Résumé

La culture d'unité et la pratique infirmière fondée sur des données probantes en soins de courte durée

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Cette étude de cas multiples sur l'utilisation de la recherche avait pour objectif d'examiner si, et de quelle manière, la pratique infirmière dans les unités de soins de courte durée se fonde sur la recherche, ainsi que de trouver des explications potentielles aux pratiques observées. Des données ouvertes ont été recueillies parmi le personnel infirmier ainsi que les infirmières et infirmiers responsables dans huit unités de soins de courte durée au moyen d'entrevues et d'observations. L'utilisation de la recherche variait à l'intérieur des unités et d'une unité à l'autre, mais la culture d'unité est apparue comme le principal facteur influençant les habitudes d'utilisation de la recherche. Les thèmes de la culture d'unité déterminant cette influence étaient l'harmonie de la perspective de recherche, la motivation à apprendre, l'orientation des objectifs, la créativité, le questionnement critique, le respect mutuel et la maximisation des ressources. Les résultats fournissent une riche description qui pourrait servir de base à l'auto-évaluation de la culture d'unité dans les unités de soins de courte durée en milieu hospitalier et dans les services de consultations externes.

Mots clés : culture d'unité, pratique infirmière fondée sur des données probantes, culture organisationnelle, étude de cas multiples

Unit Culture and Research–Based Nursing Practice in Acute Care

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The purpose of this multiple-case study of research utilization (RU) was to examine whether and how nursing practices in acute-care units are built on research and to identify potential explanations for the observed patterns. Open-ended data were collected from staff nurses and nursing leaders on 8 acute-care units through interviews and observation. RU varied within and across units, but unit culture emerged as the principal factor linked to patterns of RU. Unit-culture themes that formed the links were harmony of research perspective, motivation to learn, goal orientation, creativity, critical inquiry, mutual respect, and maximization of resources. The findings provide a rich description that could serve as a basis for self-assessment of unit culture in inpatient and outpatient acute-care units.

Keywords: unit culture, research-based nursing practice, evidence-based nursing practice, organizational culture, multiple case study

The introduction of new treatments and approaches is a reality of nursing practice. It is critical that these changes be based on the most recent best-practice information, particularly in terms of patient outcomes. Studies have been conducted on the diffusion of innovations and ongoing development of research-based practice within the health-care system, largely in medicine (Dobbins, Ciliska, & DiCenso, 1998). A few have examined nursing practice (Hodnett et al., 1996; Tranmer, Lochhaus–Gerlach, & Lam, 2002), but the vast majority of recent nursing studies have focused on perceived barriers. Little is known about how and why nurses build their own practice on research-based evidence and what facilitates the process.

The purpose of this multiple-case study was to examine whether and how nursing practices in acute-care units are built on research and to identify potential explanations for the observed patterns. Many terms have recently emerged relating to the notion of research-based practice. These include evidence-based practice, knowledge-based practice, best practice, technology transfer, knowledge transfer, knowledge utilization, and research utilization. The broad terms evidence, knowledge, and best practice include critical inquiry using a variety of sources such as experience, expert opinion, or research. Our focus was more specifically

research and its use as a basis for decision-making in nursing practice. This is only one aspect of evidence-based practice and includes the use of research methods in critical inquiry, the use of research findings, and the conduct of research.

Background

Nurses have been discussing the gap between knowledge and practice for over 40 years (Henderson, 1964; Malone, 1962). They seek knowledge that will ultimately be relevant and practical in nursing.

The literature suggests that research dissemination and utilization are affected by complex factors: pre-research conditions, such as funding and priorities; the research itself, its relevance to practice, and its applicability; methods of synthesis and dissemination strategies; individual and organizational characteristics of the setting; utilization strategies; and patient outcomes. Kitson, Harvey, and McCormack (1998) propose that three key dimensions are crucial to the successful use of evidence in clinical practice: evidence, context, and facilitation. Evidence refers to qualities of the research and the fit of the findings with clinical practice and patient preference. Context includes characteristics of the environment, such as unit composition, culture, and leadership. Facilitation comprises attributes of the facilitator, facilitation style, and the facilitator's role in the setting.

