Building Knowledge for Safer Care
Nursing Research Advancing Practice

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Organizational and professional efforts to support nurses engaging in research projects that advance patient safety practices are needed. In this context, the purpose of this article is to provide a description of the design, implementation, and evaluation of a research capacity strategy designed for clinical nurses and the lessons learned. Participating nurses evolved from research novices to key champions in advancing nursing practice, patient safety, and quality improvement.

Key words: clinical nursing research, nursing practice, patient safety, research capacity strategy

A large proportion of annual preventable deaths from adverse events in healthcare is posited to be related to the lack of research use in clinical practice.1,2 Given that the conduct and use of quality, clinically significant research has positive patient outcomes, it is imperative that nurses lead in generating and translating knowledge associated with safer healthcare practices.3–7 Nurses’ ability to contribute to the evolving patient safety knowledge base through research is contingent on several critical factors. These include having the competencies required to conduct research and translate empirical findings,5,8–10 organizational commitment to nurse participation in research,3,10 and the availability of funding for patient safety research projects. In this context, an academic health center developed a research capacity strategy focusing on patient safety and quality improvement for clinical nurses. This study provides a description of the design, implementation, evaluation, and lessons learned of a research capacity building strategy titled “Nursing Research Advancing Practice (RAP) program.”

BACKGROUND

Research is a critical element of the nursing profession and the delivery of quality patient care in organizations.3,11 Integrating research into practice is most effective when the process of research is embedded in daily activities of clinical nurses.11,12 Strengthening the link between research and clinical practice involves generating questions from the perspective of nurses involved in patient care and management who are well suited to identify the phenomena and issues that are clinically relevant and appropriate for research.5 However, the literature base describing the effectiveness of nursing research capacity strategies has been limited to academic departments,13 students in internships/fellowships in patient safety,14,15 and the

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and research utilization and/or evidence-based practice among nurses in healthcare settings. Currently, there is no literature describing safety- and quality-oriented research capacity building strategies for clinical nurses practicing in a hospital setting.

**Nursing RAP**

In this context, the Nursing RAP was designed as a targeted research capacity building strategy for front line clinical nurses. The development of the program involved applying findings from an internal research needs assessment, a literature review, and organizational benchmarking exercise. Overall, Nursing RAP was designed to equip participants with the competencies required to develop, implement, and evaluate a research project based on a clinical or quality improvement idea that would advance safer patient care. To recruit nurses to the program, a series of information sessions were held hospital-wide and e-mails sent to all clinical directors, managers, and nurses in the hospital.

Key components of Nursing RAP included (1) a peer review selection process, (2) integrated curriculum and experiential learning opportunities, and (3) an evaluation framework. In 2006, a Scientific Review Committee (SRC) was established to oversee the selection process of the research projects. The SRC had broad interprofessional representation from the hospital, academic partners, and the provincial nursing regulatory body. Twenty-two Letters of Intent were reviewed and rated by the SRC using the selection criteria outlined in Table 1. On the basis of the ratings of the SRC, 12 research teams were offered funding to participate in Nursing RAP. Sample research topic areas are listed in Table 2. To address challenges associated with having nurses leave their clinical unit to participate in Nursing RAP, funds were secured for release time for participants and other costs associated with conducting research and sharing findings at conferences.

The second component of Nursing RAP was the education modules that formed a curriculum framework for research and knowledge translation competencies. The education modules were developed and facilitated by experienced nurse researchers and educators. Overall, the curriculum framework provided content and experiential learning opportunities to enable participants to acquire competencies necessary to develop, implement, and evaluate a research project based on a clinical idea and/or improvement for safer patient care. Table 3 provides an overview of the modules that were presented to participants. In each module, faculty linked the curriculum content to the individual projects to ensure their relevance and applicability to the participants, many of whom had limited, or no, experience in research design and application.

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**Table 1.** Nursing RAP program research projects selection criteria

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<tr>
<th>Criteria</th>
<th>Details</th>
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<td>1.</td>
<td>Demonstration of 1 or more of nursing core competencies articulated in the Professional Nursing Care Delivery Model: provide patient-centered care, employ evidence-based practice, work in interdisciplinary teams, apply quality improvement, and utilize informatics.</td>
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<td>2.</td>
<td>Takes place in a clinical setting where nurses provide care, led by a nurse as Principal and/or Coprincipal, involves at least 1 staff/clinical nurse and can involve interdisciplinary members, consistent with the Canadian Nurses Foundation requirement for Nursing Care Partnership Funding.</td>
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<td>3.</td>
<td>A minimum of 1 project per clinical program.</td>
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<td>4.</td>
<td>A minimum of 50% of the funded projects will be linked to the priority clinical safety areas (falls, pressure ulcers, hospital-acquired pneumonia, and medication errors).</td>
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<td>5.</td>
<td>Endorsement from management (Clinical Leader Manager/Manager, Program Director/Director) to participate in related activities associated with the Nursing RAP program.</td>
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Abbreviation: RAP, research advancing practice.
Table 2. Sample projects

