DRISDELLE

BARRIERS TO AND FACILITATORS OF RESEARCH UTILIZATION IN PRACTICE AS SEEN BY A GROUP OF PERIOPERATIVE NURSES IN NEW BRUNSWICK

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by

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DECLARATION

I certify that, except where acknowledgements have been made in the thesis, data or other material, this thesis comprises only the author's original work. The material has not been submitted to any other university for any award of any other degree or diploma.

Signature Redacted

Luc Drisdelle

July 2005

ABSTRACT

This comparative descriptive study was conducted at a public regional hospital located in the south-east region of the province of New Brunswick, Canada. The purpose of this study was to identify if the barriers to and facilitators of research utilization in a group of perioperative nurses are similar to other research areas utilizing the same scale.

The data collection process was done over a two (2) month period utilizing the Barriers and Facilitators to Using Research in Practice questionnaire (BARRIERS Scale) developed by Funk et al. (1991). The final sample size consisted of 46 nurses (61% response rate) who completed the survey.

The results show that the top barrier was 'The nurse does not feel she/he has enough authority to change patient care procedures' followed by 'physicians will not cooperate with implementation'. Seven out of the top ten barriers were related to the 'setting'. The facilitating factors most frequently suggested by the nurses were related to the setting (organization) as well as the models of education to increase their knowledge of research methods and to develop skills in evaluating research findings. These results are congruent with previous findings regarding the barriers to research utilization. The implication of these and other findings are also discussed.

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INTRODUCTION

Recent nursing literature has identified a number of factors which can impede or facilitate the use of research in practice. It is even more important that these factors be acknowledged and addressed, both at local and national levels, if research utilization in practice as well as evidence-based practice (EBP) is to become a reality and a norm.

Nurses at all levels, including perioperative nurses, need to address the key challenge of EBP, which is to use research evidence in a conscientious, explicit and judicious way when making decisions about patient care. Perioperative nurses are facing competing forces of a fiscal climate and quest for quality care. In this climate it is important that nursing adopts practices that are efficient and based on evidence (research). The perioperative setting is challenged by new technology, long surgery waiting lists and a stronger focus on shorter hospital stays while maintaining high quality nursing care to patients. These changes in perioperative nursing care must be supported by evidence (research) in order to be reliable and agreed upon.

In the clinical setting involved in this study anecdotal evidence have supported the notion of resistance to research utilization in decision making (i.e.: "This is the way we were shown how to do it and that's the way we are going to continue"). It is hoped that this study of the perceptions of nurses related to barriers as well as facilitators to the utilization of research in the perioperative nursing will advance research utilization in the perioperative setting. Identifying the most important barriers will assist in the development of possible solutions to rectify any problems identified.

This research report contains five (5) chapters. The first chapter presents the research problem and its importance. The second reveals the literature reviewed on the

problem. The third chapter targets the methodology utilized in this project. The fourth presents the results obtained related to the research hypothesis. The fifth chapter discusses the analysis and interpretation of the results according to the project, its framework and pertinent publications related to research. Finally, recommendations and solutions to the problems identified are discussed.

CHAPTER I

Introduction

For over 25 years, research utilization has been discussed with growing enthusiasm in the nursing literature, amid increasing calls for the use of research findings in practice. Additionally, the evidence-based practice movement has highlighted the importance of incorporating research findings into practice (Hutchinson & Johnston, 2004). Furthermore, controversy surrounding the achievement of professional status has resulted in an increased awareness of the need for a research-based body of knowledge to underpin nursing practice. DiCenso et al. (2004) state that the ultimate goal of nursing practice is to deliver high-quality nursing care and to improve health outcomes. Also, Gennaro, Hodnett & Kearney (2001) suggest that using research in practice not only benefits patients but also strengthens nursing as a profession. If nursing is truly a profession, and not just a job or an occupation, nurses have to be able to continually evaluate and be accountable for the provision of care. Assessing nursing care means that nurses also have to evaluate nursing research and determine if there is a better way to provide care.

For decades, the nursing literature has discussed the gap between the conduct of nursing research and the use of research findings to improve patient care and clinical practice. The nursing literature has also proffered a number of factors which can impede or facilitate the use of research in practice. Perioperative nurses are facing the dilemma of a fiscal climate resulting in severe budgetary constraints, whilst at the same time expected to maintain quality care (Tranmer, Lochhaus-Gerlach & Lam, 2002). It is therefore important that perioperative nurses implement practices that are efficient and based on evidence (research). The perioperative area continues to become more technologically challenging

for nurses, and perioperative nurses must combine new technology with knowledgeable and safe patient care ensuring patients do not experience complications (Hommelstad & Ruland, 2004).

Managers, in similar studies, report resistance to research utilization in decision making and thus counteract the notion that utilizing research in nursing practice increases the quality of nursing care (Funk et al., 1991). Utilizing research in practice also provides increased efficiency in patient care (Pettengill, Gilles & Clark, 1994) as well as personal and professional growth for nurses (Funk et al., 1991).

It was decided, after a review of the literature, to use the Barriers Scale. This would allow comparisons to be made to United States of America (U.S.A), Norwegian, Australian and other studies which have used the scale, and enable the identification of barriers which may be profession related, either nationally or internationally.

1.1 Study aims and objectives

The purpose of this comparative descriptive study is to identify if the barriers to and facilitators of using research utilization in a group of New Brunswick perioperative nurses are similar to other research areas utilizing, the BARRIERS Scale. The two research questions of relevance to this study are:

- Will the perioperative nurses of New Brunswick perceive the same barriers to utilizing research in practice as reported in other barriers studies?
- Will the perioperative nurses of New Brunswick perceive the same facilitators to utilizing research in practice as reported in other barriers studies?

From this study, several objectives or benefits have been identified. The main objective is to identify the perceived barriers and facilitators to the implementation of research

utilization within the perioperative nursing field. From these identified barriers, strategies will be developed in order to overcome these barriers. Another objective of this study is to place research utilization at the forefront of the perioperative nursing practice in order to continuously improve the quality of care given to patients in the perioperative environment. Skills and abilities are required of nurses to interpret, use and conduct research. With this knowledge and skill, comes power – power to change practice (based on research) and thus benefit patients (Lapierre, Ritchey and Newhouse, 2004).

1.2 Statement of Hypotheses

The hypotheses made for this study are:

- It is hypothesized that the barriers to the implementation of research identified by the perioperative nurses will be similar in percentage values to prior studies using the BARRIERS Scale.
- It is hypothesized that the facilitators to the implementation of research identified by the perioperative nurses will be similar in percentage values to prior studies using the BARRIERS Scale.

1.3 Study Background

The desire to move beyond traditional, ritualistic practices as the rationale for nursing care led to an increase in research activity that has often been extensive, of high quality, innovative, broad in its methodological procedures and frequently original (Retsas and Nolan, 1999). These research activities are being promoted in nursing (McCleary & Brown, 2003). There appears to be a paucity that exists between the generation of research and its use in clinical practice. As stated by McCleary & Brown (2003), improving our

understanding of the determinants of research utilization is fundamental to developing and testing strategies to increase research utilization and ultimately to improve nursing care and patient outcomes. It is not enough simply to have access to high-quality evidence; there must also be a positive research culture and adequate resources to allow, able and motivated nurses to be successful in research implementation (Closs et al., 2000). As supported by Closs et al (2000), knowing what the problem or barrier is helps us to find a solution.

It is universally acknowledged that to change clinical practice is typically not easy and that resistance to change is common. Resistance to change is not a characteristic of health care in particular, but of everyday human activity (Sitzia, 2002). Sitzia (2002, p. 232) states that the traditional, typical structure and processes of hospitals and other health organizations obstruct research utilization in at least two ways. Firstly, it appears that organizations lack a clear system for the dissemination and utilization of research findings. Everyone and no-one is responsible for 'using' research evidence; everyone in the organization works towards providing the best possible care for patients, yet typically no-one is charged with ensuring that care is indeed evidence based and up to date. Managers see it as the responsibility of clinical staff to determine their own practice – to appraise new evidence, to process and adopt or reject new guidelines – with the result that we have wild variations in standards of care not only between organizations but within organizations (Sitzia 2002, p. 232).

Secondly, specific research questions may interest one professional group rather than another, but when it comes to dissemination and, most importantly implementation, it is vital that a multi-professional approach is taken as this better reflects the realities of patient care (Sitzia, 2002; Funk et al., 1991). Studies from both the United Kingdom (U.K.) and

USA found that over 70% of nurses felt research implementation would be obstructed because other professions (i.e.: physicians), simply would not cooperate with the implementation (Dunn et al. 1998, p. 1209; Closs,et al. 2000, p. 5).

Nursing units (including perioperative units) in Canadian hospitals have responded, as best they can within the context of economic restraint, to create attractive (and effective) work environments, supportive of professional, evidence-based nursing care (Tranmer, Lochhaus-Gerlach & Lam 2002, p. 18). They have implemented new processes (e.g.: pathways, care maps) and new roles (e.g.: Nurse Practitioners) and are supportive of the development of research utilization and evidence-based practices. However, staff nurse involvement in or exposure to scholarly activities is limited and, usually, passive in nature (Tranmer et al., 2002). Few Canadian teaching hospitals have formalized nursing research programs despite tripartite missions of these hospitals for practice, education and research (Tranmer, Locchaus-Gerlach & Lam, 2002).

1.4 Framework

Change models help explain the behavior of individuals and organizations undergoing change, and are useful in guiding the implementation of interventions intended to change behavior (Rodgers, 2000). Many models and frameworks appear in the literature from many disciplines. The value of each approach is determined in part by local context; that is, by the characteristics of the individuals and groups in that context and by the processes and structures defining that context.

The conceptual framework for this study is based on the work of Rogers (1983) who described how new information is diffused and used and has been subject to scale development (BARRIERS Scale). Within this framework, the four main elements of the

theory of diffusion of innovations are innovation itself (idea), the channels of communication, the time required and the present social system. Lapierre, Ritchey & Newhouse (2004, p. 79) also stated: "The rate of adoption of an innovation is based on the perceived advantage, compatibility, complexity, trainability and observability."

In thinking about research use as an innovation to be applied, the nurse would need to understand its values and benefit to the patient, understand the findings, and be able to see results. Within organizations, the process of accepting innovation such as research use passes through similar phases as those of Rogers Theory of Diffusion of Innovations: agenda setting, matching, redefining, clarifying and routinizing.

1.5 Importance of the Study

Nursing is fundamentally a care giving profession. The public's view of nurses is that they are bedside caregivers (Smith, 1997). Perioperative nurses are viewed by the public, as well as other nurses, as surgical technicians or as handmaidens to surgeons, focusing on positioning, draping or prepping of the surgical patient (Gillette, 1996). Although the technical tasks are duties of the perioperative nurse, there is also an extensive knowledge base required for the provision of patient-centered care as well as explicit roles and responsibilities for perioperative nurses in regard to research utilization and Evidence-Based Practice (EBP) (Bailes, 2002; Beyea, 2000)

Perioperative nurses, by the fact that they perform perioperative nursing work, are in the best position to recognize perioperative nursing problems. If perioperative nurses do not accept this challenge, they will not be able to improve the quality of care during time when excellence is important to both patients and health care professionals (Bailes, 2002).

The importance of research to practice is widely acknowledged in the nursing literature (Valizadeh & Zamanzadeh, 2003). The research-practice gap, which is still quite disturbing, is one of the main forces driving the movement for EBP. There has been a number of studies which have explored the extent of research and nurses' attitudes to research (Champion & Leach, 1989; Funk at al., 1991; Dunn et al., 1998; Parahoo, 2000; Oranta, Routasalo & Hupli, 2002).

The majority of these studies have been carried out in the United States, Europe and Australia in many specialty nursing units (Maternity, Neuro Intensive Care Units (NICU), Medical-Surgical, Gerontology, Pediatrics). Little is known about barriers and facilitators to research utilization among nurses in Canada. Only a few studies have been completed (Wells & Braggs, 1994; Tranmer et al., 1998; Estabrooks, 1999) and none found in Canadian perioperative nursing. This study seeks to begin to fill this gap in perioperative nursing by exploring research attitudes and research utilization amongst perioperative nurses.