Nurse researchers have developed several models of research utilization (RU) based on dissemination theory (Horsley, Crane, Crabtree, & Wood, 1983; Krueger, Nelson, & Wolanin, 1978; Stetler, 2001). Each involves retrieval of findings, critique and determination of scientific merit, interpretation, assessment of relevance and fit with the setting, consideration of level and type of utilization, testing and implementation, evaluation of initial outcomes, and decision-making about adoption.

The utilization process is a complex one. It is not expected that all nurses will have the skills to complete all the steps nor that any one nurse will carry out the process alone. Still, individual factors such as sociodemographics, education, personality traits, participation in activities external to the workplace, work motivation, autonomy, values, and commitment to the organization have all been found to be associated with RU (Battista, 1989; Rogers, 1983). Findings are inconsistent, and some authors have raised questions about the current conceptualization of forces that influence RU (Estabrooks, 1997). The interaction between workplace and personal factors such as autonomy, job motivation, and commitment add to the complexity.

Organizational characteristics found to be related to the adoption of innovations include size, complexity, available resources, functional differ-

entiation, culture, communication channels, and decision-making processes (Kimberly, 1981; Scott, 1990). A landmark study (Funk, Champagne, Wiese, & Tornquist, 1991) found that clinicians perceived the setting to be the greatest hindrance to RU, accounting for eight of the ten most important barriers.

In summary, the phenomenon of RU has been studied over many years and several models have been developed. Actual testing of nursing interventions to facilitate RU is rare and findings from quantitative studies of factors related to RU are inconclusive. Much of the research has focused on barriers. The purpose of this study of RU was to examine whether and how nursing practices in acute-care units are built on research and to identify potential explanations for the observed patterns.

Method

This was a multiple-case study of RU in eight clinical units at four sites of a recently merged tertiary-care setting with a strong research tradition. Yin (1994) defines a case study as an empirical inquiry that "investigates a contemporary phenomenon within its real-life context, especially when the boundaries between the phenomenon and the context are not clearly evident" (p. 13). In a multiple-case study, cases are examined individually, followed by cross-case analyses.

Data collection had four components: (1) an anonymous question-naire for nurses concerning individual and organizational characteristics; (2) interviews with nurses (group and individual); (3) interviews with nursing leaders on the units, including head nurses (HNs), clinical nurse specialists (CNSs), and nurse clinician educators (NCEs); and (4) obser-vation of activities and resources, including documents and their use. The objective of data collection was to obtain information from a variety of sources and perspectives in order to provide as full a picture as possible of RU on the selected units. This paper reports the qualitative analysis of the results of the interviews and observations.

Ethical approval was granted from the Research Ethics Board of the Faculty of Medicine and of each of the hospital sites. The study was described to the HN and other nurses on each unit at a time convenient for the unit, and the researchers completed the data collection and preliminary analysis for each unit before proceeding to the next.

Twenty focus-group interviews, two to four on each unit, were conducted by one of the authors, L.E., to address general issues of RU. Questions included: What is research utilization? How does it happen on this unit? Why does it happen? Who does it? What facilitates and hinders it? What effect does it have? Nurses were asked to give examples of unit practices they considered to be research-based and how and why these

practices had come about. Four other interviews were conducted with staff nurses who had taken responsibility for a particular project identified during data collection such as the development of aromatherapy for oncology patients. These nurses were asked about the initial idea, the assessment of the problem, the literature review, issues of time and access, implementation of the plan, and planned or completed evaluation of the outcomes. The research coordinator interviewed unit leaders, the HN, and the CNS and/or NCE on each unit. These respondents were asked to give their views on the questions listed above, their role in the RU process, and the possible influence of administrative policies and practices on that role. All interviews were audiotaped and transcribed.

Field notes were kept in relation to ongoing practices observed on each unit. These practices included those related to communication patterns, regular nursing staff meetings, and tasks such as medication preparation. The research coordinator noted such issues as how nurses dealt with the situation when they needed information or how new ideas evolved and were pursued. Data were also collected on resources such as literature, documents, procedure manuals, and computers and their use on each unit. Each unit provided from seven to ten data sources, two to four focus groups, two to four leader interviews, and one observation period initially, plus one interview with the HN and one observation period 6 months later to assess change. The latter was based on the knowledge that clinical units are not static entities, and while the initial data-collection period on each unit was approximately 1 month and both nurses and leaders often reported historical phenomena, the researchers wanted to see if and how the initial description of RU had altered; this was thought to be important in capturing the process of building practice on research.

