

A Multi-Method Study of the Geriatric Learning Needs of Acute Care Hospital Nurses in Ontario, Canada

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Abstract: Older people are at risk of experiencing functional decline and related complications during hospitalization. In countries with projected increases in age demographics, preventing these adverse consequences is a priority. Because most Canadian nurses have received little geriatrics content in their basic education, understanding their learning needs is fundamental to preparing them to respond to this priority. This two-phased multi-method study identified the geriatrics learning needs and strategies to address the learning needs of acute care registered nurses (RNs) and registered practical nurses (RPNs) in the province of Ontario, Canada. In Phase I, a survey that included a geriatric nursing knowledge scale was completed by a random sample of 2005 Ontario RNs and RPNs. Average scores on the geriatric nursing knowledge scale were in the “neither good nor bad” range, with RNs demonstrating slightly higher scores than RPNs. In Phase II, 33 RN and 24 RPN survey respondents participated in 13 focus group interviews to help confirm and expand survey findings. In thematic analysis, three major themes were identified that were the same in RNs and RPNs: (a) geriatric nursing is generally regarded as simple and custodial, (b) older people's care is more complex than is generally appreciated, and (c) in the current context, older people's care is best learned experientially and in brief on-site educational sessions. Healthcare providers, policy-makers, and educators can use the findings to develop educational initiatives to prepare RNs and RPNs to respond to the needs of an aging hospital population. © 2015 Wiley Periodicals, Inc.

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In Canada, people aged 65 and older account for 40% of in-patient hospital days and 51% of hospital costs (Canadian Institute for Health Information [CIHI], 2011), despite representing only 14% of the population (Statistics Canada, 2011). The situation is similar in several other countries, including the United States where older people account for 45% of hospital costs (Agency for Healthcare Research and Quality, 2009) and 13% of the population (Centers for Disease Control and Prevention, 2007).

During hospitalization, 35–60% of older people experience functional decline (Covinsky et al., 2003; Gill, Allore, Gahbauer, & Murphy, 2010; Zisberg et al., 2011). Hospital-acquired functional decline is associated with iatrogenic complications and increased costs of care, institutionalization, and mortality in older people (Covinsky et al., 1998). In countries with projected increases in age demographics, preventing functional decline during older people's hospitalization is a priority (Walsh, Roberts, & Nicholls, 2011).

Because nurses represent the largest group of healthcare professionals providing continuous bedside care (Institute of Medicine of the National Academies, 2008), they have the potential to play a key role in preventing functional decline and related complications in this patient population. In light of the fact that many nurses in Canada, similar to those in other countries, received little geriatrics content in their basic education (Deschodt, de Casterlé, & Milisen, 2010; Gilje, Lacey, & Moore, 2007; Hirst, Lane, & Stares, 2012; Xiao, Paterson, Henderson, & Kelton, 2008), understanding their learning needs may facilitate the development of hospital-wide nurse educational initiatives.

In Canada, two professional designations of nurses provide bedside care: registered nurses (RNs) and registered or licensed practical nurses (RPNs; Born, Dhalla, & Ferguson-Paré, 2013). Canadian acute care hospitals have begun to employ more RPNs to reduce nursing care costs following a decade of job reduction or elimination during the 1990s (Born et al., 2013). Acute care hospitals in the province of Ontario, Canada are now the second largest (22.3%) employer of RPNs (College of Nurses of Ontario [CNO], 2014a). Because RPNs were prepared in 2-year diploma practical nursing programs to provide care to stable patients with predictable conditions, their geriatrics learning needs may differ from RNs who were prepared, in either 3-year diploma or 4-year baccalaureate degree programs, to provide care to unstable patients with potentially unpredictable conditions (CNO, 2014b).

Past studies of acute care nurses' knowledge in geriatrics relied on convenience samples comprised predominantly of RNs, limiting their generalizability for the Ontario context. These investigators administered self-report scales that tested knowledge of preventing, assessing, and/or managing geriatric problems related to functional decline and iatrogenesis (Boltz et al., 2008a; de Almeida Tavares, Sá-Couto, Boltz, & Capezuti, 2014; Gillis, MacDonald, & MacIsaac, 2008; Hare, Wynaden, McGowan, Landsborough, & Speed, 2008; Meako, Thompson, & Cochrane, 2011; Robinson & Mercer, 2007; Roethler, Adelman, & Parsons, 2011; Wagner et al., 2013); deconditioning in older people (Gillis et al., 2008), and geriatric nursing theory, skill, health issues, and care (Yoo, 2013). All concluded that RNs lack knowledge in geriatrics, but none conducted follow-up focus groups to expand understanding of nurses' learning needs or how to address them.