CHAPTER II

Literature Review

The ultimate goal of nursing practice is to deliver high-quality nursing care and to improve health outcomes. A challenge in this time of cost containment and nursing shortage is keeping up with advances (Dicenso et al., 2004). It is often easier to rely on traditional nursing practices, despite the availability of evidence from recent research (Estabrooks, 1998). For example, many nurses were taught to perform a shave preparation on a patient the night before going for surgery; it is now known that removing the hair twelve (12) or more hours prior to surgery in fact increases surgical site infection rates (Edlich et al., 2000).

A growing criticism of the practice of nursing is that, even with the continuing accumulation of new research evidence, it still relies primarily on experience and tradition (Kuuppelomäki & Tuomi, 2003). There are more and more calls for practical nursing to be evidence-based and for new theories developed in nursing science to be applied to practice (Raudonis & Acton, 1997; Rosswurn & Larrabee, 1999; Upton, 1999; Sitzia, 2002). As part of this discussion on evidence-based practice, the role of nurses in research has also been debated. On the one hand, it has been argued that Registered Nurses should take an active part in doing research and on the other hand, their role should be restricted to applying the results produced by others (Kuuppelomäki & Tuomi, 2003). This also includes perioperative nurses, because as technological advances are seen, perioperative nurses need to continuously evaluate their effects on patient care across the perioperative continuum.

2.1 Perioperative Nursing

The perioperative nurse has responsibilities that have been clearly defined as those nursing duties carried out by the professional nurse in the three phases of surgical patient care: preoperative [Surgical Day Care (SDC) and Day of Surgery Admission (DOSA)], intra-operative (Surgical Suite) and postoperative [Post Anesthetic Care Unit (PACU) and SDC] (Gillette, 1996; Von Post, 1996).

2.1.1 Preoperative phase

The preoperative phase commences as soon as the decision for the surgical intervention is made and ends with the induction of anesthesia (AORN, 1985; Atkinson, 1992 cited in McGarvey, Chambers & Boore 2000, p. 1097). It can be as far-reaching as an initial assessment of the patient in the outpatient clinic or as short-term as an immediate preoperative patient assessment within the operating room department. Nursing in this phase is primarily concerned with the preparation of the patient for surgery from both a physical and psychological perspective (McGarvey et al. 2000, p. 1097).

2.1.2 Intra-operative phase

The intra-operative period runs from the time the patient is transferred to the operating table to the time they are admitted to the recovery area (McGarvey, Chambers & Boore 2000, p. 1097). Nursing responsibilities revolve primarily around maintaining the overall safety and dignity of the patient at such a crucial time. The nurse is also responsible to the patient in terms of offering information and reassurance, in addition to ensuring continued comfort and physiological monitoring (AORN, 2002).

2.1.3 Post-operative phase

The post-operative phase begins with the admission of the patient to the recovery area and ends when the surgeon discontinues follow-up care (AORN, 2002). Nursing skills in the post-operative period are of paramount importance to the overall care of the patient. As stated earlier, the general public still holds the image of perioperative nurses as surgical technicians or as handmaidens to surgeons (Gillette, 1996). Although the technical tasks are duties of the perioperative nurse there is also an extensive knowledge base required for the provision of patient centered care as well as explicit roles and responsibilities for perioperative nurses in regard to EBP (Beyea & Nicoll, 1997).

2.2 Evidence-based practice (EBP)

During the last decade, EBP has become a buzz phrase in health care and the nursing profession has embraced the concept of EBP as the answer to provision of quality care (Zeitz & McCutcheon, 2003). It is derived from evidence-based medicine, which was developed in Canada to teach medical students (Pape, 2003). It began when some physicians in Paris rejected the information which was taught as expert information, and instead sought the truth by systematic patient observation. In 1992, Gordon Guyatt of Canada first introduced the term 'evidence-based medicine' (Sackett, Strauss, Richardson, Rosenberg & Haynes, 2001). Subsequently, the most common term used seems to be evidence-based practice, which is more inclusive of all aspects of health care. Evidence-based practice has captured the attention of administrators because of its potential to rationalize costs in health care delivery (French, 1999). The concept of Evidence-Based Nursing (EBN) has also generated a great deal of interest because of its association with the widely reported problems associated with the adoption of research findings. Sigma Theta

Tau International (2003, p. 69) defines EBN as "an integration of the best evidence available, nursing expertise and the values and preferences of the individuals, families and communities who are served". This assumes that optimal nursing care is provided when nurses and health care decision-makers have access to a synthesis of the latest research combined with a consensus of expert opinion. They are thus able to exercise their judgment as they plan and provide care that takes into account cultural and personal values and preferences (Sigma Theta Tau International, 2003). Indeed, the theory/practice debate has taken on a new look by incorporating this concern for the uptake of nursing research (Kitson et al., 1996; Hunt, 1996). It is still reported that many nursing practices in the 1990's as well as in the early 2000's are based on experience, tradition, intuition, common sense and untested theories (Kitson et al., 1996; Hunt, 1996; Sitzia, 2002).

EBP brings forth a strong rationale for the undertaking of "small-scale" research projects in the practice setting. In this statement the term "small-scale" should not be taken to mean a lack of rigor or that the research is of less importance than more costly or time consuming projects (French, 1999). A critical feature of the EBN process is that it makes explicit and intentionally integrates the previous research findings relevant to the investigators continuous quality improvement commitment. EBN also integrates the tacit knowledge of the investigator and the findings of studies carried out by the investigator in the investigator's own context (French, 1999). A second feature of EBN is that it is inextricably linked with continuous quality improvement processes (French, 1999). French (1999) also mentions that in taking account of the aspects of quality management it can be concluded that EBN development cannot occur unless all the stakeholders or powerbrokers involved in the problem are committed to a change in practice. The concept of EBN and the conduct of EBN projects have great potentials for enhancing the reputation of nursing

research and continuous quality improvements. It can do this because it is possible to demonstrate the part which the evidence plays in the practitioners' daily work in the promotion of continuous quality improvement and in enabling cost effective health care while at the same time applying the rigorous principle of research (French, 1999).

Healthcare providers, administrators and patients all ask, "What is the evidence, and is this based on best practice research?". In the current health care environment, clinicians constantly strive to enhance the quality and value of patient care while reducing costs (Pape, 2003). Therefore, when clinicians and nurses use research findings as their foundation for clinical decision making, the outcome is evidence-based practice. In today's health care environment, all clinicians must clearly understand and interpret the pertinent evidence before providing care. Health care consumers and administrators demand state-of-the-art treatment based upon research findings that have demonstrated effectiveness (Pape, 2003). Clinicians and nurses can no longer rely on the reasoning "this is the way we have always done things" or "this is the way I learned how to do this". Nurses must be leaders in providing evidence-based health care. Without a strong commitment to using evidence to guide decisions, nursing will lose credibility as a profession (Beyea, 2000).

The desire to move beyond traditional, ritualistic practices as the rationale for nursing care led to an increase in research activity that has often been of high quality, innovative, broad in its methodological procedures and frequently original (Retsas & Nolan, 1999). Almost every Western country and health system has witnessed a growing demand for health care services over the past 20 or 30 years. The reasons for this are well documented and include the impact of an aging population in developed countries, the continual introduction of new technology and knowledge, a rise in patient expectations as patients have become better informed and more assertive, and a shift in professional

expectations and attitudes (Retsas & Nolan, 1999). In many countries the rise in demand, knowledge and expectations has not been matched in terms of resources but rather has resulted in pressures on existing resources. As this pressure on resources continues to increase, clinical decisions will have to be made upon evidence derived from research rather than being based principally on values and resources (opinion based decision making) (Sitzia, 2002).

Traditionally nurses have been viewed as being practical rather than academic, subservient and, in Florence Nightingale's day, saintly, sanitary and feminine (Hicks, 1997). Now as education in nursing and nursing professionalism has developed there is an increasing recognition that nurses need evidence and that their nursing care procedures are based on fact not tradition. Nurses need evidence that their procedures are effective and that the most appropriate, and in these days of fiscal restraint are also the most economical (Smith, 1997). It may seem obvious that nurses should use procedures that are well established and rational, and yet it has been identified (Hunt, 1996) that sometimes nurses do not use well established research results, and that at the same time, nurses support practices that have no sound research base or have even been shown to be detrimental to patients (Hunt, 1996). This indicates that attention must be given to the knowledge gap that exists between nurses' good intentions and actual day-to-day practice (Smith, 1997).

2.3 Research Utilization in Evidence-Based Practice

The terms "research utilization" and "evidence-based practice" are according to Estabrooks (1999, p. 60) "often used interchangeably, though they are not synonymous". EBP encompasses more than research utilization. Whereas research utilization refers only to using scientific findings from research studies, EBP is an umbrella term for many

sources of evidence, which includes (1) evidence from various sources such as performance data obtained from quality improvement initiatives, (2) consensus recommendations of recognized experts, (3) affirmed experiences in clinical practice, and (4) scientific research findings (Jennings et al., 2001; Roberts, 1998; Rolfe, 1999; Stetler et al., 1998).

Research utilization, which is the translation of scientific evidence into practice, is a concept that has been emphasized in nursing since the early 1970's. Olade (2004) reports that there are calls from the clinical environment to apply scientific evidence from research studies in order to improve the quality of care in our nursing practice.

In the last two decades, there have been global movements focused on using scientific evidence in practice, as well as on developing more relevant models to enhance the use of scientific and other sources of evidence to improve the quality of nursing care (Estabrooks 1999, p. 761; Kitson, Harvey & McCormack, 1998; Olade, 2004; Rosswurm & Larrabee, 1999; Stetler, 2003).

Despite some positive efforts in the utilization of scientific research findings, numerous authors have documented the persistent gap between the availability of research findings in refereed journals and the utilization of these findings by nurses in practice. The need for closing the gap between research and practice continues to be reemphasized internationally (Adamsen et al., 2003; Dunn et al., 1997; Le May, Mulhall & Alexander, 1998; Mulhall, 2002; Olade, 2004; Oranta, Routasalo & Hupli, 2002).

2.4 Barriers to Evidence-Based Practice

It is universally acknowledged that to change clinical practice is not easy and that resistance to change is common (Sitzia, 2002). Resistance to change is not a characteristic of health care in particular, but of everyday human activity. This resistance has been

described as "dynamic conservatism", where people put a great deal of effort into staying as they are (Hunt 1987, p. 108).

Since the concept of evidence-based practice has appeared in the nursing research world, most efforts have focused on the appraisal and dissemination of evidence through various means like the Cochrane Collaboration and Center for Reviews and Dissemination situated in various countries (Closs et al., 2000). These processes are but one section of the jigsaw puzzle. These authors (Closs et al., 2000) identified several studies that focus on the wider complexity of integrating research findings into nursing practice. It is not enough simply to have access to high-quality evidence, there must also be a positive research culture and adequate resources to allow, enable and motivate nurses to be successful in research implementation. As stated by Closs et al. (2000), knowing what the problem is helps us to find a solution. For a change to happen, examination of the barriers inhibiting the utilization of research information in clinical practice is important (Smith, 1997).

According to the literature reviewed, there have been international efforts to identify barriers and facilitators to research utilization and EBP. Most of the studies on research utilization have been carried out in the United States of America, Australia and the United Kingdom and very few in Canada (Estabrooks, Winther & Katz, 2002). Even more interesting is the absence of research utilization, barriers and facilitators within perioperative nursing and therefore the need to begin to fill this gap is identified.

2.4.1 Studies on barriers and facilitators to research utilization in the United States of America (USA)

Studies which have surveyed the utilization of research in the USA in the last decade include, but are not limited to, Funk et al. (1991), Pettengill, Gillies & Clark (1994), Barta (1995) and Carroll et al. (1997). A commonality of these studies is that the authors

utilized the Barriers Scale by Funk et al. (1991) and found similar findings as stated below. Funk et al. (1991) developed a Barriers Scale and administered it to a random sample of 5000 nurses from the American Nurses Association (ANA) list. The top two (2) most important barriers in that study (N=1989), identified the 'lack of enough authority to change patient procedures' and 'insufficient time on the job to implement new ideas'. Among the most frequent 'facilitators' of research utilization were 'increasing administrative support and encouragement, improving the accessibility of research reports, and improving the research base of practicing nurses' (Funk et al. 1991, p. 44).

Penttengill et al. (1994, p. 146) surveyed the factors encouraging and discouraging the use of nursing research findings among a convenience sample of 534 nurses. The top barriers identified were 'lack of time' and ' lack of interest of nursing staff' followed by 'lack of support from others' while the top facilitator to research utilization was having a research newsletter published and provided to nurses.