Settings

Units were selected with a view to examining a variety of settings. Initially, two units, a medical oncology unit and a surgical oncology unit at an adult general hospital site, were studied in a pilot phase. The extension of the study to all sites of the merged hospital added another adult general hospital, a children's hospital, and a neurological hospital. The chosen units had similar patient populations but were located at different sites. In addition to the two pilot units, this led to the selection of an outpatient oncology unit at the first site; an inpatient oncology unit, an outpatient oncology unit, and a neurology unit at the second general site; a neurosurgical children's unit; and a neurosurgical adult unit. The actual level of RU on each unit was unknown, but the units varied in terms of size and patient population, access to online searching and the Internet, length of nursing experience, numbers of nurses with baccalau-

reate education, presence of facilitators, and presence of students — all of which are factors thought to influence RU.

In total, there were 180 nurses in the eight units, with about half of them participating in a focus-group interview.

Analysis

Each case — that is, the phenomenon of RU on one unit — was analyzed separately, using Atlas.ti (Muhr, 1997). Data from the interview transcriptions were examined utterance by utterance and, where necessary, thought expression by thought expression within utterances — that is, when a comment expressed more than one thought or opinion, these were coded separately. Data from the first clinical unit were coded by all researchers using open-ended coding, so a code list was created. Codes were clustered into categories and codes and categories were defined through a consensus process. This was refined by all researchers for the second unit. Subsequently, researchers worked in pairs to code all sources of data, reaching consensus between the two researchers and bringing innovative or controversial coding to group discussions. Two of the researchers summarized the data by category for each unit, which were then discussed within the team. Finally, the researchers wrote a descriptive analysis of each unit focusing on the reported or observed RU in the unit and the phenomena that might have been associated with it. Cross-unit comparison was made using these descriptive analyses. The researchers constructed a grid of the themes in the descriptive analyses and noted patterns across units. These patterns were condensed and shaped into a framework linking RU practices with characteristics of the units.

Results

Unit culture emerged as the principal factor, with themes within the cultures linking to RU. The results are presented in three sections: presence of RU across units, the components of unit culture, and a framework linking cultural themes with RU. Quotations are provided to illustrate the phenomenon reported.

Presence of Research Utilization

Reported RU varied within each unit but variability was more evident across units. Data from all sources illustrated well the presence or absence of RU. Four codes were combined to create the descriptions of actual RU: research as a basis for practice, change based on research, research as persuasion, and evaluating options. The following examples illustrate situations in which RU occurred:

Interviewer: *Are there any other practices based on research?*

Nurse: *The TBI [traumatic brain injury] program…a reality-based orientation board,… Everyone — all staff as well as family members — are supposed to use it to help orient the patients. The nurses have seen good patient outcomes with it…they see patients actively using the board to orient themselves.*

I did a project recently on pain in the elderly. …it was…looking at the literature, finding information, and then trying to get that information out to nurses.… We found a pain-assessment tool that was applicable for geriatric patients and we held three in-services looking at pain in the elderly…and we got feedback from nurses on it — that was our evaluation tool…. It's [the assessment tool] being used to a certain extent, but it could be used more. (staff nurse)

During report the nurses were discussing an incident in which a physician had asked one of the nurses to flush a pigtail (similar to a chest tube). The AHN said, "We refused to flush it. I said [to the physician], 'Do you have any literature on flushing chest tubes?'" (observation)

The absence of RU was determined by the inability of nurses to define it or to give an example, nurses' statements that it was not occurring, or nurses' comments about why it was not occurring. The picture with regard to RU was also based on observations of situations in which a known body of research, such as that on pain management, was deliberately not consulted. Again, multiple sources were drawn upon to complete the description:

And then there are those [nurses] that reject certain ideas, because they're saying, "I'm not sure about that, this always worked, and I'm going to keep doing this." So there are certainly some nurses like that, but for the most part I think…most of the nurses are not closed to the idea. But I think what's lacking is many nurses don't know how to go about doing it. (leader)

Interviewer: *Are you familiar with the term "evidence-based practice"? Do you talk about it on the floor?*