While there is little evidence from these studies to suggest that nurses' level of knowledge in geriatrics differs by level of education (Boltz et al., 2008b; Hare et al., 2008; Meako et al., 2011; Yoo, 2013), there is some evidence to suggest that it may vary by professional designation (RN vs. RPN) and hospital teaching status. In the only study not limited to an all-RN sample, RPNs demonstrated lower levels of geriatrics knowledge than did diploma-prepared RNs, and RNs and RPNs working in non-teaching hospitals had

lower levels of geriatrics knowledge than those working in teaching hospitals (Wagner et al., 2013).

To expand this body of knowledge, this study was designed to identify the geriatrics learning needs of acute care RNs and RPNs in Ontario and strategies to address those needs. The research questions included:

1. What level of geriatrics knowledge do RNs and RPNs working in acute care hospitals have?
2. Does level of geriatrics knowledge differ by professional designation (RN vs. RPN)?
3. Does level of geriatrics knowledge differ by hospital teaching status?
4. What are the perspectives of RNs and RPNs on their geriatrics learning needs?
5. What strategies do RNs and RPNs recommend to increase their geriatrics knowledge?

Methods

Design

This multi-method study was part of a larger study of the relationships among quality of care, hospital characteristics, and professional characteristics, including level of geriatrics knowledge. Phase I involved a cross-sectional survey examining RNs' and RPNs' level of geriatrics knowledge and personal and professional characteristics. The survey included questions on additional geriatrics education or certification in gerontological nursing.

Phase II was a qualitative descriptive study to help confirm and expand understanding of Phase I survey findings and to identify strategies to address the learning needs of RNs and RPNs, with the goal to provide a comprehensive summary of a phenomenon that remained close to the data, with less interpretive transformation than in approaches such as phenomenology (Sandelowski, 2000, 2010). Focus group interviews were chosen to foster interaction between respondents, allowing for greater elaboration of views and perspectives than could have been accomplished in individual interviews (Morgan & Krueger, 1993).

Phase I

Sample. Names of eligible nurses were selected from the CNO registry, using a proportional stratified random sampling strategy. Eligible nurses included RNs and RPNs with active CNO licenses who indicated: an Ontario acute care hospital as their practice location; staff nurse as their position; emergency, medicine, surgery, geriatrics, or critical care as their primary area of practice; and consent to CNO to release their names and home addresses for research purposes. The strata were designed to replicate the distribution of eligible RNs (72%) and RPNs (28%), as

calculated by CNO specifically for this study. The survey sample size was calculated based on the goal of the larger study to estimate population parameters (Bartlett, Kotrlik, & Higgins, 2001). Based on the population of 24,102 nurses who met the eligibility criteria, a sample size of 1,446 (1,041 RNs and 405 RPNs) was needed to estimate the population parameters with 5% precision, 95% confidence intervals, and 50% proportion.

A tailored design method was used to maximize response rate. This approach to survey research, rooted in social exchange theory, is based on assumptions that people are motivated to respond to a survey when trust is established, there are benefits to responding, and costs are minimal (Dillman, Smith, & Christian, 2009). Accordingly, we first established contact with RNs and RPNs whose names were selected from the CNO database with a mailed pre-notification letter explaining that a survey would be sent in the next few days and describing the study. The survey was then mailed with a cover letter that included the lead researcher's contact information and written signature, what was being requested, and an explanation of the importance of nurses' perspectives in identifying their needs related to the care of older patients. A postcard was sent within one week thanking early responders and reminding non-responders. Non-responders received up to two reminders 2–4 weeks later, in the form of cover letters that increasingly emphasized the importance of nurses' perspectives and included replacement surveys with a pre-stamped return envelopes.

Survey measures. The survey included questions on geriatrics knowledge and personal and professional characteristics.