Barta (1995) explored information seeking, research utilization, and barriers to research utilization among 213 'pediatric nurse educators'. The results of this study showed that the factors related to 'nurse' were more important than those relating to the 'setting' after a factor analysis was completed.

The study by Carroll et al. (1997, p. 210) reports that out of 356 nurses the greatest barriers to research utilization is insufficient time on the job to implement new ideas and lack of knowledge of nursing research findings. While the top facilitator identified was increasing the time available for reviewing and implementing research findings that will lead to a successful implementation.

2.4.2 Studies in the United Kingdom (UK), Europe and Australia

A number of studies in the UK have utilized the Barriers Scale by Funk et al. (1991) to survey British nurses. Walsh (1997a) surveyed 82 students enrolled in the Bachelor of Health Science (Nurse Practitioner Course). The most remarkable barrier identified was 'research is not reported clearly or readable', followed by 'statistical analyses are not understandable'. Walsh (1997b) conducted a similar study of community and hospital staff. In this study, the two most important barriers were 'statistical analyses are not understandable' and 'the nurse does not feel she/he has enough authority to change patient care'. Meanwhile, Dunn and colleagues (1998) also used the Barriers Scale to survey a convenience sample of 316 comprising of a broad spectrum of nurses working in the United Kingdom. In this study the top three barriers identified were 'there is insufficient time on the job to implement new ideas', 'statistical analyses are not understandable' and 'physicians will not co-operate with implementation'.

In Europe, similar studies have been completed in various countries like Northern Ireland (Parahoo, 2000; Parahoo & McCaughan, 2001; Glacken, 2002), Finland (Oranta, Routasalo & Hupli, 2002), Sweden (Nilsson Kajermo et al., 2000) and in Denmark (Adamsen et al., 2003). The results of these studies were similar to the ones conducted in some areas of the USA and UK. The main barrier themes coming out of these studies were insufficient time, no authority and knowledge of findings. On the other hand, these same studies have documented some factors that facilitate the use of research evidence in nursing. These facilitators include administrative commitment and support, knowledge of the research process, availability of research consultants, favorable research attitudes, affiliation with a university and financial resources (Walsh, 1997a; Walsh, 1997b; Dunn et

al., 1998; Parahoo & McCaughan, 2001; Oranta et al., 2002; Nilson Kajermo et al., 2000; Adamsen et al., 2003).

2.4.3 The Canadian Context

Changes in the Canadian health care system in the past decade have influenced the working environment for nurses, most notably in the acute care setting, including the perioperative setting (Canadian Nurses Association, 1999). Nurses are concerned about their ability to maintain and enhance clinical knowledge and competencies, especially in the current environment of rapid change, escalating demands associated with complex critically ill patients and minimal protected time for professional development activities (Tranmer, Lochhaus-Gerlach & Lam, 2002). These concerns are particularly disturbing as nurses are expected (and desire) to provide quality care that is reflective and evidence based (College of Nurses of Ontario, 1999).

Nursing departments in Canadian hospitals have responded, as best they can within the context of economic restraint, to create attractive (and effective) work environments supportive of professional, evidence-based nursing care (Tranmer et al., 2002). However, staff nurse involvement in or exposure to scholarly activities is limited and normally passive in nature. Staff nurses attend unit based in-services, rounds and conferences and participate in hospital practice committees. Few Canadian teaching hospitals "have formalized nursing research programs (i.e.: programs that actively promote and direct research or scholarship activities), despite the tripartite mission of these hospitals for practice, education and research" (Tranmer et al. 2002, p. 19)

Nursing is a practice-based profession: thus practice knowledge is important. Estabrooks (1999) surveyed 1500 nurses in western Canada. Respondents (n=600, 40%) reported that practice knowledge, that is knowledge gained through their personal work

experience was the most frequent source of knowledge. Tranmer et al. (1998) reported similar findings in a national Canadian survey. Approximately 80% of the key informant sample (n=114) indicated that knowledge gained from experience was more important than other forms of evidence with respect to decision making.

McCleary & Brown (2003, p. 370) recently published their results on barriers to research utilization amongst pediatric nurses (n=176) and the resulting top barriers were 'does not have time to read research' and 'the relevant literature is not compiled in one place'. The predominant facilitator identified was the active participation of nurses in quality improvement projects which in turn increases evidence utilization.

As previously highlighted, the literature review mentions that most of the studies on research utilization have been carried out in the USA, the UK and in Europe with very few in Canada (Estabrooks et al., 2002). Even more noteworthy is the absence of studies concerning barriers and facilitators to research utilization within perioperative nursing and therefore the need to begin to fill this void.

CHAPTER III

Study Methods

3.1 Study design and methods

This descriptive study utilizes a survey method in order to investigate the perceived barriers and facilitators of research utilization in one group of perioperative nurses (N=75). This method was selected because the BARRIERS Scale, a validated questionnaire, based on the work of Funk et al. (1991), and designed to elicit nurses' views on the perceived barriers and facilitators to research utilization in their nursing practice, was found to have a high reliability. Polit & Hungler (1999) describe the purpose of descriptive studies utilizing a survey method as the best approach to obtain information from a population regarding the prevalence, distribution and interrelations of variables. The authors also mention that the survey research method has been utilized by nurse researchers in order to study a wide range of phenomena and easily applies to a sample group or groups (Polit & Hungler, 1999). In this study, the sample group is determined by a convenience sample. A convenience sample, also called accidental sample, is a non probability sampling method (Burns & Grove, 2001). Burns & Grove (2001) argue that convenience samples are inexpensive, accessible, and usually require less time to acquire than other types of samples. They provide means to acquire information in unexplored areas. Convenience sampling is useful for exploratory studies as well as one that attempts to identify barriers and facilitators to research utilization (Burns & Grove, 2001). A convenience sample– despite its limitations – is deemed appropriate (Burnard, Hebden & Edwards, 2001).

3.2 Study area and population

The recruitment of the sample population was done in a regional hospital located in the province of New-Brunswick, Canada. This hospital provides perioperative care to a large geographical area (approximate pop.: 183, 000) – including tertiary hospital services to the entire province as well as neighboring provinces with a 11 000/year caseload within the perioperative program (Lee-Hebert, M 2004, pers. comm., March 3rd). This hospital is the second largest trauma center in the province and also has the second greatest urgent surgical waiting list in the province (Government of New Brunswick, 2004).

The population recruited consisted of registered nurses working on a full-time, part-time and casual basis in all areas of the perioperative nursing field (pre, intra, and post). This process was performed on a volunteer basis following an oral presentation of the project. The targeted sample was a convenience sample of 55 (n=55) in order to achieve a 75% convenience sample.

3.3 Samples

This study used a descriptive design with a mailed or personally delivered survey. The sample consisted of N=75 perioperative nurses in all three areas of the perioperative world (pre, intra and post) in a tertiary hospital centre located in the province of New Brunswick, Canada. The sampling method utilized in this study was a convenience sample from all full-time, part-time and casual nurses in all three (3) areas of perioperative nursing. The sample size depended on the willingness of the subjects to participate in this study.

The inclusion criteria were that they were Registered Nurses, presently working in one of the four (4) departments in the Perioperative Program at the facility (SDC, DOSA,

OR, and PACU). Seventy-Five (75) perioperative nurses were targeted as potential participants, and of those, forty-six (46) returned completed questionnaires.

3.4 Data collection tool

3.4.1 Demographic Data Questionnaire

The demographic data questionnaire was developed by this study's researcher and adapted from two previous studies by Retsas & Nolan (1999) and Hutchinson & Johnston (2004). The data gathered with the help of this questionnaire permits the description of the sample group. The demographic data questionnaire includes the following information: age, gender, primary area of employment, level of nursing education, employment status, years of experience, frequency of reading a nursing journal, type of nursing journal read. This questionnaire is found Appendix 1.

3.4.2 BARRIERS Scale

The Barriers Scale, developed by Funk et al. (1991), was used in this study in order to measure perceived barriers to research utilization. This instrument is based conceptually on Rogers' model of Diffusion of Innovations (1983). The Barriers Scale was based on a review of the literature on research utilization and from data gathered from nurses. Content analysis and modifications were carried out by research utilization consultants, nursing researchers, practicing nurses and a psychometrician, the instrument was pilot tested with nursing students who were 'clinically employed' (Funk et al., 1991). Carroll et al. (1997) state that Rogers identified four main elements that influence the diffusion process: the innovation, the communication, the social system, and the adopter.

The Barriers Scale includes 29 items measuring the extent to which the respondents agree with the presence of the specific barrier asked for (Likert Scale: 1=to no extent; 2=to

little extent; 3=to a moderate extent; 4= to a great extent). A 'no opinion' response is also offered. The scale has four main domains based on results of a factor analysis: characteristics of the adopter or nurse, organization or setting, innovation or research and communication of research or presentation (Funk et al., 1991). Reliability using Cronbach's alpha was acceptable for adopter (.80), organization (.80), and innovation (.72), but lower for communication of research (.65) (Funk et al., 1991). Test-retest reliability was stable, with Pearson correlations ranking between .68 and .83 (Funk et al., 1991). The Barriers Scale is recognized to be psychometrically robust having achieved face, content and construct validity and internal consistency (Glacken &Charney, 2004). This instrument (Appendix 2) has previously been utilized in many nursing specialties. Permission was granted from the main author to utilize this instrument (Appendix 3).

The questionnaire also offers space for the respondents to add perceived barriers not asked for in the questionnaire and to rank the three greatest barriers. Finally, the respondents are asked to suggest factors that might facilitate research utilization.

3.5 Variables

3.5.1 Independent variable

The independent variable in this study is the research utilization in practice by perioperative nurses. Nursing research has been cited by many authors to be vital to the development of expert nursing practice as well as to the provision of quality care (Castledine, 1996; Hodge et al., 2003; Lapierre, Ritchey & Newhouse, 2004; Hommelstad & Ruland, 2004; Nilsson Kajermo et al., 1998). Research utilization can be either direct (behavioral or instrumental) or indirect (cognitive or conceptual) which means that research findings influence the way to think, understand or be enlightened by a situation or a

phenomenon (Dunn, 1983; Stetler, 1994; Nilsson Kajermo et al., 1998). Stetler (1994) also refers to a symbolic or political dimension of utilization, i.e. the use of knowledge of how to convince people about a certain position for a decision to be made. Using research evidence is more than a simple matter of reading research and applying it. Rather, research utilization is a complex social process, influenced by characteristics of individual practitioners and their practice context (McCleary & Brown, 2003). These variables will be measured with the help of the demographic questionnaire.

3.5.2 Dependant variables

The literature review consistently points to the difficulty of transferring research findings into practice. In this study, the dependant variables are consistent with the Diffusion of Innovations model by Rogers (1995). According to the Diffusion of Innovations Model, the process of innovation and the process of diffusion of a research finding in nursing is theoretically influenced by the following variables: (1) characteristics of the nurse, such as education and critical appraisal skills; (2) organizational characteristics, such as decision-making processes and research climate; (3) characteristics of the research and research findings; and (4) the way the findings are communicated (Rogers, 1995). These variables are measured as nurses' research values, awareness and skills: time and resources to pursue research activities and support from leaders and colleagues; research findings' methodological soundness and quality; and presentation and accessibility of research findings. In this study, the variables are measured according to the participants' responses to the data collection tool (BARRIERS Scale).

3.6 Data collection process

This study started in October 2004 and ended in November 2004 in order to attain the maximum number of participants needed to reach at least 75% response rate. Prior to the data collection process, ethical approval was sought from the local hospital where the study was conducted as well as from the Ethical Research Review Committee of the School of Nursing and Health Studies.

3.6.1 Step 1

Once the approval was received from both institutions, the program director (1) and the nurse managers (2) of each department within the perioperative field were contacted in order to organize an information session for the employees in each area (4) in order to invite them to participate in the research project.

3.6.2 Step 2

At this information session, the potential study population was introduced to the project and its purpose (Appendix 4). They were informed of their rights to withdraw from the study at any time, if they wished. They were also informed of their rights to refuse to respond to questions asked in the questionnaires (Appendix 4).

3.6.3 Step 3

A consent form (Appendix 5) was also included in the questionnaire package and the participants were asked to complete and send the consent form to the researcher along with the questionnaire via Canada Post Mail or personally give the package to the researcher. Once received a copy of the consent form was then forwarded to the participant in order for them to have a copy of the consent form they had signed.