Nurse: *Us, working on the floor, no. It's addressed more by the CNS and NCE. I think as the staff gets more senior, you can start to address these things. For somebody who's starting, there's not a lot of interest in addressing that — it's more advanced practice.*

The nurses were discussing the use of a non–adhering dressing for a patient. One nurse went and got the non–adhering dressings

available on the unit and showed them to the other nurses. Another nurse said, "We should have an in-service on all these different dressings!" The HN said, "They change so often it's not worth it." (observation)
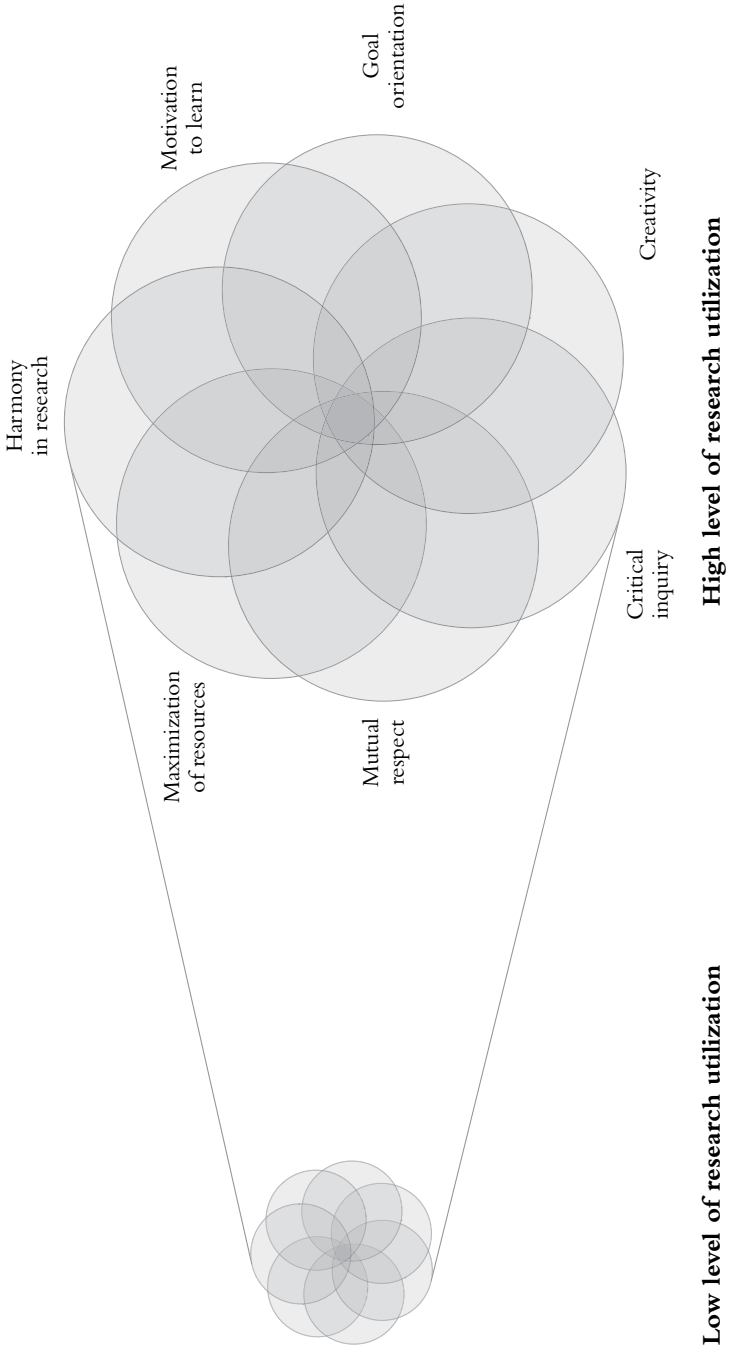
Unit Culture