Geriatrics knowledge. Geriatrics knowledge was measured by the geriatric nursing knowledge scale of the Geriatric Institutional Assessment Profile, developed by Abraham et al. and a panel of experts in geriatric nursing (1999). This is the most commonly cited geriatric nursing knowledge scale and the only identified English-language survey with reported reliability and validity estimates. For validity, only content validity was reported, which was established “by specifying the domain of content and then identifying items based on that content” (Abraham et al., 1999, p. 242). For reliability, Cronbach alpha coefficients for the scale have ranged between .60 and .66 (Abraham et al., 1999; Boltz, Capezuti, Kim, Fairchild, & Secic, 2009; Boltz et al., 2008a) and an intraclass correlation coefficient of .87 has been reported (Boltz et al., 2009). In the study sample, the scale had an alpha coefficient of .59.

The scale items measure knowledge in preventing, assessing and managing four common geriatric problems related to functional decline and iatrogenesis: restraint use, incontinence, sleep, and pressure ulcers (Boltz et al., 2008b). The 22 items have five response options ranging from strongly agree to strongly disagree. Consistent with the scale developers' instructions, responses to these items were dichotomized to represent correct and incorrect

answers. The total scale score was calculated by taking the mean value of the dichotomized items; mean scale scores can range from 0 to 1, with higher scores reflecting greater knowledge. Scores below .35 are considered “poor,” those between .35 and .65 “neither good nor bad,” and those greater than .65 the “best possible” (Boltz, Taylor, Capezuti, & Fulmer, 2010).

Personal and professional characteristics. To describe the sample, these characteristics included: professional designation (RN vs. RPN), age, sex, level of education in nursing, years of experience in nursing, years worked at primary hospital, additional education in geriatric nursing, certification in gerontological nursing by the Canadian Nurses Association (CNA), and the teaching versus non-teaching status of the nurse's primary hospital.

Analysis. Descriptive statistics were used to characterize the sample in terms of nursing knowledge and personal and professional characteristics. A two-way contingency analysis was conducted to examine whether the scores of RNs and RPNs working in teaching and non-teaching hospitals differed.

If differences based on setting were found, and if the distribution of RNs and RPNs in teaching and non-teaching hospitals were the same, knowledge differences of RNs and RPNs would be determined using *t*-tests. If proportions of RNs and RPNs in teaching and non-teaching hospitals differed, a two-way ANOVA with professional designation, hospital status and their interaction as independent variables would be used. If a significant difference was found, the effect size (ES) would be calculated as the standardized difference in the means of RNs and RPNs on the scale using Cohen's formula, with interpretation of the magnitude of the ESs as <.20 (no difference); .20–.49 (small); .50–.79 (medium); and >.80 (large; Grissom & Kim, 2012).

Phase II

Participant selection and sampling. A purposeful criterion-based sample (Patton, 2014) was drawn from the list of nurses who had completed the survey and indicated their willingness to be contacted for a focus group interview. The criteria for inclusion were the same as those in the survey. Willing nurses were stratified based on their professional designation as RNs or RPNs and on the teaching status of the hospital in which they were primarily employed. Focus group interviews were conducted until informational saturation was achieved, which was determined when data became redundant and no new descriptive codes, categories, or themes were being generated (Morse, 1995). Thirteen focus groups were conducted during the winter of 2013.

Nurses were initially invited to participate in a single-stratum focus group interview to maintain within-group homogeneity of respondents and to assist in identifying specific needs, if any, of the stratum. Eight homogenous groups were held face-to-face with four strata: two with

RNs working in teaching hospitals, two with RNs working in non-teaching hospitals, two with RPNs working in teaching hospitals, and two with RPNs working in non-teaching hospitals.

When it was determined that no major differences were evident between strata, the five subsequent focus groups included nurses from all four strata to expedite sampling and recruitment and were conducted by telephone to mitigate logistical and geographic barriers to participation. Three of the five groups were limited to nurses who demonstrated the highest scores on the geriatric nursing knowledge scale, based on the rationale that they could assist in recommending learning strategies by identifying how they had acquired their knowledge. Focus groups had an average of five respondents per group (range three to seven), and telephone focus groups had comparatively fewer respondents, as recommended by Krueger and Casey (2009).

Data collection. Focus groups were guided by previously pilot-tested semi-structured questions and accompanying probes on nurses' geriatrics learning needs and strategies to address the needs. The questions were based on the nursing care processes of a function-focused model of care with established effectiveness in preventing functional decline and iatrogenesis (Fox et al., 2012, 2013). The questions prompted respondents to discuss the knowledge and skill that nurses need to provide function-focused care to older people, and learning strategies to increase nurses' knowledge. Respondents were told that learning strategies could be directed at any level (e.g. level of hospital or nursing profession) they thought was important. Examples of probes included: "What should the content be?" "How should nurses learn this knowledge?" and "Who should provide the education?"