3.7 Ethical considerations and confidentiality

The ethical notions and confidentiality were respected during this study. The study was approved first by the Research Review Committee at the site (Appendix 6) and as well as by the Ethical Research Review Committee of the School of Nursing and Health Studies at Central Queensland University (Rockhampton Campus) (Appendix 7). The rights of the respondents to the participation in the study were well indicated in the consent form and clearly explained in the current spoken language of the respondent. After this meeting, a sign up list was provided in order to properly address the questionnaire package. This package contained an informed consent, the Barriers Scale and a demographic questionnaire as well as self addressed stamped return envelope, in order to assure confidentiality of the answers. This package was then distributed personally to participants. The completed questionnaire were returned to the principal investigator via the Canada Post mailing service as a pre-postage stamp envelope was supplied or the participants personally delivered the questionnaire to the investigator.

All data was kept confidential and anonymity was ensured by assigning numerical codes to each questionnaire. Data was kept in a locked file accessible only by the researcher. As well, two (2) back up disks are kept in a locked file accessible only by the researcher. The original signed consent form has been stored in a location only known to the researcher and in an envelope separate from the questionnaires. A photocopy of the consent form was also given to each of the participants. An example of the consent form is shown in Appendix 5.

3.8 Data analysis

The data analysis was done in collaboration with a university statistician. Quantitative data was coded and analyzed using the Statistical Package for the Social Sciences (SPSS 11.0) software. Descriptive statistical analyses were used. 'No opinion' responses were excluded from summary scores.

As this study was a survey study, the response rate is reported. This information is presented in table format with attention placed on the response rates. The quantitative data is shown in table format which includes mean, percentage and standard deviation. The homogeneity of the variables within the sample (Standard Deviation) was done in order to verify if the distribution of particular characteristics were similar for various items on the demographic questionnaire.

For the BARRIERS Scale, an internal consistency for each subscale was verified utilizing Chronbach's alpha coefficients. Cronbach's alpha is an index of the degree to which all of the different items in a scale are measuring the attributes (Polit & Hungler, 1999). The closer the score is to +1.00, the higher the reliability. According to Polit (1996), reliability coefficients generally should be at least 0.7.

Participants were also asked to list additional barriers and facilitators to research utilization. The qualitative data is shown in table format presented in percentages and in mutually exclusive categories and interpreted.

CHAPTER IV

Results

4.1 Sample profile

All nurses (N=75) working in the perioperative setting at the chosen site facility were solicited to participate in the study. Of these, forty-six (n=46) or 61% of potential respondents completed and returned the questionnaire. All of the returned questionnaires were completed in full and thus were all included in the statistical analysis.

4.1.1 Perioperative nurse's socio demographic status

The final sample size consisted of forty-four (n=46) respondents out of a possible seventy-five (N=75) for a response rate of sixty-one percent (61%). Of those Registered Nurses (RN's) who completed the questionnaire, 18 (39.1%) were situated in the 40-49 years old category closely followed by the 50-59 years old category (n=17, 37%). The remaining RN's were either younger than 39 years old (n=9, 19.6%) or older than 60 years old (n=2, 4.3%). The sample was solely composed of female nurses (n=46, 100%). Thirty-two of all the participants (69%) indicated that they worked full time and ten (21.7%) worked part time with the remainder (n=4, 8.7%) worked as casual. The majority of participants worked in the operating room (n=21, 45.7%). Fifteen (n=15, 32.6%) worked in the Post Anesthetic Care Unit (PACU) and ten (n=10, 21.7%) worked in the Surgical Day Surgery (SDC) and Day of Surgery Admission (DOSA). Most participants (n=40, 87%) have been working for more than 16 years and twenty-seven (n=27, 58.7%) have a diploma of nursing qualification. Regarding the frequency of reading a journal, forty (n=40, 87%) indicated reading a nursing journal monthly or less with twenty-three (n=23, 50%)

reporting they had read a journal "last week". The journal most frequently read by participants was the American Operating Room Nursing Journal (n=41, 81.9%). This journal is kept in the lounge area of the department and is accessible to them. Table 1 provides a more detailed picture of the participants' characteristics.

The homogeneity of the socio demographic variables were tested and found to be in the range 0.65 - 1.50 Standard Deviation (SD) as also seen in Table 1. Polit & Hungler (1999) cite the importance of verifying the homogeneity of the sample in order to describe important characteristics of a distribution. The standard deviation is an indication of the degree of error when describing the entire sample especially for the variable measured on the interval or ratio scale. Two variables for which the SD was not computed are the gender (100% female) and the type of nursing journal read, which the respondents had multiple answer choices.

Table 1. Socio Demographic Profile

	Frequency (n)	**Percentage (%)**	**Standard Deviation (SD)**
Gender			
♂	0	0	--------
♀	46	100	
Age (years)			
< 29	0	0	
30 – 39	9	19.6	
40 – 49	18	39.1	0.83
50 – 59	17	37.0	
> 60	2	4.3	
Employment			
PACU	15	32.6	
Surgical Suite (OR)	21	45.7	0.74
DOSA and SDC	10	21.7	
Education			
Diploma	27	58.7	
Diploma and certification	12	26.1	0.75
Bachelor Degree	7	15.2	

Status			
Full time	32	69.6	
Part time	10	21.7	0.65
Casual	4	8.7	
Nursing experience (years)			
0 - 5	0	0	
6 – 10	3	6.5	
11- 15	3	6.5	
16 – 20	13	28.3	1.50
21 – 25	7	15.2	
26 – 30	10	21.7	
31 and over	10	21.7	
Frequency journal reading			
Weekly	3	6.5	
Every 2 weeks	3	6.5	0.78
Monthly	27	58.7	
Less than monthly	13	28.3	
Last time journal read			
Last week	23	50	
Last month	17	37	
➢ 3 months	4	8.7	1.04
➢ 1 year	1	2.2	
Don't know	1	2.2	
Type of Nursing Journal *			
AORN Journal		89.1	
CORN Journal		71.7	
JON		95.7	-------
CN		10.9	
Other		15.2	

* The respondents had the choice of multiple answers.

4.1.2 Barriers to research utilization

Participants were asked to rate each of the 29 items on the BARRIERS Scale according to the extent to which they perceived them as barriers. The categories offered were: great extent, moderate extent, little extent, no extent and no opinion. Table 2 shows how these barriers were ranked, when the categories great and moderate extent were merged. The mean score, standard deviation (SD), the type of barrier as well as the no opinion percentage are also shown.

The three greatest barriers were "the nurse does not feel she/he has enough authority to change patient care procedures", "physicians will not cooperate with implementation" and "statistical analyses are not understandable". Seven (7) out of the top 10 barriers were related to "setting", two (2) to "presentation" and one (1) to "nurse". In fact seven out of the eight "setting" items were in the top 10. More than seventy-five percent (75%) of the nurses rated these barriers as great or moderate. The table also shows that fifty percent (50%) of the nurses perceived 21 of 29 barriers to be to a great or moderate extent.

Table 2. Rank order of great or moderate barriers as perceived by perioperative nurses

Rank order	Type of Barrier	Items	% of rating Item as great or moderate	% of no opinion
1	Setting	The nurse does not feel she /he has enough authority to change patient care procedures	89.10	0
2	Setting	Physicians will not cooperate with implementation	77.30	4.3
3	Presentation	Statistical analyses are not understandable	75.60	2.2
4	Setting	The facilities are inadequate for implementation	73.20	10.9
5	Setting	Administration will not allow implementation	72.10	6.5
6	Setting	There is insufficient time on the job to implement new ideas	71.70	0
7	Nurse	The nurse is unaware of the research	69.60	0
8	Presentation	The relevant literature is not compiled in one place	65.80	15.2

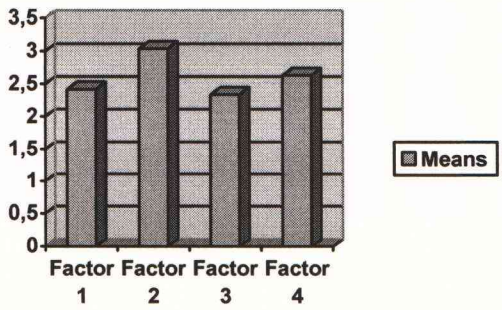
9	Setting	The nurse does not have time to read research	65.20	0
10	Setting	The nurse feels results are not generalizable to own setting	65.20	0
11	Presentation	The research is not reported clearly and readably	62.20	43.5
12	Setting	Other staff are not supportive of implementation	60.90	15.2
13	Nurse	The nurse does not feel capable of evaluating the quality of the research	60.90	0
14	Research	Research reports/articles are not readily available	56.50	0
15	Research	The research has methodological inadequacies	56.00	43.5
16	Presentation	Implications for practice are not made clear	53.30	2.2
17	Research	The research has not been replicated	53.10	28.2
18	*	The amount of research information is overwhelming	51.20	6.5
19	Nurse	The nurse is unwilling to change/try new ideas	50.00	0
20	Research	The literature reports conflicting results	50.00	8.7
21	Research	The nurse is uncertain whether to believe the results of the research	50.00	0
22	Presentation	The research is not relevant to the nurse's practice	45.70	0
23	Setting	The nurse is isolated from knowledgeable colleagues with whom to discuss the research	44.40	2.2
24	Nurse	The nurse feels the benefits of changing practice will be minimal	43.50	0
25	Nurse	The nurse sees little benefit for self	43.50	0

26	Research	Research reports/articles are not published fast enough	42.30	43.5
27	Nurse	There is not a documented need to change practice	40.90	4.3
28	Research	The conclusions drawn from the research are not justified	17.60	19.6
29	Nurse	The nurse does not see the value of research for practice	15.20	0

* Not loaded in any of the factors

Among the ten (10) greatest barriers (Table 2), seven items were related to characteristics of setting, two items to the characteristics of the presentation, one item to the characteristics of the nurse. No items from the characteristics of the research made the top ten greatest barriers.

Fig. 1. Mean scores for each factor. A higher score indicates a greater barrier.



For each subscale (category), the mean scores are presented in Figure 1. They show that 'setting' (factor 2) was perceived as the greatest barrier, followed by 'presentation' (factor 4), 'nurse' (factor 1) and lastly 'research' (factor 3).

In an attempt to determine the internal consistency of the instrument, Cronbach's alpha coefficient (Cronbach's α) of each of the subscales (factors) was calculated (Table 3). Cronbach's α is an index of the degree to which all different items in a scale are measuring

the same attributes (Polit & Hungler, 1999). Burns & Grove (2001) explain the importance of verifying the reliability of the instruments in the data collection process in order to ascertain internal consistency in measuring the variables studies. According to these authors, the internal consistency examines the existing correlation between different elements within the instruments and Cronbach's α is a widely used statistical method in order to ascertain the internal consistency.

One instrument used in this study was subjected to this verification utilizing Cronbach's α. The values were calculated for each factor. The results are shown in Table 3. The coefficients vary from 0 to 1 and high values express high reliability (Polit & Hungler, 1999). In this study, Cronbach's α for the whole scale was 0.6796, and for the four sub-scales (factors) they were; nurse = 0.6878; setting = 0.7246; research = 0.7078; presentation = 0.5982). The results obtained show that internal consistency was obtained for this instrument with some reservations which will be explained in chapter 5.

Table 3. Mean scores and Cronbach's alpha coefficient for each factor (sub-scale)

Factor	Mean scores	Cronbach's Alpha
Nurse / Adopter	2.42	0.6878
Setting / Organization	3.04	0.7246
Research / Innovation	2.34	0.7078
Presentation / Communication	2.63	0.5982

In the open-ended question, when respondents were asked to rank the greatest barriers (Table 4), the nurses pointed out the 'lack of time to implement new ideas',

'physicians will not cooperate with implementation' and 'other staff are not supportive of implementation' as the three highest ranked items.

Table 4. Top 3 greatest barriers to nurses' use of research

Rank	Barrier statement	Number of responses	Percentage %
1	There is insufficient time on the job to implement new ideas	15	32.6
2	Physicians will not cooperate with implementation	11	23.9
3	Other staff are not supportive of implementation	9	19.6

Respondents were also asked to list additional barriers to research utilization, after completing the BARRIERS Scale. Only twenty-six percent (26%) did so and thus provided a list of 16 additional barriers. From Table 5, which shows the top 5 additional barriers as perceived by respondents, it can be seen that many of the 'additional' barriers are also included in the BARRIERS Scale. New barriers not covered by the Scale and in very low percentage rate include 'low morale', 'nursing as simply a job' and 'isolation from the majority of the hospital staff population'.