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<th>Safety/quality outcome or nursing competency for safer care</th>
<th>Patient safety and quality research projects</th>
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<td>Falls</td>
<td>Fall risk in patients postcardiovascular surgery: does delirium play a role?</td>
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<tr>
<td>Restraints</td>
<td>Physical restraint as a nursing-sensitive adverse outcome in acute care psychiatric treatment settings: an exploratory study of the perceptions of registered nurses in an inner-city mental health service</td>
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<tr>
<td>Pressure ulcers</td>
<td>An observational study of the MSICU: examining staff implementation of interventions to prevent/treat pressure breakdown of the sacrum and/or heels, and the impact on pressure ulcer incidence</td>
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<tr>
<td>Medication errors</td>
<td>Strategies to reduce medication error and increase patient safety in the emergency department</td>
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<tr>
<td>Pain management</td>
<td>Nurses’ perceptions of pain behavior in the assessment of the nonverbal end-of-life patient</td>
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Abbreviation: MSICU, medical surgical intensive care unit.

Over the 18-month course of Nursing RAP (January 2007–June 2008), program participants engaged in the curriculum and were mentored by experienced nurse researchers from the hospital to develop and implement their specific projects. There were 20 days per participant that were eligible for release time; however, the majority of nurses also put in extra days to finalize their respective studies.

The third component of Nursing RAP was the development of an evaluation framework. As with any innovative approach, evaluation is a critical component to determine the effectiveness of the strategy.9 In this context, a descriptive, mixed-methods evaluation was conducted to examine outcomes and learning experiences associated with the implementation of Nursing RAP. The Nursing RAP evaluation was reviewed and approved by the hospital’s research ethics board in October 2006. The quantitative aspect was a longitudinal design that included measuring barriers to participating in research both pre- and post-RAP intervention. Specifically, the 29-item BARRIERS to Research Utilization Scale17 was used for this study. This scale includes a range of 1 to 5 (1 no barrier to 4 great extent a barrier and 5 no opinion); the Scale has been used to evaluate research utilization strategies in past studies.18,19 Data were analyzed using paired t tests. The qualitative aspect explored the experiences and
perceptions of participating nurses associated with Nursing RAP, 3 months after completion of curriculum using focus group methodology. Focus group transcripts were analyzed using the content analysis approach outlined by Ryan and Bernard.20,21

EVALUATION RESULTS AND DISCUSSION

From the original 12 selected Nursing RAP teams, 11 (n = 21) completed the integrated curriculum and designed and implemented an institutional ethics board approved study. The average age of study participants was 42.4 years; number of years in nursing was 15.8 years with 7.4 years in the current clinical unit. One team withdrew because of staffing and workload pressures on its clinical unit. To date, 7 out of the 11 projects (64%) have been completed, 1 is in the final analysis stage, and the other 3 are in the midst of data collection.

In terms of the barriers to participating in research, only 3 statistically significant results were found. Results for the pre- and posttest scores are from the same sample of study participants. Specifically, study participants reported (1) using more research in their practice (4.24 pre and 5.27 post, \(P = .018\)); (2) insufficient time on the job to implement new ideas (3.05 pre and 3.67 post, \(P = .04\)); and (3) research reports/articles are not available (2.48 pre and 1.6 post, \(P = .018\)).

Qualitative findings

A total of 9 Nursing RAP participants participated in the postprogram focus groups (4 in first focus group and 5 in the second focus group). Four distinct, yet overlapping, themes emerged in the analysis including (1) raising the bar for nursing and safer care through research; (2) having someone always behind you while taking steps; (3) riding the ups and downs of the RAP wave; and (4) paving the way for others to engage in research.

Nursing RAP participants described newfound confidence in their ability to bridge the gap between research and clinical practice to provide safer care to their patients. This is evident by the following comment by one of the study participants: “It makes you look at the bigger picture of the patient and what’s going on. And it makes you question and challenge things that you may have not been comfortable with before because you were afraid to. In turn you provide safer care and I think that you’re more respected.”