Groups were held during non-work hours and were conducted by a PhD-prepared facilitator with experience in conducting qualitative focus groups in person and by telephone. An assistant was present to help with procedural issues, such as ensuring that recording equipment was working.

In-person focus groups were held in convenient settings, including conference rooms in hospitals, public libraries, and community centers. The focus groups were intended to generate discussion among respondents. Examples of facilitator strategies to maximize group interaction included: encouraging respondents to respond to and build on each other's views and comments; inviting them to reflect on and share stories about specific experiences or incidents; asking if anyone had a similar or different perspective; and reflecting convergent and divergent opinions back to the group. Techniques for managing in-person group dynamics to facilitate contribution by all respondents included: breaking eye contact with or cutting off dominant respondents, and making eye contact with and calling on withdrawn respondents directly.

In telephone focus groups where nonverbal cues could not be recognized, the facilitator carefully responded to verbal cues such as pauses and sighs. For example, when respondents made long pauses, the facilitator repeated the last part of their statement as a question (e.g., "in-services are way too long?"). These interactions resulted in conversation-rich group discussions, lasting between 75 and 140 min. All focus groups were audio-recorded; telephone focus groups were recorded by a tele-conference service provider and by a back-up digital audio device connected to the telephone. Field notes were taken at all focus groups by the facilitator and/or assistant. Recordings were transcribed verbatim by a professional transcriptionist or by the facilitator when funds for professional transcription were depleted. The facilitator proofed the transcripts by listening to the recordings and reading the transcripts concurrently.

Analysis. Analysis began during data collection. Methodological and analytic memos were written to help guide analysis, and to document preliminary ideas about the relationships between concepts, categories, and themes in the data. New data were continuously compared with data from previous interviews. To ensure that informational saturation was not asserted prematurely, all data were given equal analytical consideration, the frequency of themes was not treated as indicative of their salience, and negative cases were carefully scrutinized.

Transcripts were analyzed using thematic analysis, an inductive data analysis process that involved listening and relistening to the recordings, reading and re-reading the transcripts and field notes, and then coding segments of text (Attride-Stirling, 2001), highlighting and assigning labels (codes) to words and phrases to reflect the original comments from the transcripts. A codebook was created to record definitions of all codes.

Using a descriptive approach, we coded for the surface and latent meanings of segments of text. Categories were then developed by grouping similar codes. Through an iterative process that involved interpreting and revisiting categories, these categories were refined into three major themes that structured our findings. Content grouped in these themes was examined for differences based on professional designation (RN vs. RPN) and the status of nurses' primary hospital (teaching vs. non-teaching).

Analytic rigor. Confirmability was achieved by maintaining field notes, memoing, an audit trail of coding decisions, and researcher reflexivity. Credibility was ensured through negative case analysis, peer debriefing, remaining open to all potential themes, and independent analysis of data by both primary researchers. Data reduction and conclusions were supported by extensive verification. When we did not immediately reach consensus on themes, we debated our interpretations until we reached "intersubjective consensus" (Miles, Huberman, & Saldaña, 2013, p. 13). Dependability was assured through in-depth methodological description, and transferability was

optimized by provision of data on participants' personal and professional characteristics to establish the study context (Lincoln & Guba, 1985).

Findings

Survey

The survey response rate was 55%, with a resulting sample of 2005 nurses working in 148 hospitals in Ontario. In addition to characteristics reported in Table 1, the average survey respondent was 45.6 ($SD = 10.8$) years old and had worked at their primary hospitals for 14.5 years ($SD = 10.1$). Most (70.6%) respondents' primary hospitals were non-teaching.

Because the proportion of RNs (63%) and RPNs (90%) working in teaching and non-teaching hospitals differed significantly ($\chi^2 [1, 1,946] = 131.93, p < .001$), we conducted a two-way ANOVA of geriatrics knowledge by professional designation (RN vs. RPN), hospital status (teaching vs. non-teaching) of the nurses' primary hospital, and their interaction. Only professional designation was a weak but significant predictor of nurses' knowledge level ($F [1, 1,935] = 14.37, p < .001$). Although average scores

for both groups were in the "neither good nor bad" range, the RN degree had a small positive effect ($ES = 0.23$) on geriatric nursing knowledge ($M = 0.51, SD = 0.14$) in comparison to RPNs' knowledge scores ($M = 0.47, SD = 0.14$).