Table 5. Top 5 'additional' obstacles as listed by the respondents

Obstacle (barrier)	Number of times listed	Percentage of responses
Lack of research information available in work area	8	26.7
Lack of time	6	20
Lack of education / training opportunities	5	16.7
Lack of motivation	3	10
Low morale of staff	3	10

The top ten barriers were then compared with those found in four (4) recent studies, which emanated from Canada, Ireland, Australia and Norway respectively (Table 6). The top 10 barriers that emerged from the Ireland and Australian studies were very similar to the current study with 70 percent of the top ten barriers related to the setting factor. Interestingly, even with a much smaller sample, this study's results were similar to those in Ireland and Australia. But even more surprising, is that this study was conducted in the same country but shows a different picture. Where as this study's results have seven out of 8 setting statements in the top 10, the other Canadian study being compared to, only has 3 out of 8 statements belonging to the setting factor within the top 10.

Table 6. Comparison of current study's top ten rankings of items as great or moderate barriers with four recent studies (Canada, Ireland, Australia, Norway)

Factor	Item	Current study	Canada 2003	Ireland 2004	Australia 2000	Norway 2004
Setting	The nurse does not feel she/he has enough authority to change patient care procedures	1	4	1	2	18
Setting	Physicians will not cooperate with implementation	2	15	9	6	3
Presentation	Statistical analyses are not understandable	3	3	10	4	20
Setting	The facilities are inadequate for implementation	4	17	6	3	4
Setting	Administration will not allow implementation	5	28	7	14	24
Setting	There is insufficient time on the job to implement new ideas	6	5	2	1	2
Nurse	The nurse is unaware of the research	7	13	11	12	23
Presentation	The relevant literature is not compiled in one place	8	2	17	18	1
Setting	The nurse does not have time to read research	9	1	3	5	6
Setting	The nurse feels the results are not generalized to own setting	10	20	8	9	19
Response Rate		**61%**	**30%**	**70%**	**60%**	**40%**

4.1.3 Facilitators of research utilization

An open – ended question facilitated the participants to advance what they perceived as key facilitators to them in the implementation of research findings into their practice. A total of 71 facilitator statements were written. Some of these statements were very similar in their meaning and were thus grouped together in order to better tabulate and

compare (Table 7). These statements were also separated into the four (4) different factors according to Rodgers' Theory of Innovations. The biggest single category was represented by factors related to the setting (organization) which accounted for forty-four (44; 62%) facilitators: most typically, these included open discussion and support from management, physicians and colleagues as well as increased time to allow changes. Factors related to the presentation (communication) accounted for sixteen (16; 23%) facilitators. These statements included an increased availability of articles within the unit and more education/conference opportunities available to staff. A total of nine (9) facilitators were classified under the Nurse (adopter) factor. These included a positive attitude and better skills to understand research and its purpose.

Table 7. Perceived facilitators to research utilization

Categories	Examples	Number of times listed	Percentage %
Setting (Organization)	More support from employer, physicians	8	11
	More eager, determined leaders	3	4
	Open discussion amongst co-workers, managers	12	17
	More time to attempt changes	9	13
	Willingness of staff to try new ideas	5	7
	More time to read	6	8
	More money (salary)	1	1
Total		**43**	**61**
Presentation (Communication)	Increased availability of articles	9	13
	More education available to staff	5	7
	Research development memos sent to units	2	3
Total		**16**	**23**
Nurse (Adopter)	Clear understanding of purpose of research	2	3
	Better understanding of research	6	8

	Nursing as a profession	1	1
Total		**7**	**9**
Research (Innovation)	More tools to conduct research (replicate)	1	1
	Actively participate in research projects	1	1
Total		**2**	**2**

4.2 Factor- variable correlation

Correlations between the BARRIERS Scale subscales (factors) and the variables on the demographic questionnaire were also conducted and are displayed in Table 8. All of the correlations were small and only two were statistically significant. At r=0.011, the correlation with characteristics of the adopter indicates that as they respondents increase in age, more the adopter perceives these statements as barriers.

Table 8. Correlation between variables and factors (barriers)

Factors (Barriers)	Age	Education	Status	Experience	Journal	Last
Factor #1 (adopter)						
Pearson's *r*	,374*	,257	-,189	,208	-,166	-,191
Sig. (2 tailed)	,011	,085	,208	,166	,269	,204
Factor #2 (organization)						
Pearson's *r*	,231	,206	-,100	-,065	-,011	-,074
Sig. (2 tailed)	,122	,170	,508	,669	,945	,626
Factor #3 (innovation)						
Pearson's *r*	,422**	,019	,174	,134	-,095	,063
Sig. (2 tailed)	,003	,903	,247	,374	,528	,677
Factor #4 (communication)						
Pearson's *r*	,283	-,122	-,270	,121	,031	,108
Sig. (2 tailed)	,057	,419	,070	,425	,837	,474

* Significant correlation @ 0.01 (2-tailed)
** Significant correlation @ 0.05 (2-tailed)

The other statistically significant correlation is between the characteristics of the innovation and the age (r=0.003). This significance means that as the age increases the characteristics of the innovation are perceived as greater barriers.

4.3 Conclusion

The sample size consisted of forty-six (n=46) respondents out of a possible seventy-five (N=75) for a response rate of sixty-one percent (61%). Thirty-five (35) of the respondents were 40 years old or older. Two-thirds of all participants work full time and a majority (45.7%) works in the operating room. The internal consistency of the BARRIERS Scale was verified utilizing Cronbach's alpha (0.6796) with each sub-scale having an alpha of: nurse = 0.6878; setting = 0.7246; research = 0.7078; presentation = 0.5982. This research shows that the three greatest barriers perceived by the respondents were "The nurse does not feel she/he has enough authority to change patient care procedures", "Physicians will not cooperate with implementation" and "Statistical analyses are not understandable". Meanwhile, when calculating the perceptions as a modest or great barrier, the respondents (75%) identified seven (7) out of ten (10) barriers were related to the setting factor. When comparing these results with those of prior studies, they were quite similar even if this study consisted of a smaller sample. For the facilitators identified, the respondents focused mainly on the setting factor as this was the main area where the barriers were identified and more important to the participants. These included 'more important discussion amongst staff and management' and 'more time to implement changes' as well as 'more time to read articles'. A correlation was performed between each factor within the BARRIERS Scale and the variables within the demographic data tool. The only significant findings found were between the age and factor 1 (adopter/nurse) at r= 0.011 as well as age and factor 3

(innovation) at $r = 0.003$. These findings and their implications will be discussed and interpreted in the following chapter.

CHAPTER V

Discussion, Implication and Conclusion

This is the first study known to examine perceived barriers and facilitators to research utilization among perioperative nurses in New Brunswick as well as in Canada. McCleary & Brown (2003) state that because a common and validated measure in the research literature (BARRIERS Scale) was used, the results can be compared with those of previous research done with nurses practicing in other setting while keeping in mind that differences will exist regarding the perception of the barriers and facilitators to research utilization.

5.1 Response Rate

The BARRIERS Scale was developed and tested on a sample (N= 5000) with a response rate of 40% (n= 1989) by Funk et al. (1991). Subsequent surveys utilizing the BARRIERS Scale have either not reported response rates (Dunn et al., 1998), or reported response rates (RR) between 30% (Carroll et al., 1997) and 70% (Nillsson Kajermo et al., 1998) including the study by Hommelstad & Ruland (2004, p. 623) in the perioperative field with a RR of 51%. For this study, a RR of 61% was achieved, yielding 46 viable questionnaires. The results are therefore reported at the 95% confidence level with a confidence interval of 8.82. The RR in the current study is above the average situated at 61% but less than the 75% RR wanted despite efforts to maximize response, including minimizing the length of the survey, information sessions, verbal reminders to groups and an active presence in the areas. The non responses may be explained by the fact that nurses who valued research were more inclined to respond (McCleary & Brown, 2003). Other

possible reasons for non responses include lack of interest in the study, high workloads and associated lack of time to complete the survey (Polit & Hungler, 1999). Part of this same sample (operating room nurses) was involved in an external survey as well as all the sample was involved in an internal survey within the same months including a staff satisfaction survey.

5.2 Demographic profile of participants

5.2.1 Gender

One hundred percent (100%, n=46) of respondents were female, which is quite a similar reflection of the composition of the nursing workforce in New Brunswick (96% female), Canada (95% female) and some international studies (Nurses Association of New Brunswick (NANB), 2004; Canadian Institute for Health Information (CIHI), 2004; Closs et al., 2000; Kuuppelomäki & Tuomi, 2003).

5.2.2 Age

The majority (39%, n=18) of the respondents were between 40-49 years old closely followed by the 50-59 ears old (37%, n= 17). This means that 76% of the population surveyed is aged between 40-59 years old. In New Brunswick, 64% of the nursing workforce is over 40 (NANB 2004, p.1), while in Canada 67.7% of nurses are over 40 (CIHI 2004, p. 95). This data is also situated in the majority of literature reviewed within the nursing profession (Hommelstad & Ruland, 2004; McCleary & Brown, 2003). In fact, the average age in almost the totality of the subjects studied previously was 40 years and older. We can then determine that the average age will only get higher as less and less people enroll in nursing, thus increasing the older nursing population as stated by the Canadian Institute for Health Information (2004).

5.2.3 Education and employment status

When looking at the nursing education level, 84.4% of the participants had a diploma. Provincial (82.5%), Canadian (86.1%) and several international studies indicate a similar view (CIHI, 2004; Closs et al., 2000; Glacken & Chaney, 2004). Sixty-nine percent (69%) of the respondents worked full time, while in the province of New Brunswick, 60.9% of nurses work full time. In the Canadian setting, 51.4% of nurses work on a full time basis.

As we can see from the results given above, the results of this study regarding the biographical profile of the respondents are quite similar to both provincial and national data as well as international situations.

5.3 Validity and reliability of instruments

5.3.1 Socio demographic Instrument

A nine item questionnaire was developed for collection of demographic information. This questionnaire was developed by the investigator and adapted from two previous studies by Retsas & Nolan (1999) and Hutchinson & Johnston (2004). It also reviewed by two PhD prepared nurses for content validity as this method was also suggested by Polit & Hungler (1999). The homogeneity was tested and found to be in the range of 0.65 – 1.50 standard deviation (SD) depending on the item being tested. Polit & Hungler (1999) also state that the SD summarizes the average amount of deviation of values from the mean and thus verifies the homogeneity of the item being measured.

5.3.2 BARRIER Scale

The use of the BARRIER Scale has proved to be valid in previous studies (Funk et al., 1991; Dunn et al., 1998; Nilsson Kajermo et al., 1998; Hommelstad & Ruland, 2004).

The internal consistency of this study was measured by using Cronbach's alpha coefficient and found a value of α for each sub-scale (factor) to be: nurse = 0.6878; setting = 0.7246; research = 0.7078; presentation = 0.5982.

One group of researchers tested the internal consistency for each subscale using Cronbach's α, which ranged from 0.65 to 0.80 (Funk et al. 1991, p. 92). In another study done by Lapierre, Ritchey & Newhouse (2004, p. 80), Cronbach's alpha varied from 0.47 to 0.83. The BARRIERS Scale was recently utilized with Norwegian perioperative nurses (Hommelstad & Ruland 2004, p. 624) and the internal consistency ranged from "0.65 to 0.80". Thus by looking at the results obtained from this study, we might be inclined to rule that the internal consistency of the scale was not achieved.

Retsas (2000) explains that when the same data collection instrument is used for different groups of nurses, the factor solutions will vary from group to group because the Likert score that each participant applies to each barrier will vary. This variation emphasizes the importance of context as a variable that mediates research results and should not be interpreted as meaning the instrument lacks internal consistency and reliability. The differences suggest that the instrument is sensitive to different context, which as mentioned by Retsas (2000), might be one of its strengths. Differences have occurred overtime in a variety of areas within the nursing profession and can thus lead to different findings (Retsas, 2000). Fortin (1996) also corroborates this idea of having a certain degree of variation in the reliability measures of an instrument utilized with differing populations.

5.4 Interpretation and discussion of the results relating to the barriers

The following section seeks to discuss the findings of this study in comparison with other studies undertaken within Canada, Ireland, Australia and Norway (McCleary & Brown, 2003; Glacken & Chaney, 2004; Retsas, 2000; Hommelstad & Ruland, 2004). The perioperative nurses participating in this study perceived some of the same barriers as nurses in other countries and clinical settings. Lack of time for research activities was found to be a great barrier to nurses in Canada (Ontario), Ireland, Australian and Norway as it was in this study; however, the rank of the barriers differed to a certain degree. These results will be discussed in the coming sections.