Unit culture was defined as the beliefs, values, and practice norms on a given unit. Although the primary focus of data collection was research-based practice, a broader description of the overall culture emerged as relevant in the analysis. The observed characteristics of the culture were clustered into six categories: structural factors, bases for decision-making for practice, characteristics of the nurses, ongoing research, understanding of the meaning of RU, and facilitator strategies. Structural factors included such issues as patterns of staff stability, patient continuity, perceived limitations to practice, shift work, and unit communication patterns (report, communication book, interdisciplinary interactions, etc.). Bases for decision-making for practice included nurses' body of knowledge, such as that learned from education and experience; information from unit-based resources — that is, peers, leaders, and members of other disciplines; documents and literature; and information from extra-unit resources such as the hospital-based nursing consultants, research data managers, the pharmacy department, and other literature. Characteristics of nurses comprised those inherent in the individual, competencies and skills, personal motivation, and negativism; those related to nurses on the unit as a whole such as beliefs about nurses' needs and stressors and about professional autonomy; and concepts such as the value of students, "fresh blood," and variability across nurses. Ongoing research related to norms of either the conduct of or participation in research projects on the unit, whether nursing, medical, or interdisciplinary. Understanding of the meaning of RU referred to the leaders' and nurses' comprehension of RU, its value, and its differentiation from the conduct of research. Finally, facilitator strategies encompassed efforts to create or support learning opportunities, stimulate critical inquiry, and conduct research.

The Links Between Unit Culture and RU

Certain themes were identified across units, linking unit culture and its components with RU (see Figure 1): harmony of research perspective, motivation to learn, goal orientation, creativity, critical inquiry, mutual respect, and maximization of resources.

Each theme incorporated a group of characteristics found to a greater or lesser degree on each unit along a continuum of *linkage to high versus low level of RU*. The themes could be conceptualized as separate entities

Figure 1   *Themes Linking Unit Culture and Research Utilization*

on a given unit for the purposes of description and discussion, but in fact they were intertwined. Their interdependence led to the complexity that was the distinctive culture of each unit. No one unit was uniformly high or low on all themes. Each had a mix, although some units had a *predominance* of high or low RU characteristics.

   Harmony of research perspectives. As linked to a high level of RU, this meant that leaders and nurses had a similar understanding of the meaning of RU and could differentiate it from research. The individuals and groups were able to articulate the other's perspective. They valued research and understood its usefulness in informing practice. They also had similar ideas about how RU was practised and who was involved in it. In general, they thought all nurses were involved in RU to some extent, although they recognized differences in readiness, interest, and capability across nurses and across roles. Leaders, especially CNSs and NCEs, were expected to focus more of their attention on RU and nurses were expected to focus more on direct patient care. Nurses could give examples of RU on their unit, describe how it had come about, and briefly describe the merits of the research base. The basic steps in RU were described by nurses and leaders and were observed to be taking place on the unit. Participation in nursing, medical, and interdisciplinary research was supported by leaders and nurses, even if it took time and effort. Nursing staff were well informed about research projects and the importance of their contribution. Past research projects in which the staff had participated were associated with RU when the outcomes were seen to be beneficial for patients:

   I would have hoped [CNS] would have been on TV. She did a fantastic research and we…could see the outcome. It was very satisfying. (nurse)

Current research was described as a potential basis for practice and nurses felt a sense of ownership or self-worth because of their participation.

   At the other end of the continuum there was misinformation or lack of awareness. In some cases the leaders had a clear understanding and vision but the staff nurses were less aware or thought RU was something that someone else did. In other cases the nurses were prepared to question but, for various reasons, the leaders did not support opportunities to pursue RU. Nurses were able to describe a practice that had a research base only with considerable prompting and questioning by the interviewer. Awareness of previous research conducted on the unit was non-existent or hazy and there was no sense of self-worth attached to participating in current projects. Research projects were seen as belonging to someone else and were generally thought to create more work for nurses:

They come to us and they tell us, "You're doing the study," the physical part of the work. We're not asked whether we want to do it or not. I think it's like that with all the studies. (staff nurse)

Motivation to learn. A high level of motivation to learn, as it was linked to RU, was characterized by nurses possessing or pursuing advanced education and regularly attending conferences and continuing-education courses. Learning was described as a lifelong process and experienced nurses were enthusiastic about learning, although it was noted that the need for learning was greater for novice nurses. Leaders encouraged nurses to participate in learning activities and supported them with resources such as time off and fee payment. While resources for learning were appreciated, nurses also recognized the reward of learning itself and the need to cover their own costs. Participation came with the responsibility to give a presentation upon return to the unit. This theme was interconnected with goal orientation in the sense of having a learning or achievement goal such as a degree or certification. It was also related to maximizing and taking advantage of resources for funding and learning:

I don't find they [nurses on other units] get the same encouragement to go to conferences, to present at conferences. …we tease her [HN] a lot; she expects a lot from us…but at the same time she's very proud of you, she's very supportive of you. (staff nurse)

Low motivation to learn was linked to a low level of RU. It included limited attendance at conferences and continuing-education courses, or attendance only when fully financed and during working hours. Barriers to attendance were identified by both leaders and nurses. Attendance was seen as compulsory or as an opportunity to sit for a day. Sometimes it was feasible only when the organizers provided perquisites or rewards:

I gave them each one [conference notice] and said, "You can go." And they said, "Who's going to pay?" And I said, "Well, we can pay with [funding from the nurses' contract]." "Oh, okay." And then I say, "Lunch is paid…." "Lunch is paid?" And then they say, "Well, what about parking?" It never ends. (leader)

There was no obligation or opportunity to bring feedback from a learning session.

Goal orientation. When this was associated with a high level of RU it was characterized by a vision or perspective on the future. There was harmony of the visions held by the leaders and the nurses. They were aware of each other's perspectives and held similar opinions about the goals of the unit, although the nurses may have seen the leaders as having greater responsibility for achieving these goals. Individual goals varied,

but they were expressed and there were opportunities and support systems to meet them:

> *It gives you a goal, a goal to work towards…. [The CNS] helped me a lot with my…slide presentation… I did the slides and then we worked together on the laptop to figure things out. She connects — she sort of got me connected with somebody in the hospital who's good at doing slides.* (staff nurse)

Improvement in details of patient care and measurable patient outcomes were goals associated with clearly articulated ideas and plans. Nurses identified goals for improvements in working conditions that were focused beyond their own situation to outcomes for patients. When one project was nearing completion, nurses and leaders planned another. Goal orientation was linked to participation in learning activities such as conferences, in the sense that nurses wished not only to learn but also to share their knowledge. Similarly, projects were planned with publication of results as a goal.

In contrast, little or no goal orientation was exemplified by a viewpoint of "getting through today," or moving from task to task or crisis to crisis. Improved patient care was sometimes identified as a goal, but only in vague terms, and goals for improved working conditions were focused solely on the nurses with no consideration of the impact of their worklife on patient outcomes:

> *…the thing is, they usually make research on patients, on what's going to happen to the patient,…but if there's no nurse to take care of the patient…we need to do some research to change our condition.* (staff nurse)

There was a lack of awareness of or disagreement about the future direction of the unit, or there was frustration that a particular goal could not be achieved. No examples were given about plans for the future.

Creativity. Creativity shared some characteristics with other themes, notably identifying goals, creating learning opportunities, and finding resources to achieve individual and unit objectives. It also had unique characteristics: originality of projects pursued by nurses and leaders and innovative approaches to unit activities. Greater creativity was linked to a higher level of RU:

> *We said it would be nice to have a nurse who would be knowledgeable about this and…would be able to help us assess and deal with it… [The staff nurse] said, "I'd like to do wound care"…and another one was interested [in] conjugal violence.* (leader)

Ideas from the literature or from conferences or other settings were adapted innovatively to suit the unit culture — the patients, the nurses, the environment, the resources. This approach to innovative thinking and acting was supported by the leaders and the other nurses. When one nurse came up with an idea, she or he was encouraged to pursue it. Others recognized that time and effort were needed and they were willing to share regular responsibilities to allow time for innovation. Nurses were encouraged to explore their ideas in a rigorous way with critical inquiry or development of proposals and actual research. Creative thinking also involved making connections among personal experience, observations, sources of information, literature, and expert opinion, and then moving forward to test clinical hypotheses.

On the other hand, the lack of creativity that was linked to a low level of RU was characterized by few or no new ideas or a lack of support for new ideas when they did come up:

> *There's not enough time to discuss it; you just leave it, and then unfortunately forget about it. I know that we're constantly generating ideas.* (staff nurse)

Questions, suggestions, and ideas were ignored or dismissed. Tradition and previous experience were the primary bases for practice decisions. Change was avoided, and change brought about by external pressures was resented.