Focus Groups

Thirteen focus groups were held with 57 survey respondents working in 18 Ontario hospitals. In addition to characteristics reported in Table 2, the average focus group respondent was 49 years old (range 26–69), had practiced as a nurse for 21 years (range 3–45 years), and had worked at the primary hospital for 12 years (range 1–33 years). Most (63.2%) worked in non-teaching hospitals. None was certified in gerontological nursing.

Three major themes characterized the nurses' views on geriatric nursing knowledge: (a) geriatric nursing is generally regarded as simple and custodial; (b) older people's care is more complex than is generally appreciated; and (c) in the current context, older people's care is best learned experientially and in brief on-site educational sessions.

Geriatric nursing is generally regarded as simple and custodial. Nurses received and internalized latent messages that care of older adults is intellectually uncomplicated. Sources of these messages included education and practice environments. Respondents acknowledged having received minimal geriatrics content in their basic education. They had observed educators using geriatrics settings as training grounds for novice nurses—a place to develop "basic" nursing skills before progressing on to "real patients." The nurses also viewed their peers and leaders as sharing a similar outlook on older people's care as simple and custodial, and they noted a lack of attention given to older people's care in continuing education initiatives. These views and observations were

Table 1. Personal and Professional Characteristics of Survey Respondents ($N = 2005^a$)

Characteristic	<i>n</i>	%
Gender		
Female	1,884	94.9
Male	102	5.1
Professional designation		
RN	1,439	71.9
RPN	561	28.1
Highest level of education in nursing		
RPN Diploma	561	28.1
RN Diploma	985	49.3
Baccalaureate degree	445	22.3
Master's degree	8	0.4
CNA certification in gerontological nursing		
Yes	21	1.1
No	1,970	98.9
Additional geriatrics education		
Yes	514	25.6
No	1,491	74.3
Years of experience in nursing		
Less than 2 years	151	7.7
2–5 years	287	14.7
6–10 years	307	15.7
11–15 years	220	11.3
16–20 years	254	13.0
21–25 years	255	13.1
More than 25 years	480	24.6

Notes. RN, registered nurse; RPN, registered practical nurse.

^aTotals for each variable do not add to 2,005 because missing values were excluded from calculations.

Table 2. Personal and Professional Characteristics of Focus Group Respondents ($N = 57$)

Characteristic	<i>n</i>	%
Gender		
Female	54	94.7
Male	3	5.3
Professional designation		
RN	33	57.8
RPN	24	42.2
Highest level of education in nursing		
RPN diploma	25	43.7
RN diploma	22	38.5
Baccalaureate degree	10	17.5
Master's degree	0	0.0
Additional geriatrics education		
Yes	18	31.5
No	39	68.5

Note. RN, registered nurse; RPN, registered practical nurse.

perceived as perpetuating and reinforcing a lack of appreciation for or attention to nurses' pursuit of additional geriatrics knowledge.

Respondents recommended that attention be devoted to promoting geriatric nursing as a specialty requiring advanced knowledge and skill. They explained how older people's care is: "really seen as not very sophisticated; it's not considered a specialty...if it was highlighted more as a specialization...maybe nurses would go on to get the appropriate training."

Because they see older people in their most vulnerable and dependent states, nurses were thought to view older people through a lens of dependency and forget that most are not confused but live in their own homes and take care of themselves. One respondent reflected that hospital nurses can develop "the thought process that all old people are like this [incontinent] and that it's normal to be incontinent when you're old." Consequently, the need to challenge nurses' ageist stereotypes was identified.

Older people's care is more complex than is generally appreciated. In contrast to messages emphasizing the simplicity of geriatric nursing, nurses reported difficulty in understanding and responding to health conditions complicated by high acuity, high chronicity, and aging processes. Respondents described older people's care as entailing assessment and management of high levels of acuity and chronicity and requiring advanced nursing skill and knowledge. The presentation of health conditions in old age was regarded as a critical aspect of this complexity.

The presentation of geriatric syndromes, often mistakenly attributed to aging processes or chronic illnesses, was seen as the most challenging aspect of complexity. Consequently, assessing geriatric syndromes, and delirium in particular, was identified as a fundamental learning need. Moreover, respondents acknowledged that when nurses fail to recognize geriatric syndromes, they resort to practices that undermine patient functioning, thereby putting them at risk for functional decline and iatrogenic complications. For example, when delirium is not recognized, "then they're [older people] not mobilized, they're sedated or restrained, whatever needs to be done to keep them physically safe as far as falls."