5.4.1 Barriers in the Setting / Organization Factor

Seven (7) out of the ten (10) greatest barriers in this study are situated in the setting factor. As in previous studies (Retsas, 2000; Hommelstad & Ruland, 2004; Glacken & Chaney, 2004; Closs et al., 2000), nurses' perceived lack of authority appears to be among the most commonly cited barrier to research utilization within practice. This barrier may come from a tradition where nurses did not question, but rather focused on tasks set to them by colleagues in management positions (Glacken & Chaney, 2004). This barrier was also noted in Funk et al. (1991), Meah, Luker & Cullum (1996) and in Lacey (1994). It may reflect a traditional work organization in which nurses cannot independently develop their own profession and thus, as proffered by Retsas (2000, p. 605), the "power relation between management and nurses remains a problem" despite attempts by the nursing profession to change them.

The second greatest barrier perceived by the respondents in this study is the lack of cooperation from the physicians and it seems to be an international problem (Funk et al., 1991; Dunn et al., 1997; Retsas & Nolan, 1999; Parahoo, 2000; Oranta, Routsalo & Hupli,

2002). This is quite problematic especially in the perioperative environment, where nurses, surgeons and anesthetists work very closely together and, in some cases, these physicians rely on the knowledge and leadership of nurses to implement research findings in the Perioperative department in order to improve patient care. This barrier may also be linked to the traditional submissive role of accomplishing the task set and not questioning the medical staff (Glacken & Chaney, 2004). This finding was also noted in Meah et al. (1996) where the authors discussed the subordination of midwives in relation to the obstetricians.

The lack of time to read research articles and to implement research findings in practice (ranked 9th and 6th respectively) were also identified as greatest barriers. This is also congruent with other studies (Hommelstad & Ruland, 2004; Nilsson Kajermo et al., 1998; Retsas, 2000). Perioperative nurses in the current study reported that heavy activity and workload gave them neither time nor energy to do research-related activities. The administrative agenda is frequently reserved to improve efficiency and reduce long waiting lists, which in turn presses the surgical team to treat more and more patients. This pressure, acute procedures and lack of qualified nursing staff increases nursing workload (Hommelstad & Ruland, 2004). Perioperative nurses have little or no authority to manage their work schedule, and the possibility of finding time at work for research activities in practice depends on nurse leaders whom are most often nurse managers.

Some authors will argue that perioperative nurses have time to read research reports at work, but unfortunately, perioperative nurses, place a higher priority on other activities, such as cleaning up, washing instruments and reading nonscientific journals (Hommelstad & Ruland, 2004). These activities might be imposed on them by management or it might be their choice? On the other hand, "lack of time" can be an excuse for a lack of interest or aptitude to assess research reports. Tyden (1993) in Glacken & Chaney (2004) observed

that the concept of time also has underlying aspects. He suggests that the "lack of time" may be a socially accepted excuse, when it really may reflect a lack of interest, a lack of need or a lack of knowledge. The lack of authority in an organization can make it hard to control time and to set one's own priorities and may be another underlying aspect of the "lack of time". However, with the current economic rationalist approaches dominating healthcare priorities, where staff is considered as expensive resources, the view that there is a real lack of time for many groups of nursing staff is well founded (Nilsson Kajermo et al., 1998).

Perioperative nurses are required to stay up-to-date on current practice (ORNAC, 2002), but is it their priority? Most perioperative nurses are women (Hommelstad & Ruland, 2004) and this study also reflects this (100% are female). In studies undertaken in other professional groups a link has been found between behavioral commitment to work and gender (Kaldenberg, Becker & Zvonkovic, 1995). One hypothesis may be that women often place a higher priority on caring for their children and activities at home in their spare time. However it must be said that further research is required to substantiate gender differences in commitment to work (Kaldenberg, Becker & Zvonkovic, 1995). Baessler et al. (1994) have shown that nurses do not want to spend their spare time reading nursing literature. McCleary & Brown (2003) imply that cultural differences do exist between American, British and Canadian nurses' opinions about whether professional development should not necessarily be done on "work time" and thus could also be applied to nurses in different countries around the world.

5.4.2 Barriers in the Communication / Presentation Factor

The communication of research findings was another barrier noted in the perioperative nurses' perception of greatest barriers. The respondents perceived that the statistical

analyses are not understandable (ranked 3rd) as well as the relevant literature is not compiled in one place (rank 8th).

The relatively high ranking (3rd) of the barrier that statistics are difficult to understand suggests that the nurses in this study find scientific articles hard to evaluate, owing to a lack of knowledge and education in research methods. The majority of nurses in this study have a nursing diploma education (58%) for which nursing education was being conducted in schools of nursing and did not necessarily have any research or statistical courses included in their curriculum. When looking at other studies, similar findings appear concerning the statistical understanding even with respondents whom have a higher education (McCleary & Brown, 2003; Retsas, 2000; Glacken & Chaney, 2004).

Respondents also reported the physical accessibility of research as a greatest barrier (ranked 8th). This differed to a certain degree from other studies that have used the BARRIERS Scale. In the open-ended questions, the participants stated not having a variety of research literature available in the department to facilitate research use. Respondents had to go to the library to find research literature, which is physically situated at a considerable distance from the clinical environment which makes it time consuming. As with most other similar studies (Funk et al., 1991; Parahoo, 2000; Glacken & Chaney, 2004) the majority of nurses within this study (76%) did not feel confident in their ability to evaluate research reports effectively. Even if the perioperative nurses had a better access to research material, they would need further education in the reviewing and evaluation of such reports (Glacken & Chaney, 2004).

5.4.3 Barriers related to Adopter / Nurse factor

The respondents perceived only one barrier in relation to themselves as being in the top 10 barriers. This barrier was that the nurse is unaware of the research (70% responded as a

moderate or great barrier). They valued the research use for practice (84%) but 70% stated being unaware of research or 57% saw little benefits for them or the patients. Sixty-one percent (61%) also perceived themselves as having a lack of competence to critically evaluate research findings. This correlates with many "no opinion" answers related to items in the research findings factor. Findings in this current study, as well as the one done by Hommelstad & Ruland (2004), indicate the perioperative nurses in this study need to increase their skills in assessing and implementing relevant research findings in the perioperative field. Furthermore, the correlations between factors and variables in this study seem to indicate that the older in age the nurse is, more important the characteristics of the adopter become significant as barriers (r= 0.011).

This finding is similar to those found in Oranta et al. (2002). Oranta and colleagues (2002) found that a new generation of nurses have emerged who have learned, during their education, how to seek research knowledge, how to read it critically and how to apply it to practice. If research competency is to be part of the professional expectation for RN's, then nurses must be motivated to learn the new skills (LaPierre, Ritchey & Newhouse, 2004). Age may be a feature related to the willingness and motivation to learn new skills as the results of this study demonstrated a significant correlation between age and the adopter factor (r = 0.011). Sitzia (2002) proposed that as nurses' increase in age the more they place an importance on tradition, thus oriented towards the past and unwilling to change the practice for new things. Closs et al. (2000) support this notion and state that older more experienced nurses are less likely to have been educated in an environment where research was valued, and their own accumulated clinical expertise may well reduce their perception of the importance of research.

5.4.4 Barriers related to research / innovation factor

Items in the research factor ranked low on the barriers list, which indicates that these items are not perceived as important barriers; however, many 'no opinion' answers could be associated with the opposite. Fowler (1993) in Rodgers (2000) suggested that 'no opinion' indicates the respondents did not understand the question. Rutledge et al. (1998) as well as Nilsson Kajermo et al. (1998) discovered, in their descriptive studies utilizing BARRIERS Scale, that many 'no opinion' answers in their research results were a result of the fact that nurses were not able to decipher the research findings. Many no opinions were also noticed in this study. The item "the nurse does not feel capable of evaluating the quality of the research" was rated as a great or moderate barrier by 61% of respondents. Only 15.2% of the respondents in this study sample have bachelors in nursing education which has, as part of the curriculum, a statistical and research methodology courses in it. Therefore it is quite safe to assume that the respondents do not have all the ability and knowledge to critically assess and evaluate the results due to a lack of abilities to decipher the material and thus circle the 'no opinion' choice. Surprisingly, many of the items related to the research factor were identified as lesser barriers than others, but had, for many, a very high percentage of no opinion which also leads us to the conclusion that the knowledge the respondents have is not adequate for the interpretation of the results. These findings are not quite similar to the other studies done in Ontario (Canada), Australia, Ireland and Norway when looking at the rankings of the research related items.

5.5 Interpretation and discussion of the results relating to the facilitators

As in prior studies (Parahoo, 2000; Glacken & Chaney, 2004) participants in this study were offered the opportunity to proffer proposals which would increase research

utilization within their clinical setting. These examples are found in Table 7 and have been subdivided into four main categories according to Rogers's theory of Diffusion of Innovation: setting (organization), presentation (communication), nurse (adopter) and research (innovation)

Many nurses suggested the importance of more open discussion amongst co-workers, managers and physicians regarding research utilization (28%). They also highlighted the need for more time to read research articles and attempt changes within the practice setting (21%). As stated by Rizzuto, Bostrom, Suter & Chenitz (1994) and supported by Glacken & Chaney (2004), involvement of clinical staff in research activities is one of the effective methods of ensuring research utilization. The participants also suggested having more eager, determined leaders (4%) as well as the willingness of staff to try new ideas (7%). Furthermore Hatcher & Tranmer (1997) found that individuals in leadership positions are expected to participate more frequently in research-related activities given their educational background and role expectations. These authors contend that it may be individuals with leadership and positive attitudes that predict better research utilization within the facility (Hatcher & Tranmer, 1997).

According to Closs & Cheater (1994), education is the key in changing individual attitudes. Therefore, if positive attitudes are to be nurtured and research findings used in practice, research must be readily understood. The participants in this study have stated in the list of facilitators, a need for better understanding research (11%). In order to increase the research utilization in practice, nurses stated in this study a need for increased availability of research material (13%). As Crane (1991) stated, access to research-based knowledge is a beginning step in the research utilization process. This facilitator, as well as the others cited earlier this section, have also been mentioned in other studies (Glacken &

Chaney, 2004; Nilsson Kajermo et al., 1998; Parahoo, 2000). We must then seek to utilize these methods mentioned above, as suggested by the respondents in this study, in order to positively alter the utilization of research in practice.

5.6 Limitations of the study

One cannot over-emphasize the limitations of self-reports. Respondents, for various reasons (such as social desirability), may under, or over, report their practice. The hospital involved in this study was purposely selected, which means that any generalizations from the results have to be carried out with caution even within the same institution (Polit & Hungler, 1999). As stated by Parahoo & McCaughan (2001), nurses in different clinical settings report different barriers to research utilization.

The response rate was 61 %. A low response rate can reflect that the most positive respondents return the survey (Polit & Hungler, 1999). A higher response rate may have yielded different results. The 'no opinion' answers make it difficult to draw concrete conclusions about these items, which decrease the validity of the study. It was interesting, however, to discover that most of the 'no opinion' answers were related to characteristics of the research findings, indicating that the respondents may lack the ability to critically evaluate the research findings. The 61% response rate combined with the 'no opinion' make it difficult to interpret and generalize the findings.

The gender specific population is another limitation that must be mentioned. The results of this study are specific to a small sample of female nurses in the perioperative environment and thus may not be generalized to other units comprised of both female and male nurses as differences do occur between genders.

The Barriers Scale used in this study was developed by Funk et al. (1991) and validated in many following studies within different clinical setting and countries (Parahoo, 2000; Oranta, 2001; Hommelstad & Ruland, 2004) which does improve the validity if this study.

5.7 Recommendations for practice

The findings of this study concur with those that have been found by previous studies investigating barriers and facilitators to research utilization. The perioperative nurses in this study perceived barriers in the setting (organization) relating to lack of authority, lack of time to read or implement new ideas, uncooperative physicians and non supportive management more frequently than any other factors.