Critical inquiry. The presence of in-depth inquiry following from questions or new ideas was connected with a high level of RU. It appeared in the questioning behaviour of nurses. Questions went beyond "What should I do?" to "What do I need to know in the future to make a decision?" or "What will the outcomes be?" The process could be pursued by the nurse asking the question, or prompted by a leader or another nurse:

> *We were using so many different products and nothing was working. So I researched about…25 different papers, and the best thing…the simplest and cheapest, was just using normal saline rinses. …I presented it to the ward.* (staff nurse)

Expert advice was sought, often with a request for the substantiating evidence. The body of literature on the topic was explored in a systematic fashion. Group process was often entailed, so that one or two nurses pursued different aspects of the question and brought the information back to the group. A formal critique might be carried out by a group of nurses on their own, it could be stimulated by a leader, or the review could be done by a leader for nurses to discuss and critically appraise. Rigorous critique of research design or method was not observed, but

there was an awareness of the limitations of some methods or some sources in the literature. Leaders and nurses said they tried to bring in literature that was methodologically sound. Students were welcomed because they came with inquiring minds and stimulated thinking with their questions. Students were also seen as a resource and stimulus to learning because they provided literature that they had reviewed.

In cases where critical inquiry was lacking, there was an absence of questioning beyond "What should I do?" Information may have been sought from peers or others in one-on-one situations, but issues were not pursued. Group meetings and opportunities for group process were few:

> *Once in a while during report in the morning, the assistant head nurse will talk with us about a new thing or maybe a change in a protocol, since the research says that or that, but it's quite rare.* (staff nurse)

Students were seen as a burden because of their questioning. If a literature review was conducted by a leader, it was presented to the nurses and there was little indication that nurses engaged in any critical thinking in this process. This theme was linked to a lack of creativity, where tradition or previous experience provided answers without exploration of current or future circumstances.

Mutual respect. A high level of RU was associated with mutual respect across nurses, leaders, and disciplines; interdisciplinary collegiality; unit identity; pride in one's unit; and positive working relationships among nurses. There was a high level of satisfaction with communication. Nurses felt that they were in control of their practice and their work environment and that change was possible. They felt good about coming to work. Their unit was recognized by other units as having expertise:

> *We know we specialize in oncology and giving chemo and things to do with oncology and symptom management. …we're a resource for other floors.* (staff nurse)

There was mutual respect between leaders and nurses. Differences across nurses in terms of interests and capabilities were accepted and valued. Leaders capitalized on these differences and helped nurses to achieve goals within their own scope as individuals or as members of a group with special interests. Nurses' wholeness was recognized in the form of support for events in their personal lives.

When mutual respect was not in evidence nurses were unhappy with their work situation. They differed with leaders in terms of their roles and responsibilities, and in some cases believed their needs were not being addressed. Interdisciplinary relationships were either negative or based solely on information exchange. Nurses did not feel respected or recog-

nized for their contributions. They believed they lacked the autonomy to take control of their own practice:

> *Sometimes you hear about the results of research and then you're wanting to put it into place. But you can't do that because the doctors will always… It's the doctors, right, who control it?* (staff nurse)

Maximization of resources. Maximization of resources in order to meet unit and individual goals as well as a high level of RU had several components. One was a clearly expressed awareness of the existence and accessibility of resources. Another was an atmosphere of success in obtaining and using a broad range of resources such as expertise, funding, and computers. Barriers were seen as challenges. This theme was linked to mutual respect in that the nurses believed the leaders were doing everything possible to maximize the resources needed for patient care and for RU. Nurses were also motivated and encouraged to use their own initiative in finding and using resources. This theme was linked as well to creativity in seeking innovative ways to address resource limitations:

> *Nurses are becoming a little more skilled at soliciting from physicians, from pharmaceutical companies and all of that.* (leader)

At the other end of the continuum, barriers were seen as insurmountable. The issue of barriers was raised by both leaders and nurses to explain their inability to obtain resources or practise RU. Computers were available in all units but nurses lacked either the time or the knowledge to use them to advantage. Although experts in nursing and other disciplines were present, nurses believed they lacked the authority to consult them. In some instances nurses were unaware of or failed to acknowledge existing resources:

> *There's a lot of girls on the unit that think about something — you know, "We should study that"…but then how are you going to study if you have no time to do it?* (staff nurse)

No unit was high RU or low RU in all of its characteristics. All units had some aspects of both types of characteristics, but some had more supportive than non-supportive ones and a fairly high level of RU, while others showed the reverse trend.