Some respondents admitted that, before having received education on geriatric syndromes, they routinely used dimenhydrinate to help older patients sleep, only to have those patients wake up delirious. Others noted that nurses over-medicate older patients, causing a host of problems, such as confusion and falls. Respondents repeatedly pointed to geriatric syndromes such as delirium, falls, incontinence, and pressure ulcers as nurses' most pressing learning needs and noted that education should focus on non-pharmacological strategies that reduce restraint use and promote comfort and sleep, and how to discern when sedatives are warranted.

Respondents also described the need for knowledge on interactions of common geriatric syndromes and how they can be detected and simultaneously prevented. They recommended that education reinforce the normalcy and "importance of walking" and provide nurses with strategies to address fall risk factors while keeping patients moving.

In the current context, older people's care is best learned experientially and in brief on-site educational sessions. Recognizing increasing fiscal constraints in the healthcare environment, nurses expected that efficiency initiatives that put pressure on nurses to quickly assess, treat, and then discharge an increasingly complex older hospital population would continue. In this context, respondents reflected on three learning strategies, learning in: (a) practice, (b) formal educational sessions, and (c) online.

Learning in practice. Experiential education, at the point of care, was endorsed as the gold standard for enriching nurses' geriatrics knowledge. Respondents emphasized the importance of learning from advanced practice nurses (APNs) with extensive geriatrics knowledge as well as dual patient care and nurse education role responsibilities. Described as "clinical leaders" who are "embedded in practice," APNs were seen as ideally positioned to capitalize on "teachable moments," provide "relevant" education and keep nurses informed about new research in geriatric nursing. APNs who lacked understanding of the clinical context of a particular unit were regarded as less effective in providing relevant educational content. Consequently, a major recommendation was to increase the number of geriatrics APNs with dual patient care and nurse education role responsibilities as part of the care team.

Formal peer mentorship programs were described as providing nurses with "hands-on," "self reflective" learning opportunities. These programs also were lauded for helping experienced nurses solidify their own geriatrics knowledge, gaining valuable insights that improved their practice. The importance of mentorship was highlighted, given the influx of new graduates to replenish the loss of senior nurses, but the time requirements were seen as very demanding. Respondents recommended that experienced nurses mentor new graduates in small groups. Learning together with a few peers was seen to enhance receptivity to guidance from more skilled nurses.

Team members from other professions with geriatrics knowledge played an important role in broadening nurses' knowledge. Nurses suggested that opportunities for inter-professional exchange be cultivated. The value of team rounds as a venue for this exchange was strongly emphasized, but there was the perception that, because of efficiency initiatives, nurses' presence and ultimately their learning at team rounds was threatened. Consequently, respondents recommended that teams work to foster dialog "informally throughout the day."

Formal educational sessions. Formal educational sessions were seen by nurses as essential to remain current in geriatrics knowledge. Several noted that such sessions introduced them to geriatric nursing practices that were not part of their basic education; however, there was a general sentiment that employers should take greater responsibility to enable nurses' acquisition of this knowledge. Respondents resented attending educational sessions on their days off, paying for courses, feeling responsible to find replacements to cover their shifts for educational sessions provided during work hours, or attending sessions knowing that their colleagues would be overwhelmed or that their patients would be inadequately monitored. Moreover, day-long sessions were described as so drawn-out and overloaded with information that attendees retain very little.

To address these barriers, respondents suggested that educators provide multiple on-site "little fifteen-minuters" during work time to give updates on the most important new geriatrics practice initiatives. These types of sessions would allow nurses to focus on learning, secure in knowing their patients are being cared for by nurses who would attend the in-services at other times.

Online learning. Respondents varied in their estimations of the utility of online learning. Some lauded its flexibility in helping them learn on their own schedules. Others described how their workplaces had online learning modules for geriatric nursing care, but, because of patient care priorities during work hours and hospital restrictions around remote access during non-work hours, nurses could not access them. Many stated that, if available, they would access online learning from home but felt that, on its own, online learning is a poor substitute for experiential learning. When it comes to mastering the complexities of geriatrics, respondents noted that with online learning "you can't get as in-depth...totally online educational services, it'd probably be missing a fair bit." Consequently, respondents recommended that online learning materials supplement other forms of learning about geriatrics rather than replace them.