The perception that the nurse does not have enough authority to change practice (89.1%; rank order = 1) and that physicians will not cooperate (77.3%; rank order = 2) suggest that there is a need to clarify roles and responsibilities of health professionals at all levels, including physicians, if they are to work towards the same goals. The organization as a whole needs to translate the rhetoric surrounding the importance of utilizing research into practice as a reality. One method to counteract these perceptions is to restructure the work patterns and lines of authority and accountability so as to empower nurses to be effective change agents at all levels within the organization. This change can be achieved by having the clinical nurse specialists (CNS), within the organization (including the perioperative setting), establish focus groups in their own units in order to strengthen beliefs about the benefits of research utilization for their specific units. While conducting these focus groups, the CNS could introduce and teach the basics of research utilization and

Evidence-Based Practice. These teachings could be done through educational sessions, workshops and information handouts.

Another strategy that could help integrate nurses in the process would be the creation of journal clubs that could help the information sharing process as well as offer a support forum for nurses who are committed to the principles of research utilization.

These strategies can then be linked to quality improvement initiatives being done within the whole organization. These methods could also be seen by the practicing nurses, as a mean of being an effective change agent. This new positive attitude could thus counteract the notion and effect of disempowerment and reverse the notion of a 'top-heavy' decision making process by higher administration (Nagy et al., 2001; Mazurek Melnyk, 2002), as reported by respondents in this study. Certainly, respondents have expressed this sentiment of disempowerment towards administration. They have also stated that other staff members, within their own unit, are not supportive of implementing change (60%; rank order = 12). This latter perception is critical if the word "staff" indicates administration and managers and even worse if it means people they can discuss findings with (44%; rank order = 22) such as clinical nurse specialist, nurse researchers or nursing research officers.

An important precursor to this change of empowerment would be to incorporate a commitment to promoting research utilization within the hospital's mission statement, policy documents and nursing strategy thereby confirming organizational support for this activity. This organizational support could include the creation of a nurse researcher position to support and promote the nursing research within the hospital. This nurse researcher would be under either the Chief Nursing Officer or Vice President of Patient Services, as far as for organizational structure purposes, but would not be subjected to

perform any administrative functions. This nurse researcher would have an office or department (research department) that would have as primary function to support nursing research but also other multidisciplinary research being done at the hospital. The creation of this nurse researcher position is supported in the literature by Gerrish & Clayton (2004) and Willson et al. (2004). By creating a nurse researcher position within the hospital, a partnership between the facility and a University will thus be easier and reunite multidisciplinary academicians, researchers and practicing nurses in an effort to accelerate research utilization in the practice setting. With such a partnership, the findings of different studies could be translated easily into practices that would lead to best practices and improve patient outcomes (Mazurek Melnyk, Fineout-Overholt, Stone & Ackerman, 2000).

Another method to enhance application of research findings is to provide financial support by incorporating research implementation costing into business plans (Lee, 2003). In doing so, help will be given to nurses in ensuring that study time can be allocated as well as organizing workshops, attending conferences and continuing education for nurses that can also be shared between different nursing units under the same program (Lee, 2003).

Unit managers must take the lead to champion research utilization. As the respondents of this study identified the lack of support by management for implementation, it is important that the nurse managers step up to the challenge and promote the use of research utilization for the improvement of patient care within their own units. Nurse Managers might use the argument that their main responsibility is to manage the financial requirements of their unit and not to concentrate on research. They must realize that the important issue at stake is that the patients receive the best nursing care possible while

being efficient and cost effective. Is it not imperative that nurse managers be leaders in change which in turn could improve staff morale?

To add further to the confusion of professional roles, respondents rated "physicians will not cooperate with implementation as the 2nd highest barrier. There is a need to clarify roles and responsibilities of health professionals at all levels if they are to work together towards a common goal. Managers, in particular, must take the lead in resolving some of these differences. Furthermore, managers were cited as on of the most important facilitators to research utilization within the practice setting. The managers, with the help of their clinical nurse specialists or clinical nurse educators can also increase the research utilization exposure of staff by creating journal clubs, encouraging a membership in a professional organization, institute workplace newsletters or organize oral presentations of different research findings and reward nurses who institute research utilization changes within their units. Cronenwett (1995) and Willson et al. (2004) have stated the benefits of these methods in various settings.

In nursing practice, research utilization is more often a collective process than one in which individual nurses engage (McCleary & Brown, 2003). In this study, responses to the BARRIERS Scale seem to indicate that nurses are taught that research utilization is an individual process. The cited barriers of insufficient authority to change practice as well as lack of time to read or implement were common. This way of thinking, according to McCleary & Brown (2003), is not surprising, given the fact that, in Canadian nursing, the importance is placed on learning critical appraisal skills and the use of research utilization is for individual clinical decisions. In reality, when practice is guided by research quality improvement projects, nursing policy or procedures, nurses are using research – whether they realize it or not. According to Jones (2000), nurses who engage in quality

improvement projects overcome the barrier of insufficient authority to change practice by using an accepted process for practice change within the units.

Lastly, there is a need for nurses themselves to become more aware of the importance of research utilization and thus these initiatives are likely to be more successful if the research reading abilities are increased. The high number of 'no opinion' answers relating to characteristics of the research findings seems to relate very well to this phenomenon. This event, as supported by Oranta et al. (2002) and also found in other studies, might suggest that nurses may not have the ability to properly evaluate research results or that they have never tried to do so (Nilsson Kajermo et al., 1998; Dunn et al., 1998, Carroll et al., 1997).

It is important to note that these strategies can and should be used in a multifaceted approach. As stated by Tranmer, Lochhaus-Gerlach & Lam (2002), research utilization is multifaceted. However, if the organizations can influence attitude and provide support and knowledge, research utilization would increase thus providing better patient care (Tranmer, Lochhaus-Gerlach & Lam, 2002). It is also noted that if facilities want to meet certain elements of the Magnet Recognition Program, an achievement wanted by many hospitals facing a shortage in professionals, they must have improved care environments with higher rates of nurse recruitment and retention, improved patient outcomes, and satisfaction scores for both patients and nurses as well as an emphasis on nursing research utilization-evidence-based practice and the research process for solving quality management issues. When in place, the forces of magnetism demonstrate the organization's capabilities at providing nurses with the knowledge, support, resources, and opportunities to provide the highest level of patient care (Willson et al., 2004).

5.8 Recommendations for further studies

This study has identified the main perceived barriers to research utilization in this perioperative setting, but it is important to move beyond studies which seek only to identify obstacles to research utilization. Research that focuses on the specific experiences in implementing research utilization is required. There have been few studies which have evaluated interventions designed to promote research utilization, in nursing practice. Much can be learnt from the success and failures of these studies.

Treating each factor that impedes research utilization in isolation is not helpful. There is a great need to explore the correlations between the factors and research utilization in either quantitative or qualitative research methods. Research utilization should not be decontextualized or fractionalized in order to lead to an understanding but must address multiple factors simultaneously (Rogers, 1995).

Further research should also address precisely how the research information is applied in the clinical field and the processes by which it filters down and changes practice. This knowledge will require both quantitative and qualitative data collection and analysis techniques.

5.9 Conclusion

The findings of this study concur with those that have been found by previous studies investigating barriers and facilitators to research utilization. Despite cultural differences between countries and even within a country - Canada (Ontario and New Brunswick), a vast consistency exist between most studies in respect to the most likely barriers reported. A perceived lack of authority on the part of the nurse to initiate change in

patient care procedures combined with the perception that the physicians will not cooperate, were the highest ranking barriers within this study.

Seven out of the top 10 barriers were associated with the setting factor. Setting – related factors such as the organization, the resources and support, including time, access to libraries, continuing education and a culture that supports and promotes research use and development are the responsibility of both the Health Authorities and the nurses themselves (Parahoo, 2001; Bryar et al., 2003).

Hatcher & Tranmer (1997) indicate in their study that the importance needs to be in establishing organizational structures and process' which support research utilization, promote positive attitudes towards research, and enhance availability of research findings in practice. The emphasis should be on creating and promoting a culture, in which nurses recognize the need for improving their care, seek the knowledge and skills to do so, and feel supported, encouraged and valued. The success of research utilization depends upon the interests and commitment of nurses at all levels. In doing so and by overcoming the barriers to research utilization, our clients can receive the most effective and efficient care that is possible grounded on the current state of knowledge.

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Appendix 1

Demographic Data Questionnaire

Demographic Data Questionnaire

Please circle the answer that pertains to your situation.

1) Age

a) up to 29
b) 30 – 39
c) 40 – 49
d) 50 – 59
e) 60 and over

2) Gender

a) male
b) female

3) What is your primary area of employment within the perioperative department?

a) Post Anesthetic Care Unit
b) Surgical Suite
c) Same Day Surgery and / or Day of Surgery Admission

4) Highest level of nursing education

a) Diploma
b) Diploma and certificate
c) Bachelor's degree
d) Master's degree
e) Other (please specify)_____

5) Employment Status

a) Full time
b) Part time
c) Casual

6) Years of nursing experience

a) 5 years of experience or less
b) 6 – 10 years of experience
c) 11 – 15 years of experience
d) 16 – 20 years of experience
e) 21 – 25 years of experience
f) 26 – 30 years of experience
g) 31 years of experience or more

7) How frequently do you read a nursing journal?

a. Weekly
b. Every two weeks
c. Monthly
d. Less than monthly

8) When was the last time you read a nursing journal ?

a. Last week
b. Last month
c. > 3 months ago
d. > 6 months ago
e. > 1 year ago
f. Don't know

9) What type(s) of nursing journal(s) do you read more frequently?

a. American Operating Room Nurses Journal (AORN Journal)
b. Canadian Operating Room Nurses Journal (CORN Journal)
c. Journal of Advanced Nursing (JON)
d. Canadian Nurse
e. Other (please specify) _____

Appendix 2

Barriers Scale Questionnaire

QUESTIONNAIRE

Barriers and Facilitators to Using Research in Practice

Articles in nursing journals indicate that nurses in practice do not use the results of research to help guide their practice. There are a number of reasons why this might be. We would like to know the extent to which *you* think each of the following situations is a barrier to nurses' use of research to alter/enhance their practice.

If you currently hold a position in a clinical site, *please answer the questions in relation to your current work setting.* If you do not currently practice, *you may refer to your last clinical experience or provide your general perceptions.*

For each item, circle the number of the response that best represents your view. Thank you for sharing your views with us.

	THIS IS A BARRIER				
	To no extent	To a little extent	To a moderate extent	To a great extent	No opinion
1. Research reports/articles are not readily available	1	2	3	4	5
2. Implications for practice are not made clear	1	2	3	4	5
3. Statistical analyses are not understandable	1	2	3	4	5
4. The research is not relevant to the nurse's practice	1	2	3	4	5
5. The nurse is unaware of the research	1	2	3	4	5
6. The facilities are inadequate for implementation	1	2	3	4	5
7. The nurse does not have time to read research	1	2	3	4	5
8. The research has not been replicated	1	2	3	4	5
9. The nurse feels the benefits of changing practice will be minimal	1	2	3	4	5
10. The nurse is uncertain whether to believe the results of the research	1	2	3	4	5
11. The research has methodological inadequacies	1	2	3	4	5
12. The relevant literature is not compiled in one place	1	2	3	4	5
13. The nurse does not feel she/he has enough authority to change patient care procedures	1	2	3	4	5
14. The nurse feels results are not generalizable to own setting	1	2	3	4	5
15. The nurse is isolated from knowledgeable colleagues with whom to discuss the research	1	2	3	4	5
16. The nurse sees little benefit for self	1	2	3	4	5
17. Research reports/articles are not published fast enough	1	2	3	4	5
18. Physicians will not cooperate with implementation	1	2	3	4	5
19. Administration will not allow implementation	1	2	3	4	5
20. The nurse does not see the value of research for practice	1	2	3	4	5
21. There is not a documented need to change practice	1	2	3	4	5

Please proceed to page 2 question #22

	THIS IS A BARRIER				
	To no extent	To a little extent	To a moderate extent	To a great extent	No opinion
22. The conclusions drawn from the research are not justified	1	2	3	4	5
23. The literature reports conflicting results	1	2	3	4	5
24. The research is not reported clearly and readably	1	2	3	4	5
25. Other staff are not supportive of implementation	1	2	3	4	5
26. The nurse is unwilling to change/try new ideas	1	2	3	4	5
27. The amount of research information is overwhelming	1	2	3	4	5
28. The nurse does not feel capable of evaluating the quality of the research	1	2	3	4	5
29. There is insufficient time on the job to implement new ideas	1	2	3	4	5
Are there other things you think are barriers to research utilization? If so, please list and rate each on the scale:					
30. _____	1	2	3	4	5
31. _____	1	2	3	4	5
32. _____	1	2	3	4	5
33. _____	1	2	3	4	5

34. Which of the above items do you feel are the *three greatest barriers* to nurses' use of research?

Greatest Barrier ..... Item #: _____
Second Greatest Barrier ..... Item #: _____
Third Greatest Barrier ..... Item #: _____

35. What are the things you think *facilitate* research utilization?

_____

_____

_____

_____

This questionnaire was adapted from:

Crane, J., Pelz, D., and Horsley, J.A. *CURN Project Research Utilization Questionnaire*. Ann Arbor, Michigan: Conduct and Utilization of Research in Nursing Project, School of Nursing. The University of Michigan, 1977.