Discussion and Conclusion

The findings indicate that unit culture — the set of beliefs, values, and practice norms on a unit — is a major factor in the ongoing use of research as a basis for practice. Unit culture was found to be a composite

of interdependent factors, including the level of understanding of research and research utilization, the conduct of research on the unit, structural factors such as work and communication patterns, the pattern of decision-making as a basis for practice, characteristics of the nurses, and the process of facilitation. These findings are inconsistent with some of the recent literature on organizational culture (Gershon, Stone, Bakken, & Larson, 2004; Jones, 2003) in that the data revealed the existence of a distinct culture on each unit, as opposed to an overall organizational culture. The study did not differentiate between culture — the norms and values governing how things are done — and climate — the perception of the culture (Verbecke, Volgering, & Hessels, 1998). While some of the interview and observational data addressed climate in terms of nurses' perceptions of the RU culture, the primary focus of the data was to provide a vivid description of practice norms and values.

Unit culture as linked to RU could be described in terms of understanding of research and the expectation that nursing practice can be built on research; the learning atmosphere, including motivation to learn and resources for learning; level of questioning and critical inquiry; mutual respect and interdisciplinarity; a sense of unit identity; pride in expertise and a desire to share it; and an orientation towards goals and future achievements. These findings are consistent with the conceptual framework revisited by Rycroft-Malone and colleagues (2002) except for our inclusion of facilitation within culture. The framework separates evidence, context — including culture and leadership — and facilitation. In their original work (Kitson et al., 1998) the authors note that this separation is essential for analyzing the contribution that each of these elements makes to research-based practice. In their recent analysis of facilitation they identify different roles a facilitator may assume and note that the role may be internal or external to the organization. The facilitators in our study were internal and integral to the unit. For this reason their values, beliefs, and behaviours were part of the essence of the culture of the unit, as was the degree of harmony between their beliefs and those of the nurses. Leaders' strategies of facilitation were fundamental and integral to the culture.

In addition, the significance of the role of the leaders was linked to RU in many ways. These included the valuing of and support for use of research, the transmission of the research orientation in the hospital mission and the administrative supports to the unit, the support for learning and goal achievement, role modelling in relation to nursing and interdisciplinary relationships on the unit, and the encouragement to question and maximize the pursuit of multiple sources of knowledge.

In the present study, information frequently came from human sources and may or may not have been based on research, whereas in the

study by Thompson and colleagues (2001) the information was found to be based on research. However, in our study a culture of in-depth pursuit of information from a variety of sources was linked to RU.

Although harmony across leaders and nurses was clearly linked to RU, there was considerable variation in the way the leaders' efforts were seen by nurses, a finding similar to that of LeMay, Mulhall, and Alexander (1998). In their study of research culture with 21 nurses and 9 managers at three sites, LeMay and colleagues found that leaders in general saw research as important for strategic reasons but that it was a luxury, while nurses revealed a paradox of emotional response of fear/excitement and wariness/desire when asked about research. In the present study, enthusiasm for RU coalesced on units where the leaders and most of the nurses believed that research was important and useful in guiding practice and improving care.

In discussions of global organizational culture and RU (Tranmer et al., 2002; Varcoe & Hilton, 1995), factors such as administrative support, participation in learning experiences related to research, expectations of RU, the presence of facilitators and research consultants, and motivation of nurses have been found to be important. Some researchers have used surveys to study overall beliefs and practices (Estabrooks, 1997; Rodgers, 2000; Van Mullen et al., 1999). Elements of their results are supported in the present findings, whose richness makes a contribution to our knowledge of the determinants of research utilization at the unit level, one aspect of the field of study in Estabrooks' (1999) model.

Because of the complexity of intertwining factors, we did not expect to establish a "package" of characteristics that a unit might adopt in order to increase its RU. Rather than offering a prescriptive approach to enhancing RU, the present findings may be useful for self-assessment and consideration of themes on a unit. Leaders and staff nurses might together assess their own culture on the basis of the themes described in order to determine their RU potential. The development of RU is a function of not only the organizational culture but also the unit culture, and the facilitation behaviour of the leaders is an integral part of that culture.

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