Discussion

This was the first known multi-method study of a random sample of Canadian acute care RNs and RPNs in which a survey was used to identify the level of geriatrics knowledge and follow-up focus groups were conducted to confirm and expand on the survey findings. Very few RNs and RPNs in Ontario had pursued additional geriatrics education or certification in gerontological nursing, and they lacked knowledge in the care of four common geriatric problems (restraint use, incontinence, sleep, and pressure ulcers) associated with iatrogenesis and functional decline.

These findings are congruent with reports that less than 1% of nurses in the United States are certified in

gerontological nursing (Robert Wood Johnson Foundation, 2012), and that acute care nurses in many regions of the world lack geriatrics knowledge, manifested by an average score of "neither good nor bad" on the geriatric nursing knowledge scale (Boltz et al., 2008b; de Almeida Tavares et al., 2014; Wagner et al., 2013), equivalent to a "C" on the assessment and management of deconditioning (Gillis et al., 2008, p. 550); an average score of 52% on geriatric nursing theory, skill, health issues, and care (Yoo, 2013); and of 46–65% on tests of delirium and related risk factors (Hare et al., 2008). The random sample of acute care RNs and RPNs was representative of the target population of Ontario nurses on demographic variables (Canadian Nurses Association [CNA], 2013; CNO, 2014a; Ontario Ministry of Health and Long-Term Care, 2014), providing greater generalizability than previous findings based on non-probability samples.

Although teaching and non-teaching hospital nursing staff's scores did not differ, RPNs demonstrated lower geriatrics knowledge than RNs. In Ontario, RPNs can only care for complex, unstable patients when RNs are available for consultation (CNO, 2014a). Because the act of consulting requires that RPNs first recognize changes in patient health status, we recommend that RPN educational initiatives have a strong focus on patient assessment.

Focus group interviews helped confirm survey findings on the need for knowledge of geriatric syndromes and shed light on additional learning needs, such as non-pharmacological approaches to promote sleep, that were not assessed on the survey. Focus group participants articulated no differences in the learning needs of RNs and RPNs but highlighted challenges both types of nurses experienced in recognizing and differentiating geriatric syndromes from aging processes and chronic diseases. These challenges are not surprising, given that geriatric syndromes involve multiple organ systems and have signs and symptoms that do not seem related to their origin, such as sudden impairment of thinking related to urinary tract infection (Inouye, Studenski, Tinetti, & Kuchel, 2007). Given that knowledge of geriatric syndromes is a standard of practice in the Canadian Gerontological Nursing Association ([CGNA], 2010) and a baccalaureate competency recommended by the American Association of Colleges of Nursing (2010), we advise educators to provide nurses with education on the assessment, prevention, and management of geriatric syndromes, as well as their differentiation from aging processes and chronic diseases.

Focus group participants reported that nurses without knowledge of geriatrics base their practice on ageist attitudes, informed by a dominant view of older people as dependent, confused, or incontinent. Acute care nurses are particularly susceptible to internalizing ageist attitudes because they are exposed to older people who are most frail and vulnerable during periods of acute illness and injury (Liu, Norman, & While, 2013). Beliefs in the lack of complexity of geriatric nursing can reinforce nurses' lack of

interest in developing geriatrics knowledge and competencies. Although nurses recognized their need for additional knowledge, they believed that acquiring more knowledge would merely advance their ability to perform work that is accorded little respect or value. This outlook appeared to originate in their basic education, in which older people's care was depicted as simple and custodial, and continued into professional practice. Nurses' experiences of the complexity of providing care to older people were contrary to their earlier training in which it was depicted as simple and of little importance.

This paradox has profound implications for basic and continuing education. We recommend raising nurses' critical awareness and challenging the often-unrecognized assumptions about the simplicity of geriatric nursing by embedding positive conceptions of older people into all levels of nursing curricula, from basic to continuing education. We also suggest that hospital-wide initiatives promoting value and respect for geriatric nursing be implemented in tandem with continuing educational initiatives.

Learning in practice at the point of care through face-to-face interactions, rather than learning independently through textual and documentary sources, was nurses' preferred and perceived most effective learning strategy. This finding concurs with those of other researchers (O'Leary & Siobhán, 2012; Spenceley, O'Leary, Chizawskyb, Ross, & Estabrooks, 2008). Although further research is needed, the experiential, personal, and role modeling dimensions of learning in practice may be the best mechanisms to convey a genuine respect for the complexity of geriatric nursing and enhance receptivity to the knowledge.