Appendix 3

Permission from author to use BARRIERS Scale (email)

De "Sandy Funk" <sfunk@email.unc.edu>
À : "Luc Drisdelle" <drisdel@UMoncton.CA>
Date 04-08-26 15:39:50
Objet : Re: Dear Dr. Sandra Funk,

Dear Ms. Drisdelle -

The BARRIERS Scale, instructions for use, and permission form are all now available on the web at: http://www.unc.edu/depts/rsc/funk/barriers.html. I hope you will find this information useful. If you decide you would like to use the BARRIERS Scale, please print, complete, and mail the permission form. In addition, I ask that you send me (a) any adaptations of the tool you would like to make for my review prior to its use in your study and (b) copies of any articles you publish using the scale.

Please consider this e-mail my permission for you to use the tool. Best of luck with your study.

Sandy Funk

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

Sandra G. Funk, PhD, FAAN
Professor and Associate Dean for Research
School of Nursing
CB# 7460, Carrington Hall
The University of North Carolina at Chapel Hill
Chapel Hill, NC 27599-7460
E-mail: sfunk@unc.edu

----- Original Message -----
From: "Luc Drisdelle" <drisdel@umoncton.ca>
To: <sfunk@email.unc.edu>
Sent: Thursday, August 26, 2004 12:21 PM
Subject: Dear Dr. Sandra Funk,

> Dear Dr. Sandra Funk,
>
> My name is Luc Drisdelle and I am a Masters in Clinical Nursing Student
> through Central Queensland University in Australia. I reside in New
> Brunswick, Canada. I was just wondering if you had received my letter
> regarding the permission to utilize your BARRIERS Scale in my
> Thesis/Dissertation. I had sent this to you in June 2004. I was Just
> wondering if it had arrived at destination and if you would be so nice
> to confirm your willingness to let me utilize your scale with a written
> letter in order for me to attach to my thesis/dissertation.
>
>
> Sincerely yours,
> Luc Drisdelle
>
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

Appendix 4

INFORMATION SHEET

Information Sheet

Barriers to and facilitators of research utilization in practice as seen by a group of Perioperative Nurses in New Brunswick

Hello and welcome to my project! Your participation in this project will contribute to the identification of barriers and facilitators of research utilization in the perioperative practice. By doing so, the barriers and facilitators identified will help in developing strategies to improve the research use in perioperative practices and thus improve the quality of care given to patients.

Description

Nursing has always been considered a care giving profession. It has, until the last few decades, been based on tradition and personal experiences. In the perioperative world, nurses are viewed as surgical technicians or as handmaidens to surgeons, focusing on technical tasks. Although these tasks are duties of perioperative nursing, the need for knowledge based in the provision of patient-centered care is also roles and responsibilities for perioperative nurses. In identifying these barriers and facilitators to research utilization from a questionnaire developed by Dr. Sandra Funk et al. (1991), the aim of this project will also discuss strategies to overcome the barriers and thus continually improve the quality of care given to patients in this very important nursing setting.

Use of results / outcomes

The outcomes and results that will arise from the project will only be used for reporting purposes. This will include published works and subsequent presentations (conferences). You will be free to withdraw from this research at any stage. The confidentiality of the outcomes is assured and under no circumstances will your name appear in publications associated with this research. An oral presentation as well as a written copy of my conclusions will be provided. Measures to be taken to ensure the confidentiality and anonymity of the data include:

- No names will be recorded with any data and participant identity will be protected by the researcher with the use of coding.
- Anonymity will be assured
- Only the primary researcher will have access to primary data
- Any computer where electronic data will be stored is protected by user name and password

Please feel free to Contact the Office of the Research Review Committee at the Moncton Hospital should there be any concerns about the nature and/or conduct of this research project:

Research Review Committee
The Moncton Hospital
135 MacBeath Ave.
Moncton , NB
E1C 6Z8
Telephone number: 506-870-2422

Thank You again for participating in this research. Please feel free to contact me for further information.

Yours in research,

Chief Investigator:

Luc Drisdelle
Masters in Clinical Nursing (Perioperative) student
281 ch Aboujagane Rd
Haute-Aboujagane, NB
E4P 5L9
506-532-2775
drisdel@umoncton.ca

Appendix 5

CONSENT FORM

South-East
Regional Health Authority
Régie régionale de la santé
Sud-Est

135 av MacBeath Ave
Moncton NB
Canada E1C 6Z8

Tel 506-857-5111
Fax 506-857-5545

CONSENT TO PARTICIPATE AS A SUBJECT IN THE NURSING RESEARCH OF:

Barriers to and Facilitators of research utilization in practice as seen by a group of Perioperative Nurses in New Brunswick

I, (please insert your name here), _____

Hereby provide my consent for data collected in association with the study to be used for the purpose of the research. I am aware of the purposes of this study which are to describe the perceived barriers (obstacles) and facilitators to research utilization in practice, increase the understanding of nurses to the benefits of research utilization for continuous quality improvement care to patients and to identify and discuss strategies to overcome the barriers identified.

I understand that this study is on a volunteer basis and consists of completing two (2) questionnaires (Demographic and BARRIERS Scale) which include multiple choice answers as well as choices of perceived barriers. The total time to complete these questionnaires should take approximately 15 – 20 minutes.

I am aware that these questionnaires will be completed by all registered nurses in the perioperative program (SDC, DOSA, PACU and Surgical Suite) who consent to participate.

I am also aware that the results that will arise from this project will only be used for reporting purposes. This will include published works and subsequent presentations (conferences). I am aware that the confidentiality of the results of this study is assured. Under no circumstances will my name appear in publications associated with this research.

I am participating in this project on a voluntary basis and I am free to withdraw my consent and discontinue participation at any time without penalty or loss of benefits to myself.

I have been provided the opportunity not to participate and by signing this consent form, I provide my permission to be part of the study.

I understand that the original consent form will be kept in the principal researcher's office in a locked filling cabinet only accessible to the researcher.

If I wish, I understand that a summary of this study will be made available to me at the completion of the study.

I have read the above and have been given the opportunity to discuss it and to ask questions. I have been informed that I may contact Luc Drisdelle at (506) 532-2775 to answer any questions I may have during the investigation and that I may contact Central Queensland University's Research Service Office (phone: (617) 4930-9828) or the Chairperson of the Research Review Committee (RRC), Diane Brideau-Laughlin at 857-5338 for any question concerning my rights as a research subject. I agree to participate as a subject with the understanding that I may withdraw at anytime, without any penalty or repercussion to myself.

Please sign your name here: _____

Date: _____

I certify that I have explained to the above individual the nature of the information state above, have answered any questions that have been raised and have witnessed the above signature. I have also provided the participant a copy of this signed consent document.

Name: ____**Luc Drisdelle**_____

Signature: _____

Date: _____

If you have any questions relating to this project please feel free to contact:

Luc Drisdelle, Principal research investigator
281 ch Aboujagane Rd, Haute-Aboujagane, NB
E4P 5L9
Direct ph (506) 532-2775
Email: drisdel@umoncton.ca

---------- Send Off Part ----------

I wish to receive a summary of the results of this study.

Name_____

Mailing address_____

Province_____ Postal Code_____

Appendix 6

Letter of ethical clearance to conduct study
South East Regional Health Authority

South-East
Regional Health Authority
Régie régionale de la santé
Sud-Est

135 av MacBeath Ave
Moncton NB
Canada E1C 6Z8
Research Office
Tel 506-870-2422

Tel 506-857-5111
Fax 506-857-5545

RESEARCH REVIEW COMMITTEE

The Research Review Committee is an Institutional Review Board, constituted and governed according to the Tri-Council Policy Statement, GCP/ICH and US CFR Title 21 Parts 50 and 56 guidelines.

September 13, 2004

Luc Drisdelle, RN, BN
281 ch Aboujagane Rd
Haute-Aboujagane, NB
E4P 5L9

RE: "Barriers to and Facilitators of research utilization in practice as seen by a group of Perioperative Nurses in New Brunswick".

RS#: 2004-019

Dear Luc:

This letter is to advise you that the Research Review Committee at their meeting of September 1, 2004 approved the documentation listed below which you submitted related to the above mentioned protocol.

- Cover letter dated August 11, 2004
- Application form dated August 11, 2004
- Research Proposal
- Appendix A-Information Sheet
- Appendix B-Consent Form
- Appendix C-Questionnaires

Attached is a copy of the approval form.

The approval is given for one year from the date of approval. Please note that no additional changes may be made to the above-mentioned protocol without first submitting them to the Research Review Committee for approval. Any unanticipated problems or safety issues must also be promptly reported to the Committee.

The Committee requests notification of the completion of the study along with a brief summary of the results/findings. This will assist the committee in evaluating the review process.

This Protocol has been assigned a Research Study number RS# 2004-019. Please be sure to use this number for all future correspondence with the Research Review Committee.

Yours sincerely,

Signature Redacted

Diane Brideau-Laughlin, B.Sc., Pharm.
Chairperson, Research Review Committee

Research Review Committee

The Research Review Committee is an Institutional Review Board constituted and governed according to the Tri-Council Policy Statement, GCP/ICH and US CFR Title 21 Parts 50 and 56 guidelines.

CLINICAL TRIAL APPROVAL

PROTOCOL/STUDY TITILE: Barriers to and Facilitators of research utilization in practice as seen by a group of Perioperative Nurses in New Brunswick.

PRINCIPAL INVESTIGATOR: Luc Drisdelle, RN, BN

PROTOCOL/STUDY NO.: N/A

RS#: 2004-019

DOCUMENTS REVIEWED
- Cover letter dated August 11, 2004
- Application form dated August 11, 2004
- Research Proposal
- Appendix A-Information Sheet
- Appendix B-Consent Form
- Appendix C-Questionnaires

DATE OF APPROVAL: September 1, 2004

Committee Members:

Malcolm MacAulay, M.D., FRCPC	Absent
Sister Anne Robichaud	Signature Redacted
David F. Ross, M.D., CCFP	
Beth Sparks, B.ScN., M.N.	
Diane Brideau-Laughlin, B.Sc.,Pharm., Chairperson	
Al Kavanaugh, B.A., B.Ed., MEA	
Marilyn Macdonald, MSN	Absent
Eugene Breau, RRT, MSc.	Signature Redacted
Mary Lee-Hebert, MN	Abstain
Colleen Hennessy, M.D., FRCP(C)	Absent

South-East Regional Health Authority
Régie régionale de la santé Sud-Est

135 MacBeath Avenue, Moncton, New Brunswick E1C 6Z8
Tel: (506) 857-5530
Fax: (506) 857-5545

Appendix 7

Letter of ethical clearance to conduct study
Central Queensland University

Central Queensland
UNIVERSITY

5th October 2004

School of Nursing and Health Studies
Faculty of Arts, Health and Sciences
Central Queensland University
Rockhampton QLD 4701
Direct Ph (07) 4930 6317
Fax (07) 4930 9871
e-mail: s.jirojwong@cqu.edu.au

Luc Drisdelle
281 ch Aboujagane Road
Haute-Aboujagiane, NB
E4P 5L9
Canada

RE: Ethical clearance application, "barriers and facilitators of research utilization in practice as seen by a group of perioperative nurses in New Brunswick"

Dear Mr Drisdelle

The Ethical Research Review Committee of the School of Nursing and Health Studies has assessed your revised ethical application to conduct the above research project. The Committee approves your application.

However, the University contact details as listed on page 40 should read "Ethical Research Review Committee of the School of Nursing and Health Studies, Phone +61 7 4930 6317" not "Central Queensland University's Research Service Office" as stated.

I wish you success in your study.

Yours sincerely,

Signature Redacted

Dr Sansnee Jirojwong
Chair, The Ethical Research Review Committee School of Nursing and Health Studies

C.C. Ms Sonja Cleary, Ms Barbara Ritchie, Dr Lorna Moxham