
3. _____ # of unregulated worker
4. _____ # of Nursing students

8. How many of the RNs in question 7 were float/agency?

_____ # of RNs

9. How many of the RPNs in question 7 did you supervise?

_____ # of RPNs

10. How many of the unregulated workers in Question 7 did you supervise?

_____ # of unregulated workers

11. How many of the Nursing students in Question 7 did you supervise?

_____ # of nursing students

11. Which of the following tasks did you perform during your last shift?

Circle all that apply

1. Delivering/retrieving trays
2. Ordering, coordinating, or performing ancillary services (e.g. physical therapy, ordering labs)
3. Starting IVs
4. Arranging discharge referrals
5. Performing ECGs
6. Routine phlebotomy (venipunctures)
7. Transporting patients (including to nursing homes)
8. Housekeeping duties (e.g. cleaning patient rooms)

12. Which of the following tasks were left undone because you lacked the time to complete them?

Circle all that apply.

1. Routine teaching for patients and families
2. Prepare patient and family for discharge
3. Comforting/talking with patients
4. Adequately documenting nursing care
5. Back rubs and skin care
6. Oral hygiene
7. Develop or update nursing care

13. How would you describe the quality of nursing care delivered on your last shift?

1. Excellent
2. Good
3. Fair
4. Poor

14. How often are you selected to be a preceptor for another nurse?

1. Never
2. Rarely
3. Occasionally
4. Frequently

15. How often do nurses come to you for clinical judgment on a difficult clinical problem?

1. Never
2. Rarely
3. Occasionally
4. Frequently

F) Demographic Characteristics: This section asks you general questions about you and your background. Please circle the number of the appropriate response to each question or, where indicated, fill in the blanks.

1. What is your sex? 1. female 2. male
2. What is your age? ____ years
3. In what country did you receive your basic nursing education? 1. Canada 2. Other Specify: ____
4. Do you have any dependent children living with you? 1. Yes 2. No
5. What is your highest educational credential?

Nursing 1. Diploma 1. Baccalaureate 1. Masters 1. Other Specify ____	Non Nursing 1. Diploma 1. Baccalaureate 1. Masters 1. Other Specify ____
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6. Are you represented by a collective bargaining unit? 1. Yes 2. No

APPENDIX E

E 1

Hospital Name	Type (1=Community; 3=Teaching)
SARNIA Hospital Alli	1
SARNIA Hospital Alli	1
MIDLAND Huronia	1
BARRIE Royal Victori	1
BRACEBRIDGE South Mu	1
BRANTFORD Gen	1
BRANTFORD St Joseph'	1
BROCKVILLE Gen	1
CHATHAM Public Gener	1
CHATHAM St. Joseph's	1
NORTH YORK General	1
NORTH YORK General	1
COLLINGWOOD Gen And	1
CORNWALL General	1
ELLIOT LAKE St Jos G	1
FERGUS Groves Mem Co	1
FORT ERIE Douglas Me	1
CAMBRIDGE Mem	1
GRIMSBY West Lincoln	1
GUELPH Gen	1
GUELPH St Joseph's	1
GUELPH St Joseph's	1
KIRKLAND LAKE And Di	1
KITCHENER St Mary's	1
RICHMOND HILL York C	1
LEAMINGTON And Distr	1
LINDSAY Ross Mem	1
BURLINGTON Joseph Br	1
MISSISSAUGA Credit V	1
NEWMARKET York Count	1
NIAGARA FALLS Greate	1
OAKVILLE-Trafalgar M	1
ORILLIA Soldiers Mem	1
OTTAWA Hopital Montf	1
PEMBROKE General	1
OTTAWA Queensway-Car	1
TORONTO Scarborough	1
ST CATHARINES Hotel	1
ST CATHARINES Gen	1
ST THOMAS Elgin Gen	1

E 2

Hospital Name	Type (1=Community; 3=Teaching)
SAULT STE MARIE Gen	1
SAULT STE MARIE Gen	1
SAULT STE MARIE Gen	1
TORONTO Scarborough	1
HAWKESBURY General	1
SIMCOE Norfolk Gen	1
STRATFORD Gen	1
STRATHROY Middlesex	1
TILLSONBURG District	1
KENORA Lake Of The W	1
TORONTO East Gen And	1
WELLAND County Gen	1
WOODSTOCK Gen	1
MILTON District	1
TORONTO St Joseph's	1
FORT FRANCES Riversi	1
FORT FRANCES Riversi	1
FORT FRANCES Riversi	1
FORT FRANCES Riversi	1
PETERBOROUGH Civic	1
HUNTSVILLE District	1
HUNTSVILLE District	1
MARKHAM-Stouffville	1
NORTH BAY GENERAL	1
NORTH BAY GENERAL	1
TIMMINS and District	1
ORANGEVILLE Dufferin	1
ORANGEVILLE Dufferin	1
WINDSOR Hotel Dieu G	1
WINDSOR Hotel Dieu G	1
PERTH Perth And Smit	1
PERTH Perth And Smit	1
KITCHENER Grand Rive	1
PARRY SOUND West Par	1
PARRY SOUND West Par	1
WINDSOR Regional Hos	1
WINDSOR Regional Hos	1
THUNDER BAY Regional	1
THUNDER BAY Regional	1
COBOURG The Northhum	1

Hospital Name	Type (1=Community; 3=Teaching)
COBourg The Northum	1
TORONTO Humber River	1
TORONTO Humber River	1
TORONTO Humber River	1
SOUTH Bruce Grey Hea	1
SOUTH Bruce Grey Hea	1
SOUTH Bruce Grey Hea	1
SOUTH Bruce Grey Hea	1
MISSISSAUGA Trillium	1
MISSISSAUGA Trillium	1
TORONTO NW GTA	1
TORONTO NW GTA	1
TORONTO NW GTA	1
LAKERIDGE	1
LAKERIDGE	1
LAKERIDGE	1
LAKERIDGE	1
LAKERIDGE	1
TORONTO Rouge Valley	1
TORONTO Rouge Valley	1
OWEN SOUND Grey Bruc	1
OWEN SOUND Grey Bruc	1
OWEN SOUND Grey Bruc	1
OWEN SOUND Grey Bruc	1
OWEN SOUND Grey Bruc	1
QUINTE Healthcare Co	1
QUINTE Healthcare Co	1
QUINTE Healthcare Co	1
QUINTE Healthcare Co	1
SUDBURY Regional	1
SUDBURY Regional	1
SUDBURY Regional	1
HAMILTON St Joseph	3
KINGSTON Gen	3
LONDON St Joseph's	3
LONDON St Joseph's	3
TORONTO Mount Sinai	3
TORONTO St Michaels	3
LONDON Health Scienc	3
LONDON Health Scienc	3

E 4

Hospital Name	Type (1=Community; 3=Teaching)
LONDON Health Scienc	3
HAMILTON Health Scie	3
HAMILTON Health Scie	3
HAMILTON Health Scie	3
HAMILTON Health Scie	3
HAMILTON Health Scie	3
TORONTO Hospital	3
TORONTO Hospital	3
TORONTO Sunnybrook A	3
TORONTO Sunnybrook A	3
TORONTO Sunnybrook A	3
OTTAWA Hospital	3
OTTAWA Hospital	3
OTTAWA Hospital	3