This is consistent with the growing literature base that posits that the engagement of nurses in research generates clinically relevant knowledge that both advances nursing practice22 and enhances patient care.9,13,14 The other key finding around the pivotal role of the supportive network identified by the Nursing RAP participants adds to a smaller body of literature on research capacity strategies in patient safety.14,15 Within this network, study participants described gaining an appreciation for the iterative, stepwise nature of the research process (proposal development, proposal refinement, ethics approval, study implementation, and data analysis). This theme is illustrated in the following narrative: “I didn’t feel alone during the whole RAP program. Anytime you need to clarify something, they’re [mentors] there, and then at the same time you have other people who are going through the same process.”

Some of the greatest frustrations experienced by Nursing RAP participants were challenges associated with obtaining ethics review, which is similar to another recent study.23 Closely aligned with the second theme, the third theme described the “up and down” experience of those who participated in the Nursing RAP program. Similar results have been found in other studies, with nurses describing having mixed feelings ranging from being grateful for the opportunity to feeling challenged at times.21 Finally, another outcome of Nursing RAP was the development of a critical mass of nurses who were viewed as role models by their nursing colleagues. Specifically, RAP participants perceived themselves as encouraging their colleagues to ask questions on how they practice and how their practice impacts care.

Limitations

It is likely that our results are confounded by a selection bias as Nursing RAP participants
had to apply to participate in the program, implying some baseline interest in engaging in the research process. Analysis using patient and organization data was not possible as the data set was limited by the small sample and missing data points. As another potential confounder, there were concurrent corporate and local initiatives aimed at safer healthcare and quality improvement (ie, wound care management and prevention and patient safety bundles in critical care). Moreover, the 4 emergent themes were from a small sample size \((n = 9)\) and from only 1 facility, minimizing the generalizability of findings to other healthcare settings.

SUCCESS FACTORS, LESSONS LEARNED, AND FUTURE DIRECTION

Despite the study limitations, the emergent finding that nurses who participated in the research capacity strategy described being more reflective about their practice and able to provide safer care has relevance for nurse leaders. This finding can inform organizational efforts to enhance professional nursing services and patient care by engaging nurses in research and evidence-based practice.

Of particular importance for nurse leaders are the success factors and lessons learned derived from the evaluation of the Nursing RAP program. These included the following:

1. Executive endorsement and allocation of internal funds to cover the release time of participating nurses and other costs associated with conducting the research and dissemination of research findings.
2. Effective collaboration with key stakeholders to develop the recruitment processes, selection criteria, curriculum framework, and evaluation design associated with the Nursing RAP. Stakeholders included (a) clinical directors and managers who authorized the nurses release time to participate in Nursing RAP, (b) research mentors who worked closely with their assigned teams to demystify the research process for the Nursing RAP participants, and (c) external academic and provincial nursing regulatory partners.
3. Evidence informed approach to the development of the Nursing RAP that balanced findings from an internal environmental scan on research needs and priority areas with a literature review and organizational benchmarking.
4. Engaged Nursing RAP participants who embraced the opportunity to conduct a research project aimed at safer healthcare and quality practices.

Key lessons learned included that the overall research process for the Nursing RAP teams took longer than anticipated, with 4 teams still working on finalizing their projects. There were also challenges for the evaluation team including a small sample size and incomplete survey completion in both the pre- and post-phases. In terms of future direction, we have recently secured funds for a second offering of Nursing RAP. This next iteration includes a formalized partnership with an academic partner, Ryerson University’s Daphne Cockwell School of Nursing. In addition, a more robust study to examine outcomes associated with a research capacity strategy aimed at generating and translating knowledge on safer healthcare practices has been designed from the lessons learned from the pilot study.

CONCLUSION

This article is the first to report staff nurse perceptions and experiences associated with involvement in a research capacity strategy focused on safer, quality healthcare in a teaching hospital. Although their experience was described as “riding the wave” and a “roller coaster ride,” Nursing RAP participants evolved from research novices to key champions in advancing nursing practice, patient safety, and quality improvement. Staff nurse participation in nursing research is increasingly becoming an expected professional behavior, and in Ontario, participation in research is a core competency of entry to practice for registered nursing personnel. As such, further organizational and professional efforts to support nurses engaging in research
projects that advance patient safety practices are needed.\textsuperscript{11,13} Future research using a variety of methodologies and replication studies in multiple settings and sectors are necessary to examine patient, nurse, organizational, and system-level outcomes associated with nursing research capacity building strategies for safer healthcare.

REFERENCES