APNs were highlighted as key to nurses' learning. While the value of APNs to nurses' learning has been supported (Hutchinson, East, Stasa, & Jackson, 2014), our participants specified that an APN who was not embedded in the practice environment of a particular unit and lacked understanding of the clinical context would be an ineffective educator. We recommend that APNs with dual role responsibilities be situated within the local practice context, as part of the care team, in contrast to recommendations that APNs serve as consultant educators floating between units and hospitals (Currey, Considine, & Khaw, 2011).

We found that efficiency initiatives can threaten nurses' learning when their workload prevents them from attending inter-professional team rounds. Efficiency initiatives aim to maximize throughput while minimizing resource use (Nayar, Ozcan, Yu, & Nguyen, 2012); because of escalating healthcare costs, they are widespread throughout Canada and other parts of the world (CIHI, 2014; Joumard, André, & Nicq, 2010). An unintended consequence of efficiency initiatives may be the impairment of nurses' ability to prevent patient complications, ultimately decreasing throughput and increasing resource use.

While formal educational sessions were viewed as enhancing learning about geriatrics, several barriers prevented nurses from accessing them, as reported by

others in other parts of the world (Ni et al., 2014; Yfantis, Tiniakou, & Yfanti, 2010). Participants resented spending their own time and money on continuing education. Unlike in several states in the United States and China (Ni et al., 2014) and the United Kingdom (Global Knowledge Exchange Network, 2009), Ontario nurses are not required to attend formal continuing education to maintain licensure but can maintain licensure through a variety of learning opportunities (CNO, 2014a). Consequently, respondents may have lacked the intrinsic motivation to attend formal sessions on their own time, at their own cost. Educators and hospital administrators may need to consider this barrier when exploring how to help nurses acquire knowledge needed to care for an aging and increasingly complex hospital population. Offering short educational sessions on-site with several opportunities to attend and ensuring that nurses' work responsibilities are covered will remove some barriers to attendance and learning.

Last, while lauded as an efficient mode of instruction (Cook, Levinson, & Garside, 2010), online learning was least preferred. Reports of nurses' appraisals of online learning are mixed, with positive perceptions of convenience (Karaman, 2011) and negative perceptions of insufficient computer access and dedicated learning time (Schmitt, Titler, Herr, & Ardery, 2003). Still others have found no overall difference between online and traditional modes of learning (Lahti, Hätonen, & Välimäki, 2014). Our findings suggest that online learning does not convey the full complexity of geriatric nursing and should be used judiciously to supplement and enrich learning in practice.

Limitations

The geriatric nursing knowledge scale had low internal consistency reliability. Knowledge scales can generate low reliability estimates when the majority of respondents have a low level of knowledge (Lipsey, 1990). Nonetheless, this low reliability may have decreased our ability to detect the actual magnitude of group differences between teaching and non-teaching hospitals and between RNs and RPNs. The scale was limited to four geriatrics content areas related to functional decline and iatrogenesis, and did not cover other knowledge areas, such as self-care and cognition, that are integral to nurses' ability to prevent functional decline and iatrogenesis (CGNA, 2010). Although the focus group interviews revealed that nurses have needs in other areas, it is possible that our approach may have directed focus group respondents to concentrate on learning needs identified by the survey. We did not explore nurses' perspectives on critical thinking processes in addressing the complexity of needs of older patients in acute care hospitals. Last, it is possible that the focus group finding of a lack of value placed on geriatric nursing in nursing education did not reflect views of more recent graduates of

nursing programs with more robust geriatrics content (Hirst et al., 2012).

Conclusions

RNs and RPNs in Ontario lacked adequate geriatric nursing knowledge. Nurses had received and internalized messages that devalued older people's care, although they viewed the care as complex. The confusing presentation of geriatric syndromes was a critical aspect of complexity. Identifying and differentiating geriatric syndromes from aging processes and chronic diseases were pressing learning needs.

Educational initiatives focused on assessing and differentiating geriatric syndromes from aging processes and chronic diseases, in tandem with initiatives to challenge stereotypes of the simplicity of geriatric nursing, are needed to enhance nurses' knowledge of geriatrics. Learning in practice from others, at the point of care, was nurses' most preferred way to acquire this knowledge. Healthcare service providers, policy-makers, and educators can use the findings to address the continuing education needs of nurses caring for older patients.

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